
REPORTS FOR STATES

ALABAMA.

Alabama, which ranks twenty-eighth among the states in size (land area 51,279 square miles) and eighteenth in population (2,348,174 in 1920), ranked thirteenth in value of mineral products for the year 1919. The state ranked seventh in the total number of persons engaged in mining industries and in the average number of wage earners employed.

The total value of products of all mines and quarries in Alabama in 1919 was \$59,866,040, an increase of 145.8 per cent over the gross value reported at the census of 1909. The increases in wages, cost of supplies and materials, fuel and power, and in the value of products, as shown in Table 1, are largely due to general price increases and are not a measure of the growth of mining in Alabama during the census period 1909-1919. The progress of the industry is better indicated by the increases in the number of enterprises and mines and quarries and in the average number of wage earners employed.

The industries reported for 1919, ranked according to value of products, were the mining or quarrying of bituminous coal, iron ore, limestone, marble, graphite, pyrite, clay, sandstone, bauxite, barytes, mica, and mineral pigments. In addition to producing the materials indicated by the industry designation, three coal enterprises produced clay as a by-product and one clay mine produced coal. The mining industries which can be shown without disclosure of individual operations are ranked by value of products in Table 2.

The leading mining industry, coal, reported products valued at \$45,359,441, which was 75.8 per cent of the total value of the mineral products of the state. This amount gave Alabama seventh rank as a coal-producing state. The coal-mining district, which centers around Birmingham and extends over parts of 14 counties (11 of which were producing in 1919), is part of the Southern Appalachian Coal Field and produces a number of kinds of bituminous coal suitable for all industrial and domestic uses.

The iron-mining industry, second in importance, is also centered in the Birmingham district, 8 counties reporting products to the value of \$12,291,760. In 1919 Alabama was third in the production of iron ore, Minnesota ranking first and Michigan second.

Graphite to the value of \$337,425 was produced in

Clay and Coosa Counties. Alabama was exceeded only by New York in the production of graphite.

The quarrying industries in the state produced stone valued in excess of one and one-half million dollars, which was used chiefly for metallurgical flux.

The preponderance of corporate organization is clearly brought out by Table 3. Corporations conducted 89.8 per cent of all the mining enterprises in the state in 1919, reported 97.2 per cent of the average number of wage earners, and 97.6 per cent of the total value of products. The importance of corporate organization is shown also for each of the principal industries.

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, 70.5 per cent had no wage earners or fewer than 101 and the wage earners employed were 18.3 per cent of the total number of wage earners. Enterprises employing more than 100 wage earners constituted 29.6 per cent of the total number of enterprises and employed 81.8 per cent of the total number of wage earners. Table 4 also shows that in the leading industries a relatively small number of the large enterprises, 31.4 per cent in the coal industry and 38.5 per cent in the iron-ore industry, employed, respectively, 82.5 per cent and 86.7 per cent of the total number of wage earners in these industries.

Table 5 shows that in a majority of the enterprises and for two-thirds of the wage earners in all the mining industries in the state in 1919 the hours of labor were 44 to 53 per week, or that the 8-hour day prevailed. This was the condition in coal mining, which was the principal industry. In the other leading industries, however, the prevailing hours of labor were largely from 54 to 62 hours per week or 9 hours per day.

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 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 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.

MINES AND QUARRIES—ALABAMA.

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	264	177	49.2	Capital.....	\$84,167,016	\$85,081,804	-1.1
Number of mines and quarries.....	348	302	15.2	Principal expenses:			
Persons engaged.....	34,632	30,119	15.0	Salaries.....	3,934,834	1,678,353	134.4
Proprietors and firm members, total.....	41	76	.....	Wages.....	36,229,723	14,257,709	154.1
Number performing manual labor in or about the mines and quarries.....	6	11	.....	Contract work.....	167,970	767,385	-78.2
Salaried employees.....	2,012	1,772	13.5	Supplies and materials.....	7,480,910	2,620,390	185.5
Wage earners (average number).....	32,679	28,271	15.2	Fuel and power.....	3,080,283	1,048,824	193.7
Power used (horsepower).....	145,775	91,924	58.6	Royalties and rents.....	838,101	333,828	151.1
				Taxes.....	1,699,630	185,360	817.0
				Value of products.....	59,866,040	24,350,667	145.8

¹ A minus sign (-) denotes decrease. Percentages are omitted where base is less than 100.
² Includes cost of coal 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.....	264	32,579	100.0	\$59,866,040	100.0	Limestone.....	15	835	2.6	\$1,340,961	2.2
Coal, bituminous.....	188	24,648	75.7	45,359,441	75.8	Graphite.....	9	166	0.5	337,425	0.6
Iron ore.....	39	6,485	19.9	12,291,760	20.5	All other industries ¹	13	445	1.4	536,453	0.9

¹ Includes enterprises in industries as follows: Barytes, 1; bauxite, 1; clay, 4; marble, 2; mica, 1; mineral pigments, 1; pyrite, 1; sandstone, 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.....	264	32,579	\$59,866,040	\$226,765	100.0	100.0	100.0
Corporation.....	237	31,679	58,448,772	246,619	89.8	97.2	97.6
Individual ¹	18	324	500,568	27,809	6.8	1.0	0.8
Firm.....	9	576	916,702	101,856	3.4	1.8	1.5
COAL, BITUMINOUS.....	188	24,648	45,359,441	241,274	100.0	100.0	100.0
Corporation.....	168	23,786	43,997,017	261,887	89.4	96.5	97.0
Individual ¹	12	289	448,389	37,366	6.4	1.2	1.0
Firm.....	8	573	914,035	114,264	4.3	2.3	2.0
IRON ORE.....	39	6,485	12,291,760	315,173	100.0	100.0	100.0
Corporation ²	39	6,485	12,291,760	315,173	100.0	100.0	100.0
LIMESTONE.....	15	835	1,340,961	89,397	100.0	100.0	100.0
Corporation.....	12	814	1,316,990	109,749	80.0	97.5	98.2
Individual.....	3	21	23,971	7,990	20.0	2.5	1.8
GRAPHITE.....	9	166	337,425	37,492	100.0	100.0	100.0
Corporation.....	9	166	337,425	37,492	100.0	100.0	100.0

¹ Includes 1 other form of organization.

² Includes 2 individuals.

MINES AND QUARRIES—ALABAMA.

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	264	100.0	32,579	100.0	IRON ORE	39	100.0	6,485	100.0
No wage earners.....	1	0.4	.....	.....	No wage earners.....	1	2.6	.....	(1)
1 to 5.....	30	11.4	99	0.3	1 to 5.....	1	2.6	2	1.2
6 to 20.....	51	19.3	650	2.0	6 to 20.....	7	17.9	70	5.0
21 to 50.....	61	23.1	2,080	6.4	21 to 50.....	9	23.1	325	7.1
51 to 100.....	43	16.3	3,113	9.6	51 to 100.....	6	15.4	462	7.1
101 to 500.....	66	25.0	14,626	44.9	101 to 500.....	12	30.8	1,953	30.1
501 to 1,000.....	7	2.7	4,648	14.3	501 to 1,000.....	2	5.1	1,132	17.5
Over 1,000.....	5	1.9	7,368	22.6	Over 1,000.....	1	2.6	2,535	39.1
COAL, BITUMINOUS	188	100.0	24,648	100.0	LIMESTONE.....	15	100.0	835	100.0
1 to 5.....	18	9.6	63	0.3	1 to 5.....	3	20.0	8	1.0
6 to 20.....	36	19.1	478	1.9	6 to 20.....	2	13.3	30	4.3
21 to 50.....	42	22.3	1,407	5.7	21 to 50.....	6	40.0	207	24.8
51 to 100.....	33	17.6	2,383	9.7	51 to 100.....	1	6.7	52	6.2
101 to 500.....	50	26.6	11,978	48.6	101 to 500.....	3	20.0	332	39.7
501 to 1,000.....	5	2.7	3,513	14.3	GRAPHITE.....	9	100.0	166	100.0
Over 1,000.....	4	2.1	4,328	19.6	1 to 5.....	3	33.3	10	6.0
					6 to 20.....	3	33.3	36	21.7
					21 to 50.....	2	22.2	68	41.0
					51 to 100.....	1	11.1	52	31.3

¹ Less than one-tenth of 1 per cent.

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.....	1,263	32,579	11	201	54	3,969	142	21,722	54	6,619	1	23	1	45
Coal, bituminous.....	188	24,648	9	185	52	3,765	122	20,045	5	653	.....	.....	.....	.....
Iron ore.....	38	6,485	.....	.....	2	204	11	1,274	25	5,007	.....	.....	.....	.....
Limestone.....	15	835	.....	.....	.....	.....	7	267	8	408	.....	.....	.....	.....
Graphite.....	9	166	1	14	.....	.....	.....	.....	6	84	1	23	1	45
All other industries.....	13	445	1	2	.....	.....	2	36	10	407	.....	.....	.....	.....

¹ Exclusive of 1 iron ore-mining enterprise 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.	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.....	32,579	34,594	34,682	34,252	32,719	31,117	31,042	31,751	32,521	32,936	33,747	<i>33,731</i>	32,806	83.0
Coal, bituminous.....	24,648	25,762	25,784	25,805	25,558	24,398	24,442	24,612	24,445	24,548	25,402	<i>20,208</i>	24,722	78.7
Iron ore.....	6,485	7,450	7,423	7,034	5,641	5,261	<i>5,213</i>	5,827	6,025	6,798	6,873	<i>7,028</i>	6,647	70.0
Limestone.....	835	808	893	832	853	798	744	780	845	904	861	<i>874</i>	878	80.8
Graphite.....	166	160	163	150	225	218	206	115	129	193	144	<i>159</i>	130	51.1
All other industries.....	445	<i>414</i>	419	431	442	442	437	467	477	493	467	<i>422</i>	429	84.0

MINES AND QUARRIES—ALABAMA.

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

	PRODUCING ENTERPRISES.					
	Total.	Coal, bituminous.	Iron ore.	Limestone.	Graphite.	All other. ¹
Number of enterprises.....	264	188	89	15	9	13
Number of mines and quarries.....	348	260	48	15	12	13
Capital.....	\$34,187,016	\$62,728,860	\$17,349,604	\$1,039,505	\$1,808,674	\$1,240,378
Principal expenses:						
Salaries and wages—						
Officers.....	\$873,220	\$776,452	\$45,891	\$18,024	\$17,350	\$15,503
Superintendents and managers.....	\$1,293,620	\$972,740	\$207,990	\$61,156	\$27,296	\$25,038
Technical employees.....	\$421,499	\$298,112	\$111,147	\$3,960	\$9,460	\$3,820
Clerks, etc.....	\$1,340,495	\$918,371	\$371,540	\$34,797	\$7,921	\$13,866
Wage earners.....	\$36,229,723	\$28,327,420	\$6,810,301	\$663,914	\$168,289	\$269,799
Supplies and materials.....	\$7,480,910	\$5,420,177	\$1,598,074	\$305,537	\$91,414	\$68,708
Fuel.....	\$2,431,350	\$1,456,184	\$396,963	\$94,479	\$10,749	\$22,075
Power.....	\$648,983	\$472,190	\$106,629	\$17,532	\$35,534	\$18,043
Royalties and rents.....	\$938,101	\$684,997	\$144,631	\$5,058	\$108	\$3,307
Taxes.....	\$1,699,680	\$1,252,773	\$409,293	\$8,334	\$19,990	\$9,240
Contract work.....	\$167,070	\$88,373	\$74,498	\$2,841	\$1,200	\$158
Expenditures for development (included in the above items).....	\$897,964	\$464,608	\$359,208	\$26,239	\$38,767	\$9,142
Value of products.....	\$59,866,040	\$45,350,441	\$12,291,760	\$1,340,961	\$337,425	\$536,453
Persons engaged in industry.....	34,632	20,162	6,877	901	208	484
Proprietors and firm members (total).....	41	33	2	3	1	3
Number performing manual labor.....	6	4	1	1	1	1
Salaried officers.....	248	219	8	6	4	11
Superintendents and managers.....	482	390	69	27	14	12
Technical employees.....	218	177	61	1	7	2
Clerks, etc.....	1,064	725	232	29	17	11
Wage earners (average number).....	32,579	24,648	6,485	835	166	445
Wage earners by occupation (Dec. 15):						
Above ground (total).....	9,862	6,104	2,320	793	297	348
Below ground (total).....	24,922	20,051	4,641	117	.....	113
Foremen, shift bosses, etc.—						
Above ground.....	387	265	69	24	15	14
Below ground.....	543	400	139	2	.....	2
Engineers, hoistmen, electricians, mechanics, etc.—						
Above ground.....	2,793	1,912	683	136	21	41
Below ground.....	1,058	909	114	33	.....	2
Miners, quarrymen, and drillmen, including their helpers—						
Above ground.....	887	402	136	166	49	134
Below ground.....	13,859	12,144	1,642	33	.....	39
Timbermen, trackmen, and men engaged in hauling, tramping, etc.—						
Above ground.....	1,332	919	266	171	25	11
Below ground.....	4,712	3,714	952	26	.....	20
Muckers, loaders, laborers, and others not classified—						
Above ground.....	2,905	1,545	950	291	88	31
Below ground.....	4,761	2,384	1,794	23	.....	50
Wage earners employed in mills and beneficiating plants—						
Above ground.....	1,558	1,061	276	5	99	117
Number of females included in wage earners reported above—						
Above ground.....	6	5	.....	.....	1	.....
Mineral land operated..... acres	728,606	653,793	65,208	4,171	3,410	2,224
Land controlled total..... acres	832,193	701,760	117,625	4,668	3,416	4,728
Mineral land owned.....	636,308	533,894	64,631	3,991	3,410	442
Mineral land leased.....	93,278	90,739	577	180	.....	1,782
Timber and other lands owned and leased.....	102,552	47,127	52,418	497	6	2,504
Power used: Aggregate horsepower.....	145,775	97,039	36,890	5,457	4,005	2,384
Prime movers (horsepower, total).....	92,657	59,017	28,720	3,930	210	780
Steam engines—						
Number.....	736	415	251	48	3	19
Horsepower.....	90,097	56,802	28,690	3,630	200	775
Steam turbines—						
Number.....	6	4	.....	2	.....	.....
Horsepower.....	1,667	1,367	.....	300	.....	.....
Internal-combustion engines—						
Number.....	34	30	1	.....	1	2
Horsepower.....	819	774	30	.....	10	5
Water wheels and turbines—						
Number.....	9	9	.....	.....	.....	.....
Horsepower.....	74	74	.....	.....	.....	.....
Purchased power (horsepower, total).....	53,118	38,022	8,170	1,527	3,795	1,604
Electric motors operated by purchased current—						
Number.....	1,147	868	105	28	91	57
Horsepower.....	53,118	38,022	8,170	1,527	3,795	1,604
Electric motors run by current generated by enterprise using:						
Number.....	701	671	26	4	.....	.....
Horsepower.....	30,085	25,311	4,614	160	.....	.....
Fuel used:						
Coal, bituminous..... tons, 2,000 pounds.....	761,288	509,815	217,293	28,640	1,684	3,866
Coke..... tons, 2,000 pounds.....	31,723	14,254	17,072	397	.....	.....
Wood..... cords.....	1,965	.....	.....	30	685	1,250
Fuel oils..... barrels.....	410	360	50	.....	.....	.....
Gasoline and other volatile oils..... barrels.....	1,003	780	.....	.....	146	77

¹Includes enterprises as follows: Barytes, 1; bauxite, 1; clay, 4; marble, 2; mica, 1; mineral pigments, 1; pyrite, 1; sandstone, 2.

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,

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

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

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.....	\$116,626,441	\$33,100,004
Number of mines and quarries.....	367	(1)	Expenses (selected items):		
Number of petroleum wells.....	8	(1)	Salaries.....	533,076	310,040
Persons engaged in industries.....	3,237	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.....	189	173	Royalties and rents.....	314,036	1,526,405
Wage earners (average number).....	2,475	3,400	Taxes.....	307,390	6,855
Wage earners, Sept. 15.....	3,379	5,955	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.		PER CENT DISTRIBUTION.		
			Total.	Per enterprise.	Enterprises.	Wage earners.	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	3,555,489	12,046	100.0	100.0	100.0
Corporation.....	16	298	1,292,264	80,766	5.4	25.1	36.2
Individual.....	117	284	539,267	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 LOE MINEs.....	32	1,929	11,516,565	359,893	100.0	100.0	100.0
Corporation.....	16	1,821	11,329,066	708,067	50.0	94.4	98.4
Firm ³	16	108	187,499	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.				PLACER GOLD.				COPPER, GOLD, AND OTHER LOE MINEs.			
	Enterprises.		Wage earners.		Enterprises.		Wage earners.		Enterprises.		Wage earners.	
	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	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	60	20.3	632	53.3	4	12.5	47	2.4
21 to 50.....	19	5.5	529	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

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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	1,423	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	887	789	210	77	75	8.3
Gold dredges.....	95	17	19	27	92	115	146	159	182	196	123	55	12	6.1
Tin placers.....	16						16	40	49	49	32			32.7
Coal.....	143	163	167	169	130	128	157	133	143	140	118	130	133	69.8
All other industries ¹	71	<i>43</i>	47	56	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	\$106,612,540	\$5,997,427	\$2,736,984	\$276,683	\$189,796	\$513,011
Principal expenses:							
Salaries and wages—							
Officers.....	\$134,651	\$73,450	\$33,183	\$25,400		\$200	\$5,418
Superintendents and managers.....	\$241,497	\$150,055	\$46,710	\$24,215	\$5,100	\$9,000	\$12,417
Clerks and others.....	\$166,928	\$127,709	\$13,112	\$4,167	\$8,712		\$3,228
Wage earners.....	\$5,010,611	\$3,547,471	\$825,066	\$266,239	\$250,200	\$28,131	\$103,504
Supplies and materials.....	\$2,789,765	\$2,105,602	\$461,513	\$103,317	\$69,585	\$16,246	\$31,487
Fuel and power.....	\$1,080,348	\$765,661	\$163,338	\$111,452	\$13,086	\$4,707	\$32,104
Royalties and rents.....	\$314,066	\$53,305	\$176,335	\$69,179	\$70	\$16,777	\$400
Taxes.....	\$307,390	\$286,695	\$14,378	\$3,446	\$132	\$551	\$2,188
Contract work.....	\$467,774	\$453,474	\$300		\$4,000		
Expenditures for development (included in above).....	\$1,202,363	\$950,074	\$113,101	\$31,097	\$97,091	\$2,000	
Value of products.....	\$15,634,801	\$11,510,565	\$2,735,047	\$830,442	\$333,912	\$72,498	\$146,337
Persons engaged in industry.....	3,267	1,887	975	134	164	22	85
Proprietors and officials.....	702	96	599	56	15	0	10
Proprietors and firm members, total.....	593	42	515	20	12	2	2
Number performing manual labor.....	505	30	452	11	10	2	2
Salaried officers of corporations.....	31	12	8	7	2	2	6
Superintendents and managers.....	78	42	16	9	3	6	4
Clerks and other salaried employees.....	90	68	9	3	6	6	7
Wage earners (average number).....	2,475	1,723	427	95	149	16	71
Wage earners, total number Sept. 15, or nearest representative day.....	3,379	1,923	980	196	163	49	53
Above ground.....	2,242	1,036	781	196	57	49	53
Below ground.....	1,137	883	199		106		
Women (included above).....	42	1	36	5			
Mineral and oil lands operated..... acres.....	46,551	13,027	23,032	3,450	2,050	2,250	1,812
Land controlled, total..... acres.....	46,766	13,122	24,052	3,450	2,050	2,250	1,842
Mineral and oil land owned.....	38,376	12,132	20,167	2,615	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	10,992	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	2,088	16	3,270
Wood..... cords.....	24,812	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.

ARIZONA.

Arizona, which ranks fifth among the states in size (land area 113,810 square miles) and forty-sixth in population (334,162 in 1920), ranked twelfth in value of mineral products for 1919. The state ranked sixteenth in the total number of persons engaged in the mining industries and in the average number of wage earners employed.

The gross amount received for products by the operators of all mines and quarries in Arizona in 1919 was \$88,478,111, which includes a duplication of \$1,528,056, representing the value of copper ores sold by some producers and resold or used after treatment by others. Thus, the net value of products was \$86,950,055, which was an increase of 164.7 per cent over the corresponding figures, \$32,847,260, for 1909. The amount given as value of products includes \$752,152, which was received for mineral by-products, for custom milling, power sold, and miscellaneous services performed for other enterprises. The value of products reported for the precious and base metal mining industries in 1919 includes the net amounts received for ore concentrates, cement copper, and bullion, by mine and mill operators, or the estimated equivalent of sales value when the products were further treated and not sold, and does not represent the value of the metals produced or recoverable from these materials by smelting and refining. The preceding census of mines and quarries included statistics on smelters operated in connection with copper mines in Arizona and, therefore, the value of products and also other items relating to the copper industry in this state, reported for 1919 and 1909, are not entirely comparable.

The progress of mining in Arizona, during the census period 1909-1919, is shown in Table 1. It is better gauged by increases in number of enterprises, persons engaged in the industries, and average number of wage earners than by the large increases in the principal expenses and in the value of products which are largely due to general price increases.

The mining industries reported for 1919, ranked according to value of products, were those engaged in producing copper ores, gold and silver ores, asbestos, limestone, granite, lead and zinc ores, sandstone, gypsum, manganese ore, and gold from placer mines.

Mineral by-products were reported as follows: Manganese ore from a silver mine, silica from a limestone quarry, and rare metals (tungsten) from a copper mine.

The mining industries for which statistics can be shown without disclosure of individual operations are

ranked by value of products in Table 2, which also shows that in the less important industries different rank is determined by the per cent distribution of the average number of wage earners in each industry.

Copper is the leading mining industry in Arizona and in 1919, with a net value of products amounting to \$82,689,085, it represented 95.1 per cent of the net value of all mineral products in the state. Furthermore, Arizona ranks first among the states in the production of copper. The only other mineral industry of importance was gold and silver mining (lode mines) for which products valued at \$3,523,447 were reported. The metalliferous mines are widely distributed throughout the state, but were most important in 1919 in 12 districts, in Cochise, Gila, Greenlee, Pima, Pinal, and Yavapai Counties.

In addition to the operations of the producing mines and quarries, considerable work was done in Arizona on properties which were not productive during the year. Of these there were reported 95 enterprises engaged in developing 96 metalliferous lode mines, 1 of them a molybdenum mine, and the remainder copper, gold, silver, lead, or zinc mines. These enterprises, with a combined capital of over thirty million dollars, employed 798 wage earners and expended \$3,078,718 for development during the year, these figures representing approximately 5 per cent of the aggregate number of wage earners and of the aggregate expenditures reported for all mining operations of the state.

The extent of control of mining enterprises by corporate organizations is brought out by Table 3. Corporations conducted 63.2 per cent of all the mining enterprises in the state in 1919, employed 97.9 per cent of the average number of wage earners, and reported 99.3 per cent of the total value of products.

The relatively large number of small enterprises, as determined by the average number of wage earners employed, is shown in Table 4. Of the total number of mining enterprises in Arizona, 10.3 per cent had no wage earners and 74.1 per cent had fewer than 101 wage earners each, and these enterprises employed only 8.8 per cent of the total number of wage earners. On the other hand, enterprises employing more than 100 wage earners constituted only 15.5 per cent of the total number of enterprises, but employed 91.3 per cent of the total number of wage earners. The copper-mining industry included 87.5 per cent of these larger enterprises.

Table 5 shows that in more than half the mining enterprises employing wage earners the prevailing

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hours of labor per week were 54 to 62, and in practically all the other enterprises 44 to 53. The 8-hour day prevailed generally, and the normal hours of labor per week were 56 in a majority of the mines and 48 in most of the remainder.

The statistics for wage earners in Table 6, showing the changes in employment month by month, reflect

conditions prevailing during the census year. The minima shown are probably abnormal, because of adverse metal market conditions and minor labor difficulties in some mining districts.

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.....	155	135	14.8	Capital.....	\$402,419,671	\$119,772,781	236.0
Number of mines and quarries.....	172	251	-31.5	Principal expenses:			
Persons engaged.....	16,831	13,491	24.8	Salaries.....	3,759,329	1,018,180	269.2
Proprietors and firm members, total.....	105	100	5.0	Wages.....	20,193,312	13,502,760	94.0
Number performing manual labor in or about the mines and quarries.....	68	61	103.7	Contract work.....	746,783	233,682	212.5
Salaried employees.....	1,453	553	18.9	Supplies and materials ²	16,160,891	6,929,758	133.2
Wage earners (average number).....	15,268	12,838	18.9	Fuel and power.....	5,377,525	5,603,989	-4.0
Power used (horsepower).....	166,091	47,272	251.4	Royalties and rents.....	438,926	3,256	.....
				Taxes.....	7,752,425	431,829	.....
				Value of products.....	88,478,111	34,217,651	158.6

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

² Includes cost of ore 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.....	155	15,268	100.0	\$88,478,111	100.0	Limestone.....	4	45	0.3	\$153,211	0.2
Copper.....	75	14,237	93.2	84,217,141	95.2	Granite.....	3	58	0.4	128,777	0.1
Gold and silver, lode mines.....	51	642	4.2	3,523,447	4.0	Lead and zinc.....	15	101	0.7	127,843	0.1
						All other industries ¹	7	185	1.2	327,692	0.4

¹ Includes enterprises in industries as follows: Asbestos, 2; gold, placer mines, 1; gypsum, 1; manganese, 1; sandstone, 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.....	155	15,268	\$88,478,111	\$570,827	100.0	100.0	100.0
Corporation.....	98	14,946	87,877,574	896,710	63.2	97.9	99.3
Individual.....	26	213	355,317	13,606	16.8	1.4	0.4
Firm ¹	31	109	245,220	7,910	20.0	0.7	0.3
COPPER.....	75	14,237	84,217,141	1,122,895	100.0	100.0	100.0
Corporation.....	54	14,077	83,907,006	1,553,833	72.0	98.9	99.6
Individual.....	10	123	240,396	24,040	13.3	0.9	0.3
Firm ¹	11	37	69,739	6,340	14.7	0.3	0.1
GOLD AND SILVER, LODGE MINES.....	51	642	3,523,447	69,087	100.0	100.0	100.0
Corporation.....	26	595	3,395,007	130,577	51.0	92.7	96.4
Individual.....	9	21	15,113	1,879	17.6	3.3	0.4
Firm.....	16	26	113,327	7,089	31.4	4.0	3.2
LEAD AND ZINC.....	15	101	127,843	8,523	100.0	100.0	100.0
Corporation.....	7	61	76,783	10,969	46.7	60.4	60.1
Individual ²	8	40	51,060	6,383	53.3	39.6	39.9

¹ Includes 1 other form of organization.

² Includes 2 firms.

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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.....	155	100.0	15,268	100.0	GOLD AND SILVER, LODE MINES...	51	100.0	642	100.0
No wage earners.....	18	10.3			No wage earners.....	8	15.7		
1 to 5.....	58	38.1	135	0.9	1 to 5.....	23	45.1	40	7.2
6 to 20.....	36	23.2	890	2.6	6 to 20.....	14	27.5	130	21.2
21 to 50.....	21	13.5	649	4.2	21 to 50.....	4	7.8	135	21.0
51 to 100.....	2	1.3	167	1.1	101 to 500.....	2	3.9	325	50.0
101 to 500.....	15	9.7	4,714	30.9					
501 to 1,000.....	5	3.2	3,017	25.7	LEAD AND ZINC.....	15	100.0	101	100.0
Over 1,000.....	4	2.6	5,290	34.7	No wage earners.....	2	13.3		
					1 to 5.....	6	40.0	11	10.9
COPPER.....	75	100.0	14,237	100.0	6 to 20.....	7	46.7	90	89.1
No wage earners.....	4	5.3							
1 to 5.....	23	30.7	62	0.4					
6 to 20.....	12	16.0	122	0.9					
21 to 50.....	13	17.3	388	2.7					
51 to 100.....	2	2.7	187	1.2					
101 to 500.....	12	16.0	4,282	30.1					
501 to 1,000.....	5	6.7	3,017	27.5					
Over 1,000.....	4	5.3	5,290	37.2					

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.	36 to 43.		44 to 53.		54 to 62.		63 to 71.	
			Enter-prises.	Wage earners.	Enter-prises.	Wage earners.	Enter-prises.	Wage earners.	Enter-prises.	Wage earners.
All industries.....	139	15,268	1	107	51	6,981	80	8,178	1	2
Copper.....	71	14,237			32	6,787	39	7,450		
Gold and silver, lode mines.....	43	642			6	27	37	613	1	2
Lead and zinc.....	13	101			6	45	7	56		
All other industries.....	12	288	1	107	8	122	3	59		

¹ Exclusive of 16 enterprises employing no wage earners in industries as follows: Copper, 4; gold and silver, lode mines, 8; lead and zinc, 2; 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 OR NEAREST REPRESENTATIVE DAY.												Per cent minimum is of maximum.
		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
All industries.....	16,066	19,702	16,841	14,073	<i>13,513</i>	14,010	14,159	15,253	16,497	16,964	17,320	17,295	17,100	68.6
Producing enterprises.....	15,268	19,065	16,273	13,358	<i>12,808</i>	13,199	13,280	14,366	15,538	16,036	16,441	16,484	16,318	67.2
Copper.....	14,237	18,079	15,847	12,406	<i>11,340</i>	12,200	12,322	13,337	14,610	14,925	15,243	15,294	15,241	65.5
Gold and silver, lode mines.....	642	607	580	679	581	628	655	710	689	653	739	710	668	78.3
Lead and zinc.....	101	152	111	115	137	98	85	82	86	89	84	90	93	53.0
Granite.....	53	98	96	112	112	80	28	26	26	26	28	28	36	23.2
Limestone.....	45	78	54	51	32	42	30	41	42	47	44	45	28	35.9
All other industries.....	185	51	85	95	116	151	164	170	235	291	303	317	252	16.1
Nonproducing enterprises.....	798	637	568	715	705	811	879	892	909	928	879	811	842	61.2

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

	Aggregate.	PRODUCING ENTERPRISES.							Nonproducing enterprises. ²
		Total.	Copper.	Gold and silver, lode mines.	Limestone.	Granite.	Lead and zinc.	All other. ¹	
Number of enterprises.....	250	155	75	51	4	3	15	7	95
Number of mines and quarries.....	288	172	89	51	4	5	16	7	96
Capital.....	\$432,634,662	\$402,419,671	\$387,759,328	\$12,936,527	\$108,810	\$62,400	\$1,011,764	\$640,842	\$30,214,991
Principal expenses:									
Salaries and wages—									
Officers.....	\$522,596	\$463,263	\$418,654	\$33,159	.....	\$3,000	\$6,950	\$1,500	\$59,333
Superintendents and managers.....	\$1,262,241	\$1,094,179	\$989,648	\$92,452	\$6,000	.....	\$22,091	\$13,988	\$168,062
Technical employees.....	\$923,657	\$908,383	\$881,282	\$21,741	.....	.....	.....	\$5,360	\$15,274
Clerks, etc.....	\$1,324,473	\$1,293,504	\$1,249,707	\$39,791	.....	.....	.....	\$5,318	\$30,969
Wage earners.....	\$27,420,985	\$26,189,312	\$24,856,674	\$984,828	\$41,641	\$75,894	\$114,661	\$120,424	\$1,227,673
Supplies and materials.....	\$15,758,176	\$14,832,335	\$13,454,473	\$1,018,012	.....	.....	.....	\$40,292	\$1,125,341
Cost of ore purchased.....	\$1,528,056	\$1,528,056	\$1,528,056	.....	.....	.....	.....	.....	.....
Fuel.....	\$4,293,533	\$4,132,257	\$4,034,605	\$64,091	\$1,152	\$9,284	\$10,896	\$12,229	\$101,276
Power.....	\$1,340,232	\$1,245,268	\$1,181,670	\$74,888	\$7,310	\$1,900	.....	.....	\$94,964
Royalties and rents.....	\$440,621	\$438,926	\$383,213	\$50,297	.....	.....	.....	.....	\$1,695
Taxes.....	\$7,779,826	\$7,769,425	\$7,568,314	\$175,096	.....	.....	.....	.....	\$27,401
Contract work.....	\$966,603	\$746,783	\$292,123	\$366,813	\$70,357	.....	\$17,490	.....	\$219,820
Expenditures for development (included in the above items).....	\$10,312,108	\$7,233,390	\$6,393,094	\$659,105	\$47,580	.....	\$101,006	\$32,605	\$3,078,718
Value of products.....	\$88,478,111	\$88,478,111	\$84,217,141	\$3,523,447	\$153,211	\$123,777	\$127,843	\$627,692	.....
Persons engaged in industry.....	17,783	16,831	15,634	754	48	61	129	205	955
Proprietors and firm members (total).....	110	105	37	50	1	.....	13	4	2
Number performing manual labor.....	71	68	22	38	.....	.....	.....	.....	3
Salaried officers.....	134	94	76	.....	.....	.....	.....	.....	40
Superintendents and managers.....	304	300	264	21	1	3	3	6	64
Technical employees.....	406	393	383	7	.....	.....	.....	.....	13
Clerks, etc.....	703	671	637	23	.....	.....	.....	.....	32
Wage earners (average number).....	10,066	15,268	14,237	642	45	58	101	185	798
Wage earners by occupation (Dec. 15):									
Above ground (total).....	7,653	7,231	6,702	198	28	82	34	187	422
Below ground (total).....	10,564	9,801	9,028	544	.....	.....	127	102	763
Foremen, shift bosses, etc.—									
Above ground.....	296	261	215	34	2	4	2	4	25
Below ground.....	379	330	297	22	.....	.....	9	2	49
Enginemen, hoistmen, electricians, mechanics, etc.—									
Above ground.....	2,439	2,251	2,158	51	2	10	12	18	188
Below ground.....	582	542	514	27	.....	.....	1	.....	40
Miners, quarrymen, and drillmen, including their helpers—									
Above ground.....	909	880	806	24	16	18	3	13	29
Below ground.....	3,943	3,532	3,151	264	.....	.....	45	72	416
Timbermen, trackmen, and men engaged in hauling, tramming, etc.—									
Above ground.....	258	219	201	8	.....	10	.....	.....	39
Below ground.....	2,603	2,559	2,434	92	.....	.....	25	8	44
Muckers, loaders, laborers, and others not classified—									
Above ground.....	2,234	2,063	1,864	41	8	40	7	133	141
Below ground.....	3,052	2,838	2,632	139	.....	.....	47	20	214
Wage earners employed in mills and beneficiating plants—									
Above ground.....	1,527	1,527	1,458	40	.....	.....	10	19	.....
Number of females included in wage earners reported above—									
Above ground.....	17	8	3	5	.....	.....	.....	.....	9
Mineral land operated.....acres..	106,932	70,431	50,136	10,175	688	232	4,575	4,625	36,501
Land controlled, total.....acres..	124,599	87,759	67,414	10,175	688	282	4,575	4,625	38,840
Mineral land owned.....	91,694	56,962	41,500	7,928	688	83	2,383	4,380	34,732
Mineral land leased.....	15,238	13,469	8,638	2,247	.....	149	2,192	245	1,769
Timber and other lands owned and leased.....	17,667	17,328	17,278	.....	.....	50	.....	.....	339
Power used: Aggregate horsepower.....	175,370	166,091	158,614	5,107	255	417	634	1,064	9,279
Prime movers (horsepower, total).....	144,636	138,529	133,762	2,762	55	252	634	1,064	6,107
Steam engines—									
Number.....	277	262	233	17	.....	3	2	7	15
Horsepower.....	53,800	52,634	50,778	1,601	.....	40	65	150	1,166
Steam turbines—									
Number.....	21	21	21	.....	.....	.....	.....	.....	.....
Horsepower.....	73,037	73,037	73,037	.....	.....	.....	.....	.....	.....
Internal-combustion engines—									
Number.....	297	166	64	61	2	6	18	15	131
Horsepower.....	17,799	12,858	9,947	1,161	55	212	569	914	4,941
Purchased power (horsepower, total).....	30,734	27,562	24,852	2,345	200	165	.....	.....	3,172
Electric motors operated by purchased current—									
Number.....	690	632	528	98	3	3	.....	.....	58
Horsepower.....	29,719	26,547	23,837	2,345	200	165	.....	.....	3,172
Other equipment operated by purchased power—									
Horsepower.....	1,015	1,015	1,015	.....	.....	.....	.....	.....	.....
Electric motors run by current generated by enterprise using:									
Number.....	1,165	1,155	1,139	5	.....	.....	.....	11	10
Horsepower.....	77,718	77,545	77,126	32	.....	.....	.....	387	173
Fuel used:									
Coal, bituminous.....tons, 2,000 pounds..	85,230	84,938	83,429	297	.....	.....	2	1,210	292
Coke.....tons, 2,000 pounds..	174	174	174	.....	.....	.....	.....	.....	.....
Wood.....cords.....	2,551	1,602	20	1,508	.....	36	.....	38	949
Fuel oils.....barrels.....	1,301,290	1,279,173	1,258,708	10,687	236	6,096	85	3,361	22,117
Gasoline and other volatile oils.....barrels..	13,785	6,706	2,473	2,763	17	251	982	220	7,029

¹ Includes enterprises as follows: Asbestos, 2; gold, placer mines, 1; gypsum, 1; manganese, 1; sandstone, 2.
² Includes enterprises as follows: Gold, silver, copper, lead, or zinc, 94; molybdenum, 1.

ARKANSAS.

Arkansas, which ranks twenty-sixth among the states in size (land area 52,525 square miles) and twenty-fifth in population (1,752,204 in 1920), ranked thirty-fourth in value of mineral products for 1919. The state ranked thirtieth in the total number of persons engaged in the mining industries and in the average number of wage earners employed.

The gross amount received for products by operators of all mines, quarries, and wells in Arkansas in 1919 was \$8,404,537, an increase of 82.6 per cent as compared with the corresponding amount reported at the census of 1909. The amount reported for value of products for 1919 included a duplication of \$165,786, the value of natural gas sold by some producers to other producers who distributed this gas and again reported its value. After eliminating this duplication the net value of products for the year 1919 was \$8,238,751, an increase of 79 per cent over the value of products reported for 1909. The value of products for 1919 includes small amounts received for power sold or for work or miscellaneous services for other enterprises.

The increases in value of products, 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 fair measure of the growth of mining. The decrease in the number of mines and quarries operated and in the average number of wage earners employed indicates an actual decrease in the mining industries in 1919 as compared with 1909.

The mining industries reported for 1919, classified by principal products and listed in order of value of products, were bituminous coal, bauxite, natural gas, sandstone, limestone, lead and zinc, granite, abrasive materials, manganese ore, and iron ore. The industries for which statistics can be shown without disclosure of individual operations are ranked by value of products in Table 2.

The leading mining industry in Arkansas in 1919 was bituminous coal mining in Franklin, Johnson, Logan, Pope, Scott, and Sebastian Counties. Most of the coal produced in this region is a semianthracite. The coal-mining industry reported 85 out of a total of 126 mining enterprises in the state, employed 76.8 per cent of the total number of wage earners, and reported products valued at \$5,292,274, or 63 per cent of the total value of products.

The mining industry second in importance in Arkansas was bauxite mining, in Pulaski and Saline Counties. Arkansas ranked first in the United States

in the production of bauxite. The statistics for this industry are not shown separately in order to avoid disclosure of individual operations.

The industry third in importance, as measured by value of products for 1919, was production of natural gas in Crawford, Sebastian, and Scott Counties.

In addition to the productive mining operations, some work was done for the purpose of developing a manganese mine and a petroleum and natural-gas property. These data, however, can not be shown.

The character of organizations conducting mining enterprises in Arkansas is shown in Table 3, which brings out the preponderance of corporations over other forms of organization. Corporations operated 59.5 per cent of the total number of enterprises, employed 82.6 per cent of the total number of wage earners, and reported products valued at \$7,237,057, or 86.1 per cent of the total value of all products.

The relatively large number of small enterprises, as measured by the average number of wage earners employed, is shown in Table 4. Of the 120 mining enterprises employing wage earners 115 had fewer than 101 each, and these enterprises employed 67.1 per cent of the total number of wage earners. On the other hand, only 5 enterprises, which had more than 100 wage earners each, employed 33 per cent of the total number. The larger enterprises were in the coal and bauxite mining industries.

Table 5 shows that in more than half of the enterprises employing wage earners and for 55.9 per cent of the wage earners in Arkansas in 1919 the hours of labor were 44 to 53 per week. The remaining numbers, however, of enterprises and wage earners were fairly evenly divided between those enterprises reporting longer and those reporting shorter hours. In the coal-mining industry the 8-hour day and 6-day week was the rule, but a shorter week was reported by nearly one-third of the enterprises and for more than one-fourth of the wage earners. In the other mining and in the quarrying industries most of the wage earners worked 9 or 10 hours per day and 6 days per week.

The statistics for wage earners presented in Table 6, showing the changes in the number employed month by month, reflect conditions prevailing in the industries during the census year. The minimum in the coal industry reported in November was due to the great strike and resulted in a similar minimum in the figures for all 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—ARKANSAS.

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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.....	126	96	.....	Capital.....	\$8,688,453	\$7,200,417	20.7
Number of mines and quarries.....	126	146	-13.7	Principal expenses:			
Number of natural-gas wells.....	124	62	.....	Salaries.....	601,827	238,467	152.4
Persons engaged.....	4,073	5,252	-22.4	Wages.....	4,573,291	3,026,140	51.1
Proprietors and firm members, total.....	109	75	.....	Contract work.....	139,434	117,195	19.0
Number performing manual labor in or about the mines, quarries, and wells.....	68	41	.....	Supplies and materials.....	1,401,512	368,207	280.6
Salaried employees.....	334	242	38.0	Fuel and power.....	441,261	188,987	217.5
Wage earners (average number).....	3,630	4,935	-20.4	Royalties and rents.....	330,925	195,990	69.5
Power used (horsepower).....	21,365	14,080	51.7	Taxes.....	174,443	18,084	864.6
				Value of products.....	8,404,537	4,603,845	82.6

¹ A minus sign (-) denotes decrease. Percentages are omitted where base is less than 100.
² Includes cost of natural gas purchased 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.....	120	3,630	100.0	\$8,404,537	100.0	Limestone.....	6	114	3.1	\$220,070	2.6
Coal, bituminous.....	85	2,787	76.8	5,292,274	63.0	Lead and zinc.....	11	28	0.8	14,595	0.2
Natural gas.....	7	16	0.4	621,834	7.4	All other industries ¹	17	685	18.9	2,255,764	26.8

¹ Includes enterprises in industries as follows: Abrasive materials, 1; bauxite, 4; granite, 2; iron ore, 1; manganese, 2; sandstone, 7.

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.....	120	3,630	\$8,404,537	\$60,703	100.0	100.0	100.0
Corporation.....	75	2,998	7,237,057	96,494	59.5	82.6	80.1
Individual.....	23	245	422,588	13,373	18.3	6.7	5.0
Firm ¹	22	387	744,892	26,603	22.2	10.7	8.9
COAL, BITUMINOUS.....	85	2,787	5,292,274	62,262	100.0	100.0	100.0
Corporation.....	49	2,260	4,314,407	88,049	57.6	81.1	81.5
Individual.....	15	194	282,405	18,827	17.6	7.0	5.3
Firm ²	21	334	695,462	33,117	24.7	12.0	13.1
NATURAL GAS.....	7	16	621,834	88,833	100.0	100.0	100.0
Corporation.....	7	16	621,834	88,833	100.0	100.0	100.0
LIMESTONE.....	6	114	220,070	36,678	100.0	100.0	100.0
Corporation.....	3	68	108,081	36,027	50.0	59.6	49.1
Individual ³	3	46	111,989	37,330	50.0	40.4	50.9
LEAD AND ZINC.....	11	28	14,595	1,327	100.0	100.0	100.0
Corporation.....	7	22	9,405	1,344	63.6	78.6	64.4
Firm ⁴	4	6	5,190	1,298	36.4	21.4	35.6

¹ Includes 2 other forms of organization.

² Includes 1 other form of organization.

³ Includes 1 firm.

⁴ Includes 1 individual.

MINES AND QUARRIES—ARKANSAS.

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.....	126	100.0	3,630	100.0	LIMESTONE.....	6	100.0	114	100.0
No wage earners.....	6	4.8			1 to 5.....	1	16.7	5	4.4
1 to 5.....	35	27.8	86	2.4	6 to 20.....	3	50.0	49	40.4
6 to 20.....	39	31.0	427	11.8	21 to 50.....	2	33.3	63	55.3
21 to 50.....	27	21.4	925	25.5					
51 to 100.....	14	11.1	995	27.4					
101 to 500.....	5	4.0	1,197	33.0					
COAL, BITUMINOUS.....	85	100.0	2,787	100.0					
1 to 5.....	18	21.2	42	1.5					
6 to 20.....	28	32.9	311	11.2					
21 to 50.....	22	25.9	753	27.2					
51 to 100.....	13	15.2	897	32.2					
101 to 500.....	4	4.7	779	28.0					

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.	
			Enter-prises.	Wage earners.	Enter-prises.	Wage earners.	Enter-prises.	Wage earners.	Enter-prises.	Wage earners.
All industries.....	120	3,630	2	69	27	731	65	2,029	26	801
Coal, bituminous.....	85	2,787	2	69	25	720	57	1,979	1	19
Limestone.....	6	114					1	20	5	94
All other industries.....	29	729			2	11	7	30	20	698

¹ Exclusive of 6 enterprises employing no wage earners in industries as follows: Iron ore, 1; lead and zinc, 1; natural gas, 4.

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.....	3,630	3,783	3,404	3,224	3,141	3,240	3,288	4,062	4,542	4,879	4,760	<i>1,416</i>	3,821	29.0
Coal, bituminous.....	2,787	2,944	2,652	2,460	2,332	2,483	2,549	3,307	3,635	3,918	3,859	<i>474</i>	2,801	12.1
Limestone.....	114	73	80	92	99	122	128	131	138	140	131	116	121	52.1
Lead and zinc.....	28	49	42	35	36	35	40	27	27	12	14	14	6	10.3
Natural gas.....	16	16	16	16	16	15	15	15	15	17	18	19	22	59.1
All other industries.....	685	701	614	561	661	587	568	584	729	792	738	793	872	64.0

MINES AND QUARRIES—ARKANSAS.

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

	PRODUCING ENTERPRISES.					
	Total.	Coal, bituminous.	Natural gas.	Limestone.	Lead and zinc.	All other. ¹
Number of enterprises.....	126	85	7	6	11	17
Number of mines and quarries.....	126	91		6	11	18
Number of natural-gas wells.....	124		124			
Capital.....	\$8,688,453	\$3,028,278	\$2,089,388	\$737,107	\$228,500	\$2,005,120
Principal expenses:						
Salaries and wages—						
Officers.....	\$153,138	\$88,171	\$14,000	\$15,300	\$4,000	\$31,667
Superintendents and managers.....	\$265,105	\$158,022	\$5,680	\$17,449	\$3,420	\$48,954
Technical employees.....	\$23,373	\$5,198	\$5,430			\$9,697
Clerks, etc.....	\$160,211	\$99,287	\$3,280	\$1,920	\$800	\$54,824
Wage earners.....	\$4,573,291	\$3,476,019	\$26,683	\$92,009	\$17,965	\$931,735
Supplies and materials.....	\$1,235,728	\$716,615	\$75,091	\$52,498	\$10,310	\$380,612
Cost of natural gas purchased for resale.....	\$165,788		\$165,788			
Fuel.....	\$330,146	\$171,596	\$9,816	\$15,272	\$1,784	\$131,672
Power.....	\$111,115	\$95,649		\$600		\$14,866
Royalties and rents.....	\$393,925	\$184,207	\$44,771	\$10,540	\$2,018	\$145,389
Taxes.....	\$174,443	\$57,476	\$14,475	\$2,965	\$790	\$98,737
Contract work.....	\$139,434	\$56,651	\$82,000			\$733
Expenditures for development (Included in the above items).....	\$431,908	\$270,610	\$144,134		\$3,500	\$13,004
Value of products.....	\$8,404,537	\$5,292,274	\$621,834	\$220,070	\$14,595	\$2,255,764
Persons engaged in industry.....	4,073	3,095	40	139	45	754
Proprietors and firm members (total).....	109	73		10	12	9
Number performing manual labor.....	68	63		4	3	2
Salaried officers.....	59	36		7	2	6
Superintendents and managers.....	124	94		6	2	18
Technical employees.....	15	4		7	1	4
Clerks, etc.....	138	96		2	1	32
Wage earners (average number).....	3,030	2,787	16	114	28	695
Wage earners by occupation (Dec. 15):						
Above ground (total).....	1,885	793	19	126	30	917
Below ground (total).....	3,261	3,203			58	
Foremen, shift bosses, etc.—						
Above ground.....	74	28		9	3	34
Below ground.....	57	51			6	
Enginemen, hoistmen, electricians, mechanics, etc.—						
Above ground.....	364	251	15	19	5	74
Below ground.....	26	26				
Miners, quarrymen, and drillmen, including their helpers—						
Above ground.....	727	238		35		454
Below ground.....	2,356	2,307			49	
Timbermen, trackmen, and men engaged in hauling, tramping, etc.—						
Above ground.....	206	102		2	3	99
Below ground.....	450	440			1	
Muckers, loaders, laborers, and others not classified—						
Above ground.....	384	148	4	57		175
Below ground.....	372	370			2	
Wage earners employed in mills and beneficiating plants—						
Above ground.....	130	26		4	19	81
Mineral and gas land operated..... acres..	76,416	24,421	46,621	2,622	1,028	1,724
Land controlled, total..... acres..	91,408	25,322	46,621	4,222	1,028	14,215
Mineral and gas land owned.....	18,181	12,226	2,700	2,295	342	618
Mineral and gas land leased.....	58,315	12,270	43,921	327	686	1,111
Timber and other lands owned and leased.....	14,912	826		1,600		12,486
Power used: Aggregate horsepower.....	21,365	15,027	617	1,158	547	4,016
Prime movers (horsepower, total).....	16,552	10,159	617	1,133	547	3,096
Steam engines—						
Number.....	174	130	3	12	4	25
Horsepower.....	13,003	10,003	210	1,130	270	1,390
Internal-combustion engines—						
Number.....	39	18	4	1	6	10
Horsepower.....	2,549	156	407	3	277	1,706
Purchased power (horsepower, total).....	5,813	4,868		25		920
Electric motors operated by purchased current—						
Number.....	141	130		3		8
Horsepower.....	5,813	4,868		25		920
Electric motors run by current generated by enterprise using:						
Number.....	124	25	1	4		94
Horsepower.....	3,184	601	12	7		2,564
Fuel used:						
Coal, bituminous..... tons, 2,000 pounds..	74,238	58,978		3,301	6	11,953
Wood..... cords..	3,020	5	1,200	550	249	1,019
Fuel oils..... barrels..	838	63			195	575
Gasoline and other volatile oils..... barrels..	607	135		10		522
Natural gas..... 1,000 cubic feet..	328,057		52,080			275,977

¹ Includes enterprises as follows: Abrasive materials, 1; bauxite, 4; granite, 2; iron ore, 1; manganese ore, 2; sandstone, 7.

CALIFORNIA.

California, which ranks second among the states in size (land area 155,652 square miles) and eighth in population (3,426,861 in 1920), ranked fifth in value of mineral products for 1919. The state ranked eleventh in the total number of persons engaged in the mining industries and tenth in the average number of wage earners employed. California reported 29 productive mineral industries, a greater number than was reported by any other state.

The gross amount received for products by the operators of all mines, quarries, and wells in California in 1919 was \$163,770,243, and in 1909 was \$63,382,454. After eliminating duplication of \$875,751, the value of gold and silver ores, magnesite, and natural gas sold in 1919 by some producers to others and again reported after further treatment and resale, and, for 1909, a similar duplication of \$2,762,660 in the value of gold and silver ores, copper ores, and natural gas, the net value of products for 1919 is \$162,894,492, and for 1909 is \$60,619,794, an increase of 168.7 per cent. The figures for 1919 include receipts for mineral and other unspecified by-products, custom milling, power sold, and work or miscellaneous services for other enterprises which amounted to \$1,082,885. As the significance of amounts reported in dollars is impaired for purposes of comparison by general price increases during the decade, the increase in amount received for products does not, nor do the increases in wages, cost of supplies and materials, fuel and power, and capital invested, as shown in Table 1, correctly indicate the growth or progress of mining in California during the census period 1909 to 1919. The number of wage earners probably serves better for comparison of the mining industries as a whole for the years 1909 and 1919, and on this basis there was slight decrease for the mining industries of the state. This, however, is due to heavy decreases in the metal mining and quarrying activities partly offset by a notable increase in the petroleum and natural-gas industry. The addition of Federal income and excess-profits taxes since 1909 will account for the increase in taxes.

The industries reported for 1919, classified by principal products and listed in the order of value of products, were petroleum and natural gas, gold and silver from lode mines, gold from placer mines, copper, quicksilver, pyrite, magnesite, basalt or traprock, granite, limestone, lead and zinc, manganese ore, ores of rare metals (tungsten), clay, talc and soapstone, sandstone, abrasive materials, chromite, marble, gypsum, graphite, barytes, asphalt, iron ore, mineral pigments, asbestos, coal, silica, and feldspar.

The mining industries for which the statistics can be shown without disclosure of individual operations are ranked by value of products in Table 2.

The leading mineral industry in California in 1919, petroleum and natural gas production, reported a majority of the enterprises in the state, 63.8 per cent of the total number of wage earners, and products valued at \$139,018,663, representing 84.9 per cent of the total value of products of all mining industries in the state. California ranked third among the states in value of products of the petroleum and natural-gas industry. Production was reported principally from Fresno, Kern, Los Angeles, Orange, Santa Barbara, and Ventura Counties, but also from Sacramento, San Luis Obispo, San Joaquin, and Solano Counties.

The mining and milling of gold and silver bearing ores was second in importance in the state, and California ranked third among the states in this industry in 1919, reporting products valued by the producers at \$8,773,757. The statistics for this industry include figures for custom and merchant reduction mills and the operations on old dumps and tailings. Production was reported from 21 counties chiefly in the east-central and northern parts of the state.

Placer mining was third in rank in 1919 among the mining industries of California which was the premier state in the industry with an output valued at \$7,937,654. The productive counties were Amador, Butte, Calaveras, Eldorado, Nevada, Placer, Plumas, San Joaquin, Sacramento, Shasta, Sierra, Siskiyou, Stanislaus, Trinity, and Yuba.

The mining industries in the state, fourth and fifth, respectively, in importance, were copper mining with value of products \$2,397,610, California ranking seventh in the United States, and quicksilver production, with value of products of \$1,217,077 and California holding first place. In several of the minor mineral industries also, California stands high, ranking, on the basis of value of products in 1919, first in chromite mining, second in production of rare metals and of magnesite, and fourth in manganese, abrasive materials, and talc and soapstone.

In addition to the operation of the producing mines and quarries considerable work was done in California on properties which were not productive during the year. Sixty such enterprises were reported, 47 in metal-mining industries and 13 in the petroleum and natural-gas industry. These enterprises, with a combined capital of \$13,494,898, employed 403 wage earners and expended \$1,512,352 for development during the year, these figures representing 2 per cent of the aggregate number of wage earners and 1.5 per cent of the aggregate expenditures reported for all mining operations in the state.

The form or character of organizations conducting mining enterprises in California in 1919 is shown in Table 3 which brings out the preponderance of incorporated enterprises. Corporations operated 67.9 per cent of all the mining enterprises, employed 94.9 per cent of the average number of wage earners, and reported 96.3 per cent of the total value of products. Table 3 also shows that corporate organizations virtually controlled the petroleum and natural-gas industry and that, although they were less important as to number of enterprises in the metal-mining and quarrying industries, nevertheless they conducted the enterprises which were, on the basis of number of wage earners and value of products, the more important.

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 California, 95 per cent were in classes having no wage earners or fewer than 101, and such enterprises employed 47.8 per cent of the total number of wage earners. On the other hand, only 5 per cent of the total number of enterprises

had more than 100 wage earners each and these enterprises employed 52.2 per cent of the total number of wage earners. In Table 4, the 6 largest enterprises are shown in the petroleum and natural-gas industry, but the table is based on reports for that industry which consolidated data on operations in several localities in which the individual operations were of smaller size.

Table 5 shows that for nearly three-fourths of the enterprises employing wage earners and of the number of wage earners in all the mining industries in California in 1919, the hours of labor were 54 to 62 per week. The 8-hour day and 7-day week prevailed. Hours of labor ranging from 44 to 53 per week, indicating the 8-hour day and 6-day week, were reported for practically all other enterprises.

The statistics for wage earners presented in Table 6, showing the changes in the number employed month by month, reflect conditions prevailing in the mining 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 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.....	725	1,329	-45.4	Capital.....	\$446,782,385	\$253,577,552	76.2
Number of mines and quarries.....	857	1,279	-72.1	Principal expenses:			
Number of petroleum and natural-gas wells..	9,197	4,316	113.1	Salaries.....	5,141,550	2,968,779	73.2
Number of natural-gas gasoline plants.....	58	(?)	.....	Wages.....	31,748,170	19,049,442	66.7
Persons engaged.....	22,201	24,378	-8.9	Contract work.....	1,377,278	595,130	131.4
Proprietors and firm members, total.....	442	1,790	-75.4	Supplies and materials*.....	32,692,276	21,552,312	51.7
Number performing manual labor in or about the mines, quarries, and wells.....	172	856	-79.9	Fuel and power.....	7,047,225	2,775,643	153.9
Salaried employees.....	2,415	2,062	17.1	Royalties and rents.....	10,910,853	2,814,259	287.7
Wage earners (average number).....	19,344	20,517	-5.7	Taxes.....	10,026,745	578,946	1,637.9
Power used (horsepower).....	313,213	162,238	93.1	Value of products.....	163,770,243	63,382,454	153.4

¹ A minus sign (-) denotes decrease.

² Figures not available.

* Includes for 1919 cost of ore, magnesite, and natural gas, and for 1909 cost of ore and natural gas, purchased as material or for resale.

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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.			Amount.	Per cent distribution.		
All industries.....	725	19,344	100.0	\$163,770,243	100.0	Granite.....	17	162	0.8	\$563,485	0.3
Petroleum and natural gas.....	403	12,344	63.8	139,018,663	84.9	Limestone.....	13	245	1.3	540,937	0.3
Gold and silver, lode mines.....	99	2,881	14.9	8,773,757	5.4	Lead and zinc.....	17	115	0.6	261,454	0.2
Gold, placer mines.....	60	1,102	5.7	7,937,654	4.9	Clay.....	13	88	0.5	177,240	0.1
Copper.....	15	1,055	5.5	2,397,610	1.5	Sandstone.....	6	27	0.1	65,074	(2)
Quicksilver.....	17	485	2.5	1,217,077	0.7	Abrasive materials.....	4	17	0.1	61,313	(3)
Magnetite.....	8	230	1.2	677,661	0.4	Chromite.....	12	21	0.1	58,366	(3)
Basalt.....	16	252	1.4	636,588	0.4	All other industries.....	25	310	1.6	1,384,308	0.8

¹ Includes enterprises in industries as follows: Asbestos, 1; asphalt, 2; barytes, 1; coal, bituminous, 1; feldspar, 1; graphite, 1; gypsum, 1; iron ore, 1; manganese, 3; marble, 3; mineral pigments, 2; pyrite, 3; rare metals (tungsten), 1; silica, 1; talc and soapstone, 3.

² Less than one-tenth of 1 per cent.

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.....	725	19,344	\$163,770,243	\$225,890	100.0	100.0	100.0
Corporation.....	492	18,367	157,688,252	320,505	67.9	94.9	96.3
Individual.....	121	468	2,995,040	24,752	16.7	2.4	1.8
Firm.....	104	396	2,755,121	26,492	14.3	2.0	1.7
Other.....	8	113	331,830	41,479	1.1	0.6	0.2
PETROLEUM AND NATURAL GAS.....	403	12,344	139,018,663	344,959	100.0	100.0	100.0
Corporation.....	337	12,008	135,009,248	400,821	83.6	97.3	97.1
Individual.....	40	196	2,239,725	55,993	9.9	1.6	1.6
Firm.....	21	108	1,616,931	76,949	5.2	0.9	1.2
Other.....	5	32	153,759	30,752	1.2	0.3	0.1
GOLD AND SILVER, LODE MINES.....	99	2,881	8,773,757	88,624	100.0	100.0	100.0
Corporation.....	46	2,658	7,918,183	172,183	46.5	92.3	90.2
Individual.....	19	74	92,807	4,885	19.2	2.6	1.1
Firm.....	34	149	762,817	22,436	34.3	5.2	8.7
GOLD, PLACER MINES.....	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.....	14	32	23,087	1,649	23.3	2.9	0.3
COPPER.....	15	1,055	2,397,610	159,841	100.0	100.0	100.0
Corporation.....	11	1,049	2,387,945	217,086	73.3	99.4	99.6
Firm.....	4	6	9,665	2,410	26.7	0.6	0.4
BASALT, GRANITE, LIMESTONE, AND SANDSTONE.....	52	696	1,805,134	34,714	100.0	100.0	100.0
Corporation.....	30	642	1,668,733	55,624	57.7	92.2	92.4
Individual.....	14	30	57,607	4,119	26.9	4.3	3.2
Firm.....	8	24	78,794	9,842	15.4	3.4	4.4
QUICKSILVER.....	17	485	1,217,077	71,593	100.0	100.0	100.0
Corporation.....	7	374	957,021	136,717	41.2	77.1	78.6
Firm.....	10	111	260,056	26,006	58.8	22.9	21.4
LEAD AND ZINC.....	17	115	261,454	15,380	100.0	100.0	100.0
Corporation.....	8	103	228,411	28,551	47.1	89.6	87.4
Individual.....	9	12	33,043	3,671	52.9	10.4	12.6
CLAY.....	13	88	177,240	13,634	100.0	100.0	100.0
Corporation.....	7	70	140,821	20,117	53.8	73.5	79.4
Individual.....	6	18	36,425	6,071	46.2	20.5	20.5
CHROMITE.....	12	21	58,366	4,864	100.0	100.0	100.0
Individual.....	4	13	40,719	10,180	33.3	61.9	69.8
Firm.....	8	8	17,647	2,206	66.7	38.1	30.2

¹ Includes 2 other forms of organization.
² Includes 1 other form of organization.

³ Includes 2 individuals.
⁴ Includes 2 firms.

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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.....	725	100.0	19,344	100.0	COPPER.....	15	100.0	1,055	100.0
No wage earners.....	96	13.2			No wage earners.....	1	6.7		
1 to 5.....	276	38.1	930	4.8	1 to 5.....	4	26.7	12	1.1
6 to 20.....	195	26.9	2,578	13.3	6 to 20.....	2	13.3	15	1.4
21 to 50.....	88	12.1	3,395	17.6	21 to 50.....	1	6.7	27	2.6
51 to 100.....	34	4.7	2,333	12.1	51 to 100.....	4	26.7	304	28.8
101 to 500.....	30	4.1	6,216	32.1	101 to 500.....	3	20.0	897	86.1
501 to 1,000.....	6	0.8	3,892	20.1					
PETROLEUM AND NATURAL GAS.....	403	100.0	12,344	100.0	BASALT, GRANITE, LIMESTONE, AND SANDSTONE.....	52	100.0	699	100.0
No wage earners.....	39	9.7			No wage earners.....	5	9.6		
1 to 5.....	154	38.2	636	5.2	1 to 5.....	16	30.8	34	4.9
6 to 20.....	128	30.5	1,804	14.6	6 to 20.....	20	38.5	221	31.8
21 to 50.....	48	11.9	2,120	17.2	21 to 50.....	10	19.2	308	44.3
51 to 100.....	21	5.2	1,439	11.7	101 to 500.....	1	1.9	133	19.1
101 to 500.....	12	3.0	2,463	19.9					
501 to 1,000.....	6	1.5	3,892	31.5	QUICKSILVER.....	17	100.0	485	100.0
GOLD AND SILVER, LOSE MINES.....	99	100.0	2,881	100.0	1 to 5.....	8	47.1	24	4.9
No wage earners.....	22	22.2			6 to 20.....	3	17.6	31	6.4
1 to 5.....	33	33.3	89	3.1	21 to 50.....	4	23.5	135	27.8
6 to 20.....	20	20.2	206	7.2	101 to 500.....	2	11.8	295	60.8
21 to 50.....	11	11.1	388	13.5					
51 to 100.....	5	5.1	343	11.9	MAGNESITE.....	8	100.0	230	100.0
101 to 500.....	8	8.1	1,855	64.4	No wage earners.....	1	12.5		
GOLD, PLACER MINES.....	60	100.0	1,102	100.0	1 to 5.....	1	12.5	1	0.4
No wage earners.....	11	18.3			6 to 20.....	2	25.0	19	8.3
1 to 5.....	28	46.7	73	6.6	21 to 50.....	2	25.0	49	21.3
6 to 20.....	10	16.7	113	10.3	51 to 100.....	1	12.5	52	22.6
21 to 50.....	7	11.7	228	20.7	101 to 500.....	1	12.5	109	47.4
51 to 100.....	2	3.3	137	12.4					
101 to 500.....	2	3.3	551	50.0					

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.....	1,029	19,344	8	104	2	2	143	4,500	468	14,411	16	324	2	3
Petroleum and natural gas.....	304	12,344	7	99	1	1	58	2,799	290	9,427	6	18	2	3
Gold and silver, lode mines.....	77	2,881					20	976	55	1,675	2	230		
Gold, placer mines.....	49	1,102					11	47	31	984	7	71		
Copper.....	14	1,055					2	89	12	966				
Basalt, granite, limestone, and sandstone.....	47	699					26	303	20	388	1	5		
Quicksilver.....	17	485					2	4	15	481				
Magnesite.....	7	230					2	129	5	110				
All other industries.....	54	551	1	5	1	1	22	165	30	380				

¹ Exclusive of 96 enterprises employing no wage earners in industries as follows: Asphalt, 2; chromite, 4; clay, 3; copper, 1; feldspar, 1; gold and silver, lode mines, 22; gold, placer mines, 11; granite, 3; lead and zinc, 4; limestone, 1; magnesite, 1; marble, 1; mineral pigments, 1; petroleum and natural gas, 39; sandstone, 1; talc and soapstone, 1.

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TABLE G.—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.....	19,747	19,836	19,604	19,530	<i>19,025</i>	19,641	19,401	19,627	19,609	19,672	20,083	20,499	20,437	92.8
Producing enterprises.....	19,344	19,552	19,319	19,238	<i>18,716</i>	19,298	19,079	19,266	19,176	19,182	19,555	19,916	19,831	94.0
Petroleum and natural gas.....	12,344	12,060	12,313	12,224	<i>12,159</i>	12,420	12,231	12,187	12,140	12,378	12,550	12,685	12,801	94.8
Gold and silver, lode mines.....	2,881	2,864	2,911	2,894	2,778	2,914	2,846	2,964	2,903	<i>2,768</i>	2,821	2,927	2,982	92.8
Gold, placer mines.....	1,102	1,011	1,047	<i>1,009</i>	1,010	1,106	1,110	1,210	1,148	1,136	1,155	1,183	1,099	83.4
Copper.....	1,055	1,255	1,164	1,109	1,050	1,012	982	966	1,076	986	1,025	1,050	855	76.1
Quicksilver.....	485	686	456	431	<i>313</i>	380	482	500	507	511	510	534	510	45.6
Basalt.....	262	189	156	229	268	270	249	271	294	283	308	327	301	47.4
Limestone.....	245	283	240	236	250	253	242	228	237	<i>225</i>	228	261	257	79.5
Magnetite.....	230	183	57	159	181	208	240	271	270	273	307	318	293	17.9
Granite.....	162	146	140	136	141	140	<i>134</i>	142	136	171	201	210	247	54.3
Lead and zinc.....	115	137	130	132	135	129	112	<i>98</i>	93	95	105	108	112	67.2
Clay.....	88	71	69	<i>66</i>	87	92	90	65	86	96	144	108	82	45.8
Sandstone.....	27	14	16	28	20	24	22	39	53	27	28	26	27	35.9
Chromite.....	21	<i>10</i>	11	15	19	23	29	21	17	28	26	31	17	32.3
Abrasive materials.....	17	30	22	21	24	18	20	15	19	5	6	6	9	16.7
All other industries.....	810	613	588	549	301	304	290	265	197	190	142	142	139	22.7
Nonproducing enterprises.....	403	<i>224</i>	285	292	309	343	322	361	433	400	523	523	606	46.0
Gold and silver, lode and placer mines, copper, lead, and quicksilver.....	312	<i>199</i>	211	203	220	266	263	293	350	407	413	459	460	43.3
Petroleum and natural gas.....	91	85	74	89	89	77	59	68	83	83	115	124	140	40.4

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

	Aggregate.	PRODUCING ENTERPRISES.								
		Total.	Petroleum and natural gas.	Gold and silver, lode mines. ¹	Gold, placer mines.	Copper.	Quick-silver.	Magnesite.	Basalt.	Granite.
Number of enterprises.....	785	725	403	90	60	15	17	8	10	17
Number of mines and quarries.....	411	357	100	100	78	10	17	8	17	18
Number of petroleum and natural-gas wells.....	9,212	9,197	9,197							
Number of natural-gas gasoline plants.....	58	58	58							
Capital.....	\$460,277,283	\$446,782,385	\$359,851,160	\$34,494,498	\$19,087,232	\$17,906,644	\$2,458,703	\$367,044	\$1,307,693	\$1,027,730
Principal expenses:										
Salaries and wages—										
Officers.....	\$1,260,715	\$1,239,392	\$804,252	\$31,441	\$133,771	\$44,875	\$43,020	\$13,050	\$18,421	\$32,950
Superintendents and managers.....	\$2,259,638	\$2,165,970	\$1,594,693	\$174,723	\$148,785	\$69,319	\$39,844	\$18,187	\$28,316	\$3,100
Technical employees.....	\$261,675	\$240,982	\$92,746	\$63,140	\$19,988	\$36,682	\$3,358	\$1,800		
Clerks, etc.....	\$1,513,740	\$1,495,206	\$1,281,957	\$46,013	\$45,689	\$36,730	\$10,828	\$6,820	\$9,206	\$11,977
Wage earners.....	\$32,847,888	\$31,748,170	\$22,367,544	\$3,870,121	\$1,475,406	\$1,650,430	\$520,784	\$309,828	\$334,460	\$167,992
Supplies and materials.....	\$32,618,342	\$31,816,525	\$25,385,586	\$2,172,364	\$1,941,920	\$1,078,351	\$270,746	\$180,837	\$128,746	\$148,170
Cost of ore, magnesite, and natural gas purchased for use as material or for resale.....	\$875,751	\$875,751	\$510,073	\$324,213				\$31,465		
Fuel.....	\$4,467,154	\$4,424,508	\$3,931,081	\$150,402	\$5,571	\$119,255	\$30,442	\$69,432	\$10,520	\$14,898
Power.....	\$2,669,850	\$2,622,717	\$663,249	\$572,413	\$946,936	\$271,208	\$29,133	\$11,054	\$39,266	\$18,743
Royalties and rents.....	\$10,923,104	\$10,910,833	\$10,096,356	\$43,494	\$35,157	\$5,695	\$12,596	\$40,000	\$16,938	\$785
Taxes.....	\$10,040,688	\$10,028,745	\$9,195,204	\$275,310	\$317,684	\$117,339	\$19,788	\$2,711	\$16,051	\$7,654
Contract work.....	\$1,432,615	\$1,377,278	\$998,706	\$20,507	\$126,070	\$38,320	\$7,173	\$34,753		\$250
Expenditures for development (included in the above items).....	\$20,168,509	\$27,656,157	\$25,633,823	\$1,027,359	\$140,076	\$540,738	\$106,984	\$2,368	\$125	\$3,250
Value of products.....	\$163,770,243	\$163,770,243	\$130,018,063	\$8,773,767	\$7,937,654	\$2,307,610	\$1,217,077	\$677,061	\$685,588	\$503,485
Persons engaged in industry.....	22,725	22,201	14,317	3,107	1,270	1,140	543	200	294	199
Proprietors and firm members (total).....	470	442	131	111	55	7	23	10	7	15
Number performing manual labor.....	176	172	22	62	32	3	9	2	2	8
Salaried officers.....	409	393	274	33	20	7	9	5	5	8
Superintendents and managers.....	757	709	499	67	45	21	15	8	13	4
Technical employees.....	135	127	49	30	8	20	2	1		
Clerks, etc.....	1,207	1,186	1,020	36	31	30	0	6	7	10
Wage earners (average number).....	10,747	10,344	12,344	2,881	1,102	1,055	485	230	262	162
Wage earners by occupation (Dec. 15):										
Above ground (total).....	17,514	17,147	12,810	862	1,125	1,509	320	178	337	236
Below ground (total).....	3,896	3,667	2,334	72	72	579	248	121		
Foremen, shift bosses, etc.—										
Above ground.....	229	215	36	84	12	9	9	16	14	9
Below ground.....	185	163	88	88	4	31	11	10		
Enginemen, hoistmen, electricians, mechanics, etc.—										
Above ground.....	11,761	11,554	10,427	292	405	144	86	36	38	33
Below ground.....	124	116	84	84	20	20	6	2		
Miners, quarrymen, and drillmen, including their helpers—										
Above ground.....	442	417	14	54	11	28	10	75		63
Below ground.....	1,739	1,656	1,075	57	218	79	40			
Timbermen, trackmen, and men engaged in hauling, tramming, etc.—										
Above ground.....	221	208	38	9	31	27	18	30		2
Below ground.....	631	575	375	4	92	80	6			
Muckers, loaders, laborers, and others not classified—										
Above ground.....	4,041	3,933	2,383	176	571	147	58	32	174	57
Below ground.....	1,187	1,123	712	7	7	218	72	63		
Wage earners employed in mills and beneficiating plants—										
Above ground.....	820	820	806	2	104	118	66			72
Number of females included in wage earners reported above—										
Above ground.....	32	31	14	12	3		1			
Mineral and oil land operated..... acres.....	620,603	588,517	482,320	19,198	30,356	7,804	17,330	1,686	1,407	2,944
Land controlled, total..... acres.....	658,998	626,540	482,320	27,622	44,185	12,876	20,699	2,138	1,407	3,104
Mineral and oil land owned..... acres.....	402,799	376,103	300,429	17,399	21,946	7,464	8,124	490	1,171	2,830
Mineral and oil land leased..... acres.....	217,837	212,429	181,891	1,819	8,410	840	9,212	1,196	236	114
Timber and other lands owned and leased..... acres.....	35,350	35,003	8,404	8,404	13,829	5,072	3,363	450		160
Power used: Aggregate horsepower.....	319,717	313,213	220,089	33,412	29,438	12,648	1,607	610	4,792	2,479
Prime movers (horsepower, total).....	209,859	206,805	189,204	11,949	2,180	2,070	741	297	400	257
Steam engines—										
Number.....	3,170	3,144	3,084	10	2	3	4		17	12
Horsepower.....	88,074	88,052	84,471	1,871	40	400	100		425	201
Steam turbines—										
Number.....	5	5	2	2		3				
Horsepower.....	1,750	1,750	250	250		1,500				
Internal-combustion engines—										
Number.....	3,085	3,056	2,898	67	3	16	28	21	1	3
Horsepower.....	106,102	105,615	101,823	1,365	50	235	635	207	35	31
Water wheels and turbines—										
Number.....	120	107	82	82	18	2				1
Horsepower.....	13,303	11,888	8,463	8,463	2,090	535				25
Purchased power (horsepower, total).....	109,828	106,408	33,795	21,463	27,308	9,978	1,166	313	4,332	2,222
Electric motors operated by purchased current—										
Number.....	2,946	2,882	1,318	527	602	179	89	10	88	60
Horsepower.....	109,783	106,363	33,750	21,463	27,308	9,978	1,166	313	4,332	2,222
Other equipment operated by purchased power—										
Horsepower.....	45	45	45							
Electric motors run by current generated by enterprise using:										
Number.....	426	413	350	52	5		3			
Horsepower.....	10,663	10,382	7,462	2,770	95		20			
Fuel used:										
Coal, anthracite..... tons, 2,240 pounds.....	127	125		37	2	80	1			5
Coal, bituminous..... tons, 2,000 pounds.....	1,983	1,927		85	10	1,673				1
Coke..... tons, 2,000 pounds.....	1,207	1,205		3	1	556		645		
Wood..... cords.....	11,706	8,241		1,227	502	5,080	1,352			
Fuel oils..... barrels.....	2,287,987	2,264,670	2,124,490	48,985	80	23,724	19,335	23,255	5,309	6,890
Gasoline and other volatile oils..... barrels.....	11,903	10,301	442	4,194	188	458	1,093	1,024	14	92
Natural gas..... 1,000 cubic feet.....	52,202,703	52,091,849	52,091,454							

¹ Includes 2 reduction mills operated independently of mines and 4 operations on dumps and old tailings.

² Includes 1 wage earner under 16 years of age.

MINES AND QUARRIES—CALIFORNIA.

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

	PRODUCING ENTERPRISES—continued.							NONPRODUCING ENTERPRISES.		
	Limestone.	Lead and zinc.	Clay.	Sandstone.	Abrasive materials.	Chromite.	All other. ¹	Total.	Metal mines. ²	Petroleum and natural gas.
Number of enterprises.....	13	17	13	6	4	12	25	60	47	13
Number of mines and quarries.....	13	18	13	7	4	13	26	54	54	.....
Number of petroleum and natural-gas wells.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Number of natural-gas gasoline plants.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Capital.....	\$1,323,063	\$5,919,640	\$532,672	\$113,802	\$36,544	\$200,908	\$2,095,017	\$13,494,898	\$11,450,451	\$2,044,447
Principal expenses:										
Salaries and wages—										
Officers.....	\$14,677	\$20,000	\$10,610	.....	.....	\$375	\$21,950	\$21,323	\$16,192	\$5,131
Superintendents and managers.....	\$9,342	\$16,445	\$9,112	\$37	\$3,650	\$3,000	\$42,417	\$33,568	\$69,859	\$23,709
Technical employees.....	\$3,000	\$1,800	\$2,400	.....	\$2,465	.....	\$10,605	\$20,693	\$14,047	\$6,646
Clerks, etc.....	\$16,520	\$4,465	\$2,520	.....	.....	.....	\$21,593	\$18,534	\$7,940	\$10,585
Wage earners.....	\$289,698	\$160,384	\$89,967	\$39,041	\$25,492	\$28,120	\$419,558	\$599,718	\$400,046	\$190,072
Supplies and materials.....	\$122,176	\$57,755	\$22,086	\$20,202	\$4,342	\$3,649	\$274,606	\$801,817	\$357,781	\$444,036
Cost of ore, magnesite, and natural gas purchased for use as material or for resale.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Fuel.....	\$16,861	\$9,290	\$1,757	\$669	\$869	\$875	\$12,586	\$42,646	\$20,241	\$22,405
Power.....	\$18,746	\$8,693	\$3,664	\$1,631	.....	.....	\$42,801	\$47,133	\$39,060	\$7,164
Royalties and rents.....	\$1,000	\$3,993	\$2,930	\$2,300	\$2,205	\$4,777	\$33,667	\$12,271	\$1,444	\$10,827
Taxes.....	\$6,106	\$10,106	\$7,379	\$1,653	\$317	\$47	\$49,410	\$13,943	\$10,738	\$3,205
Contract work.....	\$1,500	\$35,589	\$12,781	.....	\$1,463	\$3,455	\$95,751	\$55,637	\$35,334	\$20,303
Expenditures for development (included in the above items).....	\$13,488	\$142,854	\$13,756	.....	\$1,200	\$2,500	\$22,636	\$1,512,352	\$507,668	\$704,684
Value of products.....	\$540,987	\$201,464	\$177,246	\$65,074	\$61,313	\$58,366	\$1,394,308	.....	.....	.....
Persons engaged in industry.....	275	141	109	34	33	46	373	524	410	114
Proprietors and firm members (total).....	8	11	6	6	13	23	16	28	28	.....
Number performing manual labor.....	2	7	1	.....	3	12	9	4	4	.....
Salaried officers.....	6	4	4	.....	.....	1	8	16	11	5
Superintendents and managers.....	4	6	6	1	2	1	17	48	39	9
Technical employees.....	1	1	2	.....	1	.....	3	8	7	1
Clerks, etc.....	11	4	3	.....	.....	.....	10	21	13	8
Wage earners (average number).....	245	115	88	27	17	21	310	403	312	91
Wage earners by occupation (Dec. 15):										
Above ground (total).....	333	61	104	61	31	20	154	367	212	155
Below ground (total).....	.....	81	.....	.....	.....	.....	117	299	299	.....
Foreman, shift bosses, etc.—										
Above ground.....	11	5	5	5	1	1	7	14	14	.....
Below ground.....	.....	8	.....	.....	.....	.....	10	22	22	.....
Engineers, hoistmen, electricians, mechanics, etc.—										
Above ground.....	47	15	5	3	3	3	17	207	83	124
Below ground.....	.....	2	.....	.....	.....	.....	1	9	9	.....
Miners, quarrymen, and drillmen, including their helpers—										
Above ground.....	112	.....	3	15	.....	5	27	25	25	.....
Below ground.....	.....	48	.....	.....	.....	0	60	153	153	.....
Timbermen, trackmen, and men engaged in hauling, tramping, etc.—										
Above ground.....	14	15	6	.....	6	1	5	13	13	.....
Below ground.....	.....	10	.....	.....	.....	2	6	56	56	.....
Muckers, loaders, laborers, and others not classified—										
Above ground.....	140	4	80	38	12	8	44	108	77	31
Below ground.....	.....	13	.....	.....	.....	3	40	59	59	.....
Wage earners employed in mills and beneficiating plants—										
Above ground.....	.....	22	5	.....	9	2	54	.....	.....	.....
Number of females included in wage earners reported above—										
Above ground.....	.....	.....	.....	.....	1	.....	.....	1	1	.....
Mineral and oil land operated..... acres.	3,515	3,663	3,721	176	3,307	2,369	8,775	32,086	27,217	4,869
Land controlled, total..... acres.	4,515	3,668	5,801	197	3,307	2,370	12,333	32,446	27,577	4,869
Mineral and oil land owned.....	887	3,173	2,201	73	3,287	323	12,333	32,446	27,577	4,869
Mineral and oil land leased.....	2,628	490	1,520	103	10	1,981	6,266	26,691	24,258	2,433
Timber and other land owned and leased.....	1,000	5	2,080	21	.....	61	3,558	5,408	2,972	2,436
Power used: Aggregate horsepower.....	1,778	826	314	585	54	101	4,130	6,504	5,481	1,023
Prime movers (horsepower, total).....	156	536	87	20	54	101	1,003	3,084	2,536	543
Steam engines—										
Number.....	2	6	.....	.....	1	.....	3	20	13	13
Horsepower.....	80	155	.....	.....	3	.....	300	622	239	383
Steam turbines—										
Number.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Horsepower.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Internal-combustion engines—										
Number.....	4	15	6	1	3	9	13	29	22	7
Horsepower.....	76	381	87	20	51	101	428	547	382	165
Water wheels and turbines—										
Number.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Horsepower.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Purchased power (horsepower, total).....	1,622	290	227	565	.....	.....	275	1,915	1,915	475
Electric motors operated by purchased current—										
Number.....	40	9	16	15	.....	.....	79	64	58	6
Horsepower.....	1,622	290	227	565	.....	.....	3,127	3,420	2,945	475
Other equipment operated by purchased power—										
Horsepower.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Electric motors run by current generated by enterprise using:										
Number.....	.....	.....	.....	.....	.....	.....	3	13	13	.....
Horsepower.....	.....	.....	.....	.....	.....	.....	35	281	281	.....
Fuel used:										
Coal, anthracite..... tons, 2,240 pounds.....	.....	.....	.....	.....	.....	.....	.....	2	2	.....
Coal, bituminous..... tons, 2,000 pounds.....	.....	94	20	.....	.....	.....	44	61	57	4
Coke..... tons, 2,000 pounds.....	.....	.....	.....	.....	.....	.....	.....	2	2	.....
Wood..... cords.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Fuel oils..... barrels.....	6,781	1,639	449	48	.....	30	50	3,465	3,465	.....
Gasoline and other volatile oils..... barrels.....	363	135	59	.....	.....	90	100	1,602	1,602	.....
Natural gas..... 1,000 cubic feet.....	.....	.....	.....	.....	.....	.....	.....	395	395	110,854

¹ Includes enterprises as follows: Asbestos, 1; asphalt, 2; barytes, 1; coal, bituminous, 1; feldspar, 1; graphite, 1; gypsum, 1; iron ore, 1; manganese, 3; marble, 3; mineral pigments, 2; pyrite, 3; rare metals (tungsten), 1; silica, 1; talc and soapstone, 3.

² Includes enterprises as follows: Copper, 4; gold and silver, lode mines, 32; gold, placer mines, 9; lead, 1; quicksilver, 1.

COLORADO.

Colorado, which ranks seventh among the states in size (land area, 103,658 square miles) and thirty-third in population (939,629 in 1920), ranked fifteenth in value of mineral products for the year 1919. The state ranked fourteenth in the total number of persons engaged in the mining industries and thirteenth in the average number of wage earners employed.

The gross amount received for products by operators of all mines, quarries, and wells in Colorado in 1919 was \$51,217,038, and in 1909 was \$45,680,135. Deducting from these amounts a duplication of \$4,282,353, the value of gold, silver, lead, and zinc ores sold in 1919 by some producers and further treated and reported by others and for 1909, \$4,930,144, a similar duplication in the value of gold and silver ores and coal, leaves \$46,934,685 and \$40,749,991, the net values of minerals produced in 1919 and 1909, respectively. The net value for 1919 is an increase of 15.2 per cent over the corresponding value for 1909. The amount given as the value of all products includes \$599,012, of which \$361,433 was received for custom milling of ores and minerals and the balance for mineral and other unspecified by-products, power sold, and for miscellaneous services for other enterprises.

Increases in wages, cost of supplies and fuel and power, and in the value of products, as shown in Table 1, are largely due to general price increases and do not correctly indicate growth of mining in Colorado during the census period 1909 to 1919. Nor, on the other hand, is a general decline in mining to be inferred from the decrease shown in the number of enterprises which is chiefly a reflection of the adverse conditions affecting metal mining during 1919 and in part may be the result of consolidation of operations. Probably the most significant facts shown by this table are the very small increase in the capital invested and the decrease in the number of wage earners. The addition of Federal income and excess-profits taxes since 1909 accounts for the increase in taxes shown.

The mining industries reported for 1919, ranked according to value of products, were those engaged in producing coal, gold and silver ores, lead and zinc ores, ores of the rare metals (uranium, vanadium, molybdenum, and tungsten), gold from placer mines, limestone, manganiferous ores, clay, petroleum, granite, fluorspar, pyrite, sandstone, gypsum, copper ores, and graphite. The mineral by-products produced by various industries were as follows: Sandstone from clay mines, silver from manganese mines, lead and zinc ores from pyrite mines, manganese from gold and silver mines, pyrite from copper and lead and zinc mines, and limestone from lead and zinc mines. There

is also included in the total value of products the value of a small quantity of lime which was produced by operators of limestone quarries and was not reported by the census of manufactures.

The mining industries for which statistics can be shown without disclosure of individual operations are ranked by value of products in Table 2, which also shows that in the less important industries different rank is determined by the per cent distribution of the average number of wage earners in each industry.

The statistics for the leading industry, bituminous coal mining, as shown in this report, includes, for convenience and to avoid disclosure of individual operations, the data for two enterprises producing high-rank anthracite. The value of coal produced in 1919 was \$28,342,195, which was 60.4 per cent of the net value of products of all industries in the state. This amount gives Colorado eighth rank in importance among coal-producing states. The coal mining is distributed in 16 counties, and the industry produces a large variety of coals for domestic, steam, and kiln uses and for manufacture of gas and coke.

The mining of precious and base metals, gold, silver, copper, lead, and zinc, was second in importance in the state as measured by value of products. The values reported for the metal-mining industries are based on the net amounts received by the mine and mill operators for ore, concentrates, and bullion, or the estimated equivalent of sales values when products were to be further treated by the producer. These are not the values of the metals produced or recoverable from these materials by smelting and refining. Colorado ranked first among the states in the value of output from its gold and silver lode mines. The production of rare metals, the value of which was \$1,245,014, a larger amount than reported by any other state, was the mining industry next in importance in the state. Colorado also attained high rank, second and third, respectively, in the value of placer gold and manganese ores reported.

In addition to the operations of the producing mines and quarries much mining work was done in Colorado on properties which were not productive during the year. Of these there were reported 60 enterprises: 58 engaged in developing gold, silver, copper, lead, or zinc mines; 1, a vanadium mine; and 1, a coal mine. These enterprises, with a combined capital of over ten million dollars, employed 478 wage earners and expended \$1,332,902 for development during the year, these figures representing 2.8 per cent of the aggregate number of wage earners and the expenditures reported for all mining operations in the state.

The preponderance of the corporation among mining organizations is brought out by Table 3. Corporations controlled 65.6 per cent of all the mining enterprises in the state in 1919, employed 95.8 per cent of the average number of wage earners, and reported 95.8 per cent of the total value of products. Table 3 also shows that while corporate organization of the operating enterprises was characteristic of coal and metal mining industries, it was less marked in the quarrying and clay-mining industries.

The relatively large number of small enterprises as determined by the average number of wage earners employed is shown in Table 4. Of the total number of mining enterprises in Colorado, 77 per cent had fewer than 101 wage earners each, while such enterprises employed only 44.6 per cent of the total number of wage earners. On the other hand, enterprises employing more than 100 wage earners constituted only 9.4 per cent of the total number of enterprises, but employed 55.4 per cent of the total number of wage earners. The coal-mining industry included 73.3 per cent of these larger enterprises.

Table 5 shows that in a majority of the enterprises employing wage earners and for about 75 per cent of

the wage earners in all the mining industries in the state in 1919, the hours of labor were 44 to 53 per week, or that the 8-hour day prevailed. In the coal-mining industry these hours were reported for approximately 93 per cent of the enterprises and 95 per cent of the wage earners. In the metalliferous lode mines 44 to 53 hours per week were reported for about one-half of the enterprises and for 34.2 per cent of the wage earners, but in the other half of the enterprises and for 63.2 per cent of the wage earners the hours of labor were 54 to 62 per week and the 9-hour day prevailed.

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 minimum in the coal industry reported in November, instead of in the summer months as has been usual, was the result of the great November strike and abnormally affects the figures for all 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 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.....	477	672	-29.0	Capital.....	\$147,154,642	\$144,639,558	1.7
Number of mines and quarries.....	523	1,576	-66.8	Principal expenses:			
Number of petroleum and natural-gas wells.....	70	76	-7.9	Salaries.....	2,788,529	2,112,940	32.0
Persons engaged.....	18,502	23,497	-21.3	Wages.....	25,405,043	18,463,296	37.6
Proprietors and firm members, total.....	378	647	-41.0	Contract work.....	397,930	2,996,083	-86.7
Number performing manual labor in or about the mines, quarries, and wells.....	237	232	2.2	Supplies and materials ²	11,954,556	10,389,810	15.1
Salaried employees.....	1,334	1,387	-2.4	Fuel and power.....	2,766,480	1,955,984	38.4
Wage earners (average number).....	16,790	21,483	-21.8	Royalties and rents.....	1,583,712	1,017,447	55.7
Power used (horsepower).....	116,351	93,777	17.8	Taxes.....	1,136,752	542,972	109.4
				Value of products.....	51,217,038	45,680,135	12.1

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

² Petroleum wells only.

³ Includes for 1919 cost of ore, and for 1909 cost of ore and coal, 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.....	477	16,790	100.0	\$51,217,038	100.0	Limestone.....	14	228	1.4	\$526,738	1.0
Coal, bituminous.....	161	11,252	67.0	28,342,195	55.3	Manganese.....	4	65	0.4	361,940	0.7
Gold and silver, lode mines.....	193	8,495	20.8	16,785,716	32.8	Clay.....	21	59	0.4	174,536	0.3
Lead and zinc.....	27	930	5.6	2,622,150	5.1	Sandstone.....	7	14	0.1	45,723	0.1
Rare metals ¹	9	344	2.0	1,245,014	2.4	Copper.....	5	35	0.2	26,723	0.1
Gold, placer mines.....	5	110	0.7	570,819	1.1	All other industries ²	26	252	1.5	515,484	1.0

¹ Includes molybdenum, tungsten, uranium, and vanadium.

² Includes enterprises in industries as follows: Fluorspar, 4; granite, 8; graphite, 1; gypsum, 2; petroleum, 10; 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.....	477	16,790	\$51,217,038	\$107,373	100.0	100.0	100.0
Corporation.....	313	16,077	40,046,766	156,699	65.6	95.8	95.8
Individual.....	65	283	663,872	10,213	13.6	1.7	1.3
Firm ¹	99	430	1,506,400	15,216	20.8	2.6	2.9
COAL, BITUMINOUS.....	161	11,252	28,342,195	176,038	100.0	100.0	100.0
Corporation.....	132	11,013	27,817,977	210,742	82.0	97.9	98.1
Individual.....	10	74	139,136	13,914	6.2	0.7	0.5
Firm ²	19	165	385,082	20,267	11.8	1.5	1.4
GOLD AND SILVER, LOSE MINES.....	198	3,495	16,785,716	84,776	100.0	100.0	100.0
Corporation.....	112	3,211	15,915,795	142,105	56.6	91.9	94.8
Individual.....	28	119	287,151	10,265	14.1	3.4	1.7
Firm ³	58	165	582,770	10,048	29.3	4.7	3.5
LEAD AND ZINC.....	27	936	2,622,150	97,117	100.0	100.0	100.0
Corporation.....	20	903	2,393,244	119,662	74.1	97.0	91.3
Firm.....	7	23	228,906	32,701	25.9	3.0	8.7
LIMESTONE AND SANDSTONE.....	21	242	572,461	27,260	100.0	100.0	100.0
Corporation.....	10	171	366,226	30,623	47.6	70.7	69.2
Individual ⁴	11	71	176,235	16,021	52.4	29.3	30.8
CLAY.....	21	50	174,536	8,311	100.0	100.0	100.0
Corporation.....	10	25	76,213	7,621	47.6	42.4	43.7
Individual ⁴	11	34	98,323	8,938	52.4	57.6	56.3

¹ Includes 5 other forms of organization.
² Includes 1 other form of organization.

³ Includes 4 other forms of organization.
⁴ Includes 2 firms.

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.....	477	100.0	16,790	100.0	LEAD AND ZINC.....	27	100.0	936	100.0
No wage earners.....	65	13.6	.....	.....	No wage earners.....	2	7.4	.....	.....
1 to 5.....	141	29.6	863	2.2	1 to 5.....	9	33.3	13	1.9
6 to 20.....	104	21.8	1,110	6.6	6 to 20.....	7	25.9	77	8.2
21 to 50.....	72	15.1	2,539	15.1	21 to 50.....	1	3.7	22	2.4
51 to 100.....	50	10.5	3,481	20.7	51 to 100.....	4	14.8	237	25.3
101 to 500.....	45	9.4	9,297	55.4	101 to 500.....	4	14.8	552	62.2
COAL, BITUMINOUS.....	161	100.0	11,252	100.0	RARE METALS ¹	9	100.0	344	100.0
No wage earners.....	1	0.6	.....	.....	1 to 5.....	2	22.2	3	0.9
1 to 5.....	33	20.5	96	0.9	6 to 20.....	2	22.2	33	9.6
6 to 20.....	17	10.6	200	1.8	21 to 50.....	3	33.3	108	31.4
21 to 50.....	42	26.1	1,530	13.0	51 to 100.....	1	11.1	70	20.3
51 to 100.....	35	21.7	2,500	22.2	101 to 500.....	1	11.1	130	37.8
101 to 500.....	33	20.5	6,920	61.6	LIMESTONE.....	14	100.0	228	100.0
GOLD AND SILVER, LOSE MINES.....	198	100.0	3,495	100.0	No wage earners.....	3	21.4	.....	.....
No wage earners.....	39	19.7	.....	.....	1 to 5.....	4	28.6	15	6.6
1 to 5.....	70	35.4	182	5.2	6 to 20.....	4	28.6	36	15.8
6 to 20.....	57	28.8	581	16.6	21 to 50.....	1	7.1	34	14.9
21 to 50.....	19	9.6	661	18.9	51 to 100.....	2	14.3	143	62.7
51 to 100.....	6	3.0	412	11.8					
101 to 500.....	7	3.5	1,659	47.5					

¹ Includes molybdenum, tungsten, uranium, and vanadium.

MINES AND QUARRIES—COLORADO.

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.	
			Enter-prises.	Wage earners.	Enter-prises.	Wage earners.	Enter-prises.	Wage earners.	Enter-prises.	Wage earners.	Enter-prises.	Wage earners.
All industries.....	1 412	16, 790	3	212	5	110	272	12, 549	130	3, 917	2	2
Coal, bituminous.....	100	11, 252	2	97	4	109	148	10, 700	6	346	.....	.....
Gold and silver, lode mines.....	159	3, 495	.....	.....	1	1	84	1, 293	74	2, 201	.....	.....
Copper and lead and zinc.....	29	971	1	115	.....	.....	9	236	19	620	.....	.....
Rare metals ¹	9	344	.....	.....	.....	.....	.....	.....	9	344	.....	.....
Limestone.....	11	228	.....	.....	.....	.....	8	152	3	45	.....	.....
All other industries.....	44	500	.....	.....	.....	.....	23	138	19	360	2	2

¹ Exclusive of 65 enterprises employing no wage earners in industries as follows: Clay, 9; coal, bituminous, 1; copper, lead, and zinc, 3; fluorspar, 2; gold and silver, lode mines, 39; gold, placer mines, 1; granite, 1; limestone, 3; petroleum, 4; sandstone, 2.

² Includes molybdenum, tungsten, uranium, and vanadium.

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.....	17, 268	18, 541	17, 978	17, 870	17, 082	16, 124	16, 149	16, 976	17, 635	17, 353	17, 083	16, 728	18, 694	84.1
Producing enterprises.....	16, 790	18, 151	17, 000	17, 460	16, 716	15, 723	15, 681	16, 424	17, 086	16, 782	16, 527	15, 175	18, 155	83.6
Coal, bituminous.....	11, 252	12, 028	11, 566	11, 440	11, 131	10, 547	10, 269	10, 988	11, 490	11, 511	11, 224	10, 088	12, 804	78.3
Gold and silver, lode mines.....	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	47.5
Lead and zinc.....	936	1, 515	1, 444	1, 445	1, 193	821	577	647	700	747	753	759	986	34.4
Rare metals ¹	344	454	435	361	238	202	313	324	305	340	404	401	347	45.4
Limestone.....	228	327	303	274	276	257	268	273	277	243	87	73	78	22.3
Gold, placer mines.....	110	99	107	109	118	119	115	121	121	95	108	108	100	78.5
Manganese.....	65	114	92	91	121	129	88	83	36	18	.....	.....	.....	14.0
Clay.....	59	45	50	61	52	49	44	57	62	60	75	74	79	55.7
Copper.....	35	38	37	43	31	37	35	38	35	35	32	34	25	58.1
Sandstone.....	14	5	5	8	15	15	15	15	18	31	22	15	4	12.9
All other industries.....	252	291	317	298	267	247	208	223	229	231	241	233	241	65.0
Nonproducing enterprises.....	478	390	378	410	366	401	468	552	549	576	556	551	539	63.5

¹ Includes molybdenum, tungsten, uranium, and vanadium.

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

	Aggregate.	PRODUCING ENTERPRISES.				
		Total.	Coal, bituminous.	Gold and silver, lode mines. ¹	Gold, placer mines.	Lead and zinc. ²
Number of enterprises.....	537	477	161	198	5	27
Number of mines and quarries.....	586	523	164	234	7	37
Number of petroleum wells.....	70	70				
Capital.....	\$157,410,128	\$147,154,042	\$66,007,130	\$54,043,972	\$1,827,400	\$16,550,300
Principal expenses:						
Salaries and wages—						
Officers.....	\$713,073	\$681,220	\$474,251	\$117,448	\$4,890	\$53,155
Superintendents and managers.....	\$1,216,395	\$1,121,116	\$538,289	\$303,837	\$19,265	\$91,157
Technical employees.....	\$179,084	\$160,406	\$43,708	\$64,255		\$35,361
Clerks, etc.....	\$849,063	\$825,778	\$520,349	\$117,991	\$3,420	\$134,947
Wage earners.....	\$26,041,700	\$25,405,043	\$16,833,313	\$5,676,926	\$190,508	\$1,435,521
Supplies and materials.....	\$8,075,123	\$7,072,203	\$3,052,028	\$3,259,774	\$141,936	\$523,492
Cost of ore purchased.....	\$4,282,353	\$4,282,353		\$3,064,401		\$310,952
Fuel.....	\$1,310,257	\$1,253,016	\$622,923	\$517,290	\$5,388	\$34,798
Power.....	\$1,494,081	\$1,458,464	\$442,261	\$679,716	\$96,202	\$191,572
Royalties and rents.....	\$1,607,400	\$1,583,712	\$732,430	\$523,205	\$37,427	\$199,000
Taxes.....	\$1,155,735	\$1,136,752	\$623,875	\$354,525	\$11,354	\$75,948
Contract work.....	\$423,985	\$397,930	\$16,381	\$177,180		\$31,398
Expenditures for development (included in the above items).....	\$5,197,011	\$3,884,109	\$1,240,602	\$1,455,215		\$700,131
Value of products.....	\$51,217,038	\$51,217,038	\$28,342,195	\$16,785,716	\$570,819	\$2,622,150
Persons engaged in industry.....	19,105	18,502	12,017	4,077	122	1,094
Proprietors and firm members (total).....	406	378	56	220	3	32
Number performing manual labor.....	240	237	43	144	3	15
Salaried officers.....	228	212	116	60	2	13
Superintendents and managers.....	461	417	184	153	5	26
Technical employees.....	127	110	30	46		24
Clerks, etc.....	615	595	379	97	2	63
Wage earners (average number).....	17,268	10,790	11,252	3,495	110	930
Wage earners by occupation (Dec. 15):						
Above ground (total).....	5,950	5,703	2,772	1,442	112	384
Below ground (total).....	14,510	14,090	10,287	2,509		824
Foremen, shift bosses, etc.—						
Above ground.....	275	247	93	83	6	17
Below ground.....	407	388	218	100		33
Enginemen, hoistmen, electricians, mechanics, etc.—						
Above ground.....	1,575	1,507	834	344	24	127
Below ground.....	530	519	351	117		49
Miners, quarrymen, and drillmen, including their helpers—						
Above ground.....	452	423	106	34	22	3
Below ground.....	8,643	8,375	6,655	1,115		377
Timbermen, trackmen, and men engaged in hauling, tramming, etc.—						
Above ground.....	413	397	210	60	3	19
Below ground.....	2,494	2,458	1,487	700		168
Muckers, loaders, laborers, and others not classified—						
Above ground.....	2,360	2,249	1,479	343	57	40
Below ground.....	2,436	2,350	1,576	488		107
Wage earners employed in mills and beneficiating plants—						
Above ground.....	875	875	50	573		178
Number of females included in wage earners reported above—						
Above ground.....	65	44	3	16	6	3
Number of wage earners under 16 years included in those reported above—						
Above ground.....	3	3			1	
Mineral and oil land operated..... acres.....	222,637	211,260	127,881	25,658	6,238	7,596
Land controlled, total..... acres.....	233,798	221,939	131,838	26,960	6,238	8,507
Mineral and oil land owned.....	164,227	148,109	89,608	16,149	4,839	5,442
Mineral and oil land leased.....	68,879	63,537	38,573	9,585	1,399	2,104
Timber and other lands owned and leased.....	10,692	10,293	3,657	1,226		901
Power used: Aggregate horsepower.....	120,995	116,351	63,016	32,506	2,365	12,394
Prime movers (horsepower, total).....	48,407	46,481	31,461	9,486	150	1,979
Steam engines—						
Number.....	506	484	274	75		5
Horsepower.....	41,674	40,012	30,327	6,711		650
Steam turbines—						
Number.....	2	2	2			
Horsepower.....	1,050	1,050	1,050			
Internal-combustion engines—						
Number.....	63	55	4	10		1
Horsepower.....	1,331	1,159	84	160		4
Water wheels and turbines—						
Number.....	27	21		13	1	6
Horsepower.....	4,952	4,260		2,575	150	1,325
Purchased power (horsepower, total).....	72,588	69,870	31,555	23,070	2,215	10,405
Electric motors operated by purchased current—						
Number.....	1,875	1,802	785	638	51	240
Horsepower.....	72,243	69,630	31,455	22,985	2,215	10,405
Other equipment operated by purchased power—						
Horsepower.....	345	190	100	85		
Electric motors run by current generated by enterprise using:						
Number.....	343	342	263	13		50
Horsepower.....	12,550	12,526	10,481	698		1,000
Fuel used:						
Coal, anthracite..... tons, 2,240 pounds.....	112	112		8	70	34
Coal, bituminous..... tons, 2,000 pounds.....	413,301	409,278	288,884	107,748	350	6,274
Coke..... tons, 2,000 pounds.....	110	110		110		
Wood..... cords.....	2,801	1,109	25	102	717	
Fuel oils..... barrels.....	5,338	4,588		2,395	34	120
Gasoline and other volatile oils..... barrels.....	1,866	1,684	34	288	2	4
Natural gas..... 1,000 cubic feet.....	6,820	6,820				

¹ Includes 4 reduction mills operated independently of mines and 2 operations on dumps and old tailings.
² Includes 1 reduction mill operated independently of mines.

MINES AND QUARRIES—COLORADO.

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

	PRODUCING ENTERPRISES—continued.							Nonproducing enterprises. ⁶
	Rare metals. ³	Limestone.	Manganese.	Clay.	Sandstone.	Copper.	All other. ⁴	
Number of enterprises.....	9	14	4	21	7	5	28	60
Number of mines and quarries.....	9	14	4	21	8	5	20	63
Number of petroleum wells.....							70	
Capital.....	\$2, 143, 903	\$738, 551	\$310, 000	\$599, 823	\$64, 450	\$722, 255	\$4, 145, 858	\$10, 255, 438
Principal expenses:								
Salaries and wages—								
Officers.....	\$11, 461	\$542	\$1, 500			\$150	\$12, 832	\$31, 844
Superintendents and managers.....	\$43, 173	\$13, 567	\$4, 300	\$5, 300		\$10, 400	\$31, 828	\$95, 279
Technical employees.....	\$15, 282					\$1, 800		\$18, 678
Clerks, etc.....	\$34, 070	\$5, 206	\$450	\$1, 320		\$100	\$7, 925	\$23, 285
Wage earners.....	\$454, 813	\$279, 758	\$108, 121	\$52, 139	\$14, 903	\$43, 032	\$317, 509	\$636, 657
Supplies and materials.....	\$360, 597	\$78, 558	\$16, 893	\$20, 653	\$3, 791	\$17, 448	\$197, 033	\$402, 020
Cost of ore purchased.....	\$7, 000							
Fuel.....	\$22, 787	\$14, 108	\$2, 791	\$617	\$400	\$85	\$31, 829	\$57, 241
Power.....	\$21, 665	\$3, 428	\$4, 928	\$752	\$48	\$400	\$12, 402	\$40, 567
Royalties and rents.....	\$19, 185	\$4, 350	\$35, 566	\$15, 503	\$304	\$392	\$15, 690	\$23, 688
Taxes.....	\$29, 479	\$500	\$1, 907	\$1, 052	\$329	\$2, 716	\$35, 067	\$18, 983
Contract work.....	\$887	\$102, 717		\$42, 057	\$19, 065		\$7, 555	\$26, 055
Expenditures for development (included in the above items).....	\$70, 569	\$45, 763	\$14, 600	\$1, 672		\$35, 149	\$240, 218	\$1, 332, 002
Value of products.....	\$1, 245, 014	\$526, 738	\$361, 940	\$174, 536	\$45, 723	\$26, 723	\$515, 484	
Persons engaged in industry.....	419	240	83	78	19	45	302	603
Proprietors and firm members (total).....	3	8	14	13	5	3	21	28
Number performing manual labor.....	2	5	3		4	3	15	3
Salaried officers.....	6		1			1	7	16
Superintendents and managers.....	18	7	2	3		4	15	44
Technical employees.....	0					1		17
Clerks, etc.....	30	3	1	3		1	7	20
Wage earners (average number).....	344	228	65	59	14	35	252	478
Wage earners by occupation (Dec. 15):								
Above ground (total).....	392	285	12	81	21	3	199	247
Below ground (total).....	198		135			30	107	420
Foremen, shift bosses, etc.—								
Above ground.....	27	9	1	4	2	1	4	28
Below ground.....	14		6			3	5	19
Enginemen, hoistmen, electricians, mechanics, etc.—								
Above ground.....	84	16	11	6		2	59	68
Below ground.....						2		11
Miners, quarrymen, and drillmen, including their helpers—								
Above ground.....	84	92		18	17		52	24
Below ground.....	113		44			17	64	268
Timbermen, trackmen, and men engaged in hauling, tramping, etc.—								
Above ground.....	39	53					13	16
Below ground.....	58		14			3	28	36
Muckers, loaders, laborers, and others not classified—								
Above ground.....	112	115		53	2		48	111
Below ground.....	13		71			5	20	88
Wage earners employed in mills and beneficiating plants—								
Above ground.....	46						23	
Number of females included in wage earners reported above—								
Above ground.....	19					1	5	21
Number of wage earners under 16 years included in those reported above—								
Above ground.....	2							
Mineral and oil land operated..... acres.....	11, 896	3, 004	55	11, 159	504	709	16, 560	11, 377
Land controlled, total..... acres.....	11, 921	3, 004	55	11, 559	504	753	20, 600	11, 850
Mineral and oil land owned..... acres.....	11, 888	2, 121	28	9, 740	401	638	7, 195	6, 118
Mineral and oil land leased.....	8	883	27	1, 419	43	71	9, 365	5, 342
Timber and other lands owned and leased.....	25			400		44	4, 040	390
Power used: Aggregate horsepower.....	2, 296	521	270	269	87	25	2, 612	4, 644
Prime movers (horsepower, total).....	723	273	145	38	83		2, 193	1, 926
Steam engines—								
Number.....	1	4	3	1	2		119	22
Horsepower.....	80	160	145	8	83		1, 848	1, 062
Steam turbines—								
Number.....								
Horsepower.....								
Internal-combustion engines—								
Number.....	10	5		2			17	8
Horsepower.....	433	113		30			345	172
Water wheels and turbines—								
Number.....	1							6
Horsepower.....	210							692
Purchased power (horsepower, total).....	1, 573	248	125	231	4	25	419	2, 718
Electric motors operated by purchased current—								
Number.....	38	6	3	13	1	2	25	72
Horsepower.....	1, 573	248	125	231	4	25	414	2, 563
Other equipment operated by purchased power—								
Horsepower.....							5	155
Electric motors run by current generated by enterprise using:								
Number.....	28							1
Horsepower.....	346							25
Fuel used:								
Coal, anthracite..... tons, 2,240 pounds.....								
Coal, bituminous..... tons, 2,000 pounds.....	1, 491	2, 353	457	36	75	10	3, 600	4, 023
Coke..... tons, 2,000 pounds.....								
Wood..... cords.....	269						5	1, 692
Fuel oils..... barrels.....	309						1, 739	750
Gasoline and other volatile oils..... barrels.....	805	257		19			275	182
Natural gas..... 1,000 cubic feet.....							6, 820	

³ Includes molybdenum, tungsten, uranium, and vanadium.⁴ Includes enterprises as follows: Fluorspar, 4; granite, 3; graphite, 1; gypsum, 2; petroleum, 10; pyrite, 1.⁶ Includes enterprises as follows: Coal, bituminous, 1; gold, silver, copper, lead, or zinc, 58; vanadium 1.

CONNECTICUT.

Connecticut, which is one of the smaller states—forty-sixth in size (land area 4,820 square miles) and twenty-ninth in population (1,380,631 in 1920)—ranked forty-second in value of mineral products in 1919. It ranked forty-fourth in total number of persons engaged in the mining and quarrying industries and in the average number of wage earners employed.

The total value of products of all mines and quarries in Connecticut in 1919 was \$1,649,003, which was an increase of 19.9 per cent over the corresponding value for 1909. This increase and the increases in salaries, cost of supplies and materials and fuel and power, as shown in Table 1, are due to general price increases and are not indicative of progress in the mining industries. On the other hand, the changes in number of enterprises and mines and quarries operated, in the number of wage earners, and wages paid are significant and indicate a decline of the industries.

The mining industries reported for 1919, classified by principal products and listed in order of value of products, were basalt or traprock, granite, feldspar, iron ore, limestone, silica, and sandstone. The industries for which statistics can be shown without disclosure of individual operations are ranked by value of products in Table 2.

The leading mineral industry, basalt or trap-rock quarrying, produced stone to the value of \$1,262,579, which amount was 76.6 per cent of the value of all mineral products for the state in 1919. The quarrying industries—that is, basalt, granite, limestone,

and sandstone combined—reported 91.1 per cent of the value of all products.

Table 3 shows that corporations outclassed other forms of organization among operators of mining enterprises and that they conducted 58.5 per cent of the total number of enterprises, employed 76.4 per cent of the total number of wage earners, and reported 84.3 per cent of the total value of all products.

The relatively large number of small enterprises, as determined by the average number of wage earners employed, is shown in Table 4. In 1919 only 1 out of a total of 41 enterprises in Connecticut employed more than 100 wage earners. This enterprise, in the basalt or trap-rock industry, employed 104 wage earners, or 19.2 per cent of the total number. The 40 other enterprises in the state were in classes having no wage earners or less than 51, and these enterprises employed 80.8 per cent of the total number of wage earners.

Table 5 shows that in 72.5 per cent of the enterprises employing wage earners and for approximately 85 per cent of the wage earners the prevailing hours of labor per week were 54 to 62.

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

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.....	41	71	.....			
Number of mines and quarries.....	47	75	.....			
Persons engaged.....	642	1,546	-58.5	Principal expenses:			
Proprietors and firm members, total.....	27	76	.....	Salaries.....	\$144,476	\$89,084	74.7
Number performing manual labor.....				Wages.....	646,624	729,277	-11.3
Salaried employees.....	72	85	.....	Contract work.....	27,038	13,761	98.6
Wage earners (average number).....	543	1,385	-60.8	Supplies and materials.....	304,036	127,424	138.6
Power used (horsepower).....	8,620	6,298	35.3	Fuel and power.....	120,374	71,617	67.4
Capital.....	\$3,557,208	\$2,064,442	20.0	Royalties and rents.....	10,604	16,771	-36.8
				Taxes.....	45,637	17,657	156.2
				Value of products.....	1,640,003	1,375,765	19.9

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

MINES AND QUARRIES—CONNECTICUT.

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.....	41	643	100.0	\$1,649,003	100.0	Granite.....	11	92	16.9	\$206,546	12.5
Basalt.....	20	363	66.9	1,282,579	76.6	All other industries ¹	10	88	16.2	179,878	10.9

¹Includes enterprises in industries as follows: Feldspar, 4; iron ore, 1; limestone, 1; sandstone, 3; silica, 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.....	41	543	\$1,649,003	\$40,220	100.0	100.0	100.0
Corporation.....	24	415	1,360,101	67,921	58.5	76.4	84.3
Individual.....	9	72	125,902	13,989	22.0	13.3	7.6
Firm.....	8	56	133,000	16,625	19.5	10.3	8.1
BASALT.....	20	363	1,282,579	63,129	100.0	100.0	100.0
Corporation.....	13	313	1,134,685	87,283	65.0	86.2	89.9
Individual.....	3	12	20,666	9,889	15.0	3.3	2.2
Firm.....	4	38	98,228	24,557	20.0	10.5	7.8
GRANITE.....	11	92	206,546	18,777	100.0	100.0	100.0
Corporation.....	6	50	135,533	22,580	54.5	54.3	65.6
Individual ¹	5	42	71,013	14,203	45.5	45.7	34.4

¹ Includes 2 firms.

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.....	41	100.0	543	100.0	GRANITE.....	11	100.0	92	100.0
No wage earners.....	1	2.4	.....	.....	1 to 5.....	3	27.3	6	6.5
1 to 5.....	11	26.8	23	4.2	6 to 20.....	7	63.6	62	67.4
6 to 20.....	21	51.2	227	41.8	21 to 50.....	1	9.1	24	26.1
21 to 50.....	7	17.1	189	34.8					
101 to 500.....	1	2.4	104	19.2					
BASALT.....	20	100.0	363	100.0					
No wage earners.....	1	5.0	.....	.....			
1 to 5.....	3	15.0	7	1.9					
6 to 20.....	10	50.0	119	32.8					
21 to 50.....	5	25.0	133	36.6					
101 to 500.....	1	5.0	104	28.7					

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 PREVAILING HOURS OF LABOR PER WEEK WERE—			
	Enterprises.	Wage earners.	44 to 53.		54 to 62.	
			Enterprises.	Wage earners.	Enterprises.	Wage earners.
All industries.....	140	543	11	87	29	456
Basalt.....	119	363	.....	.....	19	363
Granite.....	11	92	10	86	1	6
All other industries.....	10	88	1	1	9	87

¹ Exclusive of 1 enterprise employing no wage earners.

MINES AND QUARRIES—CONNECTICUT.

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.....	543	447	487	491	535	590	591	598	583	553	565	578	553	71.4
Basalt.....	303	281	277	333	350	380	386	408	405	377	393	395	368	68.2
Granite.....	92	79	67	68	89	103	111	108	97	94	94	95	94	60.4
All other industries.....	88	87	83	85	96	102	94	84	81	87	78	88	91	76.5

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

	PRODUCING ENTERPRISES.					PRODUCING ENTERPRISES.			
	Total.	Basalt.	Granite.	All other. ¹		Total.	Basalt.	Granite.	All other. ¹
Number of enterprises.....	41	20	11	10	Persons engaged in industry—Contd. Wage earners by occupation (Dec. 15)—Continued.				
Number of mines and quarries.....	47	22	11	14		Timbermen, trackmen, and men engaged in hauling, tramming, etc.—			
Capital.....	\$3,557,208	\$2,970,389	\$367,209	\$213,660	Above ground.....	51	20	23	8
Principal expenses:					Muckers, loaders, laborers, and others not classified—				
Salaries and wages—					Above ground.....	214	190	7	17
Officers.....	\$39,623	\$44,915	\$17,500	\$7,208	Wage earners employed in mills and beneficiating plants—				
Superintendents and managers.....	\$41,843	\$25,209	\$15,134	\$1,500	Above ground.....	40	2	21	17
Technical employees.....	\$7,350	\$6,000	\$750	\$4,787	Mineral land operated..... acres..	2,995	2,317	410	268
Clerks, etc.....	\$25,660	\$15,788	\$5,115	\$4,787	Land controlled, total..... acres..	3,200	2,352	540	308
Wage earners.....	\$646,624	\$450,960	\$102,821	\$92,843	Mineral land owned.....	2,815	2,221	434	160
Supplies and materials.....	\$304,096	\$231,885	\$18,819	\$53,392	Mineral land leased.....	225	96	21	108
Fuel.....	\$75,788	\$45,778	\$14,153	\$15,857	Timber and other lands owned and leased.....	160	35	85	40
Power.....	\$44,586	\$41,565	.....	\$3,021	Power used: Aggregate horsepower.....	8,520	6,254	1,165	1,101
Royalties and rents.....	\$10,604	\$2,817	\$3,313	\$4,474	Prime movers (horsepower, total).....	4,831	2,720	1,165	946
Taxes.....	\$45,057	\$38,409	\$5,206	\$1,442	Steam engines—				
Contract work.....	\$27,038	\$19,337	\$3,000	\$4,701	Number.....	64	26	30	8
Expenditures for development (included in the above items).....	\$10,747	\$6,256	.....	\$4,491	Horsepower.....	4,675	2,705	1,150	820
Value of products.....	\$1,649,003	\$1,262,579	\$208,540	\$179,878	Internal-combustion engines—				
Persons engaged in industry.....	642	425	116	101	Number.....	7	2	1	4
Proprietors and firm members (total).....	27	11	9	7	Horsepower.....	80	15	15	60
Number performing manual labor.....	5	1	3	1	Water wheels and turbines—				
Salaried officers.....	19	15	2	2	Number.....	2	.....	.....	2
Superintendents and managers.....	22	14	7	1	Horsepower.....	70	.....	.....	70
Technical employees.....	4	3	1	.....	Purchased power (horsepower, total).....	3,689	3,534	.....	155
Clerks, etc.....	27	19	5	3	Electric motors operated by purchased current—				
Wage earners (average number).....	543	363	92	88	Number.....	46	41	.....	5
Wage earners by occupation (Dec. 15):					Horsepower.....	3,689	3,534	.....	155
Above ground (total).....	616	408	117	91	Electric motors run by current generated by enterprise using:				
Below ground (total).....	14	.....	.....	14	Number.....	8	3	5	.....
Foremen, shift bosses, etc.—					Horsepower.....	44	4	40	.....
Above ground.....	32	17	9	6	Fuel used:				
Below ground.....	2	.....	.....	2	Coal, anthracite, tons, 2,240 pounds..	78	26	22	30
Enginemen, hoistmen, electricians, mechanics, etc.—					Coal, bituminous, tons, 2,000 pounds..	11,691	7,455	2,345	1,891
Above ground.....	81	55	18	8	Wood..... cords..	335	35	100	200
Miners, quarrymen, and drillmen, including their helpers—					Gasoline and other volatile oils..... barrels..	118	4	100	14
Above ground.....	198	124	39	35					
Below ground.....	12	.....	.....	12					

¹ Includes enterprises as follows: Feldspar, 4; iron ore, 1; limestone, 1; sandstone, 3; silica, 1.

FLORIDA.

Florida, which ranks twenty-first among the states in size (land area 54,861 square miles) and thirty-second in population (968,470 in 1920), ranked thirty-second in value of mineral products for 1919. The state also ranked thirty-second 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 Florida in 1919 was \$8,976,413, which was a slight increase, 1.5 per cent, over the value reported at the census of 1909. Increases in salaries and wages, in cost of supplies and materials, and in the value of products, shown in Table 1, are largely due to general price increases; an actual decline in the mining industries is indicated by the decrease in number of mines and quarries operated and in the number of persons engaged in the industries. The addition of Federal income tax since 1909 will account for the large increase in taxes shown.

The industries reported for 1919, ranked according to value of products, were the mining or quarrying of phosphate rock, fuller's earth, clay, limestone, and rare metals (titanium and zirconium). The mining industries which can be shown without disclosure of individual operations are ranked by value of products in Table 2.

Phosphate rock mining which is localized in nine central Gulf Coast and adjoining counties is the leading mineral industry in Florida. In this industry Florida outranks all other states. The value of products reported for the phosphate-rock industry in Florida in 1919 was \$6,678,888, which was 74.4 per cent of the value of all mineral products of the state and 64.8 per cent of the value of products of the phosphate-rock industry in the United States in 1919 (\$10,300,198).

The mining industry second in importance was fuller's earth produced in Gadsden and Manatee Counties. In this industry also Florida led all other states in 1919, with a production valued at \$1,779,550, which was

19.8 per cent of the total value of mineral products of the state and 88.1 per cent of the value of fuller's earth produced in the United States in 1919 (\$2,019,226).

The other mining industries, clay, limestone, and the recovery of rare metals from beach sands, were unimportant.

A small amount of development work in unproductive mining property was reported by the State in Florida in 1919.

The preponderance of the corporate form of organization among the operating enterprises in the mining industries in Florida is shown in Table 3. Corporations controlled 86.1 per cent of the mining enterprises in the state in 1919 and reported 94.6 per cent of the average number of wage earners and reported 92.7 per cent of the total value of products.

The relatively large number of small enterprises is determined by the average number of wage earners employed is shown in Table 4. Of the 1,100 mining enterprises in 1919 in Florida, 700 were in classes having fewer than 101 wage earners; such enterprises employed only 33.6 per cent of the total number of wage earners. On the other hand, enterprises employing more than 100 wage earners constituted 27.8 per cent of the total number of enterprises and employed 66.4 per cent of the total number of wage earners. These larger enterprises are concentrated in the phosphate rock and fuller's earth industries.

Table 5 shows that in the majority of enterprises and for about 80 per cent of the wage earners, hours of labor were 54 to 62 per week. In Florida mines the 10-hour day prevailed.

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

Table 7 presents for 1919 statistics in the mining industries in the state as a whole and for each industry, shown without the disclosure of individual operations.

MINES AND QUARRIES—FLORIDA.

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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			1910	1909	
Number of enterprises.....	30	30		Capital.....	\$58,067,602	\$20,704,901	179.2
Number of mines and quarries.....	55	96		Principal expenses:			
Persons engaged.....	3,094	5,761	-35.9	Salaries.....	600,202	495,750	34.4
Proprietors and firm members, total.....	8	9		Wages.....	3,107,813	2,350,854	32.2
Number performing manual labor in or about the mines and quarries.....	2			Contract work.....	124,202	217,601	-44.3
Salaried employees.....	314	304	3.3	Supplies and materials.....	1,836,220	738,046	148.5
Wage earners (average number).....	3,372	5,448	-38.1	Fuel and power.....	1,087,000	1,223,035	38.0
Power used (horsepower).....	44,000	42,300	6.1	Royalties and rents.....	140,815	107,702	-28.8
				Taxes.....	408,520	70,403	479.5
				Value of products.....	8,976,413	8,840,605	1.5

¹ 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.....	30	3,372	100.0	\$8,976,413	100.0	Fuller's earth.....	5	717	21.3	\$1,770,550	19.8
Phosphate rock.....	23	2,330	69.1	6,678,888	74.4	Limestone.....	4	111	3.3	177,201	2.0
						All other industries ¹	4	214	6.3	340,774	3.8

¹ Includes enterprises in industries as follows: Clay, 3; rare metals (titanium and zirconium), 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.....	30	3,372	\$8,976,413	\$290,345	100.0	100.0	100.0
Corporation.....	31	3,101	8,319,962	268,380	86.1	91.6	92.7
Individual and firm.....	5	181	656,451	131,290	13.9	8.4	7.3
PHOSPHATE ROCK.....	23	2,330	6,678,888	260,380	100.0	100.0	100.0
Corporation.....	20	2,101	6,076,284	303,814	87.0	94.0	91.0
Individual and firm.....	3	139	602,604	200,808	13.0	6.0	9.0
FULLER'S EARTH.....	5	717	1,770,550	355,910	100.0	100.0	100.0
Corporation.....	5	717	1,770,550	355,910	100.0	100.0	100.0

MINES AND QUARRIES—FLORIDA.

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.....	36	100.0	3,372	100.0	FULLER'S EARTH.....	5	100.0	717	100.0
1 to 5.....	1	2.8	2	0.1	51 to 100.....	2	40.0	153	21.3
6 to 20.....	4	11.1	58	1.7	101 to 500.....	3	60.0	564	78.7
21 to 50.....	10	27.8	364	10.8	LIMESTONE.....	4	100.0	111	100.0
51 to 100.....	11	30.6	708	21.0	1 to 5.....	1	25.0	2	1.8
101 to 500.....	10	27.8	2,240	66.4	6 to 20.....	1	25.0	17	15.3
PHOSPHATE ROCK.....	23	100.0	2,330	100.0	21 to 50.....	1	25.0	40	35.0
6 to 20.....	3	13.0	41	1.8	51 to 100.....	1	25.0	52	46.8
21 to 50.....	7	30.4	247	10.6					
51 to 100.....	6	26.1	366	15.7					
101 to 500.....	7	30.4	1,676	71.9					

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—						INDUSTRY.	TOTAL.		NUMBER WHERE THE PREVAILING HOURS OF LABOR PER WEEK WERE—					
	Enter-prises.	Wage earners.	44 to 53.		54 to 62.		72 to 84.			Enter-prises.	Wage earners.	44 to 53.		54 to 62.		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.....	36	3,372	4	338	29	2,688	3	346	Fuller's earth.....	5	717			5	717		
Phosphate rock.....	23	2,330	2	247	18	1,737	3	346	Limestone.....	4	111			3	59		
									All other industries.....	1	39			3	175		

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.....	3,372	3,848	3,903	3,861	3,934	2,202	<i>1,886</i>	2,330	2,745	2,901	3,050	4,282	4,918	37.4
Phosphate rock.....	2,330	2,867	2,937	2,852	2,955	1,179	<i>814</i>	1,277	1,049	1,870	2,553	3,190	3,817	21.3
Fuller's earth.....	717	602	600	621	663	720	716	748	795	799	779	778	783	75.1
Limestone.....	111	110	108	122	119	122	113	108	106	102	105	115	<i>108</i>	83.6
All other industries.....	214	289	258	266	197	181	193	197	195	190	213	199	210	67.8

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

	PRODUCING ENTERPRISES.				
	Total.	Phosphate rock.	Fuller's earth.	Limestone.	All other. ¹
Number of enterprises.....	30	23	5	4	4
Number of mines and quarries.....	55	40	5	6	4
Capital.....	\$58,087,002	\$55,740,488	\$1,382,483	\$110,374	\$823,317
Principal expenses:					
Salaries and wages—					
Officers.....	\$225,123	\$173,773	\$23,000	\$3,600	\$24,750
Superintendents and managers.....	\$213,825	\$169,555	\$25,492	\$9,766	\$9,012
Technical employees.....	\$80,248	\$78,048	\$4,200		
Clerks, etc.....	\$147,006	\$130,595	\$8,009	\$1,671	\$8,731
Wage earners.....	\$3,107,813	\$2,372,141	\$475,702	\$31,651	\$178,319
Supplies and materials.....	\$1,836,229	\$1,455,370	\$279,309	\$34,399	\$67,151
Fuel.....	\$1,613,472	\$1,277,909	\$266,537	\$9,002	\$59,034
Power.....	\$74,224	\$60,785		\$4,438	
Royalties and rents.....	\$140,815	\$128,834	\$4,898	\$5,683	\$1,500
Taxes.....	\$408,529	\$275,354	\$116,698	\$720	\$15,757
Contract work.....	\$121,202	\$115,232	\$5,940		
Expenditures for development (included in the above items).....	\$301,881	\$301,881			
Value of products.....	\$8,976,413	\$6,678,888	\$1,770,550	\$177,201	\$340,774
Persons engaged in industry.....	3,694	2,585	743	124	237
Proprietors and firm members (total).....	8	5		3	
Number performing manual labor.....	2			2	
Salaried officers.....	44	27	6	3	8
Superintendents and managers.....	91	65	16	5	5
Technical employees.....	54	52	2		
Clerks, etc.....	125	108	7	2	10
Wage earners (average number).....	3,372	2,330	717	111	214
Wage earners by occupation (Dec. 15):					
Above ground (total).....	4,898	3,803	783	102	210
Foreman, shift bosses, etc.—					
Above ground.....	256	227	18	5	6
Engineers, holstmen, electricians, mechanics, etc.—					
Above ground.....	985	918	41	12	14
Miners, quarrymen, and drillmen, including their helpers—					
Above ground.....	845	603	195	47	
Timbermen, trackmen, and men engaged in hauling, trammimg, etc.—					
Above ground.....	274	203	50	6	15
Muckers, loaders, laborers, and others not classified—					
Above ground.....	1,923	1,080	39	32	171
Wage earners employed in mills and beneficiating plants—					
Above ground.....	610	100	440		4
Number of females included in wage earners reported above—					
Above ground.....	52	23	29		
Mineral land operated..... acres..	118,050	108,925	4,260	236	4,029
Land controlled, total..... acres..	197,385	188,002	4,518	236	4,029
Mineral land owned.....	114,590	106,685	3,340	106	4,429
Mineral land leased.....	3,490	2,240	920	130	200
Timber and other lands owned and leased.....	79,335	79,077	258		
Power used: Aggregate horsepower.....	44,969	40,996	1,880	400	1,603
Primo movers (horsepower, total).....	42,689	38,881	1,880	325	1,603
Steam engines—					
Number.....	83	27	28	7	21
Horsepower.....	12,428	9,095	1,475	325	1,533
Steam turbines—					
Number.....	17	17			
Horsepower.....	17,751	17,751			
Internal-combustion engines—					
Number.....	52	43	5		4
Horsepower.....	12,510	12,035	405		70
Purchased power (horsepower, total).....	2,280	2,115		165	
Electric motors operated by purchased current—					
Number.....	34	23		11	
Horsepower.....	2,280	2,115		165	
Electric motors run by current generated by enterprise using:					
Number.....	272	253	2		17
Horsepower.....	31,710	31,115	18		577
Fuel used:					
Coal, anthracite..... tons, 2,240 pounds..	100		100		
Coal, bituminous..... tons, 2,000 pounds..	32,688	19,621	8,692	390	4,085
Coke..... tons, 2,000 pounds..	146	146			
Wood..... cords..	44,567	32,022	9,630	2,052	863
Fuel oils..... barrels..	787,431	657,039	79,392		51,000
Gasoline and other volatile oils..... barrels..	11,610	10,786	712		112

¹ Includes enterprises as follows: Clay, 3; rare metals (titanium and zirconium), 1.
² Includes 1 wage earner under 16 years of age.

GEORGIA.

Georgia, which ranks twentieth among the states in size (land area 58,725 square miles) and twelfth in population (2,895,832 in 1920), ranked thirty-seventh in value of mineral products for the year 1919. The state ranked thirty-fifth 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 Georgia in 1919 was \$4,082,152, an increase of 42 per cent over the corresponding value at the census of 1909. Decline of mining industries in Georgia is indicated by the decreases in the number of enterprises, mines and quarries operated, persons engaged in the industries and in capital invested, as shown by Table 1. The increases in wages, cost of supplies and materials, fuel and power, and in the value of products are due to general price increases, and the impost of Federal income and excess profits taxes since 1909 accounts for the large increase in taxes shown.

The industries reported for 1919, ranked according to value of products, were the mining or quarrying of granite, barytes, clay, bauxite, iron ore, marble, pyrite, coal, limestone, feldspar, talc and soapstone, mineral pigments, fuller's earth, mica, asbestos, and gold ore. In addition to producing the materials as indicated by the industry designation, two enterprises classified as barytes also produced mineral pigments and one enterprise classified as mineral pigments produced a small amount of manganese. The value of these by-products and other unspecified mineral products and the sums received for power sold and for work or miscellaneous services for other enterprises amounted to \$31,621, which is included in the total value of products given above. The mining industries which can be shown without disclosure of individual operations are ranked by value of products in Table 2.

The leading mineral industry, granite, reported products valued at \$885,663, which was 21.7 per cent of the total value of mineral products of the state. Next in importance was barytes mining in Bartow

County, where products to the value of \$722,891 were produced in 1919. This amount was 17.7 per cent of the total value of mineral products for that year in Georgia and was the largest amount produced by any state, 45.4 per cent of the total value reported for the United States (\$1,592,245).

An unimportant amount of development work was reported for 1919 on nonproductive gold-mining property.

The preponderance of the corporate form of organization among the operators of mining enterprises is shown in Table 3. Corporations conducted 70.3 per cent of all the mining enterprises in the state in 1919, employed 84.2 per cent of the average number of wage earners, and reported 84.4 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 the state, 94.6 per cent were reported as having fewer than 101 wage earners and these enterprises employed 76.8 per cent of the total number of wage earners. Only four enterprises, or 5.4 per cent of the total number, had more than 100 wage earners each, and these employed 23.2 per cent of the total number of wage earners.

Table 5 shows that in about 40 per cent of the enterprises and for nearly half of the wage earners in all the mining industries in the state in 1919 the hours of labor were 44 to 53 per week. In a larger number of enterprises, but for a slightly smaller portion of the total number of wage earners, the hours per week were between 54 and 62.

The statistics for wage earners presented in Table 6, showing the 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 the disclosure of individual operations.

MINES AND QUARRIES—GEORGIA.

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TABLE 1.—COMPARATIVE SUMMARY, PRODUCING ENTERPRISES: 1919 AND 1920.

	MINING INDUSTRIES.		Per cent of increase. ¹		MINING INDUSTRIES.		Per cent of increase. ¹
	1919	1909			1919	1909	
Number of enterprises.....	74	92		Capital.....	\$6,184,470	\$11,475,710	-46.1
Number of mines and quarries.....	82	109	-24.8	Principal expenses:			
Persons engaged.....	2,608	3,636	-28.3	Salaries.....	355,013	189,906	86.9
Proprietors and firm members, total.....	33	58		Wages.....	2,017,400	1,278,159	57.8
Number performing manual labor in or about the mines and quarries.....	4	12		Contract work.....	35,295	1,903	
Salaried employees.....	178	195	-8.7	Supplies and materials.....	608,766	254,021	139.7
Wage earners (average number).....	2,397	3,383	-29.1	Fuel and power.....	356,019	140,666	142.7
Power used (horsepower).....	13,025	10,698	21.8	Royalties and rents.....	155,833	58,717	165.4
				Taxes.....	54,300	13,236	310.7
				Value of products.....	4,082,152	2,874,595	42.0

¹ A minus sign (-) denotes decrease. Percentages are omitted where base is less than 100.
² Includes cost of ore purchased.

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.....	74	2,397	100.0	\$4,082,152	100.0	Bauxite.....	4	150	6.3	\$298,261	7.3
Granite.....	20	580	24.2	885,063	21.7	Iron ore.....	9	215	9.0	283,487	6.9
Barytes.....	7	265	11.1	722,891	17.7	Limestone.....	5	80	3.3	174,821	4.3
Clay.....	11	465	19.4	710,004	17.4	All other industries ¹	18	642	26.8	1,009,025	24.7

¹ Includes enterprises in industries as follows: Asbestos, 1; coal, bituminous, 1; feldspar, 1; fuller's earth, 1; gold and silver, lode mines, 1; marble, 1; mica, 5; mineral pigments, 2; pyrite, 3; 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.....	74	2,397	\$4,082,152	\$55,164	100.0	100.0	100.0
Corporation.....	52	2,019	3,446,364	66,276	70.3	84.2	84.4
Individual.....	13	206	351,304	27,023	17.6	8.6	8.6
Firm.....	9	172	284,484	31,609	12.2	7.2	7.0
GRANITE.....	20	580	885,063	44,283	100.0	100.0	100.0
Corporation.....	9	388	640,819	71,202	45.0	66.9	72.4
Individual.....	7	102	155,295	22,185	35.0	17.6	17.5
Firm.....	4	90	89,540	22,387	20.0	15.5	10.1

MINES AND QUARRIES—GEORGIA.

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.	
	Num-ber.	Per cent distri-bution.	Num-ber.	Per cent distri-bution.		Num-ber.	Per cent distri-bution.	Num-ber.	Per cent distri-bution.
ALL INDUSTRIES.....	74	100.0	2,397	100.0	BARYTES.....	7	100.0	265	100.0
1 to 5.....	8	10.8	22	0.9	1 to 5.....	1	14.3	4	1.5
6 to 20.....	30	40.5	391	16.3	21 to 50.....	4	57.1	154	58.1
21 to 50.....	23	31.1	789	32.9	51 to 100.....	2	28.6	107	40.4
51 to 100.....	9	12.2	639	26.7	IRON ORE.....	9	100.0	215	100.0
101 to 500.....	4	5.4	556	23.2	6 to 20.....	5	55.6	79	36.7
GRANITE.....	20	100.0	580	100.0	21 to 50.....	4	44.4	136	63.3
1 to 5.....	3	15.0	10	1.7	BAUXITE.....	4	100.0	150	100.0
6 to 20.....	8	40.0	89	15.3	6 to 20.....	2	50.0	21	14.0
21 to 50.....	5	25.0	176	30.3	21 to 50.....	1	25.0	31	20.7
51 to 100.....	4	20.0	305	52.0	51 to 100.....	1	25.0	98	65.3
CLAY.....	11	100.0	465	100.0	LIMESTONE.....	5	100.0	80	100.0
6 to 20.....	4	36.4	58	12.5	1 to 5.....	1	20.0	1	1.2
21 to 50.....	4	36.4	153	32.0	6 to 20.....	3	60.0	44	55.0
51 to 100.....	2	18.2	129	27.7	21 to 50.....	1	20.0	35	43.8
101 to 500.....	1	9.1	125	26.9					

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—						INDUSTRY.	TOTAL.		NUMBER WHERE THE PREVAILING HOURS OF LABOR PER WEEK WERE—					
	Enter-prises.	Wage earn-ers.	44 to 53.		54 to 62.		72 to 84.			Enter-prises.	Wage earn-ers.	44 to 53.		54 to 62.		72 to 84.	
			Enter-prises.	Wage earn-ers.	Enter-prises.	Wage earn-ers.	Enter-prises.	Wage earn-ers.				Enter-prises.	Wage earn-ers.	Enter-prises.	Wage earn-ers.	Enter-prises.	Wage earn-ers.
All industries.....	74	2,397	29	1,186	44	1,103	1	48	Iron ore.....	9	215	2	77	7	138		
Granite.....	20	580	14	454	6	126			Bauxite.....	4	150	2	21	2	120		
Clay.....	11	465	2	168	9	297			Limestone.....	5	80	1	35	4	45		
Barytes.....	7	265	2	97	4	120	1	48	All other industries.....	18	642	6	334	12	308		

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-ge num-ber em-ployed dur-ing 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.	Sep-tember.	Octo-ber.	Novem-ber.	Decem-ber.	
All industries.....	2,397	2,386	2,408	2,393	2,339	2,288	2,328	2,501	2,586	2,510	2,479	2,271	2,275	87.8
Granite.....	580	441	478	<i>394</i>	547	597	608	651	710	657	604	560	573	62.1
Clay.....	465	452	437	<i>436</i>	490	470	457	486	405	476	475	480	456	89.0
Barytes.....	265	261	284	253	240	<i>214</i>	274	266	277	277	277	289	273	74.0
Iron ore.....	215	250	240	245	212	180	182	241	218	226	213	<i>168</i>	211	64.8
Bauxite.....	150	127	124	138	129	123	<i>114</i>	136	179	200	196	169	165	87.0
Limestone.....	80	94	<i>95</i>	90	93	65	93	83	71	63	61	67	82	64.2
All other industries.....	642	761	750	697	628	639	600	629	677	611	653	544	515	87.7

MINES AND QUARRIES—GEORGIA.

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

	PRODUCING ENTERPRISES							
	Total.	Granite.	Barytes.	Clay.	Bauxite.	Iron ore.	Limestone.	All other. ¹
Number of enterprises.....	74	20	7	11	4	9	5	18
Number of mines and quarries.....	82	20	10	11	9	9	5	18
Capital.....	\$6,184,470	\$882,638	\$278,014	\$1,075,074	\$315,757	\$215,510	\$303,980	\$3,113,491
Principal expenses:								
Salaries and wages—								
Officers.....	\$137,568	\$25,609	\$9,784	\$32,016	\$10,783	\$867	\$14,100	\$44,415
Superintendents and managers.....	\$127,848	\$15,000	\$18,437	\$33,047	\$17,000	\$10,140	\$8,210	\$26,008
Technical employees.....	\$16,519	\$6,000	\$2,500	\$600	\$2,026	\$743		\$4,050
Clerks, etc.....	\$78,078	\$8,883	\$22,581	\$8,816	\$3,042	\$3,605	\$1,055	\$23,916
Wage earners.....	\$2,017,460	\$536,599	\$227,871	\$399,155	\$144,125	\$131,282	\$59,337	\$519,091
Supplies and materials.....	\$591,266	\$84,311	\$147,075	\$181,286	\$14,075	\$38,741	\$23,056	\$102,122
Cost of ore purchased.....	\$17,500		\$17,500					
Fuel.....	\$296,847	\$65,909	\$19,516	\$86,821	\$17,429	\$39,183	\$8,294	\$69,495
Power.....	\$59,372	\$21,216	\$16,127				\$9,364	\$12,665
Royalties and rents.....	\$155,833	\$34,390	\$29,895	\$26,030	\$20,544	\$17,714	\$5,059	\$22,201
Taxes.....	\$54,300	\$5,817	\$5,722	\$9,766	\$4,063	\$21,178	\$381	\$7,943
Contract work.....	\$35,295		\$484				\$14,325	\$20,486
Expenditures for development (included in the above items).....	\$77,759	\$9,383	\$2,906	\$9,445		\$3,000		\$23,025
Value of products.....	\$4,082,152	\$885,663	\$722,891	\$710,004	\$296,261	\$283,487	\$174,821	\$1,000,025
Persons engaged in industry.....	2,608	631	289	495	165	229	99	700
Proprietors and firm members (total).....	33	15	4	3	2	2	1	6
Number performing manual labor.....	4	3						1
Salaried officers.....	45	13	4	7	2		7	12
Superintendents and managers.....	63	9	9	13	6	6	6	14
Technical employees.....	8	3	1	1	1	1		1
Clerks, etc.....	62	11	6	6	4	5	5	25
Wage earners (average number).....	2,397	580	265	465	150	215	80	642
Wage earners by occupation (Dec. 15):								
Above ground (total).....	2,332	651	300	487	171	225	102	446
Below ground (total).....	273					22		251
Foremen, shift bosses, etc.—								
Above ground.....	81	24	10	11	10	7	3	16
Below ground.....	14					2		12
Enginemen, hoistmen, electricians, mechanics, etc.—								
Above ground.....	285	45	53	43	10	36	8	90
Below ground.....	3							3
Miners, quarrymen, and drillmen, including their helpers—								
Above ground.....	673	296	13	142	93	34		95
Below ground.....	157					20		137
Timbermen, trackmen, and men engaged in hauling, tramming, etc.—								
Above ground.....	197	25	40	10	20	67	11	24
Below ground.....	44							44
Muckers, loaders, laborers, and others not classified—								
Above ground.....	701	124	143	233	25	34	80	122
Below ground.....	55							55
Wage earners employed in mills and beneficiating plants—								
Above ground.....	385	137	41	48	13	47		99
Number of females included in wage earners reported above—								
Above ground.....	15							15
Mineral land operated..... acres..	37,736	5,072	1,296	3,298	2,052	2,770	242	22,996
Land controlled, total..... acres..	55,608	6,090	1,373	3,313	12,376	3,170	242	30,044
Mineral land owned.....	22,095	385	644	1,031	258	2,160	120	17,497
Mineral land leased.....	15,651	4,697	652	2,282	1,804	610	122	5,499
Timber and other lands owned and leased.....	17,862	8	77	15	10,314	400		7,048
Power used: Aggregate horsepower.....	13,026	3,863	2,160	1,366	381	1,150	1,135	2,671
Prime movers (horsepower, total).....	9,502	2,534	1,295	1,300	381	1,150	435	2,341
Steam engines—								
Number.....	129	25	20	24	19	16	4	21
Horsepower.....	7,909	2,507	1,230	1,225	375	1,150	435	987
Steam turbines—								
Number.....	1			1				
Horsepower.....	100			100				
Internal-combustion engines—								
Number.....	25	4	1	10	2			8
Horsepower.....	303	27	15	41	6			304
Water wheels and turbines—								
Number.....	7		1					6
Horsepower.....	1,100		50					1,050
Purchased power (horsepower, total).....	3,524	1,329	865				700	630
Electric motors operated by purchased current—								
Number.....	62	18	23				4	17
Horsepower.....	3,494	1,299	865				700	630
Other equipment operated by purchased power—								
Horsepower.....	30	30						
Electric motors run by current generated by enterprise using:								
Number.....	31		6	8		1		16
Horsepower.....	3,797		225	170		50		3,352
Fuel used:								
Coal, bituminous..... tons, 2,000 pounds..	55,354	11,766	3,012	18,081	1,430	7,861	1,710	12,014
Wood..... cords..	6,442	30		250	5,893			359
Fuel oils..... barrels..	397			56				337
Gasoline and other volatile oils..... barrels..	822	178	200	158	100			183

¹ Includes enterprises as follows: Asbestos, 1; coal, bituminous, 1; feldspar, 1; fuller's earth, 1; gold and silver, lode mines, 1; marble, 1; mica, 5; mineral pigments, 2; pyrite, 3; talc and soapstone, 2.

IDAHO.

Idaho, which ranks twelfth among the states in size (land area 83,354 square miles) and forty-third in population (431,866 in 1920), ranked twenty-eighth in value of mineral products for 1919. The state ranked thirty-fourth in the total number of persons engaged in the mining industries and in the average number of wage earners employed.

The total amount received for products by the operators of mines and quarries in Idaho in 1919 was \$11,840,301, which was an increase of 36.9 per cent as compared with the value of products reported at the census of 1909. The value of products reported for 1919 includes a small amount received for custom milling and for miscellaneous services furnished other enterprises.

The increase in value of products and the increases in salaries, wages, cost of supplies and materials and fuel and power, as shown in Table 1, are largely due to general price increases during the decade and therefore can not be used as a measure of growth or progress of mining. Furthermore, the large decreases shown in the number of enterprises, number of individual mines and quarries operated, and number of wage earners employed are a reflection of temporarily adverse conditions and can not properly be used to measure the decline of mining in Idaho during the census period. The addition of Federal income taxes since 1909 accounts for the large increase in taxes.

The mining industries reported for 1919, classified by principal products and listed in order of value of products, were lead and zinc, gold and silver (lode), copper, limestone, placer gold, sandstone, phosphate rock, iron ore, basalt, bituminous coal, and abrasive materials. The industries for which statistics can be shown without disclosure of individual operations are ranked by value of products in Table 2.

Out of a total of 82 productive mining enterprises reported for the state of Idaho in 1919, 11 were engaged in placer mining and 60 in mining ores of gold, silver, copper, lead, and zinc. The lode-mining industries, reported from 15 counties, employed 91.8 per cent of the total number of wage earners and reported products to the value of \$11,266,947, or 95.2 per cent of the total. The mining of lead and zinc was the most important of the lode-mining industries in Idaho, which ranked third among the states in value of products of lead and zinc mines. In this industry there were 20 enterprises which employed 1,820 wage earners, or 74.1 per cent of the total number, and

reported products valued at \$9,529,723, or 80.5 per cent of the total value of products. Shoshone County was the principal source of lead and zinc ores.

In addition to the operation of producing mines and quarries, a large amount of work was done in Idaho on mineral properties which were not productive during the year. Fifty such enterprises were reported—1 cobalt mine; 1 quicksilver mine; 45 gold, silver, copper, lead or zinc lode mines, and 3 placer mines. These enterprises, with a combined capital of \$8,973,508, employed 373 wage earners and expended \$1,097,535 for development. These figures represent 13.2 per cent of the aggregate number of wage earners and 11.6 per cent of the aggregate expenditures reported for all mining operations in the state.

The form or character of organizations operating mining enterprises in Idaho in 1919 is shown in Table 3, which brings out the preponderance of incorporated enterprises over those of other forms of organization. Corporations conducted 61 per cent of the enterprises, employed 89.3 per cent of the total number of wage earners, and reported 89.9 per cent of the total value of products.

The relatively large number of small enterprises, as measured by the average number of wage earners employed, is shown in Table 4. Of the 82 mining enterprises in Idaho, 13 had no wage earners and 61 had fewer than 101 each and employed only 27.9 per cent of the total number of wage earners. On the other hand, 8 enterprises had more than 100 wage earners each, and these enterprises employed 72 per cent of the total number of wage earners. In Table 4 the larger enterprises are shown in the lead and zinc and gold and silver industries.

Table 5 shows that in a majority of the enterprises employing wage earners and for about 52 per cent of the total number of wage earners, the hours of labor were 54 to 62 per week. In all other enterprises the hours were 44 to 53 per week. The 8-hour day prevailed, with a 7-day week in most of the enterprises and a 6-day week in the others.

The statistics for wage earners presented in Table 6, showing the 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 the disclosure of individual operations.

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

	MINING INDUSTRIES.				MINING INDUSTRIES.		
	1919	1909	Per cent of increase. ¹		1919	1909	Per cent of increase. ¹
Number of enterprises.....	82	174	-52.9	Capital.....	\$71,093,746	\$48,892,888	45.4
Number of mines and quarries.....	88	370	-77.6	Principal expenses:			
Persons engaged.....	2,759	3,594	-23.2	Salaries.....	538,071	357,878	50.4
Proprietors and firm members, total.....	83	169	-50.9	Wages.....	4,201,624	4,045,547	3.9
Number performing manual labor in or about the mines and quarries.....	32	115	-72.2	Contract work.....	193,657	23,036	740.7
Salaried employees.....	221	179	23.5	Supplies and materials.....	2,028,256	1,847,458	9.7
Wage earners (average number).....	2,455	3,246	-24.4	Fuel and power.....	513,778	356,199	44.2
Power used (horsepower).....	31,239	26,278	18.9	Royalties and rents.....	182,364	27,632	580.0
				Taxes.....	649,069	158,145	310.4
				Value of products.....	11,840,301	8,649,342	30.9

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.....	82	2,455	100.0	\$11,840,301	100.0	Gold and silver, lode mines.....	32	349	14.2	1,396,915	11.8
Lead and zinc.....	20	1,820	74.1	9,529,723	80.5	Copper.....	8	87	3.5	340,309	2.9
						All other industries ¹	22	109	8.1	573,354	4.8

¹ Includes enterprises in industries as follows: Abrasive materials, 1; basalt, 1; coal, bituminous, 1; gold, placer mines, 11; iron ore, 1; limestone, 3; phosphate rock, 2; sandstone, 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.....	82	2,455	\$11,840,301	\$144,394	100.0	100.0	100.0
Corporation.....	50	2,193	10,642,595	212,852	61.0	89.3	89.9
Individual.....	11	18	34,345	3,122	13.4	0.7	0.3
Firm ¹	21	244	1,163,361	55,398	25.6	9.9	9.8
GOLD AND SILVER, COPPER, LEAD AND ZINC, LODE MINES.....	60	2,256	11,266,947	187,782	100.0	100.0	100.0
Corporation.....	40	2,004	10,102,002	252,550	65.7	88.8	89.7
Individual.....	4	9	10,600	2,650	6.7	0.4	0.1
Firm ¹	16	243	1,154,345	72,147	26.7	10.8	10.2

¹ Includes 1 other form of organization.

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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.....	82	100.0	2,455	100.0	GOLD AND SILVER, LODE MINES..	32	100.0	349	100.0
No wage earners.....	13	15.9	.....	.....	No wage earners.....	3	9.4	.....	.....
1 to 5.....	30	36.6	60	2.5	1 to 5.....	14	43.8	31	8.9
6 to 20.....	23	28.0	288	11.7	6 to 20.....	13	40.6	147	42.1
21 to 50.....	6	7.3	197	8.0	21 to 50.....	1	3.1	50	14.3
51 to 100.....	2	2.4	141	5.7	101 to 500.....	1	3.1	121	34.7
101 to 500.....	7	8.5	1,245	50.7					
501 to 1,000.....	1	1.2	524	21.3					
LEAD AND ZINC.....	20	100.0	1,820	100.0	COPPER.....	8	100.0	87	100.0
No wage earners.....	3	15.0	.....	.....	1 to 5.....	4	50.0	10	11.5
1 to 5.....	5	25.0	8	0.4	6 to 20.....	2	25.0	24	27.6
6 to 20.....	2	10.0	36	2.0	21 to 50.....	2	25.0	53	60.9
21 to 50.....	2	10.0	49	2.7					
51 to 100.....	1	5.0	79	4.3					
101 to 500.....	6	30.0	1,124	61.8					
501 to 1,000.....	1	5.0	524	28.8					

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—				INDUSTRY.	TOTAL.		NUMBER WHERE THE PREVAILING HOURS OF LABOR PER WEEK WERE—			
	Enter-prises.	Wage earners.	44 to 53.		54 to 62.			Enter-prises.	Wage earners.	44 to 53.		54 to 62.	
			Enter-prises.	Wage earners.	Enter-prises.	Wage earners.				Enter-prises.	Wage earners.	Enter-prises.	Wage earners.
All industries.....	109	2,455	29	1,180	40	1,275	Gold and silver, lode mines	29	349	11	94	18	255
Lead and zinc.....	17	1,820	6	994	11	826	Copper.....	8	87	4	21	4	66
							All other industries.....	15	199	8	71	7	123

¹ Exclusive of 13 enterprises employing no wage earners in industries as follows: Abrasive materials, 1; gold and silver, lode mines, 3; gold, placer mines, 6; lead and zinc, 3.

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.....	2,828	3,005	2,900	2,316	2,337	2,738	2,921	3,208	2,637	2,108	2,492	3,515	3,674	57.2
Producing enterprises.....	2,455	2,773	2,733	2,067	2,053	2,891	2,517	2,740	2,175	1,648	2,008	3,078	3,268	50.4
Lead and zinc.....	1,820	2,268	2,239	1,017	1,538	1,791	1,751	1,941	1,401	877	1,281	2,452	2,644	33.2
Gold and silver, lode mines.....	349	244	207	214	240	326	404	447	468	456	425	378	381	44.4
Copper.....	87	102	111	101	78	98	123	108	88	77	71	47	40	32.5
All other industries.....	199	169	176	136	150	176	239	250	220	238	231	201	203	54.0
Nonproducing enterprises.....	373	352	257	249	281	347	404	462	462	455	484	437	406	47.9

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

	Aggregate.	PRODUCING ENTERPRISES.					Non-producing enterprises. ³
		Total.	Lead and zinc.	Gold and silver, lode mines. ¹	Copper.	All other. ²	
Number of enterprises.....	132	82	20	32	8	22	50
Number of mines and quarries.....	133	83	21	32	8	22	50
Capital.....	\$80,067,254	\$71,063,746	\$54,762,584	\$3,525,765	\$3,814,280	\$3,691,117	\$3,973,508
Principal expenses:							
Salaries and wages—							
Officers.....	\$104,320	\$52,515	\$57,000	\$12,193	\$3,910	\$3,512	\$21,805
Superintendents and managers.....	\$328,393	\$255,540	\$184,008	\$30,272	\$20,777	\$20,483	\$72,853
Technical employees.....	\$71,447	\$61,371	\$50,097	\$5,494	\$3,000	\$2,780	\$10,076
Clerks, etc.....	\$145,793	\$138,645	\$111,026	\$14,930	\$5,962	\$6,727	\$7,148
Wage earners.....	\$4,735,100	\$4,201,024	\$3,251,942	\$541,206	\$159,033	\$249,443	\$533,476
Supplies and materials.....	\$2,398,248	\$2,026,256	\$1,558,866	\$275,682	\$72,515	\$119,193	\$371,992
Fuel.....	\$205,852	\$159,294	\$118,176	\$17,842	\$7,663	\$16,613	\$46,558
Power.....	\$365,950	\$354,484	\$280,312	\$43,591	\$11,295	\$19,286	\$11,466
Royalties and rents.....	\$198,502	\$182,364	\$135,303	\$25,521	\$9,283	\$12,257	\$14,138
Taxes.....	\$656,020	\$649,069	\$537,512	\$94,959	\$3,951	\$12,647	\$6,951
Contract work.....	\$216,088	\$193,057	\$156,759	\$15,354	\$3,514	\$17,530	\$22,431
Expenditures for development (included in the above items).....	\$1,029,612	\$532,077	\$200,577	\$211,728	\$96,439	\$23,333	\$1,097,535
Value of products.....	\$11,840,301	\$11,840,301	\$9,529,723	\$1,395,915	\$340,309	\$573,354	.....
Persons engaged in industry.....	3,214	2,759	1,976	428	114	241	455
Proprietors and firm members (total).....	91	83	20	32	11	20	8
Number performing manual labor.....	34	32	3	17	.....	12	2
Salaried officers.....	40	27	11	9	3	4	13
Superintendents and managers.....	111	69	36	15	8	10	42
Technical employees.....	46	36	28	5	1	2	10
Clerks, etc.....	98	89	61	18	4	6	9
Wage earners (average number).....	2,828	2,455	1,820	340	87	199	373
Wage earners by occupation (Dec. 15):							
Above ground (total).....	1,686	1,516	1,054	135	60	267	170
Below ground (total).....	2,508	2,229	1,757	315	82	75	279
Foremen, shift bosses, etc.—							
Above ground.....	82	70	48	9	2	11	12
Below ground.....	96	80	55	16	0	3	16
Enginemen, hoistmen, electricians, mechanics, etc.—							
Above ground.....	333	296	209	41	8	38	37
Below ground.....	99	91	70	5	6	1	8
Miners, quarrymen, and drillmen, including their helpers—							
Above ground.....	161	136	16	11	6	103	25
Below ground.....	1,014	850	595	138	46	71	184
Timbermen, trackmen, and men engaged in hauling, tramming, etc.—							
Above ground.....	38	32	13	6	3	10	6
Below ground.....	496	458	367	72	19	.....	38
Muckers, loaders, laborers, and others not classified—							
Above ground.....	484	394	262	21	16	95	90
Below ground.....	803	750	661	84	5	.....	53
Wage earners employed in mills and beneficiating plants—							
Above ground.....	588	588	506	47	25	10	.....
Number of females included in wage earners reported above—							
Above ground.....	26	11	3	4	3	1	15
Mineral land operated..... acres..	48,387	27,874	10,754	6,948	1,590	8,612	20,513
Land controlled, total..... acres..	51,928	31,260	13,035	7,618	1,585	9,022	20,668
Mineral land owned.....	42,560	24,877	10,414	6,006	1,295	7,162	17,683
Mineral land leased.....	5,927	3,007	440	942	285	1,460	2,830
Timber and other lands owned and leased.....	3,441	3,286	2,181	670	25	410	155
Power used: Aggregate horsepower.....	34,511	31,239	25,479	2,693	985	2,082	3,272
Prime movers (horsepower, total).....	5,184	2,811	1,171	377	235	1,028	2,373
Steam engines—							
Number.....	49	23	3	10	.....	10	26
Horsepower.....	2,510	1,103	138	280	.....	685	1,407
Steam turbines—							
Number.....	2	2	2	.....	.....	.....	.....
Horsepower.....	930	930	930	.....	.....	.....	.....
Internal-combustion engines—							
Number.....	47	18	2	6	6	4	29
Horsepower.....	900	364	42	44	235	43	536
Water wheels and turbines—							
Number.....	26	16	12	3	.....	1	10
Horsepower.....	844	414	61	53	.....	300	430
Purchased power (horsepower, total).....	29,327	28,428	24,308	2,316	750	1,054	899
Electric motors operated by purchased current—							
Number.....	563	545	444	54	18	29	18
Horsepower.....	29,115	28,248	24,258	2,186	750	1,054	867
Other equipment operated by purchased power—							
Horsepower.....	212	180	50	130	.....	.....	32
Electric motors run by current generated by enterprise using:							
Number.....	19	19	7	9	.....	3	.....
Horsepower.....	1,120	1,120	750	260	.....	110	.....
Fuel used:							
Coal, bituminous..... tons, 2,000 pounds..	17,395	15,360	12,432	383	174	2,371	2,035
Coke..... tons, 2,000 pounds..	90	84	84	.....	.....	.....	6
Wood..... cords.....	7,317	3,891	1,516	1,918	25	432	3,426
Fuel oils..... barrels..	1,029	728	561	.....	165	.....	303
Gasoline and other volatile oils..... barrels..	1,069	723	290	58	343	32	376

¹ Includes 1 reduction mill operated independently of mines and the working of 2 dumps and old tailings.
² Includes enterprises as follows: Abrasive materials, 1; basalt, 1; bituminous coal, 1; gold, placer mines, 11; iron ore, 1; limestone, 3; phosphate rock, 2; sandstone, 2.
³ Includes enterprises as follows: Gold, silver, copper, lead, or zinc, lode mines, 45; gold, placer mines, 3; quicksilver, 1; rare metals (cobalt), 1.

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 Ken-

tucky, 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 fewer 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.....	10,123,806	3,112,655	225.2
Number of natural-gas gasoline plants.....	72	(²)	.....	Wages.....	94,178,504	46,378,727	103.1
Persons engaged.....	84,309	76,039	10.9	Contract work.....	431,555	2,376,956	-81.8
Proprietors and firm members, total.....	691	1,425	-51.5	Supplies and materials.....	18,807,752	3,574,817	119.3
Number performing manual labor in or about the mines, quarries, and wells.....	126	401	-68.6	Fuel and power.....	5,784,479	1,325,880	336.3
Salaried employees.....	4,495	2,528	77.8	Royalties and rents.....	6,636,176	3,579,472	85.4
Wage earners (average number).....	79,123	72,086	9.8	Taxes.....	6,890,455	287,460	.....
Power used (horsepower).....	318,231	225,330	41.2	Value of products.....	178,673,065	76,658,974	133.1

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
Coal, bituminous.....	447	73,780	93.2	138,767,835	77.7	Lead and zinc.....	6	239	0.3	621,290	0.3
Petroleum and natural gas.....	236	2,752	3.5	31,263,563	17.5	Clay.....	10	164	0.2	472,284	0.3
Limestone.....	41	1,244	1.6	3,776,626	2.1	Abrasive materials.....	6	21	(¹)	45,265	(¹)
						All other industries ²	12	645	0.8	2,396,807	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	171,620,643	375,995	59.2	96.9	96.2
Individual.....	120	1,165	2,457,227	20,478	15.5	1.5	1.4
Firm.....	106	963	3,541,544	21,335	21.5	1.2	2.0
Other.....	29	304	844,551	25,122	3.8	0.4	0.6
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	998	1,734,025	26,691	14.5	1.3	1.2
Firm.....	54	782	1,535,811	28,441	12.1	1.0	1.1
Other.....	8	259	314,328	30,291	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	426,888	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	113,859	75.0	95.0	97.8
Individual.....	9	57	97,247	10,805	16.1	3.7	1.9
Firm.....	5	10	16,682	3,338	8.9	0.7	0.3
CLAY.....	10	164	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.

MINES AND QUARRIES—ILLINOIS.

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.....	772	100.0	79,123	100.0	LIMESTONE.....	41	100.0	1,244	100.0
No wage earners.....	43	5.6	.....	.....	No wage earners.....	3	7.3	.....	.....
1 to 5.....	253	34.1	568	0.7	1 to 5.....	10	24.4	30	2.4
6 to 20.....	122	15.8	1,378	1.7	6 to 20.....	10	24.4	120	9.6
21 to 50.....	77	10.0	2,621	3.3	21 to 50.....	11	26.8	400	32.2
51 to 100.....	56	7.3	4,099	5.2	51 to 100.....	4	9.8	298	24.0
101 to 500.....	186	24.1	45,237	57.2	101 to 500.....	3	7.3	396	31.8
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	SANDSTONE.....	15	100.0	288	100.0
No wage earners.....	3	0.7	.....	.....	1 to 5.....	8	53.3	23	8.0
1 to 5.....	77	17.2	239	0.3	6 to 20.....	3	20.0	35	12.2
6 to 20.....	73	16.3	839	1.1	21 to 50.....	2	13.3	86	29.9
21 to 50.....	46	10.3	1,370	2.1	51 to 100.....	2	13.3	144	50.0
51 to 100.....	46	10.3	3,402	4.6					
101 to 500.....	178	39.8	44,018	59.7	LEAD AND ZINC.....	6	100.0	239	100.0
501 to 1,000.....	18	4.0	11,867	16.1	6 to 20.....	2	33.3	17	7.1
Over 1,000.....	6	1.3	11,355	16.1	21 to 50.....	2	33.3	81	33.9
					51 to 100.....	2	33.3	141	59.0
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					

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.....	1,729	79,123	33	5,922	26	2,872	445	66,032	126	3,799	30	187	69	311
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	1,999	30	187	69	311
Limestone.....	33	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 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.....	79,123	89,224	85,988	85,233	82,026	80,235	79,033	81,643	83,906	87,056	89,321	16,732	88,029	18.8
Coal, bituminous.....	73,780	84,197	82,192	80,214	76,796	74,791	73,804	76,052	78,218	81,302	83,739	11,333	82,902	13.4
Petroleum and natural gas.....	2,752	2,753	2,695	2,735	2,709	2,663	2,723	2,780	2,874	2,827	2,767	2,736	2,757	92.7
Limestone.....	1,244	834	870	1,054	1,279	1,488	1,389	1,461	1,438	1,452	1,401	1,334	988	54.4
Sandstone.....	288	307	284	269	247	269	276	283	284	297	327	328	285	75.3
Lead and zinc.....	239	234	235	237	243	248	237	253	245	238	243	229	221	87.4
Clay.....	154	143	121	120	113	140	164	168	164	171	170	188	186	60.1
Abrasive materials.....	21	22	22	22	21	21	23	23	23	33	17	8	17	24.2
All other industries.....	645	734	629	538	613	645	612	623	660	676	657	636	673	79.3

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	\$166,669,312	\$46,207,394	\$8,810,007	\$3,788,564	\$460,642	\$1,472,582	\$124,500	\$4,303,480
Principal expenses:									
Salaries and wages—									
Officers.....	\$3,261,099	\$2,653,966	\$263,292	\$133,898	\$101,243	\$800	\$25,800	\$800	\$81,400
Superintendents and managers.....	\$3,654,906	\$3,094,522	\$283,255	\$37,472	\$41,695	\$28,559	\$18,976	\$2,400	\$68,027
Technical employees.....	\$574,419	\$542,522	.....	\$11,805	.....	\$6,326	.....	.....	\$13,766
Clerks, etc.....	\$2,633,442	\$2,262,685	\$195,921	\$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	\$335,755	\$312,046	\$173,976	\$18,527	\$816,709
Supplies and materials.....	\$18,716,093	\$15,345,498	\$1,692,172	\$835,598	.....	\$136,213	\$61,191	\$4,573	\$458,405
Cost of natural gas purchased as material and resold.....	\$91,659	.....	\$91,659	.....	.....	.....	.....	.....	.....
Fuel.....	\$4,810,013	\$4,154,744	\$151,570	\$231,915	\$127,258	\$4,820	\$24,505	\$3,110	\$112,091
Power.....	\$974,466	\$668,142	\$3,079	\$158,053	\$49,089	\$95,526	\$500	.....	\$1,077
Royalties and rents.....	\$6,636,176	\$1,704,594	\$4,768,871	\$34,501	\$9,853	\$51,142	\$66,094	\$821	\$500
Taxes.....	\$6,890,455	\$4,487,294	\$1,970,994	\$45,598	.....	\$877	\$14,554	\$281	\$328,528
Contract work.....	\$431,555	\$68,942	\$359,082	.....	\$3,531	.....	.....	.....	.....
Expenditures for development (included in the above items).....	\$4,331,319	\$2,959,034	\$1,133,105	\$13,483	\$16,450	\$16,534	.....	\$718	\$191,935
Value of products.....	\$178,673,065	\$138,767,835	\$31,263,563	\$3,776,626	\$1,329,389	\$621,296	\$472,284	\$45,205	\$2,896,867
Persons engaged in industry.....	84,309	77,825	3,506	1,448	353	262	186	28	701
Proprietors and firm members (total).....	601	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	1,708	149	94	20	8	8	2	14
Wage earners (average number).....	79,123	73,780	2,762	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	76,045	.....	.....	.....	129	62	7	323
Foremen, shift bosses, etc.—									
Above ground.....	485	375	.....	62	19	1	5	.....	23
Below ground.....	930	898	.....	.....	.....	7	2	.....	23
Engineers, 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.....	729	253	.....	387	41	.....	29	.....	19
Below ground.....	43,002	42,588	.....	.....	.....	25	23	5	63
Timbermen, trackmen, and men engaged in hauling, tramming, etc.—									
Above ground.....	924	749	.....	118	33	0	.....	8	7
Below ground.....	16,822	16,645	.....	.....	.....	62	8	.....	117
Muckers, loaders, laborers, and others not classified—									
Above ground.....	5,268	4,128	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	84	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..	945,362	752,316	169,025	14,922	1,327	898	2,055	1,964	2,855
Land controlled, total..... acres..	1,031,733	799,060	169,025	52,900	1,441	898	2,118	2,144	4,197
Mineral and oil land owned.....	617,833	598,082	2,434	14,348	622	368	380	1,024	2,125
Mineral and oil land leased.....	329,448	158,153	166,591	574	705	530	1,225	940	730
Timber and other lands owned and leased.....	84,502	44,825	.....	37,978	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	2,764	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.....	33,494	1,126	31,738	232	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	95,915	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.

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 fewer 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 proportions 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	\$50,764,947	5.7
Number of mines and quarries.....	393	450	-17.1	Principal expenses:			
Number of petroleum and natural-gas wells.....	2,456	10,373	-76.3	Salaries.....	4,078,279	1,101,521	270.2
Persons engaged.....	28,733	27,669	3.9	Wages.....	30,192,924	14,782,488	104.2
Proprietors and firm members, total.....	339	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
Salaried employees.....	1,648	1,105	49.1	Fuel and power.....	2,012,708	551,821	264.7
Wage earners (average number).....	26,751	23,936	11.8	Royalties and rents.....	939,696	595,274	57.9
Power used (horsepower).....	120,663	95,039	36.4	Taxes.....	1,590,853	176,369	802.0
				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.....	205	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.....	205	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	387	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	19,831	100.0	100.0	100.0
Corporation.....	71	334	1,841,627	25,938	64.2	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	23	453,643	75,940	4.6	6.0	17.5

¹ Includes 1 other form of organization.

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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.....	503	100.0	26,751	100.0	LIMESTONE.....	67	100.0	1,800	100.0
No wage earners.....	67	13.3			No wage earners.....	1	1.5		
1 to 5.....	159	31.6	410	1.5	1 to 5.....	24	35.8	56	3.1
6 to 20.....	30	15.9	894	3.3	6 to 20.....	24	35.8	240	13.3
21 to 50.....	56	11.1	1,878	7.0	21 to 50.....	9	13.4	260	14.4
51 to 100.....	51	10.1	3,828	14.3	51 to 100.....	4	6.0	252	14.0
101 to 500.....	36	7.1	16,462	61.5	101 to 500.....	5	7.5	992	55.1
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	PETROLEUM AND NATURAL GAS.....	131	100.0	403	100.0
No wage earners.....	7	2.4			No wage earners.....	59	45.0		
1 to 5.....	66	22.4	212	0.9	1 to 5.....	61	46.6	115	28.5
6 to 20.....	49	16.6	576	2.4	6 to 20.....	6	4.6	62	15.4
21 to 50.....	42	14.2	1,459	6.0	21 to 50.....	4	3.1	123	30.5
51 to 100.....	47	15.9	3,576	14.6	51 to 100.....	1	0.8	103	25.0
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					

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.....	1,436	26,751	43	3,261	20	339	269	21,667	83	1,376	13	53	8	55
Coal, bituminous.....	288	24,479	37	3,253	15	330	234	20,890	2	6				
Limestone.....	66	1,800					14	682	52	1,118				
Petroleum and natural gas.....	72	403	6	8	5	9	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.
		Janu-ary.	Febru-ary.	March.	April.	May.	June.	July.	August.	Sep-tember.	Octo-ber.	Novem-ber.	Decem-ber.	
All industries.....	26,751	20,961	28,209	26,939	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	25,389	23,831	24,808	24,355	25,403	26,518	28,051	28,871	5,560	27,790	11.6
Limestone.....	1,800	940	<i>915</i>	1,107	1,583	1,817	2,046	2,249	2,419	2,363	2,170	1,989	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	60	61	53	62	80	78	89	88	91	61	64	54.9

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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	\$45,906,383	\$7,156,592	\$9,890,904	\$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	\$8,828	\$1,751
Clerks, etc.....	\$862,026	\$685,116	\$142,052	\$34,790	\$838
Wage earners.....	\$30,192,924	\$27,877,069	\$1,767,636	\$475,788	\$71,831
Supplies and materials.....	\$0,370,553	\$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	\$189,140	\$112,222	\$4,248	.....
Royalties and rents.....	\$939,696	\$562,265	\$31,974	\$344,004	\$1,393
Taxes.....	\$1,590,853	\$1,437,558	\$66,274	\$86,599	\$422
Contract work.....	\$340,187	\$103,826	\$7,472	\$213,630	\$15,353
Expenditures for development (included in the above items).....	\$2,111,492	\$1,534,258	\$127,970	\$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).....	399	170	44	123	2
Number performing manual labor.....	104	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).....	2,934	2,943	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	85,310	644
Land controlled, total..... acres.....	280,513	189,594	4,831	85,319	799
Mineral and oil land owned.....	119,293	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.....	129,693	99,585	21,642	7,669	787
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: ²					
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.

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 the enterprises in 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 fewer 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 occurrence 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		MINING INDUSTRIES.		Per cent of increase. ¹
	1919	1909			1919	1909	
Number of enterprises.....	198	373	-46.9	Principal expenses:			
Number of mines and quarries.....	230	431	-46.6	Salaries.....	\$1,343,697	\$540,975	148.4
Persons engaged.....	12,034	17,374	-30.7	Wages.....	12,466,426	10,870,446	14.7
Proprietors and firm members, total....	200	423	-52.7	Contract work.....	33,464	40,836	-18.1
Number performing manual labor				Supplies and materials.....	2,072,308	1,307,919	58.4
in or about the mines and quarries	143	285	-49.8	Fuel and power.....	748,844	221,740	237.7
Salaried employees.....	560	471	18.0	Royalties and rents.....	335,650	349,440	-4.0
Wage earners (average number).....	11,274	16,480	-31.6	Taxes.....	186,811	43,674	328.7
Power used (horsepower).....	32,171	23,453	37.2	Value of products.....	18,473,558	13,877,781	33.1
Capital.....	\$16,699,094	\$3,481,483	96.9				

¹A 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	245	2.2	477,280	2.6

¹ Includes, to avoid disclosure, 1 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	10,723	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	9,749	15,610,232	185,826	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 ¹	26	245	477,280	18,357	100.0	100.0	100.0
Corporation.....	13	180	349,146	28,857	50.0	73.2	73.2
Individual.....	8	37	81,268	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	LIMESTONE ¹	26	100.0	245	100.0
51 to 100.....	24	12.1	1,716	15.2	No wage earners.....	2	7.7	.....	.....
101 to 500.....	36	18.2	6,669	59.1	1 to 5.....	9	34.6	20	8.1
501 to 1,000.....	2	1.0	1,498	13.3	6 to 20.....	13	50.0	137	55.7
COAL, BITUMINOUS.....	167	100.0	10,584	100.0	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.

MINES AND QUARRIES—IOWA.

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.	
			Enter-prises.	Wage earners.	Enter-prises.	Wage earners.	Enter-prises.	Wage earners.	Enter-prises.	Wage earners.
All industries.....	194	11,274	2	11	14	117	150	10,936	19	210
Coal, bituminous.....	185	10,684	2	11	14	117	140	10,456		
Gypsum.....	5	444					5	444		
Limestone.....	24	246					5	36	19	210

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.
		Janu-ary.	Febru-ary.	March.	April.	May.	June.	July.	August.	Sep-tember.	Octo-ber.	Novem-ber.	Decem-ber.	
All industries.....	11,274	13,221	12,926	12,592	11,194	10,868	10,622	11,012	11,811	12,524	13,052	<i>8,404</i>	12,062	25.7
Coal, bituminous.....	10,534	12,879	12,554	12,154	10,634	10,192	9,886	10,172	10,930	11,570	12,100	<i>8,527</i>	11,410	19.6
Gypsum.....	444	853	240	272	330	389	453	540	545	611	619	<i>613</i>	483	37.6
Limestone.....	246	109	132	166	230	287	283	300	336	343	333	<i>264</i>	169	31.8

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

	PRODUCING ENTERPRISES.			
	Total.	Coal, bituminous.	Gypsum.	Lime- stone. 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	\$8,810	\$9,295
Superintendents and managers.....	\$503,601	\$458,074	\$26,838	\$18,689
Technical employees.....	\$24,805	\$23,305	.....	\$1,500
Clerks, etc.....	\$270,095	\$201,405	\$51,780	\$25,910
Wage earners.....	\$12,466,426	\$11,637,918	\$495,747	\$232,761
Supplies and materials.....	\$2,072,308	\$1,758,025	\$208,180	\$108,103
Fuel.....	\$806,285	\$449,697	\$119,579	\$37,009
Power.....	\$142,559	\$120,688	\$13,021	\$8,872
Royalties and rents.....	\$335,530	\$299,194	\$21,021	\$15,315
Taxes.....	\$188,811	\$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.....	\$18,473,658	\$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).....	21,844	21,352	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, tram- ming, etc.—				
Above ground.....	255	240	5	10
Below ground.....	2,385	2,799	80	.....
Muckers, loaders, laborers, and others not classified—				
Above ground.....	742	619	21	162
Below ground.....	852	705	147	.....
Wage earners employed in mills and beneficiating plants—				
Above ground.....	126	.....	126	.....
Mineral land operated..... acres..	63,724	60,359	1,519	346
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	28
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	1,606
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	07	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..	435	.....	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.

KANSAS.

Kansas, which ranks thirteenth among the states in size (land area 81,774 square miles) and twenty-fourth in population (1,769,257 in 1920), ranked eleventh in value of mineral products for 1919. The state ranked twelfth in the total number of persons engaged in the mining industries and fourteenth in the average number of wage earners employed.

The total amount received by operators of all mines, quarries, and wells in Kansas in 1919 was \$90,338,204, an increase of 382.5 per cent compared with the corresponding amount reported at the census of 1909. The value of products reported for 1919 includes duplications to the amount of \$298,353, the value of natural gas purchased by some producers from others and used as material or resold, and the value of lead and zinc ore sold by some operators and again included in the value of products by others who concentrated the ore. Deducting this amount leaves \$90,039,851, the net value of products for 1919, which was an increase of 391.2 per cent over the net value for 1909. The value of products reported for 1919 includes, in addition to the value of the minerals produced, a small amount received for power sold and for work or miscellaneous services for other enterprises. The increase in value of products, also 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, but, nevertheless, show growth in the mining industries. Progress is also indicated by the increase in the number of producing enterprises and wells operated and average number of wage earners. The decrease in the number of individual mines and quarries operated and the increase in the number of wells show that the general growth of mineral industries in Kansas was due to expansion of the petroleum and natural-gas industry, which offset decreases in other industries.

The mining industries reported in Kansas in 1919, classified according to principal products and listed in order of value of products, were petroleum and natural gas, bituminous coal, lead and zinc, limestone, gypsum, abrasive materials (pumice), and clay. One of the most important mining industries in Kansas was the production of salt. The statistics for this industry are included in the census of manufactures. The industries for which statistics can be shown without disclosure of individual operations are ranked by value of products in Table 2.

The leading mineral industry in Kansas was the production of petroleum and natural gas. The statistics presented for this industry include figures on operation of plants engaged in the extraction of

gasoline from natural gas, whether such plants were connected with well operations or not. Out of a total of 814 enterprises, 613 were reported in the petroleum and natural-gas industry. These enterprises employed 39.1 per cent of the total number of wage earners and contributed products valued at \$68,515,158, or 75.8 per cent of the total. Kansas ranked fifth in petroleum and natural-gas output in 1919. Production was obtained from some 50 pools or local fields distributed over about 5,000 square miles of territory in 27 southeastern counties. This region is part of the Mid-Continent Oil Field which extends from Kansas through Oklahoma into northern Texas and Louisiana.

The industry second in importance in Kansas in 1919, on the basis of value of products but first as measured by average number of wage earners, was the mining of bituminous coal. This industry, comprising about one-sixth of all mining enterprises in the state, employed 50.1 per cent of the total number of wage earners and reported products valued at \$15,748,535, or 17.4 per cent of the total value of products for the state. Production of coal was reported from six eastern and southeastern counties of which Cherokee and Crawford were the most important.

The mining of lead and zinc was third in importance in the state. It was confined to Cherokee County, the output of which placed Kansas fifth among the states as a producer of lead and zinc ores. The 30 enterprises in this industry employed 7.1 per cent of the total number of wage earners and reported products valued at \$4,872,968, or 5.4 per cent of the total value for the state.

In addition to the operations of productive mines, quarries, and wells, work done for the purpose of development of nonproducing property was reported by 10 enterprises in the petroleum and natural-gas industry, 2 in lead and zinc mining, and 1 in coal mining. Such activities amounted to only a very small part of the aggregate mining operations in the state.

Mining enterprises in Kansas in 1919 are classified in Table 3 according to character of the operating organization. This table shows that for all industries combined corporations were in the majority. They controlled 53.1 per cent of the number of enterprises, employed 87.5 per cent of the wage earners, and reported 89.5 per cent of the total value of products. In the three leading industries a similar preponderance of corporations over other forms of organization is shown.

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 Kansas, 16.3 per cent had no wage earners and 80 per cent reported fewer than 101 wage earners each and these employed 37.5 per cent of the total number of wage earners. On the other hand, only 3.6 per cent of the total number of enterprises had more than 100 wage earners each and these enterprises employed 62.5 per cent of the total number of wage earners. The larger enterprises were in the coal and petroleum and natural-gas industries, except that one was reported in the lead and zinc industry and one in the limestone industry.

In Table 5 the mining enterprises are classified according to prevailing hours of labor. The largest group of enterprises is shown in the class where the hours of labor were 44 to 53 per week. This class employed 57.5 per cent of the total number of wage earners. A considerable number of enterprises were in the class for which the hours of labor were 54 to 62 per week. Practically all the enterprises and wage

earners in the coal-mining industry and a large majority of the enterprises and wage earners in the lead and zinc mining industry were in the class working 44 to 53 hours per week. The 8-hour day and 6-day week prevailed in both industries, but a 7-day week in the lead and zinc industry was reported by several important enterprises. In the petroleum and natural-gas industry longer hours were the rule.

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 extreme minimum for the coal industry shown in the month of November is due to the great strike, and the extent of unemployment in that industry was so great as to be reflected in the figures for all 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.

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.....	814	643	26.6	Capital.....	\$255,935,807	\$41,797,329	512.3
Number of mines and quarries.....	238	582	-59.1	Principal expenses:			
Number of petroleum and natural-gas wells.....	12,690	3,402	273.0	Salaries.....	3,299,894	688,432	379.3
Number of natural-gas gasoline plants.....	11			Wages.....	21,048,709	9,636,350	127.8
Persons engaged.....	18,689	16,103	16.1	Contract work.....	3,997,644	305,947	900.6
Proprietors and firm members, total.....	807	1,074	-24.9	Supplies and materials ²	33,395,983	2,038,025	1,538.6
Number performing manual labor in or about the mines, quarries, and wells.....	123	575	-78.6	Fuel and power.....	4,305,576	267,964	1,506.8
Salaried employees.....	1,746	686	154.5	Royalties and rents.....	10,712,223	1,665,839	543.1
Wage earners (average number).....	16,136	14,343	12.5	Taxes.....	2,273,748	147,570	1,440.9
Power used (horsepower).....	133,984	66,943	100.1	Value of products.....	90,338,204	18,722,634	382.5

¹ A minus sign (-) denotes decrease.

² Includes cost of ore 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.....	814	16,136	100.0	\$90,338,204	100.0	Lead and zinc.....	30	1,141	7.1	\$4,872,968	5.4
Petroleum and natural gas.....	613	6,305	39.1	68,515,158	75.8	Limestone.....	35	484	3.0	835,147	0.9
Coal, bituminous.....	129	8,084	50.1	15,748,535	17.4	All other industries ¹	7	122	0.8	366,396	0.4

¹ Includes enterprises in industries as follows: Abrasive materials, 3; clay, 1; gypsum, 3.

MINES AND QUARRIES—KANSAS.

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.....	814	16,136	\$90,338,204	\$110,981	100.0	100.0	100.0
Corporation.....	432	14,127	80,814,942	187,072	53.1	87.5	89.5
Individual.....	143	922	3,128,553	21,878	17.6	5.7	3.5
Firm.....	212	915	5,585,558	26,847	20.0	5.7	8.2
Other.....	27	172	800,151	29,969	3.3	1.1	0.9
PETROLEUM AND NATURAL GAS.....	613	6,305	68,515,158	111,770	100.0	100.0	100.0
Corporation.....	334	5,736	61,600,998	134,434	54.5	91.0	89.9
Individual.....	91	160	1,669,900	18,351	14.8	2.5	2.4
Firm.....	185	348	4,568,914	27,690	26.9	5.5	6.7
Other.....	23	61	675,348	29,383	3.8	1.0	1.0
COAL, BITUMINOUS.....	129	8,084	15,748,535	122,032	100.0	100.0	100.0
Corporation.....	63	6,925	13,643,327	216,501	48.8	85.7	86.0
Individual.....	30	652	1,250,429	41,681	23.3	8.1	7.9
Firm.....	32	396	720,976	22,531	24.8	4.9	4.6
Other.....	4	111	133,803	33,451	3.1	1.4	0.8
LEAD AND ZINC.....	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 ¹	5	30	31,958	6,392	16.7	2.6	0.7
LIMESTONE.....	35	484	835,147	23,861	100.0	100.0	100.0
Corporation.....	5	240	412,742	82,548	14.3	49.6	49.4
Individual.....	18	97	157,470	8,743	51.4	20.0	18.9
Firm.....	12	147	264,935	22,078	34.3	30.4	31.7

¹ 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.....	814	100.0	16,136	100.0	PETROLEUM AND NATURAL GAS.....	613	100.0	6,305	100.0
No wage earners.....	133	16.3	.....	.....	No wage earners.....	132	21.5	.....	.....
1 to 5.....	424	52.1	738	4.6	1 to 5.....	381	62.2	624	9.9
6 to 20.....	144	17.7	1,555	9.6	6 to 20.....	75	12.2	816	12.9
21 to 50.....	57	7.0	1,874	11.6	21 to 50.....	15	2.4	485	7.7
51 to 100.....	28	3.2	1,885	11.7	51 to 100.....	3	0.5	194	3.1
101 to 500.....	28	3.2	4,719	29.2	101 to 500.....	6	1.0	1,292	20.5
501 to 1,000.....	2	0.2	1,317	8.2	Over 1,000.....	1	0.2	2,894	45.9
Over 1,000.....	2	0.2	4,048	25.1	LEAD AND ZINC.....	30	100.0	1,141	100.0
COAL, BITUMINOUS.....	129	100.0	8,084	100.0	1 to 5.....	5	16.7	14	1.2
No wage earners.....	1	0.8	.....	.....	6 to 20.....	8	26.7	101	8.9
1 to 5.....	19	14.7	68	0.8	21 to 50.....	8	26.7	261	22.9
6 to 20.....	46	35.7	479	5.9	51 to 100.....	8	26.7	530	46.5
21 to 50.....	28	21.7	938	11.6	101 to 500.....	1	3.3	235	20.6
51 to 100.....	14	10.9	1,089	13.5	LIMESTONE.....	35	100.0	484	100.0
101 to 500.....	18	14.0	3,039	37.6	1 to 5.....	17	48.6	31	6.4
501 to 1,000.....	2	1.5	1,317	16.3	6 to 20.....	11	31.4	110	22.7
Over 1,000.....	1	0.8	1,154	14.3	21 to 50.....	6	17.1	190	39.3
					101 to 500.....	1	2.9	153	31.6

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—											
	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.....	1 681	16, 136	56	88	26	60	317	9, 270	185	2, 508	47	680	50	3, 524
Coal, bituminous.....	128	8, 084	4	29	3	16	121	8, 039						
Petroleum and natural gas.....	481	6, 305	52	59	22	43	148	370	163	1, 624	47	680	49	3, 523
Lead and zinc.....	30	1, 141					25	718	4	422			1	1
Limestone.....	35	484			1	1	22	133	12	350				
All other industries.....	7	122					1	10	6	112				

¹ Exclusive of 133 enterprises employing no wage earners in industries as follows: Coal, bituminous, 1; petroleum and natural gas, 132.

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.
		Janu-ary.	Febru-ary.	March.	April.	May.	June.	July.	August.	Sep-tember.	Octo-ber.	Novem-ber.	Decem-ber.	
All industries.....	16, 193	17, 476	17, 282	17, 239	16, 871	17, 236	17, 049	17, 266	16, 479	16, 487	16, 490	<i>8, 981</i>	15, 510	51.1
Producing enterprises.....	16, 136	17, 448	17, 262	17, 207	16, 851	17, 214	16, 982	17, 191	16, 397	16, 307	16, 415	<i>8, 343</i>	15, 425	50.7
Coal, bituminous.....	8, 084	9, 728	9, 610	9, 583	9, 292	9, 216	9, 151	9, 136	7, 913	7, 818	7, 802	<i>622</i>	7, 237	5.4
Petroleum and natural gas.....	6, 305	6, 347	6, 196	5, 987	<i>5, 879</i>	6, 159	6, 056	6, 323	6, 591	6, 666	6, 591	6, 452	6, 423	88.3
Lead and zinc.....	1, 141	860	941	1, 080	1, 030	1, 122	1, 028	1, 122	1, 309	1, 277	1, 346	1, 264	1, 323	63.2
Limestone.....	484	416	415	451	532	607	637	506	471	509	536	447	447	44.1
All other industries.....	122	107	<i>100</i>	106	118	110	110	104	113	137	140	158	161	62.1
Nonproducing enterprises.....	57	28	<i>20</i>	32	<i>20</i>	22	67	75	82	90	75	88	85	22.2
Petroleum and natural gas.....	3	<i>2</i>	<i>2</i>	<i>2</i>	<i>2</i>	<i>2</i>	<i>2</i>	3	3	3	5	5	5	40.0
All other industries.....	54	26	<i>18</i>	30	<i>18</i>	20	65	72	79	87	70	83	80	20.7

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

	Aggregate.	PRODUCING ENTERPRISES.						NONPRODUCING ENTERPRISES.		
		Total.	Petroleum and natural gas.	Coal, bituminous.	Lead ¹ and zinc.	Limestones.	All other. ²	Total.	Petroleum and natural gas.	All other. ³
Number of enterprises.....	827	814	613	129	30	35	7	13	10	3
Number of mines and quarries.....	241	238		166	30	35	7	3		3
Number of petroleum and natural-gas wells.....	12,690	12,690	12,690							
Number of natural-gas gasoline plants.....	11	11	11							
Capital.....	\$257,222,997	\$255,935,807	\$237,711,466	\$12,285,452	\$4,465,307	\$768,585	\$704,997	\$1,287,190	\$245,028	\$1,042,162
Principal expenses:										
Salaries and wages—										
Officers.....	\$869,604	\$853,904	\$548,875	\$236,115	\$50,802	\$11,230	\$6,882	\$15,700		\$15,700
Superintendents and managers.....	\$1,010,234	\$1,001,606	\$596,598	\$284,369	\$90,246	\$20,799	\$9,594	\$8,628	\$2,328	\$6,300
Technical employees.....	\$283,224	\$280,374	\$247,736	\$23,346	\$7,792	\$1,500		\$2,850		\$2,850
Clerks, etc.....	\$1,171,255	\$1,164,010	\$805,539	\$32,069	\$31,263	\$14,441		\$7,245	\$1,025	\$6,220
Wage earners.....	\$22,021,656	\$21,948,799	\$9,615,375	\$9,049,156	\$1,700,200	\$500,783	\$123,285	\$72,857	\$8,783	\$64,074
Supplies and materials.....	\$33,234,583	\$33,097,630	\$30,046,473	\$1,906,063	\$977,212	\$128,655	\$39,227	\$136,953	\$28,208	\$108,745
Cost of ore purchased and natural gas purchased as material and resold.....	\$298,353	\$298,353	\$287,725		\$10,628					
Fuel.....	\$4,075,132	\$4,067,088	\$3,209,151	\$479,320	\$261,020	\$38,822	\$18,775	\$8,044	\$2,375	\$5,669
Power.....	\$273,333	\$238,487	\$61,983	\$55,520	\$107,797	\$8,284	\$4,903	\$34,846	\$503	\$34,343
Royalties and rents.....	\$10,738,945	\$10,712,223	\$9,547,508	\$409,674	\$697,874	\$20,034	\$37,073	\$26,722	\$2,376	\$24,346
Taxes.....	\$2,274,285	\$2,273,748	\$1,943,568	\$205,463	\$24,716	\$6,009	\$3,992	\$537	\$98	\$439
Contract work.....	\$4,063,020	\$3,997,644	\$3,887,822	\$6,363	\$68,092	\$19,130	\$16,247	\$65,376	\$64,940	\$436
Expenditures for development (included in the above items).....	\$23,722,380	\$23,448,955	\$23,127,585	\$96,748	\$221,372	\$3,250		\$273,425	\$104,472	\$168,953
Value of products.....	\$90,338,204	\$90,338,204	\$68,515,158	\$15,748,535	\$4,872,968	\$835,147	\$366,396			
Persons engaged in industry.....	18,777	18,689	8,131	8,022	1,234	563	139	88	20	68
Proprietors and firm members (total).....	823	807	639	111	10	45	2	16	14	2
Number performing manual labor.....	124	123	32	78	1	12		1	1	
Salaried officers.....	290	286	187	65	27	4	3	4		4
Superintendents and managers.....	416	412	269	113	27	9	4	4	2	2
Technical employees.....	152	151	120	20	4	1		1		1
Clerks, etc.....	903	897	615	229	25	20	8	6	1	5
Wage earners (average number).....	16,193	16,136	6,305	8,084	1,141	484	122	57	3	54
Wage earners by occupation (Dec. 15):										
Above ground (total).....	9,292	9,205	6,502	1,492	581	507	123	57	7	50
Below ground (total).....	8,706	8,677		7,761	866		50	29		20
Foremen, shift bosses, etc.—										
Above ground.....	140	138		106	20	10	2	2		2
Below ground.....	130	127		101	24		2	3		3
Engineers, hoistmen, electricians, mechanics, etc.—										
Above ground.....	4,318	4,299	3,544	522	186	44	3	19	7	12
Below ground.....	82	78		72	3		3	4		4
Miners, quarrymen, and drillmen, including their helpers—										
Above ground.....	439	430		204		235				4
Below ground.....	6,250	6,246		5,841	389		16	4		4
Timbermen, trackmen, and men engaged in hauling, tramming, etc.—										
Above ground.....	172	164		115	12	35	2	8		8
Below ground.....	1,667	1,652		1,413	227		12	15		15
Muckers, loaders, laborers, and others not classified—										
Above ground.....	3,796	3,768	2,958	545	35	183	47	28		28
Below ground.....	577	574		334	223		17	3		3
Wage earners employed in mills and beneficiating plants—										
Above ground.....	397	397			328		69			
Mineral and oil land operated..... acres.....	574,290	549,300	468,144	73,559	1,686	1,208	4,703	24,990	2,975	22,015
Land controlled, total..... acres.....	590,003	564,411	468,144	88,650	1,686	1,228	4,703	25,592	2,975	22,617
Mineral and oil land owned.....	70,562	69,621	34,727	30,629		672	3,593	941	15	926
Mineral and oil land leased.....	505,290	480,629	433,417	43,880	1,686	536	1,110	24,651	2,960	21,691
Timber and other lands owned and leased.....	14,161	14,161		14,141		20				
Power used: Aggregate horsepower.....	135,531	133,984	95,888	23,434	11,496	2,252	919	1,547	151	1,396
Prime movers (horsepower, total).....	122,104	121,477	91,971	19,394	8,367	1,686	119	627	131	496
Steam engines—										
Number.....	910	903	482	353	45	20	3	7	2	5
Horsepower.....	37,159	36,605	13,346	18,978	3,135	1,046	100	554	58	496
Internal-combustion engines—										
Number.....	3,104	3,160	3,057	36	53	11	3	4	4	
Horsepower.....	84,360	84,287	78,625	356	4,647	640	19	73	73	
Water wheels and turbines—										
Number.....	7	7								
Horsepower.....	585	585			585					
Purchased power (horsepower, total).....	13,427	12,607	3,912	4,100	3,129	566	800	920	20	900
Electric motors operated by purchased current—										
Number.....	516	499	163	233	56	12	35	17	1	16
Horsepower.....	13,327	12,507	3,912	4,100	3,129	566	800	820	20	800
Other equipment operated by purchased power—										
Horsepower.....	100							100		100
Electric motors run by current generated by enterprise using:										
Number.....	310	308	249	37		15	7	2		2
Horsepower.....	8,896	8,886	7,440	1,041		860	45	10		10
Fuel used:										
Coal, bituminous..... tons, 2,000 pounds.....	213,528	212,503	5,470	170,666	30,080	5,126	1,161	1,025	125	900
Wood..... cords.....	747	747		60	687					
Fuel oils..... barrels.....	695,021	694,541	672,021	2	12,133	3,275	7,110	480	56	
Gasoline and other volatile oils..... barrels.....	4,028	3,972	3,269	360		320	23	56		
Natural gas..... 1,000 cubic feet.....	8,008,022	8,038,328	7,769,509		318,819			9,694	2,000	7,694

¹ Includes 2 reduction mills operated independently of mines, and 1 operation on dumps or old tailings.
² Includes enterprises as follows: Abrasive materials, 3; clay, 1; gypsum, 3.
³ Includes enterprises as follows: Coal, bituminous, 1; lead and zinc, 2.

KENTUCKY.

Kentucky, which ranks thirty-sixth among the states in size (land area, 40,181 square miles) and fifteenth in population (2,416,630 in 1920), ranked tenth in value of mineral products for 1919. The state ranked fifth in total number of persons engaged in the mining industries and in the average number of wage earners employed.

The gross value of products of all mines, quarries, and wells in Kentucky in 1919 amounted to \$98,486,910. This figure includes \$127,138, the amount received for mineral by-products, custom milling, power sold, and for work or miscellaneous services for other enterprises. It includes also a duplication of \$41,104, the value of natural gas sold by some producers to others who used it as material or resold it and included it in the products reported by them. The increase in value of products in 1919 was more than 700 per cent compared with the value of products 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, although due in large part to general price increases during the census interval, nevertheless show large growth in mining, which is also reflected by increases in number of enterprises, number of individual mines, quarries, and wells operated, and average number of wage earners employed.

The mining industries reported in Kentucky in 1919, classified according to principal products and listed in order of value of products, were bituminous coal, petroleum and natural gas, limestone, fluorspar, clay, asphalt, sandstone, phosphate rock, mineral pigments, and barytes. The industries for which statistics can be shown without disclosure of individual operations are ranked by value of products in Table 2.

The principal industry in Kentucky in 1919 was the mining of coal, which embraced 635 mining enterprises, or 67.7 per cent of the total number, employed 91.3 per cent of the total number of wage earners, and reported as value of products \$72,432,840, or 73.5 per cent of the total value of mineral products of the state. Kentucky ranked fifth in the United States in the production of bituminous coal. The coal-producing areas in the state extend over approximately 8,000 square miles in 22 eastern and southeastern counties, which are part of the Middle Appalachian coal fields, and approximately 5,000 square miles in 10 counties in the western part of the state, which are part of the Eastern Interior coal field. Approximately 75 per cent of the production in 1919 was from the eastern district in which Pike, Harlan, Letcher, Perry, Bell, and Floyd Counties were the most productive. Muhlenberg, Hopkins, and Webster Counties were the principal producers in the western district.

The industry second in importance was the production of petroleum and natural gas in which Kentucky ranked tenth in the United States. In this industry 196 enterprises, or approximately one-fifth of the total

number in the state, employed 4.9 per cent of the total number of wage earners and contributed products valued at \$23,329,521, or 23.7 per cent of the total. Production was reported from 32 counties in eastern, southern, and west central parts of the state.

Other mining industries in Kentucky were relatively small, but the Kentucky fluorspar, asphalt, and mineral pigments industries were important; the state ranked second among the states in the first two and third in the other.

A small amount of development work was done on mining properties which were unproductive in 1919. Eight petroleum enterprises and 3 coal-mining enterprises reported such work.

The mining enterprises in Kentucky in 1919 are classified according to form of operating organization in Table 3, which shows that corporations outclassed all other organizations in the number and size of enterprises operated. In all industries for the state as a whole and in the leading industries corporations employed practically all of the wage earners and contributed nearly the whole of the product, or a largely predominating share.

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 Kentucky, 89.1 per cent were in classes having no wage earners or fewer than 101. On the other hand, only 102 enterprises, or 10.9 per cent of the total number, had more than 100 wage earners each, and these enterprises employed 62.1 per cent of the total number of wage earners. The larger enterprises were in the coal-mining and petroleum and natural-gas industries and one in the asphalt industry.

Table 5 shows that in a majority of the enterprises employing wage earners and for 72.6 per cent of the total number of wage earners the hours of labor were 44 to 53 per week. These hours were reported chiefly by enterprises in the coal-mining industry for which the 8-hour day and 6-day week prevailed. Longer hours, for the most part 54 to 62, ruled in other industries. In the petroleum and natural-gas industry the hours ranged from 8 to 12 and were commonly 10 per day; in the fluorspar industry the 9-hour day and 6-day week was the rule; and in the quarrying industries the 10-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. The minimum in the coal industry in November was due to the great coal strike in that month. The abnormal minimum in this industry accounts for the low minimum in the same month in the combined figures for all industries.

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—KENTUCKY.

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.....	938	437	114.6	Capital.....	\$201,247,725	\$20,786,640	651.3
Number of mines and quarries.....	864	442	95.5	Principal expenses:			
Number of petroleum and natural gas wells.....	5,214	1,109	370.2	Salaries.....	7,310,616	965,148	657.5
Number of natural-gas gasoline plants.....	7			Wages.....	49,550,528	7,827,514	533.0
Persons engaged.....	47,893	19,657	143.6	Contract work.....	3,265,715	124,903	1,666.2
Proprietors and firm members, total.....	386	338	14.2	Supplies and materials.....	15,659,195	1,322,406	1,084.1
Number performing manual labor in or about the mines, quarries, and wells.....	115	75		Fuel and power.....	2,522,749	218,489	1,054.6
Salaried employees.....	3,944	1,022	285.9	Royalties and rents.....	5,814,424	422,579	1,275.9
Wage earners (average number).....	43,563	18,297	138.1	Taxes.....	2,605,300	96,122	2,610.4
Power used (horsepower).....	148,893	53,203	179.9	Value of products.....	98,486,910	12,100,075	713.9

¹ Percentages are omitted where base is less than 100.

² Includes cost of natural gas purchased as material and 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.....	938	43,563	100.0	\$98,486,910	100.0	Fluorspar.....	29	370	0.8	\$777,405	0.8
Coal, bituminous.....	635	39,769	91.3	72,432,840	73.5	Clay.....	18	209	0.6	375,577	0.4
Petroleum and natural gas.....	196	2,119	4.9	23,329,521	23.7	Sandstone.....	5	56	0.1	91,363	0.1
Limestone.....	47	676	1.6	1,126,109	1.1	Barytes.....	5	5	(¹)	9,375	(¹)
						All other industries ²	3	290	0.7	344,720	0.3

¹ Less than one-tenth of 1 per cent.

² Includes enterprises in industries as follows: Asphalt, 1; mineral pigments, 1; phosphate rock, 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.....	938	43,563	\$98,486,910	\$104,997	100.0	100.0	100.0
Corporation.....	703	42,021	94,408,284	134,293	74.9	96.5	95.9
Individual.....	132	688	1,048,571	7,906	14.1	1.6	1.1
Firm.....	98	836	2,900,115	29,593	10.4	1.9	2.9
Other.....	5	18	134,940	26,988	0.5	(¹)	0.1
COAL, BITUMINOUS.....	635	39,769	72,432,840	114,067	100.0	100.0	100.0
Corporation.....	472	38,597	70,608,050	149,598	74.3	97.1	97.5
Individual.....	96	536	782,735	8,153	15.1	1.3	1.1
Firm.....	67	630	1,042,055	15,553	10.6	1.6	1.4
PETROLEUM AND NATURAL GAS.....	196	2,119	23,329,521	119,028	100.0	100.0	100.0
Corporation.....	169	2,018	21,507,275	127,262	86.2	95.2	92.2
Individual.....	7	8	81,831	11,090	3.6	0.4	0.4
Firm.....	15	75	1,605,475	107,032	7.7	3.5	6.9
Other.....	5	18	134,940	26,988	2.6	0.8	0.6
LIMESTONE AND SANDSTONE.....	52	732	1,217,472	23,413	100.0	100.0	100.0
Corporation.....	23	527	910,617	39,592	44.2	72.0	74.8
Individual.....	21	126	159,809	7,610	40.4	17.2	13.1
Firm.....	8	79	147,046	18,381	15.4	10.8	12.1
FLUORSPAR.....	29	370	777,405	26,807	100.0	100.0	100.0
Corporation.....	20	322	672,588	33,629	69.0	87.0	85.5
Firm.....	9	48	104,817	11,646	31.0	13.0	13.5
BARYTES.....	5	5	9,375	1,875	100.0	100.0	100.0
Individual.....	5	5	9,375	1,875	100.0	100.0	100.0

¹ Less than one-tenth of 1 per cent.

² 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.....	938	100.0	43,563	100.0	PETROLEUM AND NATURAL GAS..	196	100.0	2,119	100.0
No wage earners.....	36	3.8	.....	.....	No wage earners.....	32	16.3	.....	.....
1 to 5.....	266	28.4	683	1.6	1 to 5.....	90	45.9	182	8.6
6 to 20.....	273	29.1	3,022	6.9	6 to 20.....	49	25.0	464	21.9
21 to 50.....	151	16.1	4,930	11.3	21 to 50.....	14	7.1	436	20.6
51 to 100.....	110	11.7	7,858	18.0	51 to 100.....	7	3.6	560	26.6
101 to 500.....	94	10.0	17,734	40.7	101 to 500.....	4	2.0	537	25.3
501 to 1,000.....	5	0.5	3,368	7.7					
Over 1,000.....	3	0.3	6,968	13.7					
COAL, BITUMINOUS.....	635	100.0	39,769	100.0	LIMESTONE AND SANDSTONE.....	52	100.0	732	100.0
No wage earners.....	1	0.2	.....	.....	1 to 5.....	20	38.5	60	8.2
1 to 5.....	138	21.7	390	1.0	6 to 20.....	21	40.4	271	37.0
6 to 20.....	180	28.3	2,074	5.2	21 to 50.....	9	17.3	275	37.6
21 to 50.....	122	19.2	4,024	10.1	51 to 100.....	2	3.8	126	17.2
51 to 100.....	97	15.3	6,969	17.5					
101 to 500.....	89	14.0	16,976	42.7	FLUORSPAR.....	29	100.0	370	100.0
501 to 1,000.....	5	0.8	3,368	8.5	No wage earners.....	2	6.9	.....	.....
Over 1,000.....	3	0.5	6,968	15.0	1 to 5.....	8	27.6	24	6.5
					6 to 20.....	14	48.3	135	36.5
					21 to 50.....	4	13.8	140	37.8
					51 to 100.....	1	3.4	71	19.2

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—											
	Enterprises.	Wage earners.	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.
All industries.....	1902	43,563	55	1,768	69	2,014	479	31,643	266	7,827	17	86	16	227
Coal, bituminous.....	634	39,769	51	1,718	66	2,000	439	30,976	78	5,075	.....	.....	.....	.....
Petroleum and natural gas.....	164	2,119	2	3	1	5	25	531	103	1,207	17	86	10	227
Limestone and sandstone.....	52	732	1	43	1	4	4	75	46	610	.....	.....	.....	.....
Fluorspar.....	27	370	.....	.....	.....	.....	.....	21	23	349	.....	.....	.....	.....
All other industries.....	25	573	1	2	1	5	7	40	10	526	.....	.....	.....	.....

¹ Exclusive of 36 enterprises employing no wage earners in industries as follows: Clay, 1; coal, bituminous, 1; fluorspar, 2; petroleum and natural gas, 32.

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.....	43,631	44,012	40,995	41,042	40,155	41,221	42,279	46,305	47,420	47,452	48,894	36,589	43,208	72.8
Producing enterprises.....	43,563	43,980	40,949	40,949	40,081	41,154	42,203	46,231	47,350	47,373	48,834	36,518	43,136	72.7
Coal, bituminous.....	39,769	40,839	37,890	37,742	36,808	37,626	38,507	41,875	42,919	42,946	44,522	31,408	44,346	70.5
Petroleum and natural gas.....	2,119	1,874	1,955	1,955	1,984	2,032	2,096	2,225	2,337	2,309	2,248	2,218	2,195	80.2
Limestone.....	676	545	351	468	687	734	773	885	903	879	788	716	583	38.2
Fluorspar.....	370	536	336	298	283	287	293	320	375	492	520	441	309	44.2
Clay.....	269	262	263	231	248	246	223	256	269	282	304	311	303	71.7
Sandstone.....	56	5	23	51	64	70	67	74	69	82	67	57	43	6.1
Barytes.....	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
All other industries.....	299	119	131	180	193	205	240	592	471	377	374	357	349	36.4
Nonproducing enterprises.....	68	52	46	93	74	67	76	74	70	79	60	73	72	34.4
Coal, bituminous.....	56	30	33	71	55	57	64	63	63	62	52	56	66	42.3
Petroleum and natural gas.....	12	.....	13	22	19	10	12	11	7	17	8	17	6	9.1

MINES AND QUARRIES—KENTUCKY.

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

	PRODUCING ENTERPRISES.									NONPRODUCING ENTERPRISES.			
	Aggregate.	Total.	Coal, bituminous.	Petroleum and natural gas.	Limestone.	Fluor-spar.	Clay.	Sandstone.	Barytes.	All other. ¹	Total.	Petroleum and natural gas.	Coal, bituminous.
Number of enterprises.....	919	938	635	196	47	29	18	5	5	3	11	8	3
Number of mines and quarries.....	867	864	742	.....	50	40	19	5	5	3	3	.....	3
Number of petroleum and natural-gas wells.....	5, 214	5, 214	.....	5, 214	.....	.....	.....	.....	.....	.....	.....	.....	.....
Number of natural-gas gasoline plants.....	7	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Capital.....	\$201, 811, 996	\$201, 247, 725	\$137, 896, 306	\$56, 788, 065	\$975, 318	\$3, 213, 302	\$728, 301	\$189, 242	\$010	\$1, 450, 581	\$504, 271	\$332, 326	\$231, 945
Principal expenses:													
Salaries and wages--													
Officers.....	\$2, 477, 087	\$2, 472, 087	\$2, 041, 661	\$299, 008	\$27, 365	\$56, 200	\$8, 283	\$8, 430	.....	\$30, 150	\$5, 000	\$800	\$4, 200
Superintendents and managers.....	\$2, 558, 468	\$2, 542, 075	\$2, 085, 162	\$345, 020	\$16, 949	\$43, 044	\$17, 451	\$2, 425	.....	\$22, 624	\$15, 793	\$9, 193	\$6, 000
Technical employees.....	\$452, 667	\$452, 547	\$388, 598	\$33, 328	.....	\$1, 500	\$3, 115	\$2, 100	.....	\$23, 906	\$120	\$120	.....
Clerks, etc.....	\$1, 844, 883	\$1, 843, 307	\$1, 647, 236	\$147, 004	.....	\$10, 871	\$6, 097	\$600	.....	\$22, 104	\$1, 576	\$930	\$846
Wage earners.....	\$49, 622, 104	\$49, 559, 588	\$45, 615, 853	\$2, 645, 512	\$526, 099	\$281, 273	\$222, 789	\$35, 687	\$2, 882	\$220, 493	\$71, 516	\$13, 291	\$58, 225
Supplies and materials.....	\$15, 734, 345	\$15, 618, 091	\$10, 944, 940	\$4, 006, 774	\$215, 319	\$150, 893	\$43, 029	\$11, 710	\$37	\$245, 339	\$116, 254	\$56, 785	\$59, 469
Cost of natural gas purchased as material and for resale.....	\$41, 104	\$41, 104	.....	\$41, 104	.....	.....	.....	.....	.....	.....	.....	.....	.....
Fuel.....	\$1, 941, 526	\$1, 937, 821	\$1, 553, 058	\$233, 411	\$65, 073	\$43, 667	\$5, 056	\$7, 383	.....	\$30, 173	\$3, 705	\$2, 355	\$1, 350
Power.....	\$585, 065	\$584, 928	\$568, 435	.....	\$9, 249	.....	.....	.....	.....	\$7, 244	\$137	.....	\$137
Royalties and rents.....	\$5, 827, 674	\$5, 814, 424	\$1, 724, 793	\$3, 970, 910	\$7, 557	\$93, 560	\$5, 233	\$71	\$2, 000	\$10, 300	\$13, 250	\$6, 274	\$6, 976
Taxes.....	\$2, 609, 388	\$2, 605, 300	\$1, 617, 639	\$901, 974	\$8, 233	\$8, 931	\$4, 605	\$770	.....	\$3, 148	\$1, 088	\$928	\$160
Contract work.....	\$3, 332, 518	\$3, 265, 715	\$199, 012	\$2, 912, 770	\$1, 666	\$145, 016	\$3, 708	.....	\$2, 043	.....	\$66, 833	\$65, 914	\$919
Expenditures for development (included in the above items).....	\$13, 103, 070	\$12, 847, 964	\$5, 506, 157	\$6, 829, 041	\$1, 500	\$158, 391	\$7, 006	.....	.....	\$344, 969	\$255, 112	\$147, 371	\$107, 741
Value of products.....	\$98, 480, 910	\$98, 486, 910	\$72, 432, 840	\$23, 329, 521	\$1, 126, 109	\$777, 405	\$375, 577	\$91, 303	\$9, 375	\$344, 720	.....	.....	.....
Persons engaged in industry.....	48, 026	47, 893	43, 347	2, 634	764	444	297	66	10	341	133	70	63
Proprietors and firm members (total).....	435	386	258	59	39	21	3	1	5	.....	49	48	1
Number performing manual labor.....	115	115	96	9	10	.....	.....	.....	.....	.....	.....	.....	.....
Salaried officers.....	809	805	655	102	18	18	8	4	.....	5	4	2	2
Superintendents and managers.....	1, 127	1, 118	876	180	15	24	9	2	.....	12	9	6	3
Technical employees.....	331	331	301	16	.....	1	2	2	.....	9	.....	.....	.....
Clerks, etc.....	1, 693	1, 690	1, 488	158	11	10	6	.....	.....	16	3	2	1
Wage earners (average number).....	43, 631	43, 563	39, 769	2, 119	676	370	260	50	5	209	68	12	56
Wage earners by occupation (Dec. 15):													
Above ground (total).....	13, 382	13, 321	9, 168	2, 297	886	320	163	83	29	375	61	19	42
Below ground (total).....	36, 364	36, 339	36, 038	.....	.....	140	161	.....	.....	.....	25	.....	25
Foremen, shift bosses, etc.—													
Above ground.....	448	445	369	.....	31	17	4	3	4	17	3	.....	3
Below ground.....	953	952	934	.....	.....	10	8	.....	.....	.....	1	.....	1
Engineers, hoistmen, electricians, mechanics, etc.—													
Above ground.....	3, 879	3, 860	2, 160	1, 491	40	108	11	8	.....	42	19	6	13
Below ground.....	1, 604	1, 604	1, 601	.....	.....	3	.....	.....	.....	.....	.....	.....	.....
Miners, quarrymen, and drillmen, including their helpers—													
Above ground.....	1, 482	1, 482	864	.....	415	27	46	50	4	76	.....	.....	.....
Below ground.....	19, 599	19, 584	19, 402	.....	.....	69	113	.....	.....	.....	15	.....	15
Timbermen, trackmen, and men engaged in hauling, tramming, etc.—													
Above ground.....	1, 578	1, 575	1, 320	.....	195	17	26	.....	.....	17	3	.....	3
Below ground.....	6, 904	6, 904	6, 838	.....	.....	26	40	.....	.....	.....	.....	.....	.....
Muckers, loaders, laborers, and others not classified—													
Above ground.....	5, 832	5, 796	4, 442	806	187	51	76	5	21	208	36	13	23
Below ground.....	7, 304	7, 295	7, 263	.....	.....	32	.....	.....	.....	.....	9	.....	9
Wage earners employed in mills and beneficiating plants—													
Above ground.....	163	163	13	.....	18	100	.....	17	.....	15	.....	.....	.....
Mineral and oil land operated..... acres.....	1, 119, 780	1, 093, 641	731, 116	823, 015	1, 984	5, 232	26, 850	440	947	4, 057	26, 139	21, 109	5, 030
Land controlled, total..... acres.....	1, 222, 002	1, 195, 834	832, 007	323, 015	2, 159	5, 782	27, 217	650	947	4, 057	26, 198	21, 109	5, 059
Mineral and oil land owned.....	510, 083	506, 713	451, 374	20, 213	1, 731	2, 893	26, 303	437	165	3, 597	3, 370	70	3, 300
Mineral and oil land leased.....	609, 992	537, 228	280, 037	302, 802	253	2, 339	547	3	782	460	22, 769	21, 039	1, 730
Timber and other lands owned and leased.....	101, 027	101, 898	100, 596	.....	175	550	367	210	.....	.....	29	.....	29
Power used: Aggregate horsepower.....	149, 579	148, 893	128, 804	13, 795	4, 485	2, 293	226	640	.....	650	686	106	580
Prime movers (horsepower, total).....	102, 582	102, 176	81, 263	13, 795	3, 569	2, 293	226	640	.....	400	406	106	300
Steam engines—													
Number.....	722	716	442	151	55	42	8	14	.....	4	6	4	2
Horsepower.....	66, 193	65, 827	57, 005	2, 738	3, 329	1, 636	179	640	.....	400	366	66	300
Steam turbines—													
Number.....	43	43	43	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Horsepower.....	23, 786	23, 786	23, 786	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Internal-combustion engines—													
Number.....	818	815	64	659	12	72	8	.....	.....	.....	3	8	.....
Horsepower.....	12, 603	12, 593	462	11, 057	240	757	47	.....	.....	.....	40	40	.....
Purchased power (horsepower, total).....	46, 997	46, 717	45, 551	.....	916	.....	.....	.....	.....	250	280	.....	280
Electric motors operated by purchased current—													
Number.....	1, 176	1, 174	1, 143	.....	25	.....	.....	.....	.....	6	2	.....	2
Horsepower.....	46, 997	46, 717	45, 551	.....	916	.....	.....	.....	.....	250	280	.....	280
Electric motors run by current generated by enterprise using:													
Number.....	1, 955	1, 953	1, 925	1	4	21	.....	2	.....	.....	2	.....	2
Horsepower.....	53, 957	53, 817	53, 222	1	240	329	.....	25	.....	.....	140	.....	140
Fuel used:													
Coal, bituminous, tons, 2,000 lbs.....	725, 101	724, 385	679, 943	8, 406	14, 960	9, 183	1, 127	2, 040	.....	8, 726	716	176	540
Wood..... cords.....	675	675	.....	.....	.....	70	.....	.....	.....	.....	.....	.....	.....
Fuel oil..... barrels.....	38, 148	38, 148	467	37, 639	9	15	.....	.....	.....	.....	.....	.....	.....
Gasoline and other volatile oils..... barrels.....	12, 077	12, 069	1, 338	9, 437	322	780	42	.....	.....	.....	8	8	.....
Natural gas..... 1,000 cubic feet.....	752, 145	751, 455	751, 455	.....	.....	.....	.....	.....	.....	.....	690	690	.....

¹ Includes enterprises as follows: Asphalt, 1; mineral pigments, 1; phosphate rock, 1.

² Includes 8 wage earners under 16 years of age.

LOUISIANA.

Louisiana, which ranks thirtieth among the states in size (land area 45,409 square miles) and twenty-second in population (1,798,509 in 1920), ranked nineteenth in total value of mineral products for 1919. The state ranked twenty-sixth in the total number of persons engaged in the mining industries and in the average number of wage earners employed.

The mineral industries reported for Louisiana in 1919 were petroleum and natural gas, sulphur, and limestone. The mining of salt was an important industry in Louisiana in 1919 but was not included in the census of mines and quarries. As the sulphur and limestone industries each reported only one producing enterprise, statistics for 1919 can be shown only for petroleum and natural gas. The statistics for the petroleum and natural-gas industry here presented include data on the operation of plants engaged in extraction of gasoline from natural gas, whether such plants were connected with well operations or not. Reports were received on operations in nine northern and north-western Louisiana parishes included in the Mid-Continent Oil Field, which extends into Texas, Oklahoma, and Kansas, and six southern Louisiana parishes in the Gulf Coast Oil Field, which extends into Texas.

The gross value of products of the petroleum and natural-gas industry in the state of Louisiana for 1919 was \$32,016,085, which gave the state eighth rank in the United States in this industry. This amount, however, includes a duplication in the value of natural gas, which was sold by some operators for use as material or for resale by other producers who again reported its value. Deducting this duplication, \$740,522, leaves \$31,275,563 as the net value of products, an increase of 1,340 per cent over the corresponding amount (\$2,170,786) reported at the census of 1909. The figures for 1919 include also small sums received by operators for power sold and work or miscellaneous services for other enterprises.

In addition to operations by producing petroleum and natural-gas enterprises, six enterprises reported relatively small amounts expended for development of nonproductive properties.

Table 1 presents comparative statistics for 1919 and 1909. As the increases shown for capital, principal expenses, and value of products are largely augmented by general price increases in recent years they should not be used as a measure of growth of the petroleum and natural-gas industry in Louisiana.

The character of organizations operating petroleum and natural-gas enterprises in Louisiana in 1919 is shown in Table 2, which brings out the preponderance of corporations over other forms of organization.

The size of producing enterprises, as measured by average number of wage earners, is shown in Table 3. One hundred and twenty-six enterprises, or 94.7 per cent of the total number, had no wage earners or fewer than 101 each and the wage earners employed were only 33.8 per cent of the total number. Seven enterprises, or 5.4 per cent of the total number, had more than 100 wage earners each and these employed 3,205 wage earners, or 66.2 per cent of the total number. It is to be noted, however, that these larger enterprises made combined reports for operations conducted in several localities and that the actual individual operations required fewer wage earners.

Table 4 shows that in more than three-fourths of the enterprises employing wage earners and for 83.1 per cent of the total number of wage earners the prevailing hours of labor were over 62 per week.

The statistics for wage earners presented in Table 5, showing the changes in the number employed month by month, reflect conditions prevailing in the industry during the census year.

Table 6 presents for 1919 statistics in detail for the petroleum and natural-gas industry in the state of Louisiana.

MINES AND QUARRIES—LOUISIANA.

TABLE 1.—COMPARATIVE SUMMARY, FOR PETROLEUM AND NATURAL GAS, PRODUCING ENTERPRISES: 1919 AND 1909.

	1919	1909	Per cent of increase. ¹		1919	1909	Per cent of increase. ¹
Number of enterprises.....	133	31	329.0	Capital.....	\$81,682,666	\$8,049,682	914.7
Number of petroleum and natural-gas wells.....	2,479	246	907.7	Principal expenses:			
Number of natural-gas gasoline plants.....	20			Salaries.....	1,441,479	220,852	552.7
Persons engaged.....	5,669	717	690.7	Wages.....	7,035,514	573,305	1,127.2
Proprietors and firm members, total.....	53	72		Contract work.....	2,032,068	262,440	
Number performing manual labor in or about the wells.....	2	1		Supplies and materials ²	3,393,076	620,659	1,262.3
Salaried employees.....	770	87	785.1	Fuel and power.....	1,428,787	20,746	6,787.0
Wage earners (average number).....	4,841	558	767.6	Royalties and rents.....	4,812,372	496,193	769.1
Power used (horsepower).....	79,249	5,345	1,382.7	Taxes.....	1,115,339	13,912	
				Value of products.....	32,016,085	2,177,980	1,370.0

¹ Percentages are omitted where base is less than 100.² Not strictly comparable with figures for 1919.³ Includes cost of natural gas purchased for use as material and for resale.

TABLE 2.—CHARACTER OF ORGANIZATION, FOR PETROLEUM AND NATURAL GAS, PRODUCING ENTERPRISES: 1919.

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 enterprises.....	133	4,841	\$32,016,085	\$240,722	100.0	100.0	100.0
Corporation.....	109	4,754	31,375,958	287,853	82.0	98.2	98.0
Individual.....	7	40	202,459	23,923	5.3	0.8	0.6
Firm ¹	17	47	437,668	25,745	12.8	1.0	1.4

¹ Includes 1 other form of organization.

TABLE 3.—SIZE OF PRODUCING ENTERPRISES, BY AVERAGE NUMBER OF WAGE EARNERS, FOR PETROLEUM AND NATURAL GAS: 1919.

WAGE EARNERS PER ENTERPRISE.	ENTERPRISES.		WAGE EARNERS.		WAGE EARNERS PER ENTERPRISE.	ENTERPRISES.		WAGE EARNERS.	
	Number.	Per cent distribution.	Number.	Per cent distribution.		Number.	Per cent distribution.	Number.	Per cent distribution.
All enterprises.....	133	100.0	4,841	100.0	21 to 50.....	14	10.5	436	9.0
No wage earners.....	15	11.3			51 to 100.....	10	7.5	727	15.0
1 to 5.....	53	39.8	121	2.5	101 to 500.....	5	3.8	1,416	29.3
6 to 20.....	34	25.6	352	7.3	501 to 1,000.....	1	0.8	752	15.5
					Over 1,000.....	1	0.8	1,037	21.4

TABLE 4.—NUMBER OF PRODUCING ENTERPRISES AND AVERAGE NUMBER OF WAGE EARNERS, BY PREVAILING HOURS OF LABOR PER WEEK, FOR PETROLEUM AND NATURAL GAS: 1919.

	TOTAL.		NUMBER WHERE THE PREVAILING HOURS OF LABOR PER WEEK WERE—											
	Enterprises.	Wage earners.	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.
All enterprises.....	118	4,841	2	77	1	3	4	20	21	718	70	3,878	20	145

¹ Exclusive of 15 enterprises employing no wage earners.

MINES AND QUARRIES—LOUISIANA.

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TABLE 5.—WAGE EARNERS, BY MONTHS, FOR PETROLEUM AND NATURAL GAS: 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 enterprises.....	4,783	4,049	3,902	4,202	4,250	4,116	4,351	4,486	4,976	5,409	5,636	6,384	6,655	58.6
Producing enterprises.....	4,841	4,030	3,882	4,182	4,224	4,095	4,332	4,453	4,944	5,435	5,585	6,331	6,599	58.8
Nonproducing enterprises.....	32	19	20	20	26	21	19	33	32	34	51	53	56	33.9

TABLE 6.—DETAILED STATISTICS FOR PETROLEUM AND NATURAL GAS: 1919. ¹

	Total.	Producing enterprises.	Nonproducing enterprises.		Total.	Producing enterprises.	Nonproducing enterprises.
Number of enterprises.....	139	133	6	Persons engaged in industry—Continued.			
Number of petroleum and natural-gas wells.....	2,479	2,479		Wage earners by occupation (Dec. 15).....	6,665	6,608	57
Number of natural-gas gasoline plants.....	20	20		Engineers, firemen, drillers, pumpers, mechanics, etc.....	2,757	2,703	54
Capital.....	\$82,330,153	\$81,082,666	\$656,487	All other.....	3,908	3,905	3
Principal expenses:				Number of females included in wage earners reported above.....	3	1	2
Salaries and wages—				Oil and gas land operated.....acres..	350,312	329,342	20,970
Officers.....	\$247,033	\$246,855	\$178	Land controlled, total.....acres..	350,312	329,342	20,970
Superintendents and managers.....	\$602,733	\$584,163	\$18,585	Oil and gas land owned.....	16,849	16,819	30
Technical employees.....	\$64,652	\$63,652	\$1,000	Oil and gas land leased.....	333,463	312,523	20,940
Clerks, etc.....	\$551,065	\$546,819	\$4,246	Power used: Aggregate horsepower.....	79,430	79,249	181
Wage earners.....	\$7,082,832	\$7,035,514	\$47,318	Prime movers (horsepower, total).....	79,396	79,215	181
Supplies and materials.....	\$7,755,941	\$7,652,554	\$103,387	Steam engines—			
Cost of natural gas purchased as material and for resale.....	\$740,522	\$740,522		Number.....	995	989	6
Fuel.....	\$1,438,535	\$1,427,863	\$10,672	Horsepower.....	25,181	25,000	181
Power.....	\$924	\$924		Internal-combustion engines—			
Royalties and rents.....	\$4,712,375	\$4,312,372	\$400,003	Number.....	1,869	1,869	
Taxes.....	\$1,155,920	\$1,115,339	\$40,580	Horsepower.....	54,215	54,215	
Contract work.....	\$2,091,009	\$2,032,068	\$58,941	Purchased power (horsepower, total).....	34	34	
Expenditures for development (included in the above items).....	\$11,211,619	\$11,001,642	\$209,977	Electric motors operated by purchased current—			
Value of products.....	\$32,016,085	\$32,016,085		Number.....	2	2	
Persons engaged in industry.....	5,719	5,669	50	Horsepower.....	34	34	
Proprietors and firm members (total).....	58	58		Electric motors run by current generated by enterprise using:			
Number performing manual labor.....	2	2		Number.....	25	25	
Salaried officers.....	69	69		Horsepower.....	310	310	
Superintendents and managers.....	224	213	11	Fuel used:			
Technical employees.....	43	41	2	Wood.....cords..	1,256		1,256
Clerks, etc.....	452	447	5	Fuel oils.....barrels..	418,047	415,002	3,045
Wage earners (average number).....	4,873	4,841	32	Gasoline and other volatile oils.....barrels..	445	445	
				Natural gas.....1,000 cubic feet..	13,552,204	13,546,954	5,250

¹ In order to avoid disclosure of individual operations, statistics for 1 limestone and 1 sulphur enterprise are not shown.
² Exclusive of 1 enterprise operating 2 plants producing also carbon black, included in the census of manufactures.

MAINE.

Maine, which ranks thirty-eighth among the states in size (land area 29,895 square miles) and thirty-fifth in population (768,014 in 1920), ranked forty-first in the value of mineral products in 1919. On the basis of total number of persons engaged in the mining industries and the average number of wage earners employed it ranked thirty-ninth.

The total value of products of all mines and quarries in the state of Maine in 1919 was \$1,823,442, which was a decrease of 11.3 per cent as compared with the corresponding amount for 1909. Decreases in the number of enterprises, individual mines and quarries operated, persons engaged, and in the capital invested, as shown in Table 1, marked the decline of mining industries in the state of Maine. Decreases in salaries, wages, cost of supplies and materials, and value of products are smaller, because these items were affected by the general increase in prices in 1919 as compared with 1909. The large increase in taxes shown is accounted for by the impost of Federal income taxes since the census of 1909.

The mining and quarrying industries reported for 1919, classified by principal products and listed in the order of value of products, were granite, slate, feldspar, and limestone. This listing and statistics herein given do not take into account the production of a large amount of limestone used by the producers at the quarries in the manufacture of lime, which operations are included in the census of manufactures. In addition to the products indicated by the industry designation, quartz, or silica, and tourmaline were also produced as a by-product by enterprises engaged in the mining of feldspar.

The leading mineral industry in Maine in 1919 was granite quarrying which included 42 enterprises, or 84 per cent of the total number reported. This industry employed 76.3 per cent of the total number of wage earners and produced stone valued at \$1,300,996,

or 71.3 per cent of the total value of products of all mines and quarries in the state. The value of the granite produced in this state was 7.1 per cent of the total value of products of the granite industry throughout the United States (\$18,279,345) in 1919, and gave Maine sixth rank among the granite-producing states.

Development work was reported in the state of Maine, in 1919, for only one nonproducing mining property (a molybdenum deposit).

Table 2 shows that among the operators of mining enterprises in Maine individual ownership outnumbered all other forms of organization. However, the corporations, which conducted 34 per cent of the number of enterprises, employed 86.1 per cent of the total number of wage earners and reported 86.8 per cent of the total value of products.

The relatively large number of small enterprises, as determined by the average number of wage earners employed, is shown in Table 3. Ninety-four per cent of the total number of enterprises had no wage earners or less than 101 each and employed 62 per cent of the total number of wage earners. Only 3 enterprises, or 6 per cent of the total number, employed more than 100 wage earners each, and these enterprises employed 38 per cent of the total number of wage earners. These 3 large enterprises were in the granite industry, the leading industry in the state.

Table 4 shows that for a majority of the enterprises and for 81.1 per cent of the wage earners the prevailing hours of labor were 44 to 53 per week.

The statistics for wage earners presented in Table 5, showing changes in the number employed month by month, reflect conditions prevailing in the industries during the census year.

Table 6 presents for 1919 statistics in detail for the state as a whole and for granite, the only 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.....	50	97	.....	Capital.....	\$1,692,082	\$3,825,931	-55.8
Number of mines and quarries.....	51	102	-50.0	Principal expenses:			
Persons engaged.....	1,093	2,359	-53.7	Salaries.....	118,279	119,026	-1.1
Proprietors and firm members, total.....	52	98	.....	Wages.....	1,051,706	1,332,242	-21.1
Number performing manual labor in or about the mines and quarries.....	36	60	.....	Contract work.....	32,303	6,728	381.1
Salaried employees.....	62	117	-47.0	Supplies and materials.....	203,187	219,579	-7.5
Wage earners (average number).....	979	2,144	-54.3	Fuel and power.....	122,792	84,683	45.0
Power used (horsepower).....	6,277	8,141	-22.9	Royalties and rents.....	9,986	16,302	-38.7
				Taxes.....	34,253	10,241	110.9
				Value of products.....	1,823,442	2,056,063	-11.3

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

MINES AND QUARRIES—MAINE.

TABLE 2.—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.....	50	979	\$1,823,442	\$36,469	100.0	100.0	100.0
Corporation.....	17	843	1,581,949	93,056	34.0	86.1	86.8
Individual.....	18	93	153,843	8,547	36.0	9.5	8.4
Firm ¹	15	43	87,650	5,843	30.0	4.4	4.8
GRANITE.....	42	747	1,300,996	30,976	100.0	100.0	100.0
Corporation.....	10	614	1,061,740	106,175	23.8	82.2	81.6
Individual.....	18	93	153,843	8,547	42.9	12.4	11.8
Firm ¹	14	40	85,404	6,100	33.3	5.4	6.0

¹ Includes 1 other form of organization.

TABLE 3.—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.....	50	100.0	979	100.0	GRANITE.....	42	100.0	747	100.0
No wage earners.....	6	12.0	61	6.2	No wage earners.....	5	11.9	53	7.1
1 to 5.....	23	46.0	117	12.0	1 to 5.....	21	50.0	96	12.9
6 to 20.....	11	22.0	80	8.2	6 to 20.....	9	21.4	80	10.7
21 to 50.....	2	4.0	349	35.6	21 to 50.....	2	4.8	146	19.5
51 to 100.....	5	10.0	372	38.0	51 to 100.....	2	4.8	372	40.8
101 to 500.....	3	6.0			101 to 500.....	3	7.1		

TABLE 4.—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—							
	Enterprises.	Wage earners.	35 and under.		36 to 43.		44 to 53.		54 to 62.	
			Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners.
All industries.....	144	979	1	3	1	11	34	794	8	171
Granite.....	37	747	1	3	1	11	33	729	2	4
All other industries.....	7	232					1	65	6	167

¹ Exclusive of 6 enterprises employing no wage earners in industries as follows: Granite, 5; limestone, 1.

TABLE 5.—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.....	979	461	458	712	968	1,236	1,288	1,175	1,204	1,141	1,116	1,076	933	34.0
Granite.....	747	251	244	500	763	1,008	1,044	933	951	884	870	853	683	23.4
All other industries.....	232	210	<i>194</i>	212	205	228	244	242	253	287	246	243	250	75.5

MINES AND QUARRIES—MAINE.

TABLE 6.—DETAILED STATISTICS FOR MINING INDUSTRIES: 1919.

	PRODUCING ENTERPRISES.				PRODUCING ENTERPRISES.		
	Total.	Granite.	All other. ¹		Total.	Granite.	All other. ¹
Number of enterprises.....	50	42	8	Persons engaged, etc.—Continued.			
Number of mines and quarries.....	51	42	9	Wage earners, etc.—Continued.			
Capital.....	\$1,692,082	\$1,044,000	\$648,082	Miners, quarrymen, and drillmen, including their helpers—			
Principal expenses:				Above ground.....	341	318	23
Salaries and wages—				Below ground.....	27		27
Officers.....	\$57,577	\$31,500	\$26,077	Timbermen, trackmen, and men engaged in hauling, tramping, etc.—			
Superintendents and managers.....	\$38,499	\$27,761	\$10,738	Above ground.....	147	113	34
Technical employees.....	\$6,124	\$6,124		Muckers, loaders, laborers, and others not classified—			
Clerks, etc.....	\$16,079	\$8,812	\$7,267	Above ground.....	78	72	6
Wage earners.....	\$1,051,796	\$805,865	\$245,931	Below ground.....	19		19
Supplies and materials.....	\$203,187	\$116,060	\$87,127	Wage earners employed in mills and beneficiating plants—			
Fuel.....	\$77,561	\$71,353	\$6,208	Above ground.....	418	319	99
Power.....	\$45,231	\$17,067	\$28,164	Mineralland operated..... acres..	3,562	2,016	1,546
Royalties and rents.....	\$9,986	\$5,242	\$4,744	Land controlled, total..... acres..	7,220	4,126	3,094
Taxes.....	\$34,253	\$17,825	\$16,428	Mineralland owned.....	2,002	1,609	993
Contract work.....	\$32,368	\$2,800	\$29,568	Mineralland leased.....	995	442	553
Expenditures for development (included in the above items).....	\$10,807	\$5,695	\$5,112	Timber and other lands owned and leased..	3,623	2,075	1,548
Value of products.....	\$1,823,442	\$1,800,996	\$522,446	Power used: Aggregate horsepower.....	6,277	4,050	2,227
Persons engaged in industry.....	1,093	839	254	Prime movers (horsepower, total).....	3,562	3,313	249
Proprietors and firm members (total).....	52	50	2	Steam engines—			
Number performing manual labor.....	36	35	1	Number.....	74	72	2
Salaried officers.....	15	5	10	Horsepower.....	3,307	3,187	210
Superintendents and managers.....	24	19	5	Internal-combustion engines—			
Technical employees.....	4	4		Number.....	14	11	3
Clerks, etc.....	19	14	5	Horsepower.....	165	126	39
Wage earners (average number).....	979	747	232	Purchased power (horsepower, total).....	2,715	737	1,978
Wage earners by occupation (Dec. 15):				Electric motors operated by purchased current—			
Above ground (total).....	1,159	964	195	Number.....	57	15	42
Below ground (total).....	51		51	Horsepower.....	2,715	737	1,978
Foremen, shift bosses, etc.—				Fuel used:			
Above ground.....	48	42	6	Coal, bituminous..... tons, 2,000 pounds..	9,586	6,097	489
Below ground.....	5		5	Wood..... cords..	250	75	175
Engineers, hoistmen, electricians, mechanics, etc.—				Gasoline and other volatile oils..... barrels..	236	198	38
Above ground.....	127	100	27				

¹ Includes enterprises as follows: Feldspar, 4; limestone, 1; slate, 3.

MARYLAND.

Maryland, which ranks forty-first among the states in size (land area 9,941 square miles) and twenty-eighth in population (1,449,661 in 1920), ranked thirtieth in the value of mineral products for 1919. The state ranked twenty-fifth 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 mines and quarries in the state of Maryland in 1919 was \$9,698,577, an increase of 67.7 per cent as compared with the corresponding amount reported at the census of 1909. This figure includes the value of by-products and receipts for work or miscellaneous services for other enterprises, which in 1919 amounted to \$23,275.

The increases in value of products, wages, and 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 progress in mining activities which were smaller in volume in 1919 than in 1909, as reflected by the decreases in number of mines and quarries operated, wage earners employed, and capital invested.

The mining industries reported in Maryland in 1919, classified according to principal products and listed in order of value of products, were coal, granite, basalt, limestone, silica (quartz or flint), slate, sandstone, marble, clay, feldspar, talc and soapstone, chromite, asbestos, and iron ore. In addition to products indicated by these industry classifications, one silica enterprise and one talc and soapstone enterprise produced feldspar; one marble enterprise produced limestone; one clay mine produced mica and another produced mineral pigments. The iron ore produced was used entirely in the manufacture of metallic paints. The industries for which statistics can be shown without disclosure of individual operations are ranked by value of products in Table 2.

The principal mining industry in Maryland in 1919 was bituminous coal mining in the extreme western counties, Allegany and Garrett. This industry included 58 out of a total of 126 mining enterprises in the state, em-

ployed 85.7 per cent of the total number of wage earners, and reported products valued at \$8,195,667, or 84.5 per cent of the total value of products.

The quarrying industries were next in importance and accounted for about one-eighth of the wage earners and value of products. Among the relatively small industries the production of silica (quartz or flint) was important in Maryland, as the state led all others in the output of quartz.

The mining enterprises in the state in 1919 are classified according to form of operating organization in Table 3, which shows that corporations outclassed all other forms.

The relatively large number of small enterprises, as measured by the average number of wage earners employed, is shown in Table 4. Of the 126 enterprises, one had no wage earners and 112 had fewer than 101 each and employed only 40.8 per cent of the 5,628 wage earners reported. The 13 larger enterprises were in the coal industry and employed more than two-thirds of the wage earners in that industry and more than one-half of the wage earners reported for all mining and quarrying enterprises in the state.

Table 5 shows that in a majority of enterprises and for 85.7 per cent of the wage earners the prevailing hours of labor were 44 to 53 per week. The proportion of enterprises and wage earners for which such hours prevailed in the coal-mining industry was even larger than for all industries combined. In the coal industry the 8-hour day and 6-day week was the rule. In the quarrying industries the hours of labor per week were commonly 54 to 62 with a 9 or 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 in the coal industry in November is abnormal as to time of year because of the great coal strike in that month.

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—MARYLAND.

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.....	126	126	.....	Capital.....	\$21,078,980	\$25,169,678	-16.3
Number of mines and quarries.....	161	173	-6.9	Principal expenses:			
Persons engaged.....	6,116	7,646	-20.0	Salaries.....	789,659	328,447	140.4
Proprietors and firm members, total.....	84	101	-16.8	Wages.....	6,151,744	3,339,682	84.2
Number performing manual labor in or about the mines and quarries.....	26	48	.....	Contract work.....	16,899	8,303	103.5
Salaried employees.....	404	355	13.8	Supplies and materials.....	1,178,074	478,555	148.2
Wage earners (average number).....	5,628	7,190	-21.7	Fuel and power.....	308,766	104,156	196.4
Power used (horsepower).....	18,660	18,118	3.0	Royalties and rents.....	137,562	133,780	2.8
				Taxes.....	208,137	88,559	135.0
				Value of products.....	9,698,577	5,782,045	67.7

¹ 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.....	126	5,628	100.0	\$9,698,577	100.0	Limestone.....	11	140	2.6	\$241,638	2.5
Coal, bituminous.....	58	4,826	85.7	8,195,667	84.5	Slate.....	4	85	1.5	76,683	0.8
Granite.....	9	235	4.2	495,651	5.1	Clay.....	8	21	0.4	31,758	0.3
Basalt.....	10	183	3.3	360,075	3.8	Feldspar.....	8	11	0.2	30,468	0.3
						All other industries ¹	18	118	2.1	257,637	2.7

¹ Includes enterprises in industries as follows: Asbestos, 1; chromite, 1; iron ore, 1; marble, 2; sandstone, 2; silica, 9; 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.....	126	5,628	\$9,698,577	\$76,973	100.0	100.0	100.0
Corporation.....	78	4,955	8,591,916	117,697	57.9	88.0	88.6
Individual.....	35	193	330,463	9,697	27.8	3.4	3.5
Firm.....	18	480	767,258	42,625	14.3	8.6	7.9
COAL, BITUMINOUS.....	58	4,826	8,195,667	141,305	100.0	100.0	100.0
Corporation.....	44	4,408	7,578,229	172,232	75.9	91.3	92.5
Individual.....	8	52	76,400	9,550	13.8	1.1	0.9
Firm.....	6	366	541,038	90,173	10.3	7.6	6.6
GRANITE, BASALT, LIMESTONE, AND SLATE.....	34	652	1,183,047	34,796	100.0	100.0	100.0
Corporation.....	18	438	769,017	42,723	52.9	67.2	65.0
Individual.....	10	116	208,810	20,861	29.4	17.8	17.7
Firm.....	6	98	205,220	34,203	17.6	15.0	17.3

MINES AND QUARRIES—MARYLAND.

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.....	126	100.0	5,628	100.0	BASALT.....	10	100.0	183	100.0
No wage earners.....	1	0.8			1 to 5.....	2	20.0	8	4.4
1 to 5.....	40	31.7	90	1.6	6 to 20.....	5	50.0	76	41.5
6 to 20.....	36	28.6	458	8.1	21 to 50.....	3	30.0	99	54.1
21 to 50.....	22	17.5	702	13.5	LIMESTONE.....	11	100.0	149	100.0
51 to 100.....	14	11.1	990	17.6	1 to 5.....	8	72.7	81	20.8
101 to 500.....	12	9.5	1,915	34.0	6 to 20.....	1	9.1	16	10.7
Over 1,000.....	1	.8	1,413	25.1	21 to 50.....	1	9.1	49	32.9
COAL, BITUMINOUS.....	58	100.0	4,826	100.0	51 to 100.....	1	9.1	53	35.6
1 to 5.....	5	8.6	12	0.2	SLATE.....	4	100.0	85	100.0
6 to 20.....	16	27.6	198	4.1	6 to 20.....	2	50.0	22	25.9
21 to 50.....	12	20.7	418	8.7	21 to 50.....	2	50.0	63	74.1
51 to 100.....	12	20.7	870	18.0					
101 to 500.....	12	20.7	1,915	39.7					
Over 1,000.....	1	1.7	1,413	29.3					
GRANITE.....	9	100.0	235	100.0					
1 to 5.....	1	11.1	4	1.7					
6 to 20.....	4	44.4	62	26.4					
21 to 50.....	3	33.3	102	43.4					
51 to 100.....	1	11.1	67	28.6					

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—									
	Enterprises.	Wage earners.	35 and under.		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.
All industries.....	1,125	5,628	1	20	8	144	79	4,825	35	620	2	19
Coal, bituminous.....	58	4,826			6	133	51	4,668	1	25		
Granite.....	9	235					3	55	6	180		
Basalt.....	10	183	1	20	1	3	3	58	5	102		
Limestone.....	11	149					1	4	9	141	1	4
Slate.....	4	85						4	4	85		
Clay.....	3	21			1	8	3	4	4	9		
Feldspar.....	7	11					7	11				
All other industries.....	18	118					11	25	6	78	1	15

¹ Exclusive of 1 enterprise employing no wage earners in the feldspar industry.

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.....	5,628	5,829	5,305	5,101	5,171	5,424	5,460	5,743	6,119	6,157	6,221	5,144	5,862	82.0
Coal, bituminous.....	4,826	5,287	4,714	4,514	4,356	4,528	4,541	4,769	5,121	5,225	5,330	4,303	5,225	80.7
Granite.....	235	125	132	154	224	292	280	304	314	303	285	235	182	83.9
Basalt.....	183	<i>69</i>	94	96	225	228	249	243	239	216	212	266	119	27.7
Limestone.....	149	130	122	105	144	167	166	173	192	170	163	151	115	54.7
Slate.....	85	92	98	98	80	69	79	91	89	84	82	81	77	70.4
Clay.....	21	<i>16</i>	16	16	16	19	19	23	23	25	28	27	27	57.1
Feldspar.....	11	9	18	18	12	8	8	8	8	8	15	15	6	27.8
All other industries.....	118	101	121	100	114	116	118	132	133	126	116	127	112	75.2

MINES AND QUARRIES—MARYLAND.

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

	PRODUCING ENTERPRISES.								
	Total.	Coal, bituminous.	Granite.	Basalt.	Lime-stone.	Slate.	Clay.	Feldspar.	All other. ¹
Number of enterprises.....	2 126	2 58	9	10	11	4	8	8	18
Number of mines and quarries.....	161	92	9	10	11	4	8	8	19
Capital.....	\$21, 078, 980	\$17, 226, 789	\$627, 625	\$336, 217	\$219, 873	\$652, 142	\$23, 550	\$8, 700	\$1, 984, 084
Principal expenses:									
Salaries and wages—									
Officers.....	\$324, 857	\$293, 151	\$14, 573	\$1, 273		\$400			\$15, 480
Superintendents and managers.....	\$267, 001	\$213, 704	\$11, 288	\$17, 340		\$5, 284			\$12, 290
Technical employees.....	\$39, 098	\$39, 098						\$1, 200	
Clerks, etc.....	\$158, 703	\$133, 104	\$6, 441	\$6, 542		\$7, 580			\$5, 181
Wage earners.....	\$6, 151, 744	\$5, 386, 509	\$269, 741	\$186, 210	\$128, 148	\$54, 533	\$19, 608	\$9, 815	\$97, 090
Supplies and materials.....	\$1, 178, 074	\$929, 325	\$76, 836	\$62, 200	\$42, 480	\$4, 701	\$2, 595	\$7, 439	\$22, 438
Fuel.....	\$247, 837	\$133, 388	\$49, 897	\$28, 492	\$14, 085	\$7, 334		\$246	\$14, 395
Power.....	\$80, 929	\$50, 011	\$1, 232	\$1, 200	\$1, 738	\$2, 821			\$3, 897
Royalties and rents.....	\$137, 562	\$100, 027	\$12, 600	\$3, 416	\$2, 095				\$6, 887
Taxes.....	\$208, 137	\$186, 071	\$8, 607	\$8, 545	\$3, 316				\$3, 459
Contract work.....	\$16, 899	\$11, 345	\$2, 535						\$1, 519
Expenditures for development (included in the above items).....	\$101, 878	\$182, 424			\$500	\$2, 847			\$6, 107
Value of products.....	\$9, 608, 577	\$8, 195, 067	\$495, 051	\$369, 075	\$241, 638	\$76, 083	\$31, 758	\$30, 468	\$267, 637
Persons engaged in industry.....									
Proprietors and firm members (total).....	6, 116	5, 180	250	210	169	93	29	22	154
Number performing manual labor.....	84	29	3	14	9		3	9	12
Salaried officers.....	26	10	2	2			2	3	7
Superintendents and managers.....	85	69	6						9
Technical employees.....	125	93	7	9	2	5		2	7
Clerks, etc.....	31	31							8
Wage earners (average number).....	163	132	8	4	9	2		11	118
Wage earners by occupation (Dec. 15):									
Above ground (total).....	1, 842	868	279	218	177	84	31	26	159
Below ground (total).....	4, 469	4, 443				21			
Foremen, shift bosses, etc.—									
Above ground.....	69	40	10	9	3	1			6
Below ground.....	125	123				2			
Enginemen, hoistmen, electricians, mechanics, etc.—									
Above ground.....	293	205	36	13	8	13		1	17
Below ground.....	131	130				1			
Miners, quarrymen, and drillmen, including their helpers—									
Above ground.....	501	116	117	71	63	36	4	19	75
Below ground.....	3, 213	3, 202				11			
Timbermen, trackmen, and men engaged in hauling, tramming, etc.—									
Above ground.....	163	130	16		13	4			
Below ground.....	685	665							
Muckers, loaders, laborers, and others not classified—									
Above ground.....	768	373	91	125	90	19	27	6	37
Below ground.....	335	328				7			
Wage earners employed in mills and beneficiating plants—									
Above ground.....	48	4	9			11			24
Number of wage earners under 16 years of age included in those reported above—									
Above ground.....	2	1							1
Mineral land operated..... acres.....	57, 470	53, 442	398	244	232	401	388	57	2, 310
Land controlled, total..... acres.....	60, 104	60, 714	838	1, 094	437	401	388	57	2, 355
Mineral land owned.....	30, 635	34, 158	216	205	51	401	158	40	1, 303
Mineral land leased.....	20, 879	19, 318	180	89	181		230	17	914
Timber and other lands owned and leased.....	8, 650	7, 228	442	760	205				45
Power used: Aggregate horsepower.....	18, 600	12, 470	2, 393	1, 285	542	403		32	1, 535
Prime movers (horsepower, total).....	14, 018	8, 506	2, 258	1, 210	390	270		32	1, 352
Steam engines—									
Number.....	172	90	94	14	14	7		1	12
Horsepower.....	12, 302	8, 166	1, 450	1, 210	390	270		16	800
Steam turbines—									
Number.....	1		1						
Horsepower.....	760		750						
Internal-combustion engines—									
Number.....	24	14	9						
Horsepower.....	516	340	58					1	6
Water wheels and turbines—									
Number.....	3							16	102
Horsepower.....	450								3
Purchased power (horsepower, total).....	4, 042	3, 964	135	75	132	133			450
Electric motors operated by purchased current—									
Number.....	139	113	4	1	6	12			183
Horsepower.....	4, 042	3, 964	135	75	132	133			3
Electric motors run by current generated by enterprise using:									
Number.....	94	76	13						5
Horsepower.....	3, 872	2, 747	775						350
Fuel used:									
Coal, bituminous..... tons, 2,000 pounds.....	67, 829	46, 264	10, 157	5, 104	2, 603	967		20	2, 714
Wood..... cords.....	65		5		60				
Gasoline and other volatile oils..... barrels.....	630	382	127	4	19			10	144

¹ Includes enterprises as follows: Asbestos, 1; chromite, 1; iron ore, 1; marble, 2; sandstone, 2; silica, 9; talc and soapstone, 2.

² Includes 1 coal-mining enterprise on Maryland and Pennsylvania state line reported as a Maryland operation.

³ Includes 2 tons of anthracite coal.

MASSACHUSETTS.

Massachusetts, which ranks forty-fourth among the states in size (land area 8,039 square miles) and sixth in population (3,852,356 in 1920), ranked thirty-sixth in value of mineral products for 1919. The state ranked thirty-sixth also in total number of persons engaged in the mining industries and thirty-eighth in the average number of wage earners employed.

The total value of products of all mines and quarries in Massachusetts in 1919 was \$4,175,699, which was an increase of 20.4 per cent over the value reported at the census of 1909. The total amount given as value of products includes the value of a small quantity of fuller's earth produced as a by-product by an enterprise classified as a basalt-quarrying operation, and also includes small amounts received for power sold and for miscellaneous services performed for other enterprises.

Decreases in the number of enterprises, in the number of individual mines and quarries operated, in the number of persons engaged, and in the capital invested in the mining industries, as shown in Table 1, marked the decline of mining and quarrying in the state of Massachusetts. Increases in salaries, wages, cost of supplies and materials and fuel and power, and in the value of products are largely due to general price increases since 1909, and are not indicative of growth in the industries. The large increase shown in taxes is accounted for by impost of Federal income taxes since 1909.

The mining and quarrying industries reported for 1919, classified by principal products and listed in order of value of products, were granite, basalt, marble, iron ore, limestone, talc and soapstone, silica, sandstone, fuller's earth, and clay. The industries for which statistics can be shown without disclosure of individual operations are ranked by value of products in Table 2.

Granite quarrying, the leading mineral industry in Massachusetts, produced stone valued at \$2,405,165 in 1919, which amount is 57.6 per cent of the value of all mineral products in the state.

The industry next in importance, basalt quarrying, produced stone to the value of \$1,548,611, which is 37.1 per cent of the total value of products for the

state. All the stone quarrying industries combined, i. e., granite, basalt, marble, limestone, and sandstone, accounted for approximately 99 per cent of the value of all mineral products.

Table 3 shows that among the operators of mining enterprises in Massachusetts the corporation was the most common form of organization; 52.7 per cent of the total number of enterprises were corporations. They employed 78.8 per cent of all wage earners in the mining industries in the state and reported 77.2 per cent of the total value of all mineral products. The table also shows that in the granite industry ownership or control by individuals slightly exceeded that by corporations, but that the latter conducted larger and more important enterprises.

The relatively large number of small enterprises, as determined by the average number of wage earners employed, is brought out by Table 4. Of the total number of mining and quarrying enterprises, 93.2 per cent were in classes having less than 51 wage earners and such enterprises employed 62 per cent of the total number of wage earners. Enterprises employing more than 50 wage earners constituted 6.8 per cent of the total number of enterprises and employed 37.9 per cent of the total number of wage earners. Only one enterprise in this state in 1919 had more than 100 wage earners; this, in the granite industry, employed 343 wage earners, or 20.1 per cent of the total number.

Table 5 shows that in a majority of the enterprises and for approximately 60 per cent of the wage earners in all the mining industries in the state in 1919 the prevailing hours of labor were 44 to 53 per week. For more than two-thirds of the enterprises and for 86.3 per cent of the wage earners in the basalt industry the hours of labor per week were 54 to 62 and the 9-hour day was the rule.

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—MASSACHUSETTS.

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.....	74	139	-46.8	Capital.....	\$4,882,574	\$5,054,093	-3.4
Number of mines and quarries.....	79	147	-46.3	Principal expenses:			
Persons engaged.....	1,910	3,588	-46.8	Salaries.....	324,602	213,358	52.1
Proprietors and firm members, total.....	50	121	-58.7	Wages.....	2,068,844	1,966,997	5.2
Number performing manual labor in or about the mines and quarries.....	10	43	-73.7	Contract work.....	11,186	16,273	-31.3
Salared employees.....	155	176	-11.4	Supplies and materials.....	494,249	363,698	35.9
Wage earners (average number).....	1,704	3,291	-48.2	Fuel and power.....	263,345	153,258	71.8
Power used (horsepower).....	12,498	15,031	-16.9	Royalties and rents.....	59,067	55,409	6.6
				Taxes.....	83,009	40,187	106.6
				Value of products.....	4,175,699	3,467,888	20.4

¹ 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.....	74	1,704	100.0	\$4,175,699	100.0	Basalt.....	21	547	32.1	\$1,548,611	37.1
Granite.....	42	1,034	60.7	2,405,165	57.6	All other industries ¹	11	123	7.2	221,923	5.3

¹ Includes enterprises in industries as follows: Clay, 1; fuller's earth, 1; iron ore, 1; limestone, 1; marble, 3; sandstone, 1; silica, 2; talc and soapstone, 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.....	74	1,704	\$4,175,699	\$56,428	100.0	100.0	100.0
Corporation.....	39	1,342	3,222,633	82,632	52.7	78.8	77.2
Individual.....	20	284	766,312	38,316	27.0	16.7	18.4
Firm ¹	15	78	186,754	12,480	20.3	4.6	4.5
GRANITE.....	42	1,034	2,405,165	57,266	100.0	100.0	100.0
Corporation.....	15	798	1,744,981	116,332	35.7	77.2	72.6
Individual.....	16	185	501,836	31,365	38.1	17.9	20.9
Firm.....	11	51	158,348	14,395	26.2	4.9	6.6
BASALT.....	21	547	1,548,611	73,743	100.0	100.0	100.0
Corporation.....	10	459	1,324,967	82,810	76.2	83.9	85.6
Unincorporated ²	5	88	223,644	44,729	23.8	16.1	14.4

¹ Includes 2 other forms of organization.

² Includes individual, 2; firm, 1; and other, 2.

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.....	74	100.0	1,704	100.0	BASALT.....	21	100.0	547	100.0
1 to 5.....	21	28.4	40	2.9	1 to 5.....	2	9.5	6	1.1
6 to 20.....	26	35.1	307	18.0	6 to 20.....	9	42.9	126	23.0
21 to 50.....	22	29.7	701	41.1	21 to 50.....	8	38.1	260	47.5
51 to 100.....	4	5.4	304	17.8	51 to 100.....	2	9.5	155	28.3
101 to 500.....	1	1.4	343	20.1					
GRANITE.....	42	100.0	1,034	100.0					
1 to 5.....	14	33.3	27	2.6					
6 to 20.....	14	33.3	160	15.5					
21 to 50.....	11	26.2	355	34.3					
51 to 100.....	2	4.8	149	14.4					
101 to 500.....	1	2.4	343	33.2					

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—					
	Enterprises.	Wage earners.	35 and under.		44 to 53.		54 to 62.	
			Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners.
All industries.....	74	1,704	1	12	46	1,080	27	612
Granite.....	42	1,034	1	12	34	926	7	96
Basalt.....	21	547			6	75	15	472
All other industries.....	11	123			6	70	5	44

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.....	1,704	1,037	1,017	1,236	1,757	1,889	1,946	1,978	2,032	1,956	1,997	1,913	1,690	50.0
Granite.....	1,034	643	635	743	1,056	1,161	1,198	1,212	1,201	1,117	1,201	1,174	1,067	52.4
Basalt.....	547	305	287	306	378	599	613	640	688	708	677	607	496	40.5
All other industries.....	123	89	95	127	123	129	135	126	143	131	119	132	127	62.2

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

	PRODUCING ENTERPRISES.					PRODUCING ENTERPRISES.			
	Total.	Granite.	Basalt.	All other. ¹		Total.	Granite.	Basalt.	All other. ¹
Number of enterprises.....	74	42	21	11	Persons engaged in industry—Contd. Wage earners, etc.—Continued. Muckers, loaders, laborers, and others not classified— Above ground.....	545	193	340	12
Number of mines and quarries.....	79	43	23	13		Below ground.....	4			4
Capital.....	\$4,882,574	\$3,146,126	\$1,026,670	\$700,878	Wage earners employed in mills and beneficiating plants— Above ground.....	359	316		43
Principal expenses:					Mineral land operated.....acres..	5,223	3,364	690	1,149
Salaries and wages—					Land controlled, total.....acres..	6,354	3,960	690	1,704
Officers.....	\$156,066	\$70,751	\$81,215	\$4,100	Mineral land owned.....	4,701	3,262	525	914
Superintendents and managers.....	\$86,492	\$52,536	\$28,145	\$5,811	Mineral land leased.....	522	122	165	235
Technical employees.....	\$9,500	\$3,700	\$5,800		Timber and other lands owned and leased.....	1,131	576		555
Clerks, etc.....	\$72,544	\$48,557	\$20,245	\$3,742	Power used: Aggregate horsepower.....	12,408	6,580	4,721	1,197
Wage earners.....	\$2,068,844	\$1,237,888	\$719,596	\$111,360	Prime-movers (horsepower, total).....	7,736	4,737	2,165	834
Supplies and materials.....	\$494,249	\$237,897	\$229,244	\$27,108	Steam engines—				
Fuel.....	\$186,694	\$110,504	\$65,117	\$11,073	Number.....	194	149	81	14
Power.....	\$76,651	\$26,215	\$40,849	\$8,587	Horsepower.....	7,400	4,707	2,165	534
Royalties and rents.....	\$59,087	\$12,450	\$44,183	\$2,434	Internal-combustion engines—				
Taxes.....	\$83,009	\$45,204	\$30,822	\$3,983	Number.....	3	2		1
Contract work.....	\$11,186	\$4,136	\$7,050	\$7,050	Horsepower.....	45	30		15
Expenditures for development (included in the above items).....	\$23,813	\$6,441	\$10,750	\$6,622	Water wheels and turbines—				
Value of products.....	\$4,178,699	\$2,408,165	\$1,548,611	\$221,923	Number.....	2			2
Persons engaged in industry.....	1,910	1,167	601	142	Horsepower.....	285			285
Proprietors and firm members (total).....	50	42	4	4	Purchased power (horsepower, total).....	4,762	1,843	2,556	363
Number performing manual labor.....	10	10			Electric motors operated by purchased current—				
Salaried officers.....	43	23	16	4	Number.....	101	49	39	13
Superintendents and managers.....	40	22	13	5	Horsepower.....	4,757	1,838	2,556	363
Technical employees.....	7	4	3	6	Other equipment operated by purchased power—				
Clerks, etc.....	65	42	18	6	Horsepower.....	5	5		
Wage earners (average number).....	1,704	1,034	517	123	Electric motors run by current generated by enterprise using:				
Wage earners by occupation (Dec. 15):					Number.....	1			1
Above ground (total).....	1,880	1,181	586	113	Horsepower.....	10			10
Below ground (total).....	21			21	Fuel used:				
Foremen, shift bosses, etc.—					Coal, anthracite, tons, 2,240 pounds.....	69	37	32	
Above ground.....	76	52	17	7	Coal, bituminous, tons, 2,000 pounds.....	22,871	14,602	6,710	1,559
Below ground.....	2			2	Coke..... tons, 2,000 pounds.....	50	50		
Enginemen, hoistmen, electricians, mechanics, etc.—					Wood..... cords.....	293	190		100
Above ground.....	204	133	57	14	Fuel oils..... barrels.....	29	6	24	
Miners, quarrymen, and drillmen, including their helpers—					Gasoline and other volatile oils..... barrels.....	57	56		1
Above ground.....	570	387	148	35					
Below ground.....	13			13					
Timbermen, trackmen, and men engaged in hauling, tramming, etc.—									
Above ground.....	126	100	24	2					
Below ground.....	2			2					

¹ Includes enterprises as follows: Clay, 1; fuller's earth, 1; iron ore, 1; limestone, 1; marble, 3; sandstone, 1; silica, 2; talc and soapstone, 1.
² Includes 1 wage earner under 16 years of age.

MICHIGAN.

Michigan, which ranks twenty-second among the states in size (land area 57,480 square miles) and seventh in population (3,668,412 in 1920), ranked ninth in value of mineral products in 1919. The state ranked 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 the mining enterprises in 1919 amounted to \$103,870,089, which was an increase of 53.4 per cent as compared with the corresponding amount reported at the census of 1909. This increase and the increases in capital, wages, cost of supplies and materials and fuel and power, shown in Table 1, are largely due to general price increases during the census interval and not in contradiction to the decreases in the number of individual mines and quarries and wells operated and average number of wage earners employed in mining. It is difficult to gauge the change in the mining industries as a whole, for the reason that there has been considerable increase in the production of iron ore and limestone and decrease in the amount of coal and copper produced.

The mining industries reported in Michigan in 1919, classified by principal products and listed in order of value of products, were iron ore, copper, bituminous coal, limestone, gypsum, sandstone, basalt, clay, marble, and petroleum and natural gas. The production of salt was an important mineral industry in Michigan in 1919, 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 leading mining industry in Michigan in 1919 was the production of iron ore. Sixty-five out of a total of 122 mining enterprises in the state were engaged in this industry, employed 51.6 per cent of the total number of wage earners, and reported \$60,906,692 as value of products, or 58.6 per cent of the total value of products of the state. This amount includes, in addition to the value of iron ore, the value of manganese ore produced as a by-product. The iron-ore mining districts from which production was reported were in Dickinson, Gogebic, Iron, and Marquette Counties. Michigan was second only to Minnesota in the production of iron ore in 1919.

The mining industry second in importance in Michigan was copper, which was reported from Houghton, Keweenaw, and Ontonagon Counties. This industry employed 39.1 per cent of the average number of wage earners and reported products valued at \$34,476,336, or 33.2 per cent of the total value of

products. This amount includes receipts for custom milling and for power sold or for work or miscellaneous services for other enterprises. Michigan ranked second among the states in the total value of products of enterprises in the copper-mining industry.

The bituminous coal-mining industry in Michigan was third in importance among the mining industries of the state. It employed 5.3 per cent of the total number of wage earners and reported products valued at \$3,861,874, or 3.7 per cent of the total value of mineral products. Michigan coal-mining operations are in a basin in the south central portion of the state. Production was reported from Bay, Saginaw, Tuscola, and Calhoun Counties.

In addition to the operation of producing enterprises, mining on nonproducing properties for purposes of development was reported by six enterprises in 1919, three in the iron-ore industry and three in the copper industry. These operations were small, less than 1 per cent of the aggregate for the state, measured either by the number of wage earners employed or by expenditures reported.

The character of organizations conducting mining enterprises is brought out in Table 3, which shows that corporations operated 93.4 per cent of the total number of enterprises, employed 99.8 per cent of the average number of wage earners, and reported products valued at \$103,723,550, or 99.9 per cent of the total. Table 3 also shows that all copper-mining and all coal-mining enterprises were corporations. Similar statistics can not be given for the iron-ore industry without disclosure of statistics relating to minor operations by two individuals; all other iron-ore enterprises were conducted by corporations.

The proportion of small enterprises to large enterprises, as measured by average number of wage earners employed, is shown in Table 4. Forty-five and one-tenth per cent of the total number of mining enterprises in Michigan were in classes having no wage earners or fewer than 101 and the wage earners employed were only 7 per cent of the total number of wage earners. Fifty-five per cent of the total number of enterprises had more than 100 wage earners each, and these enterprises employed 93 per cent of the total number of wage earners. The largest enterprises—that is, those employing more than 500 wage earners—three in the iron-ore industry, eight in the copper-mining industry, and one in the coal-mining industry, employed 13,844 wage earners, or 44.2 per cent of the total number in all industries.

Table 5 shows that in three-fourths of the enterprises employing wage earners and for nearly three-

fourths of the wage earners employed the hours of labor were 44 to 53 per week and that in all other enterprises and for about one-fourth of the wage earners the hours of labor were 54 to 62 per week. In the iron-ore, copper, and coal-mining industries the 8-hour day and 6-day week prevailed, but in the iron-ore-mining industry the 9-hour and 10-hour day ruled for a considerable number of wage earners. In the quarrying industries the 10-hour day was the rule.

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 in November for the coal industry was very abnormal and due to the great strike.

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.....	122	83	.....	Capital.....	\$283,528,279	\$119,331,987	137.6
Number of mines and quarries.....	165	173	-4.6	Principal expenses:			
Number of petroleum and natural-gas wells.....	19	21	.....	Salaries.....	4,311,559	2,173,522	98.4
Persons engaged.....	33,202	40,905	-18.8	Wages.....	50,406,187	27,680,908	82.2
Proprietors and firm members, total.....	19	118	-83.9	Contract work.....	29,439	470,205	-93.7
Number performing manual labor in or about the mines, quarries, and wells.....	6	75	.....	Supplies and materials.....	15,294,063	9,800,415	55.1
Salaried employees.....	1,891	1,618	16.9	Fuel and power.....	8,444,697	4,193,347	101.4
Wage earners (average number).....	31,292	39,169	-20.1	Royalties and rents.....	6,688,923	4,048,606	64.7
Power used (horsepower).....	337,882	273,861	23.4	Taxes.....	6,275,133	1,948,756	222.0
				Value of products.....	103,370,089	67,714,479	53.4

¹ 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.....	122	31,292	100.0	\$103,870,089	100.0	Copper.....	22	12,235	39.1	\$34,476,336	33.2
Iron ore.....	65	16,160	51.6	60,906,692	58.6	Coal, bituminous.....	11	1,654	5.3	3,861,874	3.7
						All other industries.....	24	1,243	4.0	4,625,187	4.5

¹ Includes enterprises in industries as follows: Basalt, 1; clay, 4; gypsum, 4; limestone, 11; marble, 1; petroleum and natural gas, 1; sandstone, 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.....	122	31,292	\$103,870,089	\$851,394	100.0	100.0	100.0
Corporation.....	114	31,236	103,723,550	909,856	93.4	99.8	99.9
Individual.....	5	51	132,642	26,528	4.1	0.2	0.1
Firm.....	3	5	13,897	4,632	2.5	(¹)	(¹)
COPPER.....	22	12,235	34,476,336	1,587,106	100.0	100.0	100.0
Corporation.....	22	12,235	34,476,336	1,587,106	100.0	100.0	100.0
COAL, BITUMINOUS.....	11	1,654	3,861,874	351,079	100.0	100.0	100.0
Corporation.....	11	1,654	3,861,874	351,079	100.0	100.0	100.0

¹ Less than one-tenth of 1 per cent.

MINES AND QUARRIES—MICHIGAN.

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.....	122	100.0	31,292	100.0	COPPER.....	22	100.0	12,235	100.0
No wage earners.....	1	0.8	23	0.1	21 to 50.....	3	13.6	112	0.9
1 to 5.....	9	7.4	116	0.4	51 to 100.....	3	13.6	224	1.8
6 to 20.....	9	7.4	116	0.4	101 to 500.....	8	36.4	1,787	14.6
21 to 50.....	16	13.1	546	1.7	501 to 1,000.....	5	22.7	3,494	28.6
51 to 100.....	20	16.4	1,492	4.8	Over 1,000.....	3	13.6	6,618	54.1
101 to 500.....	55	45.1	15,271	48.8	COAL, BITUMINOUS.....	11	100.0	1,654	100.0
501 to 1,000.....	9	7.4	7,226	23.1	6 to 20.....	2	18.2	21	1.3
Over 1,000.....	3	2.5	6,618	21.1	51 to 100.....	2	18.2	185	11.4
IRON ORE.....	65	100.0	16,160	100.0	101 to 500.....	6	54.5	754	47.4
1 to 5.....	1	1.5	5	(¹)	501 to 1,000.....	1	9.1	661	40.0
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					

¹ Less than one-tenth of 1 per cent.

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—				INDUSTRY.	TOTAL.		NUMBER WHERE THE PREVAILING HOURS OF LABOR PER WEEK WERE—			
	Enterprises.	Wage earners.	44 to 53.		54 to 62.			Enterprises.	Wage earners.	44 to 53.		54 to 62.	
			Enterprises.	Wage earners.	Enterprises.	Wage earners.				Enterprises.	Wage earners.	Enterprises.	Wage earners.
All industries.....	121	31,292	91	23,341	30	7,951	Copper.....	22	12,235	22	12,235	.....	.....
Iron ore.....	65	16,160	55	9,286	10	6,874	Coal, bituminous.....	11	1,654	11	1,654	.....	.....
							All other industries.....	23	1,243	3	166	20	1,077

¹ Exclusive of 1 enterprise in the sandstone 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.	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.....	31,537	34,703	34,982	34,635	30,884	30,019	<i>29,018</i>	29,804	30,585	31,629	32,043	29,442	30,665	83.0
Producing enterprises.....	31,292	34,436	34,729	34,420	30,655	29,765	<i>28,836</i>	29,599	30,303	31,365	31,780	29,202	30,414	83.0
Iron ore.....	16,160	16,584	16,527	16,670	15,927	15,999	15,710	16,115	16,096	16,472	16,404	15,774	<i>15,532</i>	93.5
Copper.....	12,235	15,038	15,177	14,856	12,934	10,688	<i>10,040</i>	10,187	10,923	11,445	11,820	11,879	11,833	66.2
Coal, bituminous.....	1,654	2,047	2,236	2,085	533	1,586	1,617	1,801	1,785	1,937	2,049	<i>176</i>	1,996	7.9
All other industries.....	1,243	767	789	809	1,261	1,492	1,460	1,496	1,499	1,511	1,447	1,373	1,003	50.8
Nonproducing enterprises.....	245	267	233	215	229	254	<i>177</i>	265	282	264	263	240	251	62.8

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

	Aggregate.	PRODUCING ENTERPRISES.					Non-producing enterprises. ¹
		Total.	Iron ore.	Copper. ²	Coal, bituminous.	All other. ³	
Number of enterprises.....	128	122	65	22	11	24	6
Number of mines and quarries.....	171	165	100	28	14	23	6
Number of petroleum and natural-gas wells.....	10	10				10	
Capital.....	\$200,334,808	\$283,523,279	\$116,799,825	\$147,786,096	\$6,037,645	\$12,904,713	\$8,806,529
Principal expenses:							
Salaries and wages—							
Officers.....	\$539,390	\$534,307	\$246,190	\$177,196	\$44,739	\$66,182	\$5,083
Superintendents and managers.....	\$1,389,345	\$1,369,921	\$686,133	\$516,062	\$95,918	\$71,808	\$19,424
Technical employees.....	\$877,713	\$871,746	\$648,095	\$198,180	\$10,680	\$14,811	\$5,967
Clerks, etc.....	\$1,550,282	\$1,535,585	\$800,807	\$548,567	\$54,777	\$131,434	\$14,697
Wage earners.....	\$50,750,490	\$50,400,187	\$32,186,404	\$14,608,804	\$1,987,732	\$1,623,247	\$344,803
Supplies and materials.....	\$15,498,561	\$15,204,003	\$7,845,035	\$5,612,077	\$664,557	\$1,082,394	\$262,498
Fuel.....	\$7,500,221	\$7,455,207	\$2,669,228	\$4,146,775	\$264,876	\$374,328	\$45,014
Power.....	\$1,005,160	\$989,490	\$769,457	\$114,048	\$36,701	\$69,284	\$15,670
Royalties and rents.....	\$6,693,314	\$6,668,923	\$6,598,825		\$49,940	\$20,158	\$24,391
Taxes.....	\$6,307,184	\$6,275,133	\$3,786,506	\$2,328,086	\$29,878	\$131,663	\$32,051
Contract work.....	\$34,788	\$29,439	\$23,580			\$5,859	\$5,347
Expenditures for development (included in the above items).....	\$3,316,407	\$2,057,599	\$1,912,393	\$559,630	\$143,023	\$42,853	\$653,508
Value of products.....	\$103,870,089	\$103,870,089	\$60,906,692	\$34,476,336	\$3,891,874	\$4,625,187	
Persons engaged in industry.....	33,472	33,202	17,189	12,917	1,744	1,372	270
Proprietors and firm members (total).....	19	19	2			17	
Number performing manual labor.....	6	6				6	
Salaried officers.....	123	121	40	56	13	12	2
Superintendents and managers.....	385	379	185	133	32	29	6
Technical employees.....	333	329	235	82	8	4	4
Clerks, etc.....	1,075	1,062	547	411	37	67	13
Wage earners (average number).....	31,537	31,292	16,160	12,235	1,654	1,243	245
Wage earners, by occupation (Dec. 15):							
Above ground (total).....	11,996	11,894	4,760	5,400	304	1,430	102
Below ground (total).....	20,722	20,575	11,591	7,036	1,837	111	147
Foremen, shift bosses, etc.—							
Above ground.....	394	391	157	154	25	55	3
Below ground.....	657	647	323	298	22	4	10
Engineers, hoistmen, electricians, mechanics, etc.—							
Above ground.....	4,409	4,357	1,916	1,990	125	326	52
Below ground.....	653	653	399	182	67	5	5
Miners, quarrymen, and drillmen, including their helpers—							
Above ground.....	512	512	117		10	385	
Below ground.....	10,440	10,396	7,050	2,004	1,295	47	44
Timbermen, trackmen, and men engaged in hauling, tramming, etc.—							
Above ground.....	598	587	469	6	24	88	9
Below ground.....	5,857	5,773	2,699	2,710	345	19	84
Muckers, loaders, laborers, and others not classified—							
Above ground.....	3,828	3,788	2,068	1,168	120	432	28
Below ground.....	3,110	3,106	1,120	1,842	108	36	4
Wage earners employed in mills and beneficiating plants—							
Above ground.....	2,259	2,259	33	2,082		144	
Number of females included in wage earners reported above—							
Above ground.....	58	58	4	49		5	
Number of wage earners under 16 years of age included in those reported above—							
Above ground.....	2	2		2			
Mineral and oil land operated..... acres.....	120,045	114,356	20,025	66,531	9,169	18,631	5,689
Land controlled, total..... acres.....	551,076	545,255	252,949	262,855	10,529	18,912	5,821
Mineral and oil land owned.....	95,862	90,683	4,775	65,655	1,921	18,332	5,179
Mineral and oil land leased.....	24,309	23,799	15,376	876	7,248	299	510
Timber and other lands owned and leased.....	430,905	430,773	232,798	196,334	1,360	281	132
Power used: Aggregate horsepower.....	340,842	337,882	142,559	169,589	6,884	18,850	2,960
Prime movers (horsepower, total).....	275,064	274,084	94,778	161,353	6,189	11,764	980
Steam engines—							
Number.....	1,086	1,082	655	326	49	52	4
Horsepower.....	208,447	208,797	69,497	127,961	6,114	5,225	650
Steam turbines—							
Number.....	30	28	13	11	1	3	2
Horsepower.....	57,100	56,770	17,132	33,230	75	6,333	330
Internal-combustion engines—							
Number.....	15	15	4	4		7	
Horsepower.....	417	417	162	162		206	
Water wheels and turbines—							
Number.....	16	16	10				
Horsepower.....	8,100	8,100	8,100				
Purchased power (horsepower, total).....	65,778	63,798	47,781	8,236	695	7,086	1,980
Electric motors operated by purchased current—							
Number.....	1,006	976	507	261	10	198	30
Horsepower.....	65,778	63,798	47,781	8,236	695	7,086	1,980
Electric motors run by current generated by enterprise using:							
Number.....	1,063	1,663	504	888	179	92	
Horsepower.....	107,750	107,750	40,572	56,088	5,285	5,805	
Fuel used:							
Coal, anthracite..... tons, 2,240 pounds.....	18,891	18,891	1,332	14,809		2,750	
Coal, bituminous..... tons, 2,000 pounds.....	1,377,369	1,371,023	431,760	782,742	83,824	72,697	6,346
Coke..... tons, 2,000 pounds.....	4,017	4,013	255	2,758		1,000	4
Fuel oils..... barrels.....	2,826	2,826	310	2,476		40	
Gasoline and other volatile oils..... barrels.....	1,627	1,570	253	1,068		251	57
Natural gas..... 1,000 cubic feet.....	33,781	33,781		33,456		325	

¹ Includes 1 reduction mill operated independently of mines.
² Includes enterprises as follows: Basalt, 1; clay, 4; gypsum, 4; limestone, 11; marble, 1; petroleum and natural gas, 1; sandstone, 2.
³ Includes enterprises as follows: Copper, 3; iron ore, 3.

MINNESOTA.

Minnesota, which ranks eleventh among the states in size (land area 80,858 square miles) and seventeenth in population (2,387,125 in 1920), ranked eighth in value of mineral products in 1919. The state ranked thirteenth in the total number of persons engaged in the mining industries and twelfth in the average number of wage earners employed.

The total value of mineral products for the state in 1919 was \$130,399,254, an increase of 122.3 per cent over the value reported at the census of 1909. This increase and the increases in capital, wages, cost of supplies and materials and fuel and power, shown in Table 1, are largely due to general price increases during the census interval and therefore may not be used properly to measure the growth of mining. The large increase in taxes is due to special taxes imposed by the state on iron-ore lands and mining and also to Federal income tax added since 1909. The slight increase in the number of wage earners employed, in the face of the temporarily adverse industrial conditions in 1919, is indicative of progress in the mining industries.

The mining industries reported for 1919, classified by principal products and listed in order of value of products, were iron ore, granite, manganese ore, limestone, abrasive materials, clay, and sandstone. The industries for which statistics can be shown without disclosure of individual operations are ranked according to value of products in Table 2.

The principal mining industry in Minnesota was the mining of iron ore, in which Minnesota leads all other states. The industry third in importance in the state, herein designated as the mining of manganese ores, is virtually a part of the iron-ore mining industry as its products are, strictly speaking, manganiferous iron ores obtained by the same methods and in the same localities as are the iron ores proper. The enterprises mining iron and manganiferous ores in Minnesota in 1919 included 95 out of a total of 135 enterprises, employed 96 per cent of the total number of wage earners, and reported products valued at \$128,780,284, or 98.8 per cent of the total value of mineral products of the state. These industries are located in St. Louis, Itasca, and Crow Wing Counties.

Granite quarrying ranked second among the mineral industries in Minnesota in 1919. Although small in comparison with iron-ore mining, the granite industry in the St. Cloud region in Stearns and Sherburne Counties is nevertheless important, supplying stone which is widely used for building and paving.

In addition to the operation of the producing mines and quarries, some mining work was done in

Minnesota on mineral properties which were not productive in 1919; ten such enterprises in the iron-ore mining industry were reported. These enterprises, with a combined capital of \$6,427,966, employed 275 wage earners and expended \$1,583,584 for development. The number of wage earners employed and the expenditures for development represented 1.6 per cent of the aggregate number of wage earners and the aggregate expenditures reported for all mining operations in the state.

The character of organizations conducting mining enterprises in Minnesota in 1919 is brought out in Table 3, which shows that corporations were most important not only as to number of enterprises operated, but also as to total number of wage earners employed and total value of products reported. Practically all iron-ore and manganese enterprises were controlled by corporations. Only two enterprises reported other forms of ownership and their operations were small as compared with those conducted by 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 Minnesota, 73.3 per cent had no wage earners or fewer than 101 each and the wage earners employed were only 19.8 per cent of the total number of wage earners. On the other hand, only 26.7 per cent of the total number of enterprises had more than 100 wage earners each and employed 80.2 per cent of the total number of wage earners. The larger enterprises were in the iron-ore and manganese-mining industries.

Table 5 shows that in a majority of enterprises but for only 33.6 per cent of the wage earners the prevailing hours of labor were 44 to 53 per week. In about one-third of the enterprises, employing 63.9 per cent of the total number of wage earners, the hours of labor were 54 to 62 per week. In the principal industry, iron-ore mining, the 8-hour day and 6-day week was reported by a majority of the enterprises but for less than one-third of the wage earners. Thirty-three out of 88 enterprises in this industry, employing 65.3 per cent of the total number of wage earners in the industry, reported hours of labor ranging from 54 to 62 per week. In most of these enterprises the 10-hour day and 6-day week prevailed. In the quarry industry the 8-hour day and 6-day week was the rule.

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 normal seasonal control of iron mining in Minnesota is indicated by the figures in this table.

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.

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.....	135	153	-11.8	Capital.....	\$310,005,559	\$176,950,389	75.2
Number of mines and quarries.....	196	250	-2.2	Principal expenses:			
Persons engaged.....	18,502	18,068	2.7	Salaries.....	3,048,421	1,568,740	94.3
Proprietors and firm members, total.....	40	169	-76.3	Wages.....	29,383,021	11,907,049	146.8
Number performing manual labor in or about the mines and quarries.....	19	99	.....	Contract work.....	1,512,969	2,157,108	-29.9
Salaried employees.....	1,257	1,313	-4.3	Supplies and materials.....	14,101,962	6,736,806	109.3
Wage earners (average number).....	17,265	16,596	4.1	Fuel and power.....	4,681,662	2,024,606	131.3
Power used (horsepower).....	144,199	151,834	-5.0	Royalties and rents.....	17,642,811	10,731,959	64.4
				Taxes.....	26,074,651	2,524,161	823.3
				Value of products.....	130,399,254	58,664,852	122.3

¹ 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.....	135	17,265	100.0	\$130,399,254	100.0	Manganese.....	6	347	2.0	\$403,110	0.3
Iron ore.....	89	16,236	94.0	128,377,174	98.4	Limestone.....	10	150	0.9	311,180	0.2
Granite.....	27	392	2.3	1,135,391	0.9	All other industries ¹	3	134	0.8	172,399	0.1

¹ Includes enterprises in industries as follows: Abrasive materials, 1; clay, 1; sandstone, 1.

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

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.....	135	17,265	\$130,399,254	\$965,020	100.0	100.0	100.0
Corporation.....	112	16,884	129,589,822	1,157,052	83.0	97.8	99.4
Individual.....	12	157	265,400	22,117	8.9	0.9	0.2
Firm.....	11	224	544,032	49,457	8.1	1.3	0.4

MINES AND QUARRIES—MINNESOTA.

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.....	135	100.0	17,265	100.0	GRANITE.....	27	100.0	392	100.0
No wage earners.....	2	1.5	.....	.....	No wage earners.....	1	3.7	.....	.....
1 to 5.....	14	10.4	35	0.2	1 to 5.....	9	33.3	24	6.1
6 to 20.....	26	19.2	307	1.8	6 to 20.....	9	33.3	77	19.6
21 to 50.....	26	19.2	912	5.3	21 to 50.....	6	22.2	157	40.1
51 to 100.....	31	23.0	2,155	12.5	51 to 100.....	2	7.4	134	34.2
101 to 500.....	35	26.7	13,853	80.2	MANGANESE.....	6	100.0	347	100.0
IRON ORE.....	89	100.0	16,236	100.0	6 to 20.....	2	33.3	31	8.9
No wage earners.....	1	1.1	.....	.....	21 to 50.....	3	50.0	90	25.9
1 to 5.....	1	1.1	4	(¹) 0.9	101 to 500.....	1	16.7	226	65.1
6 to 20.....	11	12.4	154	.....	LIMESTONE.....	10	100.0	156	100.0
21 to 50.....	15	16.0	617	3.8	1 to 5.....	4	40.0	10	6.4
51 to 100.....	26	29.2	1,834	11.3	6 to 20.....	3	30.0	36	23.1
101 to 500.....	35	39.3	13,027	83.9	21 to 50.....	2	20.0	48	30.8
					51 to 100.....	1	10.0	62	39.7

¹ Less than one-tenth of 1 per cent.

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—									
	Enterprises.	Wage earners.	35 and under.		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.
All industries.....	133	17,265	2	25	1	8	81	5,793	45	11,030	4	409
Iron ore.....	88	16,236	1	11	1	8	50	5,240	33	10,598	3	379
Granite.....	26	392	.....	.....	.....	.....	23	346	2	16	1	30
Manganese.....	6	347	1	14	.....	.....	3	68	2	265	.....	.....
Limestone.....	10	156	.....	.....	.....	.....	4	74	6	82	.....	.....
All other.....	3	134	.....	.....	.....	.....	1	65	2	69	.....	.....

¹ Exclusive of 2 enterprises employing no wage earners in the following industries: Granite, 1; iron ore, 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.....	17,540	16,496	16,650	16,285	17,346	18,069	18,883	19,079	18,960	18,398	17,516	16,563	15,535	80.4
Producing enterprises.....	17,265	16,033	16,364	16,010	17,054	18,043	18,587	18,804	18,067	18,178	17,348	16,383	15,109	80.3
Iron ore.....	16,236	14,961	15,252	15,132	16,088	17,710	17,605	17,753	17,574	17,069	16,225	15,338	14,119	79.5
Granite.....	392	353	353	351	351	378	387	413	413	422	437	444	422	75.0
Manganese.....	347	529	555	291	302	252	265	306	362	359	359	307	307	41.8
Limestone.....	156	52	53	105	159	190	217	193	203	201	185	166	143	24.0
All other industries.....	134	158	151	131	164	127	115	134	115	127	142	128	128	71.5
Nonproducing enterprises—iron ore.....	275	463	286	275	292	326	296	275	293	220	163	180	226	36.3

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

	Aggregate.	PRODUCING ENTERPRISES.						NONPRO-
		Total.	Iron ore.	Granite.	Manganese.	Limestone.	All other. ¹	Iron ore.
Number of enterprises.....	145	135	89	27	6	10	3	10
Number of mines and quarries.....	206	196	141	34	8	10	3	10
Capital.....	\$316,523,525	\$310,095,559	\$304,388,006	\$771,586	\$4,066,854	\$497,618	\$373,495	\$6,427,966
Principal expenses:								
Salaries and wages—								
Officers.....	\$404,998	\$395,013	\$366,267	\$16,896	\$5,350	\$5,500	.....	\$9,985
Superintendents and managers.....	\$865,518	\$851,248	\$818,540	\$6,850	\$13,247	\$7,478	\$5,132	\$14,270
Technical employees.....	\$466,743	\$461,518	\$452,857	\$7,124	\$1,537	.....	.....	\$5,225
Clerks, etc.....	\$1,353,043	\$1,340,642	\$1,313,203	\$10,050	\$11,992	\$5,397	.....	\$12,401
Wage earners.....	\$20,835,092	\$20,383,021	\$23,333,475	\$477,028	\$279,735	\$158,665	\$134,118	\$452,071
Supplies and materials.....	\$14,442,274	\$14,101,962	\$13,870,897	\$98,962	\$86,275	\$27,642	\$18,186	\$340,312
Fuel.....	\$4,233,367	\$4,155,158	\$4,059,293	\$55,475	\$22,898	\$11,747	\$5,745	\$78,209
Power.....	\$553,822	\$526,794	\$456,323	\$33,074	\$27,616	\$9,297	\$1,514	\$27,028
Royalties and rents.....	\$17,746,402	\$17,642,811	\$17,532,030	\$4,371	\$88,401	\$9,906	\$8,103	\$103,591
Taxes.....	\$26,382,843	\$26,074,651	\$26,013,086	\$17,865	\$34,964	\$8,069	\$607	\$308,192
Contract work.....	\$2,188,794	\$1,512,999	\$1,444,256	\$2,136	\$43,315	\$23,292	.....	\$875,795
Expenditures for development (included in the above items).....	\$11,537,264	\$9,953,680	\$9,812,648	\$15,735	\$121,973	\$3,324	.....	\$1,583,584
Value of products.....	\$130,399,254	\$130,399,254	\$128,377,174	\$1,135,391	\$408,110	\$311,180	\$172,399	.....
Persons engaged in industry.....	18,364	18,502	17,422	445	378	176	141	302
Proprietors and firm members (total).....	40	40	2	25	1	3	4	.....
Number performing manual labor.....	19	19	.....	18	.....	1	.....	.....
Salaries officers.....	69	63	50	7	4	2	.....	6
Superintendents and managers.....	259	253	232	4	9	5	3	6
Technical employees.....	190	187	179	5	3	.....	.....	3
Clerks, etc.....	765	754	723	12	14	5	.....	12
Wage earners (average number).....	17,540	17,265	16,236	392	347	154	134	275
Wage earners by occupation (Dec. 15):								
Above ground (total).....	9,612	9,342	8,350	436	213	201	142	1,270
Below ground (total).....	9,312	9,253	8,777	.....	476	.....	.....	59
Foreman, shift bosses, etc.—								
Above ground.....	449	434	400	19	5	7	3	15
Below ground.....	275	269	249	.....	20	.....	.....	6
Engineers, hoistmen, electricians, mechanics, etc.—								
Above ground.....	3,340	3,267	3,165	25	50	21	6	73
Below ground.....	268	257	253	.....	4	.....	.....	11
Miners, quarrymen, and drillmen, including their helpers—								
Above ground.....	1,040	1,010	552	313	.....	112	33	30
Below ground.....	5,370	5,362	4,974	.....	388	.....	.....	8
Timbermen, trackmen, and men engaged in hauling, tramping, etc.—								
Above ground.....	809	775	742	5	28	.....	.....	34
Below ground.....	1,514	1,493	1,431	.....	62	.....	.....	21
Muckers, loaders, laborers, and others not classified—								
Above ground.....	3,453	3,335	3,052	16	130	37	100	118
Below ground.....	1,585	1,872	1,870	.....	2	.....	.....	13
Wage earners employed in mills and beneficiating plants—								
Above ground.....	521	521	439	58	.....	24	.....	.....
Mineral land operated..... acres.	26,128	24,836	21,971	1,074	970	371	450	1,202
Land controlled, total..... acres.	287,073	285,541	282,598	1,132	970	371	450	1,532
Mineral land owned.....	5,899	5,899	4,073	1,027	.....	359	440	.....
Mineral land leased.....	21,166	19,874	18,335	47	970	12	10	1,292
Timber and other lands owned and leased.....	260,008	259,768	259,690	78	.....	.....	.....	240
Power used: Aggregate horsepower.....	148,015	144,100	135,924	3,675	2,554	1,594	452	3,816
Prime movers (horsepower, total).....	116,229	114,354	110,831	1,770	796	605	352	1,375
Steam engines—								
Number.....	1,315	1,293	1,212	48	14	14	5	22
Horsepower.....	113,374	111,508	108,430	1,620	699	599	250	1,860
Steam turbines—								
Number.....	4	4	4	.....	.....	.....	.....	.....
Horsepower.....	1,629	1,629	1,629	.....	.....	.....	.....	.....
Internal-combustion engines—								
Number.....	37	36	18	5	5	1	7	1
Horsepower.....	1,226	1,217	772	150	187	6	102	9
Purchased power (horsepower, total).....	31,786	29,845	25,093	1,905	1,758	939	100	1,041
Electric motors operated by purchased current—								
Number.....	603	578	462	42	39	33	2	25
Horsepower.....	31,786	29,845	25,093	1,905	1,758	939	100	1,041
Electric motors run by current generated by enterprise using:								
Number.....	436	436	436	.....	.....	.....	.....	.....
Horsepower.....	13,563	13,563	13,563	.....	.....	.....	.....	.....
Fuel used:								
Coal, anthracite..... tons, 2,240 pounds..	3,248	3,248	3,248	.....	.....	.....	.....	.....
Coal, bituminous..... tons, 2,000 pounds..	788,750	726,392	714,873	6,315	2,836	1,578	790	12,358
Coke..... tons, 2,000 pounds..	758	758	758	.....	.....	.....	.....	.....
Wood..... cords.....	477	477	322	125	.....	30	.....	.....
Fuel oils..... barrels..	1,230	1,230	1,200	.....	30	.....	.....	.....
Gasoline and other volatile oils..... barrels..	2,716	2,666	2,223	266	20	7	150	50

¹ Includes enterprises as follows: Abrasive materials, 1; clay, 1; sandstone, 1.

² Includes 3 females and 2 wage earners under 16 years of age.

³ Includes 2 females and 2 wage earners under 16 years of age.

⁴ Includes 1 female.

MISSOURI.

Missouri, which ranks eighteenth in size among the states (land area 68,727 square miles) and ninth in population (3,404,055 in 1920), ranked twentieth in value of mineral products for 1919. The state ranked seventeenth in the total number of persons engaged in the mining industries and in the average number of wage earners employed.

The gross amount received for products by operators of all mines and quarries in 1919 was \$33,365,694, which was an increase of 5.4 per cent over the corresponding amount for 1909. There are included in the gross receipts for products duplications in the value of lead and zinc ores and concentrates, marketed by some operators and used as material by others who included the value of the purchased material in the value of products reported by them. Deducting these duplications, \$669 for 1919 and \$1,471,553 for 1909, leaves the net values of products \$33,365,025 and \$30,195,972, respectively, or an increase of 10.5 per cent in 1919 as compared with 1909. The value of products reported for 1919 includes \$19,599 received for mineral by-products; \$10,995 for other products not specified; \$1,766 for custom milling; and \$19,820 for power sold and for work or miscellaneous services for other enterprises.

The statistics for 1919 are not wholly comparable with those reported at the census of 1909, for the reason that those for the lead and zinc industry for 1909 include the operation of smelters connected with mining operations. Smelter statistics for 1919 were not collected for the census of mines and quarries. By reason of the difference in the scope of the censuses, the 1909 figures for value of products include approximately \$4,500,000 which have no counterpart in the value of products for 1919. The figures reported in 1909 for other items are affected by indeterminate but probably proportionate amounts. On this account the statistics shown in Table 1, should not be accepted as indicating correctly the change in the mining industries in Missouri. The increase in taxes shown in this table is accounted for by addition of Federal income taxes since 1909.

The mining industries reported for the state of Missouri in 1919, classified according to principal products and listed in order of value of products, were lead and zinc, bituminous coal, limestone, clay, barytes, copper, sandstone, iron ore, marble, granite, pyrite, and abrasive materials. In addition to products indicated by the industry designations, one lead and zinc enterprise produced barytes and two pro-

duced pyrite as a by-product; three barytes enterprises produced lead ore; two limestone enterprises produced marble; one marble enterprise produced limestone; and one coal mine produced sandstone. Industries for which statistics can be shown without disclosure of individual operations are ranked by value of products in Table 2.

The leading mining industry in Missouri in 1919 was the production of lead and zinc. The statistics for this industry, here presented, include all operations connected with mining of crude ore and the treatment to which the ore is subjected at the mines, including the operation of hand jigs and reduction mills, and also the operations on dumps and old tailings and in custom or merchant mills whether connected with mines or not. Smelter operations are not included. Furthermore, the statistics are based on the reports of operators many of whom are sublessees and of whom there are sometimes a considerable number on a single mining property. The statistics, therefore, will differ as to number of enterprises and mines, value of products, and size and character of operating organizations from statistics based on reports from fee owners or primary lessees. As reported to the census, the lead and zinc mining industry in 1919 included 93 enterprises, reported 32.3 per cent of the total number of wage earners and \$15,879,177 as the gross value of products, or 47.6 per cent of the total value of products for the state. This value of products is based on the sales value of mine and mill products and not on value of the lead and zinc metal or oxide obtained from them. Missouri ranked second in the United States in the lead and zinc mining industry. Production was reported from Barry, Greene, Jasper, Lawrence, and Newton Counties in southwestern Missouri, and Franklin, Jefferson, and St. Francois in southeastern Missouri.

The industry second in importance on the basis of value of products, but first on basis of average number of wage earners, was the mining of bituminous coal. This industry embraced 179 out of a total of 468 enterprises, employed 49 per cent of the average number of wage earners, and reported products valued at \$12,077,845, or 36.2 per cent of the total value of products of the state. Coal production was reported from 27 counties in central, northern, and western parts of the state.

The only other mining industries in Missouri with products valued at over a million dollars in 1919 were limestone quarrying and clay mining. These two in-

dustries employed respectively 7.9 and 4.2 per cent of the average number of wage earners, and contributed products valued at \$2,355,736 and \$1,420,585.

Although small as compared with other industries in the state, the production of barytes was important and gave Missouri second rank in the United States in the production of this mineral. Seven counties reported, but the bulk of the production came from Washington County.

The character of organizations conducting mining enterprises in Missouri in 1919 is brought out in Table 3, which shows that somewhat less than half of the enterprises were conducted by corporations. Corporations, nevertheless, employed 86.8 per cent of the total number of wage earners and contributed 90.3 per cent of the total value of products. The table shows also that for each of the industries separately presented, except barytes, the corporations controlled as to wage earners employed and value of products reported, although they did not constitute a majority of the enterprises in every industry. The barytes industry was largely made up of small operations by individuals or firms; however, the largest share of wage earners and value of products is credited to 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 employing wage earners, 89.8 per cent reported fewer than 101 wage earners each and

employed 46.5 per cent of the total number. On the other hand, only 24 enterprises, or 5.1 per cent of the total number, had more than 100 wage earners each and these enterprises employed more than half of the wage earners reported. In Table 4 all these larger enterprises are shown in the coal-mining and lead and zinc mining industries except one in the limestone-quarrying industry.

Table 5 shows that in a majority of enterprises, employing wage earners, and in 84.5 per cent of the total number of wage earners the hours of labor in the mining industries in Missouri in 1919 were 44 to 53 per week. In the principal industries, coal mining and lead and zinc mining, the 8-hour day and 6-day week prevailed. In the latter industry, however, some of the enterprises reported longer hours for wage earners employed in reduction mills and otherwise above ground.

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 coal industry in the month of November due to the great coal strike is extremely low, so much so that it makes an abnormal minimum in November for all 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—MISSOURI.

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.....	408	1,021	-54.2	Capital.....	\$47,926,860	\$60,549,081	-20.8
Number of mines and quarries.....	494	1,224	-59.6	Principal expenses:			
Number of petroleum and natural-gas wells.....		89		Salaries.....	1,863,624	1,274,920	46.2
Persons engaged.....	16,358	26,933	-39.3	Wages.....	16,777,353	14,393,570	16.6
Proprietors and firm members, total.....	497	1,783	-72.1	Contract work.....	416,843	162,084	156.6
Number performing manual labor in or about the mines, quarries, and wells.....	219	1,063	-79.4	Supplies and materials *.....	4,784,748	6,201,895	-22.9
Salaried employees.....	1,004	1,730	-42.0	Fuel and power.....	2,034,413	2,220,667	-8.4
Wage earners (average number).....	14,857	23,420	-36.6	Royalties and rents.....	780,604	1,954,092	-60.1
Power used (horsepower).....	100,160	109,672	-8.7	Taxes.....	2,071,467	158,086	1,210.3
				Value of products.....	33,865,694	31,667,525	5.4

¹ A minus sign (-) denotes decrease.^{*} Includes cost of ore 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.....	468	14,857	100.0	\$33,365,694	100.0	Limestone.....	70	1,171	7.9	\$2,355,736	7.1
Lead and zinc.....	93	4,793	32.3	16,879,177	47.6	Clay.....	41	622	4.2	1,420,585	4.3
Coal, bituminous.....	179	7,285	49.0	12,077,845	36.2	Barytes.....	66	480	3.2	527,817	1.6
						All other industries ¹	19	506	3.4	1,104,534	3.3

¹ Includes enterprises in industries as follows: Abrasive materials, 2; copper, 1; granite, 2; iron ore, 8; marble, 1; pyrite, 1; sandstone, 4.

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.....	468	14,857	\$33,365,694	\$71,294	100.0	100.0	100.0
Corporation.....	216	12,897	30,145,891	139,564	46.2	86.8	90.3
Individual.....	133	990	1,526,576	11,478	28.4	6.7	4.6
Firm ¹	119	970	1,693,227	14,229	25.4	6.5	5.1
LEAD AND ZINC.....	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 ¹	48	229	617,383	12,862	51.6	4.8	3.9
COAL, BITUMINOUS.....	179	7,285	12,077,845	67,474	100.0	100.0	100.0
Corporation.....	92	6,399	10,756,523	116,919	51.4	87.8	89.1
Individual.....	43	361	517,831	12,043	24.0	5.0	4.3
Firm ¹	44	525	803,491	18,261	24.6	7.2	6.7
LIMESTONE.....	70	1,171	2,355,736	33,653	100.0	100.0	100.0
Corporation.....	39	877	1,921,761	49,276	55.7	74.9	81.6
Individual.....	23	205	307,543	13,371	32.9	17.5	13.1
Firm ¹	8	89	126,432	15,804	11.4	7.6	5.4
CLAY.....	41	622	1,420,585	34,648	100.0	100.0	100.0
Corporation.....	20	421	965,618	48,281	48.8	67.7	68.0
Individual.....	18	173	406,016	22,556	43.9	27.8	28.5
Firm ¹	3	28	48,951	16,317	7.3	4.5	3.4
BARYTES.....	66	480	527,817	7,997	100.0	100.0	100.0
Corporation.....	12	186	242,496	20,208	18.2	40.8	45.9
Individual.....	40	192	192,219	4,805	60.6	40.0	36.4
Firm ¹	14	92	93,102	6,050	21.2	19.2	17.6

¹ Includes 1 other form of organization.

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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.....	468	100.0	14,857	100.0	LIMESTONE.....	79	100.0	1,171	100.0
No wage earners.....	24	5.1	.....	.....	No wage earners.....	1	1.4	.....	.....
1 to 5.....	156	33.3	405	2.7	1 to 5.....	20	25.6	60	5.1
6 to 20.....	152	32.5	1,798	12.1	6 to 20.....	29	36.7	353	30.1
21 to 50.....	78	16.7	2,397	16.1	21 to 50.....	17	21.5	491	41.9
51 to 100.....	34	7.3	2,321	15.6	51 to 100.....	2	2.5	124	10.6
101 to 500.....	20	4.3	3,917	26.4	101 to 500.....	1	1.3	143	12.2
501 to 1,000.....	2	0.4	1,344	9.0					
Over 1,000.....	2	0.4	2,680	18.0					
COAL, BITUMINOUS.....	179	100.0	7,285	100.0	CLAY.....	41	100.0	622	100.0
No wage earners.....	1	0.6	.....	.....	1 to 5.....	16	39.0	47	7.6
1 to 5.....	44	24.6	145	2.0	6 to 20.....	16	39.0	220	35.4
6 to 20.....	56	31.3	624	8.6	21 to 50.....	7	17.1	222	35.7
21 to 50.....	40	22.3	1,258	17.3	51 to 100.....	2	4.9	133	21.4
51 to 100.....	21	11.7	1,447	19.9					
101 to 500.....	16	8.9	3,135	43.0	BARYTES.....	66	100.0	480	100.0
501 to 1,000.....	1	0.6	676	9.3	No wage earners.....	1	1.5	.....	.....
					1 to 5.....	39	59.1	86	17.9
LEAD AND ZINC.....	93	100.0	4,793	100.0	6 to 20.....	24	36.4	267	55.6
No wage earners.....	19	20.4	.....	.....	21 to 50.....	1	1.5	27	5.6
1 to 5.....	34	36.6	55	1.2	51 to 100.....	1	1.5	100	20.8
6 to 20.....	22	23.7	270	5.6					
21 to 50.....	9	9.7	265	5.5					
51 to 100.....	3	3.2	216	4.5					
101 to 500.....	3	3.2	639	13.3					
501 to 1,000.....	1	1.1	668	13.9					
Over 1,000.....	2	2.1	2,680	55.9					

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—											
	Enterprises.	Wage earners.	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.
All industries.....	1,444	14,857	43	221	22	305	275	12,561	102	1,622	1	143	1	5
Coal, bituminous.....	178	7,285	9	69	18	253	142	6,746	9	217	.....	.....	.....	.....
Lead and zinc.....	74	4,793	.....	.....	.....	.....	65	4,734	9	59	.....	.....	.....	.....
Limestone.....	69	1,171	.....	.....	.....	.....	22	330	46	698	1	143	.....	.....
Clay.....	41	622	1	8	.....	.....	22	393	17	216	.....	.....	1	5
Barytes.....	65	480	33	144	3	45	18	99	11	192	.....	.....	.....	.....
All other industries.....	17	506	.....	.....	1	7	6	250	10	240	.....	.....	.....	.....

¹ Exclusive of 24 enterprises employing no wage earners in industries as follows: Barytes, 1; coal, bituminous, 1; granite, 1; iron ore, 1; lead and zinc, 19; 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 minimums of maximum.
		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
All industries.....	14,857	17,319	16,479	15,406	15,014	14,501	14,401	14,871	14,907	15,672	15,729	8,965	15,020	51.8
Coal, bituminous.....	7,285	9,137	8,971	7,982	7,584	7,141	7,162	7,667	7,240	7,631	7,873	1,987	7,695	15.2
Lead and zinc.....	4,793	5,748	5,233	4,971	4,829	4,686	4,475	4,402	4,684	4,829	4,667	4,548	4,544	76.6
Limestone.....	1,171	912	826	826	1,071	1,182	1,211	1,305	1,404	1,414	1,377	1,287	1,137	58.4
Clay.....	622	583	538	538	627	590	640	601	654	684	677	658	656	78.4
Barytes.....	480	594	594	441	434	471	468	484	489	577	575	518	515	68.3
All other industries.....	506	545	519	528	519	531	445	412	436	537	560	567	473	72.7

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

	Total.	PRODUCING ENTERPRISES.					
		Lead and zinc. ¹	Coal, bituminous.	Limestone.	Clay.	Barytes.	All other. ²
Number of enterprises.....	468	93	179	70	41	66	19
Number of mines and quarries.....	494	96	196	71	42	70	19
Capital.....	\$47,926,850	\$26,758,399	\$11,788,513	\$2,447,811	\$1,953,503	\$1,200,611	\$3,778,013
Principal expenses:							
Salaries and wages—							
Officers.....	\$568,287	\$105,856	\$323,897	\$69,389	\$35,017	\$6,400	\$27,728
Superintendents and managers.....	\$741,816	\$323,389	\$276,147	\$84,536	\$38,053	\$16,805	\$23,898
Technical employees.....	\$90,835	\$59,664	\$16,839	\$11,476	.....	\$300	\$2,558
Clerks, etc.....	\$462,686	\$190,998	\$161,020	\$40,540	\$55,845	\$3,675	\$10,610
Wage earners.....	\$16,777,353	\$5,955,929	\$8,156,952	\$1,181,826	\$650,555	\$399,725	\$432,366
Supplies and materials.....	\$4,784,079	\$2,567,624	\$1,381,223	\$364,251	\$259,820	\$19,461	\$191,700
Cost of ore purchased.....	\$669	.....	.....	.....	.....	.....	.....
Fuel.....	\$1,743,747	\$1,106,807	\$427,842	\$126,078	\$22,169	\$1,759	\$59,092
Power.....	\$290,666	\$98,415	\$70,897	\$68,527	\$13,044	.....	\$39,783
Royalties and rents.....	\$780,604	\$295,427	\$268,923	\$20,717	\$172,270	\$6,899	\$16,458
Taxes.....	\$2,071,467	\$1,819,663	\$200,390	\$16,826	\$5,606	\$11,955	\$16,967
Contract work.....	\$415,843	\$65,798	\$306,081	\$19,564	\$2,300	\$7,000	\$15,109
Expenditures for development (included in the above items).....	\$1,141,088	\$586,047	\$467,422	\$31,918	\$25,935	\$14,871	\$24,895
Value of products.....	\$33,365,694	\$15,879,177	\$12,077,845	\$2,355,736	\$1,420,585	\$527,817	\$1,104,534
Persons engaged in industry.....	16,368	5,329	7,852	1,327	722	576	552
Proprietors and firm members (total).....	497	193	157	43	24	74	6
Number performing manual labor.....	219	108	85	13	7	2	4
Salaries officers.....	198	20	121	33	10	2	12
Superintendents and managers.....	355	134	135	39	20	1	15
Technical employees.....	65	34	12	6	.....	.....	2
Clerks, etc.....	366	165	142	35	46	7	11
Wage earners (average number).....	14,867	4,793	7,285	1,171	622	480	506
Wage earners by occupation (Dec. 15):							
Above ground (total).....	7,229	2,341	2,137	1,341	286	625	499
Below ground (total).....	10,704	3,172	7,096	.....	421	.....	75
Foremen, shift bosses, etc.—							
Above ground.....	247	57	81	57	21	7	24
Below ground.....	238	106	110	.....	13	.....	9
Enginemen, hoistmen, electricians, mechanics, etc.—							
Above ground.....	1,337	582	510	139	32	5	69
Below ground.....	163	61	80	.....	10	.....	2
Miners, quarrymen, and drillmen, including their helpers—							
Above ground.....	1,273	13	306	543	43	233	135
Below ground.....	5,796	956	4,590	.....	213	.....	37
Timbermen, trackmen, and men engaged in hauling, tramping, etc.—							
Above ground.....	713	71	428	153	41	9	11
Below ground.....	2,218	882	1,166	.....	138	.....	12
Muckers, loaders, laborers, and others not classified—							
Above ground.....	2,196	317	765	399	130	371	214
Below ground.....	2,369	1,167	1,130	.....	47	.....	15
Wage earners employed in mills and beneficiating plants—							
Above ground.....	1,463	1,301	47	50	19	.....	40
Number of females included in wage earners reported above—							
Above ground.....	2	.....	1	.....	1	.....	.....
Number of wage earners under 16 years of age included in those reported above—							
Above ground.....	5	4	.....	.....	.....	.....	1
Mineralland operated..... acres.....	194,732	49,837	61,317	1,303	10,903	31,442	39,930
Land controlled, total..... acres.....	227,931	49,837	62,367	2,035	11,056	41,987	60,709
Mineralland owned.....	149,345	46,993	30,239	889	2,466	29,772	38,936
Mineralland leased.....	45,492	2,844	31,178	414	8,442	1,670	944
Timber and other lands owned and leased.....	33,124	.....	940	732	148	10,525	20,779
Power used: Aggregate horsepower.....	100,160	57,088	28,385	8,305	1,857	100	4,425
Prime movers (horsepower, total).....	82,967	50,545	25,435	4,052	925	100	1,910
Steam engines—							
Number.....	673	187	362	69	24	1	30
Horsepower.....	51,663	21,301	24,394	3,491	882	40	1,545
Steam turbines—							
Number.....	20	14	5	.....	.....	.....	1
Horsepower.....	25,560	25,115	335	.....	.....	.....	110
Internal-combustion engines—							
Number.....	170	35	92	16	10	7	10
Horsepower.....	5,754	4,129	706	561	43	60	255
Purchased power (horsepower, total).....	17,193	6,543	2,950	4,253	932	.....	2,515
Electric motors operated by purchased current—							
Number.....	613	105	140	145	65	.....	153
Horsepower.....	17,193	6,453	2,950	4,253	932	.....	2,515
Other equipment operated by purchased power—							
Horsepower.....	90	90	.....	.....	.....	.....	.....
Electric motors run by current generated by enterprise using:							
Number.....	486	332	130	8	.....	.....	16
Horsepower.....	16,850	13,149	3,123	218	.....	.....	360
Fuel used:							
Coal, bituminous..... tons, 2,000 pounds.....	488,858	309,657	143,433	22,484	4,655	.....	8,629
Wood..... cords.....	2,936	467	400	194	380	450	1,045
Fuel oils..... barrels.....	14,161	7,219	141	1,517	4	50	5,230
Gasoline and other volatile oils..... barrels.....	2,425	679	873	366	76	67	364
Natural gas..... 1,000 cubic feet.....	21,898	21,898	.....	.....	.....	.....	.....

¹ Includes 4 reduction mills operated independently of mines and 4 operations on dumps and old tailings.

² Includes enterprises as follows: Abrasive materials, 2; copper, 1; granite, 2; iron ore, 8; marble, 1; pyrite, 1; sandstone, 4.

MONTANA.

Montana, which ranks third among the states in size (land area 146,131 square miles) and thirtieth in population (548,889 in 1920), ranked sixteenth in value of mineral products for 1919. The state ranked fifteenth in the total number of persons engaged in the mining industries and in the average number of wage earners employed.

The gross amount received for products by operators of all mines, quarries, and wells in Montana in 1919 was \$49,923,721, a decrease of 9.2 per cent as compared with the corresponding amount, \$54,991,961, reported at the census of 1909. However, the value of products for 1919 includes a duplication of \$62,210, the value of gold and silver ores marketed by the producers and again reported after treatment by other operators; and correspondingly, the value of products for 1909 includes a duplication of \$6,559,820, the value of copper ores which were sold by some producers to others who used them as material. Deducting these duplications leaves the net value of products \$49,861,511 for 1919 and \$48,432,141 for 1909, an increase in the later year of 3 per cent over the earlier year. These figures for value of products include receipts for mineral by-products, custom milling, power sold, and for work or miscellaneous services for other enterprises which amounted to \$215,159 in 1919.

Because of the wide difference in the proportion of duplicated products to total products for the two census years and since the amounts reported in dollars for 1919 have been affected as much by general price increases as by change in volume of mining business, neither the increase in capital nor the decrease in the aggregate of principal expenditures, as shown in Table 1, serve to measure correctly the growth or decline in mining in Montana during the census period. So also the large decreases in the number of enterprises and the individual mines and quarries operated do not indicate notable decline in mining, but reflect the temporarily adverse industrial conditions in 1919.

The mining industries reported for 1919, classified by principal products and listed in order of value of products, were copper, lead and zinc, bituminous coal, gold and silver (from lode mines), manganese ore, gold (from placer mines), petroleum and natural gas, limestone, iron ore, clay, granite, sandstone, graphite, and silica. The industries for which the statistics can be shown without disclosure of individual operations are ranked by value of products in Table 2.

The leading mining activities in Montana in 1919 were the mining and milling of gold, silver, copper, lead, and zinc ores. These operations represented 59.1 per cent of all mining enterprises in the state, employed 73.6 per cent of the average number of wage earners, and were credited with products valued at \$39,623,472, or 79.4 per cent of the total value of mineral products. This amount is not the value of the metals produced or recoverable but is, for the most part, an estimate of the sales value of the ores, concentrates, bullion, and mine-water precipitates or, in other words, the mine and mill products, most of which were not sold by the producers but were smelted, or smelted and refined, by them. The smelting and refining operations and the value of the metals—the final products—are reported by the census of manufactures. On the basis of combined value of products of gold, silver, copper, lead and zinc mines, Montana ranked second among the states. It ranked third in value of output of mines producing principally copper, fourth in value of output of mines producing chiefly lead and zinc, and seventh in value of output of mines producing principally gold and silver. Production of these metals was chiefly from the Butte district in Silver Bow County, although 17 other western counties were productive.

Coal mining was second in importance in Montana in 1919, with products valued at \$8,591,211, representing 17.2 per cent of the total value of products, and with wage earners representing 23.5 per cent of the total number of wage earners in the mining industries. Carbon, Musselshell, and Cascade Counties were the chief sources of production, but 11 other counties in the northcentral and northeastern parts of the state were also productive.

The production of manganese ores was third in importance in Montana, which ranked first among the states in the output of this commodity. Data for the industry are not shown in order to avoid disclosure of individual operations.

In addition to the operation of the producing mines and quarries, some work was done in Montana on properties which were not productive in 1919. Thirty-six such enterprises were reported in the metal-mining industries. These enterprises with a combined capital of \$5,600,431 employed 263 wage earners and reported \$712,084 spent for development during the year. The number of wage earners em-

ployed and the amount expended for development represent less than 2 per cent of the aggregate number of wage earners and of the aggregate expenditures reported for all mining operations in the state.

The character of organizations conducting mining enterprises in Montana in 1919 is brought out in Table 3. This table shows that while corporations operated only 39.8 per cent of the total number of enterprises, they employed 97.8 per cent of the total number of wage earners, and reported 98.1 per cent of the total value of products. Table 3 also shows that on the basis of average value of products per enterprise, for all industries combined and for each of the selected industries presented separately, corporations conducted by far the most important enterprises.

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 Montana, 23.6 per cent had no wage earners and 68 per cent had fewer than 101 each and employed only 12.8 per cent of the total number of wage earners. On the other hand, only 8.5 per cent of the total number of enterprises had more than 100 wage earners each, and these enterprises em-

ployed 87.2 per cent of the total number of wage earners. The larger enterprises are shown in the metal-mining and coal-mining industries.

Table 5 shows that in approximately half of the enterprises having wage earners and for 29.8 per cent of the wage earners employed the prevailing hours of labor were 44 to 53 per week, and in nearly all the other enterprises and for 69.8 per cent of the wage earners the hours of labor were 54 to 62 per week. For the most part the 8-hour day prevailed—with a 7-day week in the metal-mining industries and a 6-day week in the coal-mining industry.

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. An abnormal minimum is shown for the coal-mining industry in the month of November because of the great strike, which also accounts for the November minimum in the figures for all 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 the disclosure of individual operations.

MINES AND QUARRIES—MONTANA.

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.....	259	373	-30.6	Capital.....	\$209,286,955	\$145,135,610	44.2
Number of mines and quarries.....	269	543	-60.5	Principal expenses:			
Number of petroleum and natural-gas wells.....	28			Salaries.....	2,504,301	1,413,073	77.2
Persons engaged.....	17,345	20,134	-13.9	Wages.....	25,723,908	21,361,406	20.4
Proprietors and firm members, total.....	293	504	-41.9	Contract work.....	115,521	394,499	-70.7
Number performing manual labor in or about the mines, quarries, and wells.....	199	355	-43.9	Supplies and materials ²	9,514,869	16,897,323	-42.0
Salaried employees.....	923	784	17.7	Fuel and power.....	2,979,928	3,628,050	-17.9
Wage earners (average number).....	16,129	18,846	-14.4	Royalties and rents.....	646,125	1,822,375	-64.6
Power used (horsepower).....	143,718	174,389	-17.6	Taxes.....	1,018,265	453,393	124.6
				Value of products.....	49,923,721	54,991,961	-9.2

¹ A minus sign (-) denotes decrease.

² Includes cost of ore 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.....	259	16,129	100.0	\$49,923,721	100.0	Petroleum and natural gas.....	5	38	0.2	258,046	0.5
Gold, silver, copper, lead, and zinc, lode mines.....	153	11,862	73.6	39,623,472	79.4	Limestone.....	7	87	0.6	191,887	0.4
Coal, bituminous.....	67	3,797	23.5	8,591,211	17.2	Granite.....	3	4	(?)	12,944	(?)
						All other industries ¹	24	341	2.1	1,246,161	2.5

¹ Includes enterprises in industries as follows: Clay, 3; gold, placer mines, 9; graphite, 1; iron ore, 2; manganese ore, 6; sandstone, 2; silica, 1.

² Less than one-tenth of 1 per cent.

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.....	259	16,129	\$49,923,721	\$192,756	100.0	100.0	100.0
Corporation.....	103	15,770	48,958,538	475,306	39.8	97.8	98.1
Individual.....	73	188	395,086	5,412	28.2	1.2	0.8
Firm ¹	83	171	572,097	6,893	32.0	1.1	1.1
GOLD, SILVER, COPPER, LEAD, AND ZINC, LODE MINES.....	153	11,862	39,623,472	258,977	100.0	100.0	100.0
Corporation.....	53	11,730	39,194,355	739,516	34.6	98.9	98.9
Individual.....	45	77	171,121	3,803	29.4	0.6	0.4
Firm ²	55	55	257,996	4,691	35.9	0.5	0.7
COAL, BITUMINOUS.....	67	3,797	8,591,211	128,227	100.0	100.0	100.0
Corporation.....	29	3,641	8,217,759	283,371	43.3	95.9	95.6
Individual.....	21	84	174,776	8,323	31.3	2.2	2.0
Firm ²	17	72	195,676	11,687	25.4	1.9	2.3
PETROLEUM AND NATURAL GAS.....	5	38	258,046	51,609	100.0	100.0	100.0
Corporation.....	5	38	258,046	51,609	100.0	100.0	100.0
LIMESTONE AND GRANITE.....	10	91	204,831	20,483	100.0	100.0	100.0
Corporation.....	1	63	152,500	38,125	40.0	69.2	74.5
Individual ³	6	28	52,331	8,722	60.0	30.8	25.5

¹ Includes 2 other forms of organization.

² Includes 1 other form of organization.

³ Includes 2 firms.

MINES AND QUARRIES—MONTANA.

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.....	259	100.0	16,129	100.0	COAL, BITUMINOUS.....	67	100.0	3,797	100.0
No wage earners.....	61	23.6			No wage earners.....	1	1.5		
1 to 5.....	103	39.8	208	1.3	1 to 5.....	27	40.3	54	1.4
6 to 20.....	45	17.4	502	3.1	6 to 20.....	18	26.9	173	4.6
21 to 50.....	16	6.2	488	3.0	21 to 50.....	6	9.0	190	5.0
51 to 100.....	12	4.6	870	5.4	51 to 100.....	5	7.5	348	9.2
101 to 500.....	16	6.2	3,238	20.1	101 to 500.....	8	11.9	1,716	45.2
501 to 1,000.....	4	1.5	2,613	16.2	501 to 1,000.....	2	3.0	1,317	34.7
Over 1,000.....	2	0.8	8,210	50.9					
GOLD, SILVER, COPPER, LEAD, AND ZINC, LODE MINES.....	153	100.0	11,862	100.0					
No wage earners.....	54	35.3			No wage earners.....	54	35.3		
1 to 5.....	55	35.9	108	0.9	1 to 5.....	55	35.9	108	0.9
6 to 20.....	19	12.4	290	1.9	6 to 20.....	19	12.4	290	1.9
21 to 50.....	8	5.2	243	2.0	21 to 50.....	8	5.2	243	2.0
51 to 100.....	6	3.9	470	4.0	51 to 100.....	6	3.9	470	4.0
101 to 500.....	7	4.6	1,305	11.0	101 to 500.....	7	4.6	1,305	11.0
501 to 1,000.....	2	1.3	1,296	10.9	501 to 1,000.....	2	1.3	1,296	10.9
Over 1,000.....	2	1.3	8,210	69.2	Over 1,000.....	2	1.3	8,210	69.2

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—							
	Enterprises.	Wage earners.	35 and under.		36 to 43.		44 to 53.		54 to 62.	
			Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners.
All industries.....	1,198	10,120	1	24	5	38	100	4,808	92	11,250
Gold, silver, copper, lead, and zinc, lode mines.....	99	11,862					81	1,030	68	10,832
Coal, bituminous.....	66	3,797	1	24	5	38	55	3,718	5	17
All other industries.....	33	470					14	60	19	410

¹ Exclusive of 61 enterprises employing no wage earners in industries, as follows: Clay, 3; coal, bituminous, 1; gold, silver, copper, lead and zinc, lode mines, 54; gold, placer mines, 2; sandstone, 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.....	10,392	21,100	16,881	16,215	15,554	15,352	15,611	16,271	16,480	15,819	16,989	<i>14,205</i>	16,247	67.3
Producing enterprises.....	16,129	20,911	16,601	16,017	15,329	15,104	15,324	15,910	16,197	15,530	16,685	<i>13,922</i>	15,958	66.6
Gold, silver, copper, lead, and zinc, lode mines.....	11,862	15,956	12,117	11,398	11,098	10,986	11,313	11,052	11,701	10,883	11,860	<i>12,324</i>	11,056	68.2
Coal, bituminous.....	3,797	4,464	4,101	4,107	3,732	3,601	3,613	3,807	4,029	4,178	4,379	<i>1,124</i>	4,429	25.2
Limestone.....	87	81	70	83	89	95	115	100	94	83	82	<i>83</i>	89	60.0
Petroleum and natural gas.....	38	35	<i>35</i>	<i>35</i>	30	40	40	41	40	40	40	<i>36</i>	38	85.4
Granite.....	4	4			4	6	7	7	8	6	6	<i>2</i>	2	25.0
All other industries.....	341	375	338	394	370	376	<i>256</i>	304	324	340	318	353	364	59.9
Nonproducing enterprises: Gold, silver, copper, lead or zinc, lode mines.....	203	189	200	198	225	248	287	361	283	289	304	283	289	52.4

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

	Aggregate.	PRODUCING ENTERPRISES.							NONPRO- DUCING ENTER- PRISES.
		Total.	Gold, silver, copper, lead, and zinc, lode mines. ¹	Coal, bitumi- nous.	Petrole- um and natural gas.	Lime- stone.	Granite.	All other. ²		Metallifer- ous lode mines.
Number of enterprises.....	295	250	153	67	5	7	3	24	36
Number of mines and quarries.....	305	269	159	76		7	3	24	36
Number of petroleum and natural-gas wells.....	28	28			28				
Capital.....	\$214, 887, 386	\$209, 286, 955	\$197, 434, 904	\$7, 742, 364	\$827, 067	\$445, 931	\$33, 025	\$2, 808, 574	\$5, 600, 431
Principal expenses:									
Salaries and wages—									
Officers.....	\$367, 029	\$357, 766	\$273, 732	\$73, 575	\$2, 318	\$1, 841		\$6, 300	\$9, 263
Superintendents and managers.....	\$813, 485	\$774, 858	\$576, 950	\$168, 005	\$6, 888	\$5, 893		\$26, 522	\$35, 627
Technical employees.....	\$397, 048	\$393, 175	\$369, 854	\$19, 241	\$1, 800			\$2, 230	\$3, 873
Clerks, etc.....	\$932, 004	\$975, 502	\$854, 056	\$105, 633	\$3, 354	\$3, 624		\$11, 835	\$3, 502
Wage earners.....	\$26, 183, 710	\$25, 723, 908	\$19, 249, 280	\$5, 703, 810	\$58, 057	\$110, 806	\$5, 006	\$506, 049	\$439, 802
Supplies and materials.....	\$9, 652, 946	\$9, 452, 659	\$7, 827, 462	\$1, 183, 810	\$43, 492	\$55, 678	\$2, 548	\$339, 069	\$200, 287
Cost of ore purchased.....	\$62, 210	\$62, 210	\$62, 210						
Fuel.....	\$1, 310, 531	\$1, 267, 627	\$947, 725	\$280, 309	\$14, 989	\$7, 114	\$635	\$16, 555	\$42, 004
Power.....	\$1, 725, 208	\$1, 712, 301	\$1, 590, 135	\$59, 979	\$6, 820			\$55, 817	\$12, 907
Royalties and rents.....	\$646, 125	\$646, 125	\$475, 934	\$139, 369	\$15, 563			\$600	\$11, 654
Taxes.....	\$1, 024, 491	\$1, 018, 265	\$817, 621	\$158, 097	\$10, 862	\$2, 437		\$72	\$20, 176
Contract work.....	\$132, 823	\$115, 521	\$91, 797	\$6, 665	\$2, 272			\$14, 787	\$6, 226
Expenditures for development (included in the above items).....	\$3, 857, 204	\$3, 145, 120	\$2, 702, 651	\$311, 434	\$60, 261	\$11, 250	\$1, 000	\$58, 524	\$712, 084
Value of products.....	\$49, 923, 721	\$49, 923, 721	\$39, 623, 472	\$8, 691, 211	\$258, 046	\$191, 887	\$12, 944	\$1, 246, 161	
Persons engaged in industry.....	17, 665	17, 345	12, 740	4, 056	48	99	7	395	320
Proprietors and firm members (total).....	297	293	134	70		6	3	30	4
Number performing manual labor.....	199	199	144	37		2	2	14	
Salaries officers.....	78	68	28	35				3	
Superintendents and managers.....	248	218	147	50	2			8	10
Technical employees.....	169	165	160	13				1	30
Clerks, etc.....	481	472	369	85	4			12	4
Wage earners (average number).....	16, 392	16, 129	11, 892	3, 797	38	87	4	341	263
Wage earners by occupation (Dec. 15):									
Above ground (total).....	4, 338	4, 226	3, 053	828	38	86	9	212	112
Below ground (total).....	13, 351	13, 039	9, 007	3, 735				297	312
Foreman, shift bosses, etc.—									
Above ground.....	209	197	141	34		7	1	14	12
Below ground.....	533	513	430	67					20
Enginemen, hoistmen, electricians, mechanics, etc.—									
Above ground.....	1, 249	1, 188	708	335	29	7		49	61
Below ground.....	466	403	325	138					3
Miners, quarrymen, and drillmen, including their helpers—									
Above ground.....	117	109	18	26		32	4	29	8
Below ground.....	7, 617	7, 432	4, 662	2, 632				138	185
Timbermen, trackmen, and men engaged in hauling, tramming, etc.—									
Above ground.....	123	112	37	59		1	2	16	11
Below ground.....	3, 851	3, 815	3, 154	615				46	36
Muckers, loaders, laborers, and others not classified—									
Above ground.....	1, 193	1, 173	723	356	9	24		61	20
Below ground.....	884	816	436	283				97	68
Wage earners employed in mills and beneficiating plants—									
Above ground.....	1, 447	1, 447	1, 366	21		15	2	43	
Number of females included in wage earners reported above—									
Above ground.....	9	4	3					1	5
Mineral and oil land operated..... acres.....	113, 680	107, 541	16, 076	73, 987	4, 760	1, 823	425	7, 490	6, 139
Land controlled, total..... acres.....	127, 724	121, 035	22, 614	82, 266	4, 760	1, 823	425	9, 197	6, 639
Mineral and oil land owned.....	83, 452	79, 300	13, 004	55, 124	1, 960	1, 680	405	7, 127	4, 162
Mineral and oil land leased.....	31, 640	29, 653	6, 164	20, 103	2, 800	143	20	363	1, 987
Timber and other lands owned and leased.....	12, 632	12, 132	3, 446	9, 070				1, 707	500
Power used: Aggregate horsepower.....	146, 514	143, 718	111, 481	27, 077	245	1, 290	75	3, 550	2, 706
Prime movers (horsepower, total).....	52, 329	50, 593	30, 188	19, 132	245	235	75	718	1, 735
Steam engines—									
Number.....	135	117	49	60	4	2		2	18
Horsepower.....	43, 304	41, 987	20, 745	14, 079	138	125		300	1, 317
Steam turbines—									
Number.....	13	13		13					
Horsepower.....	4, 350	4, 350		4, 350					
Internal-combustion engines—									
Number.....	72	53	22	11	5	1	3	11	19
Horsepower.....	1, 327	1, 033	315	103	107	40	75	393	204
Water wheels and turbines—									
Number.....	22	20	16			2		2	2
Horsepower.....	3, 348	3, 223	3, 128			70		25	125
Purchased power (horsepower, total).....	94, 185	93, 125	81, 293	7, 945		1, 055		2, 832	1, 060
Electric motors operated by purchased current—									
Number.....	1, 562	1, 543	1, 292	185		15		51	19
Horsepower.....	94, 185	93, 125	81, 293	7, 945		1, 055		2, 832	1, 060
Electric motors run by current generated by enterprise using:									
Number.....	180	179	34	145					1
Horsepower.....	6, 711	6, 696	1, 467	5, 239					15
Fuel used:									
Coal, bituminous..... tons, 2,000 pounds.....	329, 939	325, 737	159, 564	163, 456	197	1, 065	5	1, 450	4, 202
Coke..... tons, 2,000 pounds.....	4, 874	4, 874	4, 874						
Wood..... cords.....	6, 765	6, 683	5, 589						
Fuel oils..... barrels.....	1, 511	951	866			42		42	1, 082
Gasoline and other volatile oils..... barrels.....	1, 808	1, 459	479						500
Natural gas..... 1,000 cubic feet.....	671, 621	671, 621		113		36	2	329	349

¹ Includes 3 reduction mills operated independently of mines and 5 operations on dumps and old tailings.

² Includes enterprises as follows: Clay, 3; gold, placer mines, 9; graphite, 1; iron ore, 2; manganese ore, 6; sandstone, 2; silica, 1.

NEVADA.

Nevada, which ranks sixth among the states in size (land area 109,821 square miles) and forty-ninth in population (77,407 in 1920), ranked twenty-sixth in value of mineral products for 1919. The state ranked twenty-ninth in the total number of persons engaged in the mining industries and in the number of wage earners employed.

The total amount received for products by the operators of all mines and quarries in Nevada in 1919 was \$18,053,984, which was a decrease of 22.4 per cent as compared with the gross value of the products of mines and quarries reported at the census of 1909 (\$23,271,597). The 1909 figures include duplication to the amount of \$1,610,449 in the value of gold and silver ores sold by some operators to others who used it as material. Deducting this amount leaves \$21,661,148 as the net value of products for 1909, and this compared with the value for 1919 shows a decrease of 16.7 per cent. The figures include receipts for custom milling, power sold, and work or miscellaneous services for other enterprises which amounted to \$468,655 in 1919.

The worth of the percentages of decrease in value of products and of increases in salaries, wages, cost of supplies and materials and fuel and power, shown in Table 1, is impaired for purposes of comparison by general price increases during the decade. The decreases in number of enterprises and individual mines and quarries operated are largely due to the temporarily adverse industrial conditions in 1919, in the face of which the smallness of the decrease in average number of wage earners is significant of growth of mining during the census period.

The mining industries reported for 1919, classified by principal products and listed in the order of value of products, were gold and silver (lode), copper, lead and zinc, gypsum, ores of rare metals (tungsten), placer gold, quicksilver, sulphur, fuller's earth, abrasive materials, limestone, fluorspar, and graphite. The industries for which statistics can be shown without disclosure of individual operations are ranked by value of products in Table 2.

The principal mining activities in Nevada in 1919 were the mining of gold and silver, copper, and lead and zinc ores. Enterprises so engaged constituted 87.7 per cent of the total number of enterprises, employed 93.8 per cent of the total number of wage earners, and reported 94.7 per cent of the total value of products. The value of the products reported as that of the metalliferous lode mines is not the value of the metals recovered, but is the actual amount received by the producers for the ores, concentrates, bullion, etc., disposed of or, where these were smelted and refined by the producers, the amount reported

to the census of mines and quarries was an estimate of the value of the mine and mill products.

The leading lode mining industry was the mining of gold and silver ores in which Nevada ranked second in the United States. This industry embraced 72.9 per cent of the total number of enterprises in the state, employed 49.3 per cent of the wage earners, and reported value of products amounting to \$9,687,431, which was 53.7 per cent of the total value of all mining products. The production came chiefly from Nye, Esmeralda, and Elko Counties, although twelve other counties also produced gold. The statistics on gold and silver mining here presented include figures for one enterprise in Clark County producing ores of which the chief value was in palladium and platinum.

The industries second and third in importance in Nevada in 1919 were copper mining and lead and zinc mining. Nevada was the sixth state in copper mining, and eleventh in mining of lead and zinc. Together these industries included approximately 15 per cent of the total number of enterprises, employed 44.5 per cent of the total number of wage earners, and reported products valued at \$7,393,392, or 41 per cent of the total for the state. Lead and zinc mines reported from 7 counties, among which Clark and Lincoln were the largest producers. Copper mines located in 8 counties reported, but the bulk of the production came from the Ely district in White Pine County.

In addition to the operations of producing mines and quarries, considerable work was done in Nevada on properties which were not productive during the year. One hundred and eighteen such enterprises were reported, one a marble quarry, the others gold, silver, copper, lead, or zinc mines. These enterprises, with a combined capital of \$18,195,968, employed 685 wage earners and expended for development during the year \$2,693,067, which amount represents practically 14 per cent of the aggregate number of wage earners and of the aggregate expenditures reported for all mining operations in the state.

The form or character of organizations conducting mining enterprises in Nevada in 1919 is shown in Table 3, which brings out the preponderance of incorporated enterprises over those of other forms. Corporations operated 58.1 per cent of all the producing mining enterprises, employed 94.8 per cent of the total number of wage earners, and reported 96.3 per cent of the total value of products.

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 Nevada, 97.5 per cent, or 198 out of 203, were in classes having no wage earners or fewer than 101, and the enterprises having them em-

MINES AND QUARRIES—NEVADA.

ployed 50.9 per cent of the total number of wage earners. On the other hand, only 5 enterprises had more than 100 wage earners each, and these enterprises employed 49 per cent of the total number of wage earners. In Table 4 the larger enterprises employing wage earners are shown in the metal-mining industries.

Table 5 shows that in 82.3 per cent of the enterprises employing wage earners and for 91.8 per cent of the wage earners in all the mining industries in Nevada in 1919 the hours of labor were 54 to 62 per week. In

16.5 per cent of the enterprises and for 8.2 per cent of the wage earners the hours per week were 44 to 53. The 8-hour day prevailed generally with a 7-day week in a large majority of the enterprises.

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 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.....	203	266	-23.7	Principal expenses:			
Number of mines and quarries.....	207	374	-44.7	Salaries.....	\$1,099,848	\$876,056	25.5
Persons engaged.....	4,860	5,333	-8.9	Wages.....	7,401,113	5,925,070	24.9
Proprietors and firm members, total...	151	213	-29.1	Contract work.....	245,429	196,768	24.7
Number performing manual labor in or about the mines and quarries	120	143	-16.1	Supplies and materials.....	5,339,511	² 4,985,612	7.1
Salaried employees.....	478	478	.....	Fuel and power.....	1,751,266	1,311,625	33.5
Wage earners (average number).....	4,231	4,642	-8.9	Royalties and rents.....	143,708	275,556	-47.8
Power used (horsepower).....	50,786	26,862	89.1	Taxes.....	462,663	243,129	90.3
Capital.....	\$82,500,057	\$120,002,830	-31.3	Value of products.....	18,053,984	23,271,597	-22.4

¹ A minus sign (-) denotes decrease.

² Includes cost of ore 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.....	203	4,231	100.0	\$18,053,984	100.0	Gold, placer mines.....	8	19	0.4	\$63,649	0.4
Gold and silver, lode mines.....	148	2,084	49.3	9,687,431	53.7	Quicksilver.....	4	23	0.5	57,059	0.3
Copper and lead and zinc.....	30	1,884	44.5	7,393,392	41.0	All other industries ¹	13	221	5.2	852,453	4.7

¹ Includes enterprises in industries as follows: Abrasive materials, 2; fluor spar, 1; fuller's earth, 1; graphite, 1; gypsum, 3; limestone, 1; sulphur, 1; rare metals (tungsten), 3.

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.....	203	4,231	\$18,053,984	\$88,036	100.0	100.0	100.0
Corporation.....	118	4,011	17,385,886	147,338	68.1	94.8	96.3
Individual.....	40	88	180,472	4,512	19.7	2.1	1.0
Firm.....	45	132	487,626	10,836	22.2	3.1	2.7
GOLD AND SILVER, LODGE MINES.....	148	2,084	9,687,431	65,456	100.0	100.0	100.0
Corporation.....	85	1,596	9,105,027	107,118	57.4	91.0	94.0
Individual.....	30	66	154,019	5,134	20.3	3.2	1.6
Firm.....	33	122	428,385	12,681	22.3	5.9	4.4
COPPER AND LEAD AND ZINC.....	30	1,884	7,393,392	246,446	100.0	100.0	100.0
Corporation.....	18	1,876	7,354,412	408,678	60.0	99.6	99.5
Individual.....	7	5	15,708	2,244	23.3	0.3	0.2
Firm.....	5	3	23,272	4,654	16.7	0.2	0.3

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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.....	203	100.0	4,231	100.0	COPPER AND LEAD AND ZINC.....	30	100.0	1,884	100.0
No wage earners.....	39	19.2			No wage earners.....	6	20.0		
1 to 5.....	81	39.9	177	4.2	1 to 5.....	14	46.7	27	1.4
6 to 20.....	46	22.7	471	11.1	6 to 20.....	4	13.3	30	1.6
21 to 50.....	21	10.3	746	17.6	21 to 50.....	4	13.3	174	9.2
51 to 100.....	11	5.4	762	18.0	101 to 500.....	1	3.3	221	11.7
101 to 500.....	4	2.0	643	15.2	Over 1,000.....	1	3.3	1,432	76.0
Over 1,000.....	1	0.5	1,432	33.8	QUICKSILVER.....	4	100.0	23	100.0
GOLD AND SILVER, LODE MINES..	148	100.0	2,084	100.0	1 to 5.....	2	50.0	8	34.8
No wage earners.....	28	18.9			6 to 20.....	2	50.0	15	65.2
1 to 5.....	59	39.9	126	6.0	GOLD, PLACER MINES.....	8	100.0	19	100.0
6 to 20.....	33	22.3	350	16.3	No wage earners.....	5	62.5		
21 to 50.....	16	10.8	548	26.3	1 to 5.....	2	25.0	5	26.3
51 to 100.....	9	6.1	638	30.6	6 to 20.....	1	12.5	14	73.7
101 to 500.....	3	2.0	422	20.2					

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—							
	Enterprises.	Wage earners.	36 to 43.		44 to 53.		54 to 62.		72 to 84.	
			Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners.
All industries.....	1164	4,231	1	2	27	345	135	3,883	1	1
Gold and silver, lode mines.....	120	2,084								
Copper and lead and zinc.....	24	1,884	1	2	21	323	97	1,758	1	1
Quicksilver.....	4	23			2	2	22	1,882		
Gold, placer mines.....	8	19					4	23		
All other industries.....	13	221			4	20	3	19		

¹ Exclusive of 39 enterprises employing no wage earners in the following industries: Copper and lead and zinc, 6; gold and silver, lode mines, 28; gold, placer mines, 5.

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.....	4,916	5,499	4,678	4,590	4,647	4,973	5,245	5,301	<i>4,198</i>	4,271	4,818	5,292	5,473	78.3
Producing enterprises.....	4,231	5,118	4,275	4,143	4,063	4,227	4,428	4,381	<i>3,300</i>	3,666	4,081	4,467	4,567	65.8
Gold and silver, lode mines.....	2,084	1,703	1,972	2,076	2,018	2,212	2,383	2,457	<i>2,394</i>	1,630	1,817	2,061	2,225	66.3
Copper and lead and zinc.....	1,884	3,075	2,055	1,841	1,797	1,736	1,803	1,638	<i>672</i>	1,767	2,006	2,143	2,075	21.9
Quicksilver.....	23	22	22	22	17	18	28	28	28	28	27	21	15	53.6
Placer mines.....	19	28	26	27	24	18	15	17	18	18	16	10	11	35.7
All other industries.....	221	230	200	177	207	243	189	241	<i>254</i>	213	215	232	241	69.7
Nonproducing enterprises.....	685	381	403	456	584	746	817	920	830	615	737	825	906	41.4

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

	Aggregate.	PRODUCING ENTERPRISES.						Non-producing enterprises. ³
		Total.	Gold and silver, lode mines. ¹	Copper and lead and zinc.	Gold, placer mines.	Quick-silver.	All other. ²	
Number of enterprises.....	321	203	148	30	8	4	13	118
Number of mines and quarries.....	325	207	148	34	8	4	13	118
Capital.....	\$100,690,025	\$82,500,057	\$38,262,116	\$40,130,508	\$76,500	\$211,000	\$3,819,933	\$18,195,968
Principal expenses:								
Salaries and wages—								
Officers.....	\$330,313	\$240,254	\$193,492	\$40,092	.....	\$600	\$6,070	\$93,059
Superintendents and managers.....	\$649,834	\$475,260	\$326,231	\$112,233	.....	\$7,610	\$29,186	\$174,574
Technical employees.....	\$175,466	\$145,441	\$109,523	\$35,618	.....	\$400	.....	\$30,025
Clerks, etc.....	\$267,737	\$232,893	\$134,179	\$78,937	.....	.....	\$19,777	\$34,844
Wage earners.....	\$8,503,318	\$7,401,113	\$3,808,482	\$3,235,703	\$30,662	\$43,991	\$282,275	\$1,102,205
Supplies and materials.....	\$6,354,609	\$5,339,511	\$2,696,091	\$2,302,403	\$11,780	\$17,427	\$251,810	\$1,015,098
Fuel.....	\$1,171,459	\$1,112,427	\$265,463	\$802,619	\$500	\$4,010	\$39,835	\$59,032
Power.....	\$741,371	\$638,839	\$334,707	\$67,736	\$1,544	.....	\$34,852	\$102,532
Royalties and rents.....	\$144,144	\$143,708	\$121,179	\$14,584	\$928	\$6,617	\$400	\$436
Taxes.....	\$490,425	\$402,663	\$250,450	\$197,688	\$756	\$507	\$13,262	\$27,762
Contract work.....	\$364,916	\$245,429	\$177,312	\$68,117	.....	.....	.....	\$109,487
Expenditures for development (included in the above items).....	\$5,179,347	\$2,486,290	\$1,672,213	\$754,613	.....	\$21,327	\$38,127	\$2,693,067
Value of products.....	\$18,053,984	\$18,053,984	\$9,637,431	\$7,393,392	\$63,649	\$57,059	\$852,453	.....
Persons engaged in industry.....	5,798	4,800	2,515	2,024	32	30	259	938
Proprietors and firm members (total).....	161	151	112	19	13	2	5	10
Number performing manual labor.....	122	120	89	17	12	2	.....	2
Salaried officers.....	161	86	66	.....	.....	1	2	75
Superintendents and managers.....	255	156	106	33	.....	3	14	99
Technical employees.....	90	68	53	14	.....	1	.....	22
Clerks, etc.....	215	168	94	57	.....	.....	17	47
Wage earners (average number).....	4,916	4,231	2,084	1,884	19	23	221	685
Wage earners by occupation (Dec. 15):								
Above ground (total).....	3,068	2,725	851	1,040	8	14	212	343
Below ground (total).....	3,208	2,517	1,720	622	3	12	160	691
Foremen, shift bosses, etc.—								
Above ground.....	254	221	52	155	.....	2	12	33
Below ground.....	205	153	82	66	.....	.....	5	52
Enginemen, hoistmen, electricians, mechanics, etc.—								
Above ground.....	832	693	260	405	1	1	26	139
Below ground.....	109	69	32	32	.....	.....	5	40
Miners, quarrymen, and drillmen, including their helpers—								
Above ground.....	189	119	28	66	5	.....	20	80
Below ground.....	1,561	1,210	815	260	3	12	120	371
Timbermen, trackmen, and men engaged in hauling, tramming, etc.—								
Above ground.....	230	207	52	152	1	.....	2	23
Below ground.....	556	459	380	76	.....	.....	3	97
Muckers, loaders, laborers, and others not classified—								
Above ground.....	456	388	167	152	1	3	65	68
Below ground.....	787	626	411	188	.....	.....	27	131
Wage earners employed in mills and beneficiating plants—								
Above ground.....	1,097	1,097	292	710	.....	8	87	.....
Number of females included in wage earners reported above—								
Above ground.....	25	21	4	16	.....	.....	1	4
Mineralland operated..... acres..	64,210	45,114	23,615	12,955	2,848	1,195	4,491	19,096
Land controlled, total..... acres..	72,002	52,167	24,700	13,928	2,848	1,195	4,496	19,835
Mineralland owned.....	64,099	35,901	17,849	10,199	2,782	720	4,351	18,168
Mineralland leased.....	10,104	9,236	5,776	2,779	66	475	140	928
Timber and other lands owned and leased.....	7,769	7,030	1,075	5,950	.....	.....	5	739
Power used: Aggregate horsepower.....	59,782	50,786	32,605	16,009	140	30	1,996	8,996
Prime movers (horsepower, total).....	20,896	18,342	5,202	12,239	24	36	811	2,554
Steam engines—								
Number.....	37	34	13	16	.....	.....	5	3
Horsepower.....	9,125	9,035	590	8,030	.....	.....	415	90
Steam turbines—								
Number.....	1	1	.....	1	.....	.....	.....	.....
Horsepower.....	3,600	3,600	.....	3,600	.....	.....	.....	.....
Internal-combustion engines—								
Number.....	289	193	142	31	4	6	10	96
Horsepower.....	8,003	5,539	4,444	639	24	36	396	2,464
Water wheels and turbines—								
Number.....	5	5	5	.....	.....	.....	.....	.....
Horsepower.....	168	163	168	.....	.....	.....	.....	.....
Purchased power (horsepower, total).....	38,886	32,444	27,403	3,740	116	.....	1,185	6,442
Electric motors operated by purchased current—								
Number.....	959	801	705	47	21	.....	28	158
Horsepower.....	38,866	32,444	27,403	3,740	116	.....	1,185	6,422
Other equipment operated by purchased power—								
Horsepower.....	20	.....	.....	.....	.....	.....	.....	20
Electric motors run by current generated by enterprise using:								
Number.....	293	290	8	281	.....	.....	1	3
Horsepower.....	10,131	10,086	255	9,829	.....	.....	2	45
Fuel used:								
Coal, bituminous..... tons, 2,000 pounds..	113,802	113,708	1,802	111,461	25	.....	420	154
Coal, anthracite..... tons, 2,000 pounds..	376	376	.....	376	.....	.....	.....	.....
Wood..... cords.....	3,340	2,977	2,289	160	.....	508	20	363
Fuel oils..... barrels.....	67,443	64,363	49,306	3,660	.....	6	11,391	3,080
Gasoline and other volatile oils..... barrels..	10,020	8,476	5,603	1,591	25	36	1,221	1,544

¹ Includes 1 enterprise producing ores of which the chief value was in palladium and platinum; 2 reduction mills operated independently of mines; and 5 operations on dumps and old tailings.
² Includes enterprises as follows: Abrasive materials, 2; fluor spar, 1; fuller's earth, 1; graphite, 1; gypsum, 3; limestone, 1; sulphur, 1; rare metals (tungsten), 3.
³ Includes enterprises as follows: Gold, silver, copper, lead, or zinc, lode mines, 117; marble, 1.

NEW HAMPSHIRE.

New Hampshire, which ranks forty-third among the states in size (land area 9,031 square miles) and forty-first in population (443,083 in 1920), ranked forty-third in the value of mineral products in 1919. The state also ranked forty-third in the total number of persons engaged in the mining and quarrying industries and in the average number of wage earners employed.

The total value of products of all mines and quarries in New Hampshire in 1919 was \$1,568,195, which was an increase of 19.8 per cent as compared with the corresponding amount for 1909. Decreases in the number of enterprises, number of mines and quarries operated, and number of persons engaged in the mining industries, as shown in Table 1, marked the decline of these industries in the state of New Hampshire. Increases in salaries, cost of supplies and materials and fuel and power, and value of products are largely due to the general increase in prices since 1909, and not to actual growth of the industries. The large increase in taxes shown is accounted for by impost of Federal income taxes since 1909.

The mining and quarrying industries reported for 1919, classified by principal products and listed in the order of value of products, were granite, mica, fluorspar, and abrasive materials. In addition to the product indicated by the industry designation one operation classified as a mica enterprise also produced a small amount of feldspar, the value of which is included in the total value of products given above.

The leading mineral industry in 1919 was granite quarrying which included 23 enterprises, or 76.7 per cent of the total number of enterprises. This industry employed 86.4 per cent of the total number of wage earners, and produced stone valued at \$1,427,979, or

91.1 per cent of the total value of products for all mines and quarries in the state.

Table 2 shows that among the operators of mining enterprises in New Hampshire corporations were most numerous. Of the total number of enterprises 43.3 per cent had a corporate form of organization, they employed 60.1 per cent of all wage earners in the mining industries in the state, and reported 55.3 per cent of the total value of all mineral products. The table also shows that in the granite industry ownership or control by individuals was more common than by corporations, but that the latter conducted the larger and more important enterprises.

The relatively large number of small enterprises, as determined by the average number of wage earners employed, is shown in Table 3. Of the total number of mining enterprises in this state, 83.3 per cent were in classes having no wage earners or less than 51, and these enterprises employed 33.8 per cent of the total number of wage earners. The remaining five enterprises, or 16.6 per cent of the total number, employed 66.3 per cent of the total number of wage earners. Only one enterprise had more than 100 wage earners; this was in the granite industry and employed 167 wage earners, or 24.5 per cent of the total number reported for the state.

Table 4 shows that in a majority of the enterprises and for 90 per cent of the wage earners the prevailing hours of labor were 44 to 53 per week.

The statistics for wage earners presented in Table 5, showing changes in the number employed month by month, reflect conditions prevailing in the industries during the census year.

Table 6 presents for 1919 statistics in detail for the state as a whole and for granite, the only 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.....	30	45		Capital.....	\$1,658,500	\$1,546,503	7.2
Number of mines and quarries.....	33	53		Principal expenses:			
Persons engaged.....	757	1,508	-49.8	Salaries.....	96,324	53,488	80.1
Proprietors and firm members, total.....	30	42		Wages.....	825,547	926,352	-10.9
Number performing manual labor in or about the mines and quarries.....	17	17		Contract work.....	34,520	9,246	273.4
Salaried employees.....	45	48		Supplies and materials.....	144,946	100,981	43.6
Wage earners (average number).....	682	1,418	-51.9	Fuel and power.....	64,980	54,427	19.4
Power used (horsepower).....	4,336	3,771	15.0	Royalties and rents.....	6,268	4,271	46.8
				Taxes.....	24,719	5,251	370.7
				Value of products.....	1,568,195	1,308,597	19.8

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

MINES AND QUARRIES—NEW HAMPSHIRE.

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TABLE 2.—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.....	30	682	\$1,568,195	\$52,273	100.0	100.0	100.0
Corporation.....	18	410	837,304	66,716	43.3	60.1	55.3
Individual.....	10	69	132,633	13,268	33.3	10.1	8.5
Firm.....	7	203	568,208	81,173	23.3	29.8	36.2
GRANITE.....	23	589	1,427,979	62,086	100.0	100.0	100.0
Corporation.....	7	317	727,884	103,983	30.4	53.8	51.0
Individual.....	9	69	131,887	14,654	39.1	11.7	9.2
Firm.....	7	203	568,208	81,173	30.4	34.5	39.8

TABLE 3.—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.....	30	100.0	682	100.0	GRANITE.....	23	100.0	589	100.0
No wage earners.....	4	13.3	.....	.....	No wage earners.....	3	13.0	.....	.....
1 to 5.....	9	30.0	19	2.8	1 to 5.....	8	34.8	14	2.4
6 to 20.....	8	26.7	98	14.4	6 to 20.....	4	17.4	55	9.3
21 to 50.....	4	13.3	113	16.6	21 to 50.....	3	13.0	68	11.5
51 to 100.....	4	13.3	285	41.8	51 to 100.....	4	17.4	285	48.4
101 to 500.....	1	3.3	167	24.5	101 to 500.....	1	4.3	167	28.4

TABLE 4.—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.		44 to 53.		51 to 62.	
	Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners.
All industries.....	126	682	1	23	19	614	6	45
Granite.....	20	589	1	23	17	561	2	2
All other industries.....	6	93	.....	.....	2	50	4	43

¹ Exclusive of 4 enterprises employing no wage earners in industries as follows: Granite, 3; mica, 1.

TABLE 5.—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.....	682	344	300	308	371	708	830	839	887	860	871	818	698	33.8
Granite.....	589	260	271	302	479	624	739	747	779	763	780	720	598	33.3
All other industries.....	93	84	89	96	92	84	91	92	108	97	91	92	100	77.8

MINES AND QUARRIES—NEW HAMPSHIRE.

TABLE 6.—DETAILED STATISTICS FOR MINING INDUSTRIES: 1919.

	PRODUCING ENTERPRISES.				PRODUCING ENTERPRISES.		
	Total.	Granite.	All other. ¹		Total.	Granite.	All other. ¹
Number of enterprises.....	30	23	7	Persons engaged in industry—Continued. Wage earners by occupation, etc.—Contd. Miners, quarrymen, and drillmen, including their helpers— Above ground.....	247	221	26
Number of mines and quarries.....	33	24	9		Below ground.....	15	.....	15
Capital.....	\$1,658,509	\$1,455,786	\$202,723	Timbermen, trackmen, and men engaged in hauling, tramping, etc.— Above ground.....	15	13	2
Principal expenses:				Muckers, loaders, laborers, and others not classified— Above ground.....	55	48	7
Salaries and wages—				Wage earners employed in mills and beneficiating plants— Above ground.....	359	318	41
Officers.....	\$24,590	\$24,590	.....	Mineral land operated..... acres..	10,030	4,688	5,342
Superintendents and managers.....	\$51,490	\$45,497	\$5,993	Land controlled, total..... acres..	10,531	5,179	5,352
Technical employees.....	\$6,784	\$6,784	.....	Mineral land owned.....	8,698	4,655	4,043
Clerks, etc.....	\$13,460	\$9,541	\$3,919	Mineral land leased.....	1,332	33	1,299
Wage earners.....	\$825,547	\$744,023	\$81,524	Timber and other lands owned and leased.....	501	491	10
Supplies and materials.....	\$144,946	\$110,782	\$34,164	Power used: Aggregate horsepower.....	4,336	4,121	215
Fuel.....	\$41,667	\$37,956	\$3,611	Prime movers (horsepower, total).....	2,673	2,458	215
Power.....	\$23,413	\$23,413	.....	Steam engines—			
Royalties and rents.....	\$6,268	\$1,060	\$5,208	Number.....	73	64	9
Taxes.....	\$24,719	\$23,672	\$1,047	Horsepower.....	2,625	2,415	210
Contract work.....	\$34,520	\$34,520	.....	Internal-combustion engines—			
Expenditures for development (included in the above items).....	\$55,049	\$14,814	\$40,235	Number.....	5	4	1
Value of products.....	\$1,568,195	\$1,427,979	\$140,216	Horsepower.....	48	43	5
Persons engaged in industry.....	757	657	100	Purchased power (horsepower, total).....	1,663	1,663	.....
Proprietors and firm members (total).....	30	29	1	Electric motors operated by purchased current—			
Number performing manual labor.....	17	17	.....	Number.....	40	49	.....
Salaried officers.....	6	6	.....	Horsepower.....	1,663	1,663	.....
Superintendents and managers.....	25	22	3	Fuel used:			
Technical employees.....	2	2	.....	Coal, anthracite..... tons, 2,240 pounds..	53	50	3
Clerks, etc.....	12	9	3	Coal, bituminous..... tons, 2,000 pounds..	5,027	4,853	174
Wage earners (average number).....	682	589	93	Wood..... cords..	420	124	296
Wage earners by occupation (Dec. 15):				Fuel oils..... barrels..	88	88	.....
Above ground (total).....	2,773	2,690	83	Gasoline and other volatile oils..... barrels..	162	142	20
Below ground (total).....	16	.....	16				
Foremen, shift bosses, etc.—							
Above ground.....	22	18	4				
Below ground.....	1	.....	1				
Engineers, hoistmen, electricians, mechanics, etc.—							
Above ground.....	75	72	3				

¹ Includes enterprises as follows: Abrasive materials, 1; fluorspar, 1; mica, 5.² Includes 1 wage earner under 16 years of age.

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.

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.....	97	131	-28.0	Principal expenses:				
Number of mines and quarries.....	102	151	-32.5		Salaries.....	\$726,550	\$263,181	178.1
Persons engaged.....	5,029	6,690	-24.8		Wages.....	5,392,861	2,801,086	92.5
Proprietors and firm members, total.....	40	96	.....		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	6,315	-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.....	\$16,905,356	\$8,613,663	96.3		Value of products.....	9,308,902	8,347,501	11.5

¹ 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.....	35	637	13.9	1,928,025	20.7	Granite.....	4	48	1.0	81,198	0.9
Clay.....	35	868	19.0	1,482,359	15.9	Sandstone.....	5	20	0.4	45,775	0.5
						All other industries ¹	7	2,745	60.0	5,311,486	57.1

¹ 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	\$95,068	100.0	100.0	100.0
Corporation.....	60	4,224	8,557,040	142,794	61.9	92.3	92.0
Individual.....	34	342	719,412	21,150	35.1	7.5	7.7
Firm.....	3	10	21,850	7,233	3.1	0.2	0.2
BASALT.....	35	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 ¹	13	97	262,068	20,159	36.1	15.2	13.6
CLAY.....	35	868	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 ¹	16	181	376,134	23,508	45.7	20.9	25.4
LIMESTONE, GRANITE, AND SANDSTONE.....	19	326	587,032	30,896	100.0	100.0	100.0
Corporation.....	11	252	483,972	43,997	57.9	77.3	82.4
Individual ¹	8	74	103,060	12,882	42.1	22.7	17.6

¹ 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 distribution.	Number.	Per cent distribution.		Number.	Per cent distribution.	Number.	Per cent distribution.
ALL INDUSTRIES.....	97	100.0	4,576	100.0	BASALT.....	36	100.0	637	100.0
No wage earners.....	1	1.0			1 to 5.....	10	27.8	41	6.4
1 to 5.....	23	23.7	79	1.7	6 to 20.....	16	44.4	185	29.0
6 to 20.....	41	42.3	449	9.8	21 to 50.....	8	22.2	288	45.2
21 to 50.....	17	17.5	571	12.5	51 to 100.....	2	5.6	123	19.3
51 to 100.....	7	7.2	450	9.8	LIMESTONE, GRANITE, AND SANDSTONE.....	19	100.0	326	100.0
101 to 500.....	7	7.2	1,531	33.5	1 to 5.....	5	26.3	15	4.6
Over 1,000.....	1	1.0	1,496	32.7	6 to 20.....	9	47.4	96	29.4
CLAY.....	35	100.0	868	100.0	21 to 50.....	4	21.1	137	42.0
No wage earners.....	1	2.9			51 to 100.....	1	5.3	78	23.9
1 to 5.....	8	22.9	23	2.6					
6 to 20.....	16	45.7	168	19.4					
21 to 50.....	5	14.3	146	16.8					
51 to 100.....	3	8.6	184	21.2					
101 to 500.....	2	5.7	347	40.0					

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—				INDUSTRY.	TOTAL.		NUMBER WHERE THE PREVAILING HOURS OF LABOR PER WEEK WERE—			
	Enterprises.	Wage earners.	44 to 53.		54 to 62.			Enterprises.	Wage earners.	44 to 53.		54 to 62.	
			Enterprises.	Wage earners.	Enterprises.	Wage earners.				Enterprises.	Wage earners.	Enterprises.	Wage earners.
All industries.....	196	4,576	27	3,141	69	1,435	Limestone, granite, and sandstone.....	19	326	6	117	13	209
Clay.....	34	868	4	146	30	722	All other industries.....	7	2,745	7	2,745		
Basalt.....	36	637	10	133	26	504							

¹ 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.	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.....	4,576	4,704	4,592	4,647	4,763	4,526	4,168	4,713	4,741	4,780	4,678	4,323	4,273	87.1
Clay.....	868	611	599	<i>596</i>	917	1,076	1,057	1,105	1,114	1,129	934	634	645	52.7
Basalt.....	637	359	352	385	578	750	796	808	779	779	764	715	579	43.6
Limestone.....	258	299	288	276	237	222	236	242	253	255	265	253	264	74.2
Granite.....	43	27	28	51	48	48	35	35	35	37	81	79	72	33.3
Sandstone.....	20	7	7	7	30	29	29	29	29	29	22	11	11	23.3
All other industries.....	2,745	3,401	3,318	3,333	2,953	2,401	2,009	2,494	2,526	2,551	2,611	2,636	2,707	59.1

MINES AND QUARRIES—NEW JERSEY.

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

	PRODUCING ENTERPRISES.						
	Total.	Basalt.	Clay.	Limestone.	Granite.	Sandstone.	All other. ¹
Number of enterprises.....	97	36	35	10	4	5	7
Number of mines and quarries.....	102	36	35	10	4	5	9
Capital.....	\$16,905,356	\$1,373,890	\$2,840,074	\$1,530,492	\$80,900	\$25,000	\$10,993,000
Principal expenses:							
Salaries and wages—							
Officers.....	\$166,463	\$49,515	\$69,153	\$3,625	\$2,500		\$36,670
Superintendents and managers.....	\$197,356	\$45,619	\$48,597	\$11,298	\$900	\$1,300	\$89,642
Technical employees.....	\$112,902	\$3,900	\$2,470				\$106,532
Clerks.....	\$249,829	\$31,441	\$27,435	\$3,956			\$186,997
Wage earners.....	\$5,392,861	\$759,006	\$887,986	\$255,293	\$42,531	\$27,209	\$3,420,836
Supplies and materials.....	\$2,194,539	\$427,846	\$118,293	\$109,198	\$6,480	\$1,218	\$1,531,504
Fuel.....	\$621,534	\$142,353	\$51,227	\$37,580	\$5,660	\$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.....	\$371,765	\$20,819	\$33,259	\$8,835	\$495	\$434	\$302,926
Contract work.....	\$57,043	\$19,562	\$14,658	\$330			\$23,398
Expenditures for development (included in the above items).....	\$831,985	\$25,995		\$8,399			\$797,591
Value of products.....	\$9,308,902	\$1,923,025	\$1,482,359	\$459,059	\$81,198	\$46,775	\$5,311,486
Persons engaged in industry.....	5,029	727	962	273	52	26	2,939
Proprietors and firm members (total).....	40	14	17	2	2	5	
Number performing manual labor.....	20	7	11		1		6
Salaried officers.....	53	20	24	2	1		6
Superintendents and managers.....	80	26	18	6	1	1	23
Technical employees.....	57	2					53
Clerks, etc.....	223	23	33	5			157
Wage earners (average number).....	4,576	637	863	253	43	20	2,745
Wage earners by occupation (Dec. 15):							
Above ground (total).....	3,533	721	1,107	272	72	36	1,325
Below ground (total).....	1,378		6				1,373
Foremen, shift bosses, etc.—							
Above ground.....	124	26	19	11	2	4	62
Below ground.....	43						43
Enginemen, hoistmen, electricians, mechanics, etc.—							
Above ground.....	545	91	33	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, tramming, 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	363
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.....	27,000	1,445	6,099	428	250	67	18,717
Land controlled, total..... acres.....	37,852	1,689	6,326	497	305	103	28,627
Mineral land owned.....	19,885	931	5,900	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	23,083
Prime movers (horsepower, total).....	26,847	5,298	2,633	1,337	195	89	17,245
Steam engines—							
Number.....	137	51	38	9	3	4	32
Horsepower.....	16,357	5,011	2,435	537	195	74	8,105
Steam turbines—							
Number.....	7	1		1			5
Horsepower.....	10,095	125		800			9,140
Internal-combustion engines—							
Number.....	35	14	20			1	
Horsepower.....	425	192	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			76
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	160			55,058
Coal, bituminous..... tons, 2,000 pounds.....	62,486	22,058	13,493	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	66			18,695
Gasoline and other volatile oils..... barrels.....	618	223	200	102		10	78

¹ Includes enterprises as follows: Iron ore, 5; zinc, 2.² Includes 1 wage earner under 16 years of age.

NEW MEXICO.

New Mexico, which ranks fourth among the states in size (land area 122,503 square miles) and forty-fourth in population (360,350 in 1920), ranked twenty-fourth in the value of mineral products for 1919. The state ranked twenty-fourth in the total number of persons engaged and twenty-third in the average number of wage earners employed in the mining industries.

The gross amount received for products by operators of all mines and quarries and wells in New Mexico in 1919 was \$18,872,560. Deducting from this amount a duplication of \$9,506, the value of gold and silver ores sold in 1919 by some producers and further treated and reported by others, leaves \$18,863,054, the net value of minerals produced in 1919. This was an increase of 237.6 per cent over the corresponding amount for 1909 (\$5,587,744). The amount stated as total value of products in 1919 includes, in addition to the value of the mineral product indicated by the industry designation, \$45,308, the aggregate received by operators of mining enterprises for custom milling, power sold, and for miscellaneous work or services for other enterprises.

A decrease in the number of enterprises and in the number of individual mines and quarries operated in New Mexico is shown by Table 1. While such decreases were undoubtedly actual they were due to the suspension of small operations. Increases in the number of wage earners employed and in the capital invested are more significant and indicate progress in the mining industries. The increases in the principal expenses and in value of products, although due to some extent to general price increases, show substantial growth in mining operations. The large increase in taxes shown is due to the addition of Federal income taxes since 1909.

The mining industries reported for 1919, ranked according to value of products, were bituminous coal, copper, gold and silver (lode mining), iron ore, lead and zinc, gypsum, manganese, molybdenum, silica, fluor-spar, mica, clay, gold (placer mines), and petroleum. The industries for which the statistics can be shown without disclosure of individual operations are ranked by value of products in Table 2.

The value of products of the coal-mining industry in New Mexico, in 1919, was \$9,905,541, which was 52.5 per cent of the value of products of all industries in the state. Colfax and McKinley Counties produced most of the coal, while Lincoln, Rio Arriba, San Juan, Santa Fe, and Socorro Counties were also productive. The statistics for bituminous coal min-

ing includes, for convenience and to avoid disclosure of individual operations, the data for a mining enterprise operating three anthracite mines.

The mining of gold, silver, copper, lead, and zinc ores was second in importance in the state as measured by value of products. Metal-mining operations were reported from seven counties, of which Grant was by far the most productive. The values reported for products of the metal mining industries are based on the net amount received by the mine and mill operators for ore, concentrates, and bullion marketed, or the estimated equivalent of sales values when such products were to be further treated by the producer. The values reported are not the values of the metals produced or recoverable from these materials by smelting and refining.

Some mining work was done in New Mexico on properties which were not productive during the census year. Eighteen enterprises were reported thus engaged: 17, in developing gold, silver, copper, lead or zinc mines; and 1, a manganese mine. These enterprises, with combined capital of \$3,711,293, employed 116 wage earners and expended \$296,233 for development. These figures constitute only a small part of the aggregate number of wage earners and expenditures reported.

The extent of control of mining operations by corporate organizations is brought out by Table 3. Of all the enterprises, 51.8 per cent were corporations and these employed 95.1 per cent of the wage earners and reported 97.3 per cent of the value of products of the mining industries. Two-thirds of the enterprises in the coal-mining industry were corporations, and these reported practically all of the wage earners and value of products for the coal industry. In the gold, silver, copper, lead and zinc mining industries 46.5 per cent, a somewhat smaller share of the number of enterprises, were corporate in form of organization, but these enterprises dominated the industry, reporting 95.7 per cent and 98 per cent, respectively, of the number of wage earners and value of products.

The relatively large number of small enterprises, as measured by the number of wage earners employed per enterprise, is shown by Table 4. Of the total number of enterprises, 7.1 per cent had no wage earners and 71.8 per cent having fewer than 51 reported only 9.7 per cent of the total number of wage earners. On the other hand, 11 enterprises, or 13 per cent of the total number, employing more than 100 wage earners each, reported 83 per cent of the

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entire number for the state. The 5 enterprises employing more than 500 wage earners each are in the bituminous coal and lode mining industries and these employed approximately 65 per cent of all the wage earners.

Table 5 shows that the prevailing hours of labor in 46 enterprises, or 58.2 per cent of the 79 enterprises employing wage earners, were 44 to 53 per week, and in 32, or 40.5 per cent, 54 to 62 hours per week. In both these classes of enterprises, together employing 80.3 per cent of the total number of wage earners in all mining industries, the prevailing hours per day were 8, but most of those in the coal-mining industry were in operation 6 days in the week, while

a majority in the metal-mining industries operated 7 days per week.

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 minimum number employed in November is due to the strike in the coal industry resulting in the smallest number being reported in November rather than, as usual, during the summer.

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.....	85	98		Capital.....	\$93,994,713	\$40,125,674	134.3
Number of mines and quarries.....	133	285	-53.3	Principal expenses:			
Number of petroleum wells.....	1			Salaries.....	1,151,046	445,134	158.6
Persons engaged.....	7,607	5,537	37.4	Wages.....	10,495,857	3,529,355	197.3
Proprietors and firm members, total.....	69	86		Contract work.....	131,506	132,535	-0.8
Number performing manual labor in or about the mines and quarries.....	29	39		Supplies and materials.....	² 3,889,494	805,487	382.9
Salaried employees.....	438	344	27.3	Fuel and power.....	1,361,210	203,083	570.3
Wage earners (average number).....	7,100	5,107	39.0	Royalties and rents.....	181,594	78,965	129.8
Power used (horsepower).....	59,876	16,042	273.2	Taxes.....	835,920	40,410	1,968.6
				Value of products.....	18,872,560	5,587,744	237.7

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

² Includes cost of ore 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.....	85	7,100	100.0	\$18,872,560	100.0	Gold, silver, copper, lead, and zinc, lode mines.....	43	3,057	43.1	\$8,135,067	43.1
Coal, bituminous.....	21	3,564	50.2	9,005,541	52.5	All other industries ¹	21	479	6.7	831,952	4.4

¹ Includes enterprises in industries as follows: Clay, 1; fluor spar, 7; gold, placer mines, 1; gypsum, 1; iron ore, 5; manganese, 1; mica, 2; molybdenum, 1; petroleum, 1; silica, 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.....	85	7,100	\$18,872,560	\$222,030	100.0	100.0	100.0
Corporation.....	44	6,750	18,367,090	417,434	51.8	95.1	97.3
Individual.....	22	162	302,494	13,750	25.9	2.3	1.6
Firm.....	19	188	202,976	10,833	22.4	2.6	1.1
COAL, BITUMINOUS.....	21	3,564	9,005,541	471,692	100.0	100.0	100.0
Corporation.....	14	3,444	9,669,144	690,653	66.7	96.6	97.6
Individual ¹	7	120	236,397	33,771	33.3	3.4	2.4
GOLD, SILVER, COPPER, LEAD, AND ZINC, LODGE MINES.....	43	3,057	8,135,067	139,188	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	7,239	30.2	1.9	1.2
Firm.....	10	74	70,510	7,051	23.3	2.4	0.9

¹ Includes 2 firms.

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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.....	85	100.0	7,100	100.0	GOLD, SILVER, COPPER, LEAD, AND ZINC, LOBE MINES.....	43	100.0	3,057	100.0
No wage earners.....	6	7.1			No wage earners.....	3	7.0		
1 to 5.....	27	31.8	64	0.9	1 to 5.....	14	32.6	34	1.1
6 to 20.....	24	28.2	286	4.0	6 to 20.....	14	32.6	155	5.1
21 to 50.....	10	11.8	344	4.8	21 to 50.....	5	11.6	176	5.8
51 to 100.....	7	8.2	514	7.2	51 to 100.....	2	4.7	156	5.1
101 to 500.....	6	7.1	1,324	18.7	101 to 500.....	3	7.0	454	14.9
501 to 1,000.....	4	4.7	3,174	44.7	501 to 1,000.....	1	2.3	638	22.5
Over 1,000.....	1	1.2	1,394	19.6	Over 1,000.....	1	2.3	1,394	45.6
COAL, BITUMINOUS.....	21	100.0	3,564	100.0					
No wage earners.....	1	4.8							
1 to 5.....	4	19.0	6	0.2					
6 to 20.....	5	23.8	66	1.9					
21 to 50.....	2	9.5	43	1.3					
51 to 100.....	4	19.0	302	8.5					
101 to 500.....	2	9.5	656	18.4					
501 to 1,000.....	3	14.3	2,486	69.8					

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—					
	Enterprises.	Wage earners.	44 to 53.		54 to 62.		63 to 71.	
			Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners.
All industries.....	179	7,100	46	4,604	32	1,102	1	1,394
Coal, bituminous.....	20	3,564	19	3,556	1	8		
Gold, silver, copper, lead, and zinc, lode mines.....	40	3,057	17	914	22	749	1	1,394
All other industries.....	19	479	10	134	9	345		

¹ Exclusive of 6 enterprises employing no wage earners in industries as follows: Clay, 1; coal, bituminous, 1; gold, silver, copper, lead, and zinc, 3; petroleum, 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.....	7,216	8,226	7,669	7,527	7,321	7,133	6,971	6,692	7,227	7,234	7,097	<i>6,507</i>	6,988	79.1
Producing enterprises.....	7,100	8,152	7,584	7,437	7,236	7,013	6,836	6,561	7,084	7,102	6,976	<i>6,530</i>	6,840	78.3
Coal, bituminous.....	3,564	4,029	3,840	4,000	3,773	3,541	3,364	3,127	3,455	3,305	3,541	<i>2,987</i>	3,716	74.1
Gold, silver, copper, lead, and zinc, lode mines.....	3,057	3,547	3,185	<i>2,848</i>	2,854	2,871	2,886	2,954	3,086	3,146	3,196	<i>3,198</i>	2,915	80.2
All other industries.....	479	576	559	591	609	601	586	480	543	561	238	<i>195</i>	209	32.0
Nonproducing enterprises.....	116	74	85	90	85	120	135	131	143	132	122	127	143	50.0

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

	Aggregate.	PRODUCING ENTERPRISES.				Non-producing enterprises. ²
		Total.	Coal, bituminous.	Gold, silver, copper, lead, and zinc, lode mines.	All other. ¹	
Number of enterprises.....	108	85	21	43	21	18
Number of mines and quarries.....	162	133	64	46	23	19
Number of petroleum wells.....	1	1			1	
Capital.....	\$67,706,008	\$93,994,713	\$40,197,139	\$52,426,329	\$1,371,245	\$3,711,293
Principal expenses:						
Salaries and wages—						
Officers.....	\$150,003	\$132,305	\$90,728	\$35,384	\$6,193	\$18,368
Superintendents and managers.....	\$403,842	\$381,637	\$168,851	\$180,273	\$32,713	\$22,005
Technical employees.....	\$225,418	\$219,107	\$98,801	\$151,047	\$3,599	\$0,311
Clerks, etc.....	\$422,364	\$417,797	\$194,861	\$205,937	\$17,009	\$4,607
Wage earners.....	\$10,710,390	\$10,493,857	\$5,041,744	\$4,362,402	\$489,651	\$216,533
Supplies and materials.....	\$3,938,435	\$3,379,948	\$975,742	\$2,723,080	\$181,126	\$38,487
Cost of ore purchased.....	\$9,508	\$9,506		\$9,506		
Fuel.....	\$1,320,335	\$1,292,260	\$136,254	\$1,108,827	\$47,170	\$28,075
Power.....	\$30,316	\$33,050	\$37,201	\$1,749		\$368
Royalties and rents.....	\$133,443	\$131,504	\$37,187	\$74,145	\$10,192	\$1,030
Taxes.....	\$338,631	\$335,920	\$335,675	\$493,115	\$7,230	\$2,761
Contract work.....	\$133,035	\$131,506	\$102,859	\$17,355	\$11,292	\$1,529
Expenditures for development (included in the above items).....	\$3,517,694	\$3,221,461	\$120,830	\$3,023,308	\$77,314	\$296,233
Value of products.....	\$18,872,560	\$18,872,560	\$9,905,541	\$8,135,037	\$831,052	
Persons engaged in industry.....	7,700	7,607	3,774	3,301	532	153
Proprietors and firm members (total).....	72	69	10	39	20	3
Number performing manual labor.....	31	29	3	19	7	2
Salaried officers.....	27	20	13	4	3	7
Superintendents and managers.....	119	108	54	38	16	11
Technical employees.....	113	105	40	62	3	8
Clerks, etc.....	213	205	93	101	11	8
Wage earners (average number).....	7,216	7,100	3,564	3,057	479	116
Wage earners by occupation (Dec. 15):						
Above ground (total).....	2,919	2,812	815	1,684	313	107
Below ground (total).....	4,808	4,678	2,893	1,359	426	128
Foremen, shift bosses, etc.—						
Above ground.....	74	65	21	36	8	9
Below ground.....	136	124	61	52	11	12
Enginemen, hoistmen, electricians, mechanics, etc.—						
Above ground.....	887	840	369	429	42	47
Below ground.....	243	224	121	97	6	19
Miners, quarrymen, and drillmen, including their helpers—						
Above ground.....	128	117		68	49	9
Below ground.....	2,775	2,718	1,974	523	221	57
Timberman, trackmen, and men engaged in hauling, tramping, etc.—						
Above ground.....	294	259	41	208	10	5
Below ground.....	820	793	604	156	33	27
Muckers, loaders, laborers, and others not classified—						
Above ground.....	833	796	239	359	148	37
Below ground.....	832	819	133	531	155	13
Wage earners employed in mills and beneficiating plants—						
Above ground.....	735	735	95	584	56	
Number of females included in wage earners reported above—						
Above ground.....	2	1	1			1
Number of wage earners under 16 years of age, included in those reported above—						
Above ground.....	4	4		1	3	
Mineral and oil land operated..... acres.....	679,256	673,051	641,125	28,612	3,914	6,205
Land controlled, total..... acres.....	718,264	711,871	657,160	45,797	3,914	6,393
Mineral and oil land owned.....	647,041	642,019	614,619	19,370	3,030	5,022
Mineral land leased.....	32,275	31,092	26,506	3,702	884	1,183
Timber and other lands owned and leased.....	38,948	38,760	10,035	22,725		188
Power used: Aggregate horsepower.....	61,383	59,876	18,063	40,199	1,614	1,507
Prime movers (horsepower, total).....	56,468	55,031	13,333	40,084	1,614	1,437
Steam engines—						
Number.....	89	66	15	41	10	23
Horsepower.....	23,774	22,579	2,745	18,904	930	1,195
Steam turbines—						
Number.....	55	55	11	44		
Horsepower.....	22,779	22,779	10,548	12,231		
Internal-combustion engines—						
Number.....	111	94	2	80	12	17
Horsepower.....	9,895	9,653	40	8,949	604	242
Water wheels and turbines—						
Number.....	1	1			1	
Horsepower.....	20	20			20	
Purchased power (horsepower, total).....	4,915	4,845	4,730	115		70
Electric motors operated by purchased current—						
Number.....	131	130	125	5		1
Horsepower.....	4,915	4,845	4,730	115		70
Electric motors run by current generated by enterprise using:						
Number.....	1,257	1,257	250	1,006	1	
Horsepower.....	24,854	24,854	5,104	19,742	8	
Fuel used:						
Coal, bituminous..... tons, 2,000 pounds.....	235,566	232,846	45,334	182,572	4,440	2,720
Coke..... tons, 2,000 pounds.....	62	62		62		
Wood..... cords.....	361	387		127	280	474
Fuel oils..... barrels.....	50,849	50,784		49,154	1,630	65
Gasoline and other volatile oils..... barrels.....	2,082	1,904	14	1,591	299	178

¹ Includes enterprises as follows: Clay, 1; fluorspar, 7; gold, placer mines, 1; gypsum, 1; iron ore, 5; manganese, 1; mica, 2; molybdenum, 1; petroleum, 1; silica, 1.² Includes enterprises as follows: Gold, silver, copper, lead or zinc, 17; manganese, 1.

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 counties 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.

New York mining enterprises in 1919 are classified by character of operating organization in Table 3, which shows that, for the state as a whole, corporations conducted only 20.9 per cent of the total number of enterprises but employed 87.3 per cent of the total number of wage earners, and reported 85.3 per cent

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of the total value of products. Ninety per cent of the relatively large number of unincorporated enterprises were in the petroleum and natural-gas industry. In the other industries separately presented corporations were preponderant over any other form of organization in number of enterprises conducted as well as in number of wage earners employed and value of products reported. In two of the important industries, iron ore and gypsum mining, corporations were also preponderant, but data can not be shown without disclosing the operations of one enterprise in each industry conducted by an individual.

The relatively large number of small enterprises as measured by average number of wage earners is shown in Table 4. Nearly one-half of the enterprises reported no wage earners and 363 enterprises, or 51.9 per cent of the total number, had fewer than 101 each. On the other hand, only 16 enterprises, or 2.3 per cent of the total number, had more than 100 wage earners each and employed 55.7 per cent of the total number of wage earners. The larger enterprises were principally in the iron-ore, limestone, and gypsum industries, but the following industries also included one large enterprise each: Abrasive materials, graphite, pyrite, basalt, lead and zinc, petroleum and natural gas. In the petroleum and natural-gas industry 310 enterprises employed no wage earners and 236 enterprises aver-

aged fewer than 2 wage earners each. In this industry only 15 enterprises, or 2.6 per cent of the total enterprises in the state, employed more than 5 wage earners each.

Table 5 shows that in 45.9 per cent of the enterprises employing wage earners and for 49.7 per cent of the total number of wage earners the prevailing hours of labor were 54 to 62 per week. In 30.9 per cent of the enterprises employing wage earners and for 47.9 per cent of the total number of wage earners, the hours of labor were 44 to 53 per week. In the iron-ore mining industry 98 per cent of the wage earners were employed by enterprises where the hours of labor were 44 to 53 per week and the 8-hour day and 6-day week prevailed. Longer hours prevailed for a majority of the wage earners in all other industries shown separately. In the gypsum mining and quarry industries the wage earners generally were employed 10 hours per day and 6 days per week.

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

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.....	700	1,351	-48.2	Capital.....	\$95,440,438	\$45,171,232	111.3
Number of mines and quarries.....	147	752	-80.5	Principal expenses:			
Number of petroleum and natural-gas wells.....	14,186	11,342	25.1	Salaries.....	1,431,001	707,895	102.2
Number of natural-gas gasoline plants.....	6			Wages.....	7,496,781	4,717,595	58.9
Persons engaged.....	7,913	12,232	-35.3	Contract work.....	789,360	513,042	53.9
Proprietors and firm members, total.....	806	2,294	-80.9	Supplies and materials ²	7,416,586	1,952,593	279.3
Number performing manual labor in or about the mines, quarries, and wells.....	302	663	-69.5	Fuel and power.....	1,402,245	585,161	139.6
Salaried employees.....	815	633	28.8	Royalties and rents.....	640,472	465,454	39.5
Wage earners (average number).....	6,202	9,305	-33.3	Taxes.....	804,416	173,989	362.3
Power used (horsepower).....	91,339	101,759	-10.2	Value of products.....	25,131,093	13,334,975	83.5

¹ A minus sign (-) denotes decrease.

² Includes cost of natural gas purchased as material and 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.....	700	6,202	100.0	\$25,131,093	108.0	Slate.....	9	134	2.2	\$445,027	1.8
Petroleum and natural gas.....	561	863	14.0	9,900,894	39.4	Sandstone.....	22	146	2.4	301,315	1.2
Iron ore.....	7	1,811	29.2	5,264,443	20.9	Marble.....	6	100	1.6	249,286	1.0
Limestone.....	55	1,739	28.0	4,597,842	18.3	Granite.....	7	101	1.6	173,404	0.7
Gypsum.....	6	400	6.4	1,110,463	4.4	Millstones.....	6	1	(¹)	7,827	(¹)
						All other industries ²	21	992	14.5	3,080,492	12.3

¹ Less than one-tenth of 1 per cent.

² Includes enterprises in industries as follows: Abrasive materials, 4; basalt, 4; clay, 2; feldspar, 2; graphite, 2; lead and zinc, 1; pyrite, 2; talc and soapstone, 4.

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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.....	146	5,414	21,431,650	146,792	20.9	87.3	85.3
Individual.....	183	213	930,805	5,089	28.1	3.4	3.7
Firm.....	243	495	2,045,680	8,418	34.7	8.0	8.1
Other.....	128	80	722,978	5,648	18.3	1.3	2.9
PETROLEUM AND NATURAL GAS.....	581	888	9,900,894	17,640	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	163	1,334,723	0,151	38.7	17.0	13.5
Other.....	128	80	722,978	5,648	22.8	9.2	7.3
LIMESTONE.....	55	1,730	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	31,279	8,128	18.2	2.1	1.8
Firm.....	9	142	296,081	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 ¹	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	29	66,140	9,449	31.8	19.9	21.9
Firm.....	7	20	49,051	7,007	31.8	19.9	16.3

¹ 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.....	0	100.0	400	100.0
No wage earners.....	321	45.9	.....	.....	1 to 5.....	1	16.7	1	0.2
1 to 5.....	298	38.3	421	6.8	6 to 20.....	1	16.7	15	3.8
6 to 20.....	59	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	146	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
101 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	23	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	276	15.9	GRANITE.....	7	100.0	101	100.0
21 to 50.....	8	14.5	237	18.5	1 to 5.....	3	42.9	8	7.9
51 to 100.....	8	14.5	560	32.2	6 to 20.....	2	28.6	24	23.8
101 to 500.....	3	5.5	591	34.0	21 to 50.....	2	28.6	69	63.3
PETROLEUM AND NATURAL GAS.....	581	100.0	868	100.0	MARBLE.....	6	100.0	100	100.0
No wage earners.....	310	53.3	.....	.....	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.....	1 370	6,202	57	64	13	16	117	2,072	174	3,082	13	39	5	29
Iron ore.....	7	1,811					0	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

¹ 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	<i>5,553</i>	5,627	6,040	6,429	6,450	6,690	6,569	6,537	6,474	6,108	5,767	83.0
Iron ore.....	1,811	2,599	2,127	1,953	1,842	1,758	1,740	1,724	1,582	1,587	1,617	<i>1,571</i>	1,632	60.4
Limestone.....	1,739	1,355	<i>1,184</i>	1,409	1,764	2,082	1,955	2,085	2,111	1,989	1,901	1,659	1,423	56.1
Petroleum and natural gas.....	868	827	802	<i>792</i>	891	826	863	934	917	919	905	881	859	84.3
Gypsum.....	400	350	359	378	372	383	366	368	340	435	475	504	470	67.5
Sandstone.....	146	40	55	82	127	174	185	191	205	211	206	188	88	19.0
Slate.....	134	85	78	<i>65</i>	101	122	127	137	160	164	177	191	200	32.5
Granite.....	101	29	<i>22</i>	31	65	126	145	149	158	155	148	104	75	16.5
Marble.....	100	51	68	73	76	77	123	128	128	125	125	118	108	39.8
Millstones.....	1	1	<i>2</i>	2	2	2	2	2	2	2	2	2	2	
All other industries.....	902	842	<i>854</i>	842	<i>802</i>	929	943	972	966	950	920	892	912	82.5

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

	PRODUCING ENTERPRISES.										
	Total.	Petroleum and natural gas. ¹	Iron ore.	Limestone.	Gypsum.	Slate.	Sandstone.	Marble.	Granite.	Millstones.	All other. ²
Number of enterprises.....	700	501	7	55	6	9	22	6	7	6	21
Number of mines and quarries.....	147	7	7	55	6	10	20	6	7	6	23
Number of petroleum and natural-gas wells.....	14,186	14,186									
Number of natural-gas gasoline plants.....	6	6									
Capital.....	\$95,446,438	\$30,790,123	\$35,272,596	\$11,185,400	\$1,559,514	\$491,600	\$534,031	\$410,076	\$439,047	\$1,305	\$5,777,026
Principal expenses:											
Salaries and wages—											
Officers.....	\$400,385	\$88,077	\$61,125	\$130,986	\$13,162	.....	\$10,200	\$7,750	\$3,410	.....	\$79,675
Superintendents and managers.....	\$376,305	\$77,506	\$84,827	\$108,402	\$21,500	.....	\$12,480	\$1,467	\$5,123	.....	\$53,133
Technical employees.....	\$75,350	\$18,213	\$38,410	.....	\$5,793	.....	.....	.....	\$1,800	.....	\$7,850
Clerks, etc.....	\$870,555	\$265,792	\$300,393	\$78,895	\$1,680	.....	\$7,640	\$6,614	\$2,403	.....	\$50,720
Wage earners.....	\$7,496,781	\$1,087,232	\$2,365,595	\$2,109,071	\$515,650	\$135,826	\$149,051	\$102,097	\$87,501	\$400	\$943,596
Supplies and materials.....	\$4,724,500	\$1,215,807	\$1,484,681	\$1,110,401	\$293,914	\$60,430	\$40,566	\$34,313	\$28,408	\$1,560	\$476,354
Cost of natural gas purchased as material and for resale.....	\$2,692,086	\$2,692,086	.....	.....	.....	.....	.....	.....	.....	.....	.....
Fuel.....	\$967,027	\$191,476	\$350,522	\$177,072	\$90,719	\$10,239	\$9,320	\$17,340	\$9,888	.....	\$167,351
Power.....	\$435,218	.....	\$118,387	\$159,800	\$47,767	\$25,785	\$2,124	\$4,952	\$5,861	.....	\$70,582
Royalties and rents.....	\$849,472	\$395,666	\$31,860	\$47,125	\$1,946	\$2,206	\$4,065	\$1,282	\$1,449	.....	\$73,873
Taxes.....	\$304,416	\$455,307	\$184,107	\$37,343	\$9,576	\$6,301	\$2,735	\$5,478	\$1,642	.....	\$51,837
Contract work.....	\$789,360	\$617,083	\$44,778	\$5,958	.....	\$3,483	\$117	\$19,263	.....	.....	\$93,078
Expenditures for development (included in the above items).....	\$2,232,809	\$1,219,835	\$922,865	\$10,577	.....	\$1,500	\$5,625	.....	.....	.....	\$63,407
Value of products.....	\$25,131,093	\$9,900,894	\$5,264,443	\$4,597,942	\$1,110,463	\$445,027	\$301,315	\$249,286	\$173,404	\$7,827	\$3,080,492
Persons engaged in industry.....	7,913	2,014	1,943	1,932	446	148	192	115	115	9	999
Proprietors and firm members (total).....	896	810	1	31	1	8	22	1	3	8	11
Number performing manual labor.....	202	173	4	1	1	.....	15	1	1	2	2
Salaried officers.....	144	49	11	47	5	.....	6	1	.....	.....	20
Superintendents and managers.....	168	40	24	49	10	5	9	2	6	.....	23
Technical employees.....	38	11	17	.....	4	.....	1	.....	.....	.....	4
Clerks, etc.....	465	236	79	66	26	1	9	6	3	.....	39
Wage earners (average number).....	6,202	868	1,811	1,739	400	134	146	100	101	1	902
Wage earners by occupation (Dec. 15):											
Above ground (total).....	4,932	889	749	1,801	167	159	204	128	120	1	714
Below ground (total).....	1,484	.....	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
Enginemen, hoistmen, electricians, mechanics, etc.—											
Above ground.....	1,261	612	150	282	11	23	11	15	7	.....	150
Below ground.....	120	.....	100	.....	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, tramming, etc.—											
Above ground.....	248	.....	22	166	1	6	11	20	.....	.....	22
Below ground.....	157	.....	35	.....	48	.....	.....	.....	.....	.....	74
Muckers, loaders, laborers, and others not classified—											
Above ground.....	1,847	277	321	801	50	45	46	25	13	1	268
Below ground.....	672	.....	434	.....	133	20	.....	.....	.....	.....	85
Wage earners employed in mills and beneficiating plants—											
Above ground.....	628	.....	178	17	103	56	53	13	26	.....	187
Mineral and oil lands operated..... acres..	365,463	318,730	20,121	5,304	2,471	448	245	107	301	7	17,728
Land controlled, total..... acres..	484,031	318,730	136,550	6,129	2,471	448	649	353	311	7	18,983
Mineral and oil land owned.....	79,668	58,913	8,461	5,046	769	266	199	97	287	7	5,653
Mineral and oil land leased.....	285,795	259,817	11,660	258	1,712	182	47	10	34	.....	12,075
Timber and other lands owned and leased.....	119,168	.....	116,429	825	.....	.....	403	246	10	.....	1,255
Power used: Aggregate horsepower.....	91,389	30,196	21,172	22,370	1,706	2,022	1,284	495	2,208	.....	0,936
Prime movers (horsepower, total).....	62,426	30,196	18,175	10,243	725	212	981	275	808	.....	5,811
Steam engines—											
Number.....	900	652	24	147	3	5	16	9	16	.....	28
Horsepower.....	30,055	8,907	4,405	9,968	707	212	842	275	803	.....	3,986
Steam turbines—											
Number.....	8	6	.....	.....	.....	.....	.....	.....	.....	.....	2
Horsepower.....	9,720	8,620	.....	.....	.....	.....	.....	.....	.....	.....	1,100
Internal-combustion engines—											
Number.....	1,533	1,509	.....	12	1	.....	10	.....	1	.....	.....
Horsepower.....	21,726	21,289	.....	275	18	.....	139	.....	5	.....	.....
Water wheels and turbines—											
Number.....	4	.....	2	.....	.....	.....	.....	.....	.....	.....	2
Horsepower.....	925	.....	150	.....	.....	.....	.....	.....	.....	.....	775
Purchased power (horsepower, total).....	28,913	.....	7,997	12,127	981	1,810	253	220	1,400	.....	4,125
Electric motors operated by purchased current—											
Number.....	595	.....	167	237	25	44	6	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.....	139	4	43	18	41	.....	8	.....	.....	.....	25
Horsepower.....	6,321	10	2,934	1,195	392	.....	233	.....	.....	.....	1,507
Fuel used:											
Coal, anthracite..... tons, 2,240 pounds..	52,356	.....	43,557	270	.....	100	30	4	15	.....	8,380
Coal, bituminous..... tons, 2,000 pounds..	82,362	1,243	15,801	34,764	10,835	1,419	2,255	1,028	1,225	.....	13,382
Coke..... tons, 2,000 pounds..	1,123	.....	670	25	428	.....	.....	.....	.....	.....	.....
Wood..... cords.....	250	.....	.....	.....	.....	.....	.....	.....	.....	.....	250
Fuel oils..... barrels.....	430	.....	149	261	.....	.....	20	.....	.....	.....	.....
Gasoline and other volatile oils..... barrels..	1,084	1	420	434	3	.....	144	18	5	.....	.....
Natural gas..... 1,000 cubic feet.....	1,097,257	1,097,257	.....	.....	.....	.....	.....	.....	.....	.....	.....

¹ Exclusive of a small operation inseparably combined with report on Pennsylvania operations.

² Includes enterprises as follows: Abrasive materials, 4; basalt, 4; clay, 2; feldspar, 2; graphite 2; lead and zinc, 1; pyrite, 2; talc and soapstone, 4.

NORTH CAROLINA.

North Carolina, which ranks twenty-seventh among the states in size (land area 48,740 square miles) and fourteenth in population (2,559,123 in 1920), ranked thirty-eighth in value of mineral products in 1919. The state ranked thirty-sixth 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 North Carolina in 1919 was \$2,736,543, which includes a small amount received for mineral by-products and for work or miscellaneous services for other enterprises. This figure is an increase of 101.4 per cent as compared with the value of products reported at the census of 1909. This increase and the increases in wages, cost of supplies and materials and fuel and power, shown by Table 1, are largely due to general price increases during the census interval and are therefore not a measure of progress in mining. A decline is indicated by the decreases in the number of individual mines and quarries operated, in the average number of wage earners employed, and also by the very large decrease in capital invested.

The mining industries reported in North Carolina for 1919, classified by principal products and listed in order of value of products, were granite, mica, iron ore, clay, feldspar, limestone, talc and soapstone, millstones, bituminous coal, silica (quartz), asbestos, sandstone, and barytes. In addition to the products indicated by the industry designations, one clay and three feldspar enterprises produced some mica as a by-product, and one silica enterprise produced a small amount of talc. The industries for which statistics can be shown without disclosure of individual operations are ranked by value of products in Table 2.

The leading mineral industry in North Carolina in 1919 was granite quarrying. This industry included 16 out of a total of 102 enterprises in the state, employed 50.7 per cent of the total number of wage earners, and reported products valued at \$1,576,250, or 57.6 per cent of the total value of products. North Carolina ranked third among the states in the granite industry.

The industry second in importance in North Carolina was mica mining, in which North Carolina outranked all other states. Feldspar was one of the important products and the state ranked second in the United States in the mining of this mineral. These closely allied industries, mica and feldspar, in 1919 embraced 59 of the mining enterprises, employed 23.2 per cent of the total number of wage earners, and reported 18.4 per cent of the total value of products. Among the minor industries in the state which are important are the millstones and asbestos-mining industries in which North Carolina ranked, respectively, first and third in the United States in 1919.

Table 3 classifies the mining enterprises according to character of the operating organizations, and shows that although corporations were outnumbered by other forms of organization, they conducted the larger enterprises, employed 86.7 per cent of the total number of wage earners, and reported 84.4 per cent of the total value of products.

The relatively large number of small enterprises, as measured by the average number of wage earners employed, is shown in Table 4. Of the 102 mining enterprises in North Carolina all except 3 were small, had no wage earners or employed fewer than 101 each. These small enterprises which reported wage earners employed 59 per cent of the 1,890 wage earners in the state. The larger enterprises were in the granite and iron-ore-mining industries.

Table 5 shows that in a majority of enterprises and for 58.7 per cent of the total number of wage earners the prevailing hours of labor were 54 to 62 per week. The 10-hour day and 6-day week prevailed in all important industries.

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—NORTH CAROLINA.

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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.....	102	118	-13.6	Capital.....	\$2,250,434	\$5,985,112	-62.4
Number of mines and quarries.....	106	130	-18.5	Principal expenses:			
Persons engaged.....	2,108	2,484	-15.1	Salaries.....	199,612	123,042	62.2
Proprietors and firm members, total.....	90	165	-45.5	Wages.....	1,489,062	862,762	72.6
Number performing manual labor in or about the mines and quarries.....	36	63	.....	Contract work.....	5,745	37,386	-84.6
Salaried employees.....	128	104	23.1	Supplies and materials.....	467,490	152,714	206.1
Wage earners (average number).....	1,890	2,215	-14.7	Fuel and power.....	220,731	103,319	113.6
Power used (horsepower).....	5,039	6,062	-16.9	Royalties and rents.....	36,071	20,212	78.5
				Taxes.....	21,121	7,565	179.2
				Value of products.....	2,736,543	1,358,617	101.4

¹ 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.....	102	1,890	100.0	\$2,736,543	100.0	Feldspar.....	10	164	8.7	114,159	4.2
Granite.....	16	959	50.7	1,576,250	57.6	Talc and soapstone.....	3	74	3.9	72,027	2.6
Mica.....	49	274	14.5	389,442	14.2	Millstones.....	3	18	1.0	30,775	1.1
						All other industries ¹	21	401	21.2	553,890	20.2

¹Includes enterprises in industries as follows: Asbestos, 2; barytes, 1; clay, 6; coal, bituminous, 1; iron ore, 6; limestone, 2; sandstone, 1; silica, 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.....	102	1,890	\$2,736,543	\$26,829	100.0	100.0	100.0
Corporation.....	40	1,639	2,310,044	57,766	39.2	86.7	84.4
Individual.....	40	134	218,075	5,452	39.2	7.1	8.0
Firm.....	22	117	207,824	9,447	21.0	6.2	7.6
GRANITE.....	16	959	1,576,250	98,516	100.0	100.0	100.0
Corporation.....	10	935	1,517,850	151,785	62.5	97.5	98.3
Individual.....	3	20	48,400	16,133	18.8	2.1	3.1
Firm.....	3	4	10,000	3,333	18.8	0.4	0.6
MICA.....	49	274	389,442	7,948	100.0	100.0	100.0
Corporation.....	8	131	158,011	19,751	16.3	47.8	40.6
Individual.....	29	64	94,882	3,273	59.2	23.4	24.4
Firm.....	12	79	136,549	11,370	24.5	28.8	35.1
FELDSPAR.....	10	164	114,159	11,416	100.0	100.0	100.0
Corporation.....	6	127	64,886	10,814	60.0	77.4	56.8
Individual.....	4	37	49,273	12,318	40.0	22.6	43.2
TALC AND SOAPSTONE.....	3	74	72,027	24,009	100.0	100.0	100.0
Corporation.....	3	74	72,027	24,009	100.0	100.0	100.0
MILLSTONES.....	3	18	30,775	10,253	100.0	100.0	100.0
Firm ¹	3	18	30,775	10,253	100.0	100.0	100.0

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¹ Includes 1 individual.

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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.....	102	100.0	1,890	100.0	MICA.....	49	100.0	274	100.0
No wage earners.....	6	5.9	.....	.....	No wage earners.....	5	10.2	.....	.....
1 to 5.....	51	50.0	98	5.2	1 to 5.....	33	67.3	55	20.4
6 to 20.....	22	21.6	253	13.4	6 to 20.....	7	14.3	67	24.5
21 to 50.....	15	14.7	481	25.3	21 to 50.....	3	6.1	70	25.5
51 to 100.....	5	4.9	333	17.6	51 to 100.....	1	2.0	81	29.6
101 to 500.....	3	2.9	775	41.0					
GRANITE.....	16	100.0	959	100.0	FELDSPAR.....	10	100.0	164	100.0
No wage earners.....	1	6.3	.....	.....	1 to 5.....	3	30.0	6	3.7
1 to 5.....	4	25.0	8	0.8	6 to 20.....	4	40.0	46	28.0
6 to 20.....	2	12.5	36	3.8	21 to 50.....	2	20.0	46	28.0
21 to 50.....	5	31.2	154	16.1	51 to 100.....	1	10.0	66	40.2
51 to 100.....	2	12.5	132	13.8	TALC AND SOAPSTONE.....	3	100.0	74	100.0
101 to 500.....	2	12.5	629	65.6	6 to 20.....	2	66.7	20	27.0
					51 to 100.....	1	33.3	54	73.0

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.	
			Enter-prises.	Wage earners.	Enter-prises.	Wage earners.	Enter-prises.	Wage earners.	Enter-prises.	Wage earners.	Enter-prises.	Wage earners.
All industries.....	196	1,890	1	22	6	54	11	559	77	1,100	1	146
Granite.....	15	959	.....	.....	3	43	4	423	8	493	.....	.....
Mica.....	44	274	.....	.....	1	2	2	16	41	250	.....	.....
Feldspar.....	10	104	1	22	.....	.....	2	13	7	129	.....	.....
Talc and soapstone.....	3	74	.....	.....	.....	.....	.....	.....	3	74	.....	.....
All other industries.....	24	419	.....	.....	2	9	3	107	18	167	1	146

¹ Exclusive of 6 enterprises employing no wage earners in the following industries: Granite, 1; mica, 5.

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.....	1,890	1,090	1,728	1,846	1,849	1,852	1,878	1,931	1,898	2,002	1,996	1,966	1,978	82.3
Granite.....	959	845	890	984	935	932	946	963	979	1,026	1,026	1,016	988	82.2
Mica.....	274	262	<i>267</i>	271	274	279	275	273	271	290	283	270	279	90.0
Feldspar.....	104	131	<i>124</i>	143	144	158	181	167	197	193	167	155	203	61.1
Talc and soapstone.....	74	69	<i>69</i>	77	73	69	69	71	71	74	80	81	80	85.2
Millstones.....	18	11	<i>11</i>	20	20	20	20	19	19	19	19	19	19	55.0
All other industries.....	401	380	373	366	398	394	387	438	391	460	421	425	409	78.5

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

	PRODUCING ENTERPRISES.						
	Total.	Granite.	Mica.	Feldspar.	Talc and soapstone.	Millstones.	All other. ¹
Number of enterprises.....	102	16	49	10	3	3	21
Number of mines and quarries.....	106	18	40	11	3	3	22
Capital.....	\$2,250,434	\$702,994	\$145,559	\$202,259	\$137,069	\$1,700	\$670,853
Principal expenses:							
Salaries and wages—							
Officers.....	\$78,157	\$60,017	\$7,980	\$3,480	\$3,350		\$3,330
Superintendents and managers.....	\$85,451	\$34,850	\$15,035	\$3,977	\$2,666		\$28,923
Technical employees.....	\$8,961	\$7,844	\$600				\$517
Clerks, etc.....	\$27,043	\$15,593	\$1,912	\$893	\$2,310		\$6,335
Wage earners.....	\$1,489,062	\$808,657	\$160,225	\$78,746	\$41,000	\$21,524	\$378,910
Supplies and materials.....	\$467,460	\$185,227	\$68,516	\$8,283	\$15,882	\$165	\$189,387
Fuel.....	\$213,392	\$90,181	\$18,321	\$2,537	\$2,285		\$100,068
Power.....	\$7,339	\$3,119			\$2,456		\$1,764
Royalties and rents.....	\$36,071	\$8,518	\$13,219	\$5,273	\$3,429	\$125	\$5,507
Taxes.....	\$21,121	\$10,803	\$2,155	\$466	\$1,208	\$6	\$6,483
Contract work.....	\$5,745			\$5,417			\$328
Expenditures for development (included in the above items).....	\$34,834	\$5,000	\$8,347	\$5,456	\$11,019		\$5,012
Value of products.....	\$2,736,543	\$1,576,250	\$389,442	\$114,159	\$72,027	\$30,775	\$553,890
Persons engaged in industry.....	2,108	1,025	353	178	81	23	448
Proprietors and firm members (total).....	90	10	56	4		5	15
Number performing manual labor.....	36	6	25	1		4	
Salaried officers.....	29	14	7	3	2		3
Superintendents and managers.....	59	20	13	5	2		19
Technical employees.....	6	4	1				1
Clerks, etc.....	34	18	2	2	3		9
Wage earners (average number).....	1,890	959	274	164	74	18	401
Wage earners by occupation (Dec. 15):							
Above ground (total).....	² 1,903	1,015	229	230	² 53	20	356
Below ground (total).....	176		69		26		81
Foremen, shift bosses, etc.—							
Above ground.....	79	35	13	9	5		17
Below ground.....	14		8		1		5
Enginemen, hoistmen, electricians, mechanics, etc.—							
Above ground.....	88	50	11	6	1		20
Below ground.....	8		4				4
Miners, quarrymen, and drillmen, including their helpers—							
Above ground.....	548	206	64	173	3	11	91
Below ground.....	51		21		2		28
Timbermen, trackmen, and men engaged in hauling, tramming, etc.—							
Above ground.....	242	120	9	19	17	9	68
Below ground.....	46		17		23		6
Muckers, loaders, laborers, and others not classified—							
Above ground.....	448	309	53	23	4		54
Below ground.....	57		19				38
Wage earners employed in mills and beneficiating plants—							
Above ground.....	498	295	74		23		106
Number of females included in wage earners reported above—							
Above ground.....	76		71	2	1		2
Mineral land operated..... acres.....	10,015	688	1,812	1,147	575	11	5,782
Land controlled, total..... acres.....	11,083	830	2,565	1,147	575	11	5,949
Mineral land owned.....	4,284	654	1,114	595	175	9	1,737
Mineral land leased.....	5,731	34	698	552	400	2	4,045
Timber and other lands owned and leased.....	1,068	148	753				167
Power used: Aggregate horsepower.....	5,039	2,025	510	230	296		2,038
Prime movers (horsepower, total).....	4,641	1,890	510	230	121		1,890
Steam engines—							
Number.....	81	35	13	6	2		25
Horsepower.....	4,341	1,890	464	210	112		1,665
Internal-combustion engines—							
Number.....	10		3	2	1		4
Horsepower.....	125		46	20	9		50
Water wheels and turbines—							
Number.....	1						1
Horsepower.....	175						175
Purchased power (horsepower, total).....	398	135			116		148
Electric motors operated by purchased current—							
Number.....	14	4			5		5
Horsepower.....	398	135			116		148
Electric motors run by current generated by enterprise using:							
Number.....	19	12					7
Horsepower.....	501	165					346
Fuel used:							
Coal, bituminous..... tons, 2,000 pounds.....	³ 41,230	³ 15,162	2,518	376	208		22,975
Wood..... cords.....	960		635		325		
Fuel oils..... barrels.....	16		6				10
Gasoline and other volatile oils..... barrels.....	277		107	72	21		77

¹ Includes enterprises as follows: Asbestos, 2; barytes, 1; clay, 6; coal, bituminous, 1; iron ore, 6; limestone, 2; sandstone, 1; silica, 2.
² Includes 2 wage earners under 16 years of age.
³ Includes 5 tons of coke.

NORTH DAKOTA.

North Dakota, which ranks sixteenth among the states in size (land area, 70,183 square miles) and thirty-sixth in population (646,872 in 1920), ranked thirty-ninth in value of products in 1919. The state ranked forty-first in total number of persons engaged in the mining industry and in the average number of wage earners employed.

The only mining industry in North Dakota for which statistics can be presented for 1919 was the mining of coal. Production of petroleum and natural gas was reported, but the operations were too small to come within the scope of the census. The total value of coal produced was \$1,927,304, an increase of 241.2 per cent over the value of all products reported at the census of 1909. This increase and the increases in capital, salaries and 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. The real growth of mining in the state, however, is indicated by the increases in number of enterprises and individual mines and quarries operated and average number of wage earners employed.

The coal mined in North Dakota is lignite. Pro-

duction was reported from the western half of the state, chiefly from Burleigh County, but also from 15 other western counties.

The character of organization of the mining enterprises is shown in Table 2, which brings out the fact that although corporations conducted only about a fourth of the total number of mining enterprises, these were the larger enterprises and they collectively employed 73.8 per cent of the total number of wage earners and reported 66.3 per cent of the total value of products.

Table 3 shows that the coal mines of North Dakota were all small; only 2 enterprises reported more than 50 wage earners, and together these employed 46 per cent of the total number of wage earners.

The prevailing hours of labor in North Dakota mines in 1919 are shown in Table 4 to have been 44 to 53 per week. The 8-hour day and 6-day week prevailed.

The statistics for wage earners given in Table 5, showing changes in the number employed month by month, reflect the influence of seasonal demand.

Table 6 presents statistics in detail for the mining industry of the state.

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.....	79	53	.....	Capital.....	\$1,935,347	\$1,058,640	76.2
Number of mines and quarries.....	79	53	.....	Principal expenses:			
Number of natural-gas wells.....		6	.....	Salaries.....	159,646	62,589	155.1
Persons engaged.....	939	602	41.8	Wages.....	1,029,126	364,321	182.5
Proprietors and firm members, total.....	75	51	.....	Contract work.....	30,750	1,325	.....
Number performing manual labor in or about the mines and quarries.....	23	19	.....	Supplies and materials.....	233,633	95,352	197.5
Salaried employees.....	90	49	.....	Fuel and power.....	37,694	12,835	193.7
Wage earners (average number).....	774	562	37.7	Royalties and rents.....	30,868	10,647	189.9
Power used (horsepower).....	2,037	2,025	0.6	Taxes.....	19,922	4,300	363.3
				Value of products.....	1,927,304	564,812	241.2

¹ Percentages are omitted where base is less than 100.

TABLE 2.—CHARACTER OF ORGANIZATION, 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.
COAL, BITUMINOUS.....	79	774	\$1,927,304	\$24,395	100.0	100.0	100.0
Corporation.....	19	571	1,278,196	67,273	24.1	73.8	66.3
Individual.....	48	160	497,140	10,357	60.8	20.7	25.8
Firm.....	12	43	151,968	12,664	15.2	5.6	7.9

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TABLE 3.—SIZE OF PRODUCING ENTERPRISES, BY AVERAGE NUMBER OF WAGE EARNERS: 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.
COAL, BITUMINOUS.....	79	100.0	774	100.0	COAL, BITUMINOUS—Con.				
No wage earners.....	3	3.8			21 to 50.....	4	5.1	97	12.5
1 to 5.....	51	64.6	123	15.9	51 to 100.....	1	1.3	85	11.0
6 to 20.....	19	24.0	198	25.6	101 to 500.....	1	1.3	271	35.0

TABLE 4.—NUMBER OF PRODUCING ENTERPRISES AND AVERAGE NUMBER OF WAGE EARNERS, BY PREVAILING HOURS OF LABOR PER WEEK: 1919.

INDUSTRY.	TOTAL.		NUMBER WHERE THE PREVAILING HOURS OF LABOR PER WEEK WERE—							
	Enterprises.	Wage earners.	35 and under.		36 to 43.		44 to 53.		54 to 62.	
			Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners.
Coal, bituminous.....	170	774	1	14	2	7	67	730	6	23

† Exclusive of 3 enterprises employing no wage earners.

TABLE 5.—WAGE EARNERS, BY MONTHS: 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.	
Coal, bituminous.....	774	1,011	878	807	636	497	472	518	550	776	931	1,054	1,153	40.8

TABLE 6.—DETAILED STATISTICS FOR THE MINING INDUSTRY: 1919.

	PRODUCING ENTERPRISES.	PRODUCING ENTERPRISES.
	Coal, bituminous.		Coal, bituminous.
Number of enterprises.....	79	Persons engaged in industry—Continued. Wage earners by occupation (Dec. 15)—Continued. Miners, quarrymen, and drillmen, including their helpers— Above ground..... 35 Below ground..... 550 Timbermen, trackmen, and men engaged in hauling, tramming, etc.— Above ground..... 35 Below ground..... 153 Muckers, loaders, laborers, and others not classified— Above ground..... 191 Below ground..... 96 Mineralland operated..... acres.. 17,734 Land controlled, total..... acres.. 18,558 Mineralland owned..... 9,305 Mineralland leased..... 8,429 Timber and other lands owned and leased..... 824 Power used: Aggregate horsepower..... 2,037 Prime movers (horsepower, total)..... 1,783 Steam engines— Number..... 23 Horsepower..... 1,530 Internal-combustion engines— Number..... 32 Horsepower..... 253 Purchased power (horsepower, total)..... 254 Electric motors operated by purchased current— Number..... 24 Horsepower..... 254 Electric motors run by current generated by enterprise using: Number..... 9 Horsepower..... 100 Fuel used: Coal, bituminous..... tons, 2,000 pounds.. 16,437 Gasoline and other volatile oils..... barrels.. 451
Number of mines and quarries.....	79	
Capital.....	\$1,865,347	
Principal expenses:		
Salaries and wages—		
Officers.....	\$37,270	
Superintendents and managers.....	\$53,700	
Technical employees.....	\$29,749	
Clerks, etc.....	\$38,853	
Wage earners.....	\$1,029,126	
Supplies and materials.....	\$283,633	
Fuel.....	\$32,853	
Power.....	\$4,841	
Royalties and rents.....	\$30,868	
Taxes.....	\$19,922	
Contract work.....	\$30,750	
Expenditures for development (included in the above items).....	\$93,885	
Value of products.....	\$1,927,304	
Persons engaged in industry.....	939	
Proprietors and firm members (total).....	75	
Number performing manual labor.....	23	
Salaried officers.....	16	
Superintendents and managers.....	27	
Technical employees.....	17	
Clerks, etc.....	30	
Wage earners (average number).....	774	
Wage earners by occupation (Dec. 15):		
Above ground (total).....	1,318	
Below ground (total).....	836	
Foremen, shift bosses, etc.—		
Above ground.....	15	
Below ground.....	16	
Enginemen, hoistmen, electricians, mechanics, etc.—		
Above ground.....	42	
Below ground.....	16	

1 Includes 2 females.

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 fewer 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.....	\$256,057,996	\$161,324,529	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.....	58,100,904	26,769,229	117.1
Persons engaged.....	59,736	56,256	0.9	Contract work.....	3,929,476	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.....	4,131,068	892,671	362.8
Salaried employees.....	4,129	2,625	57.3	Royalties and rents.....	6,330,816	3,667,382	72.9
Wage earners (average number).....	49,298	50,567	-2.5	Taxes.....	4,028,789	859,766	370.2
Power used (horsepower).....	387,611	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	\$9,742,496	5.0
Coal, bituminous.....	788	40,452	82.1	77,988,602	58.0	Sandstone.....	21	875	1.8	2,759,352	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	1,544,530	1.1

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

MINES AND QUARRIES—OHIO.

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	2,233	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	4,087,638	7,968	22.5	3.0	3.0
Firm.....	782	2,331	8,708,783	11,134	34.3	4.7	6.5
Other.....	82	171	1,156,476	14,091	3.0	0.3	0.9
COAL, BITUMINOUS	788	40,452	77,988,602	98,970	100.0	100.0	100.0
Corporation.....	453	37,798	73,116,226	101,404	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	17,589	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	36,960,984	103,532	26.8	78.6	81.8
Individual.....	290	261	1,791,832	6,053	22.2	5.1	3.9
Firm.....	600	698	5,061,294	9,435	45.0	13.6	12.4
Other.....	80	137	1,069,465	13,388	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

¹Includes 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.		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	2,283	100.0	49,298	100.0	LIMESTONE	90	100.0	2,262	100.0
No wage earners.....	604	26.5	.....	.....	No wage earners.....	2	2.2	.....	.....
1 to 5.....	974	42.7	1,945	3.9	1 to 5.....	39	43.3	87	3.8
6 to 20.....	323	14.1	3,509	7.1	6 to 20.....	24	26.7	257	11.4
21 to 50.....	172	7.5	5,797	11.8	21 to 50.....	18	20.0	551	24.4
51 to 100.....	93	4.1	7,012	14.2	51 to 100.....	3	3.3	228	10.1
101 to 500.....	105	4.6	19,892	40.4	101 to 500.....	4	4.4	1,139	50.4
501 to 1,000.....	9	0.4	6,465	13.1					
Over 1,000.....	3	0.1	4,678	9.5	SANDSTONE	21	100.0	875	100.0
COAL, BITUMINOUS	788	100.0	40,452	100.0	1 to 5.....	4	19.0	6	0.7
No wage earners.....	27	3.4	.....	.....	6 to 20.....	7	33.3	81	9.3
1 to 5.....	253	32.1	725	1.8	21 to 50.....	4	19.0	117	13.4
6 to 20.....	198	25.1	2,258	5.6	51 to 100.....	3	14.3	228	25.1
21 to 50.....	129	16.4	4,390	10.9	101 to 500.....	3	14.3	443	50.6
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					

MINES AND QUARRIES—OHIO

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—											
	Enterprises.	Wage earners.	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.
All industries.....	1,679	49,298	194	547	71	525	913	40,318	445	7,308	30	467	26	133
Coal, bituminous.....	761	40,452	20	350	42	476	675	35,968	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	487	80	1,792	.....	.....	.....	.....	.....
Sandstone.....	21	375	.....	.....	.....	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	51,937	48,466	48,139	47,986	50,487	52,390	53,684	56,510	56,963	56,674	19,058	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	18,793	51,125	33.1
Coal, bituminous.....	40,452	43,395	40,357	39,390	39,465	41,530	43,165	44,175	46,693	47,253	47,195	9,827	42,479	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	1,873	1,902	1,936	2,166	2,415	2,564	2,659	2,569	2,458	2,314	2,060	70.6
Sandstone.....	375	701	687	766	900	1,002	971	965	970	977	903	863	780	68.2
All other industries.....	586	569	543	612	535	550	577	566	611	662	631	618	608	75.2
Nonproducing enterprises.....	172	177	141	134	148	151	154	166	170	191	226	240	226	48.8

MINES AND QUARRIES—OHIO.

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	\$1,036,011
Principal expenses:								
Salaries and wages—								
Officers.....	\$2,729,382	\$2,726,182	\$2,031,874	\$461,053	\$124,008	\$85,352	\$22,295	\$3,200
Superintendents and managers.....	\$2,028,882	\$2,020,782	\$1,735,506	\$301,974	\$187,463	\$49,227	\$46,612	\$8,100
Technical employees.....	\$252,903	\$252,903	\$173,690	\$73,045	\$4,800	\$1,350	.....	.....
Clerks, etc.....	\$2,445,277	\$2,442,377	\$1,162,018	\$968,846	\$193,330	\$80,042	\$38,121	\$2,920
Wage earners.....	\$58,319,894	\$58,109,904	\$47,748,648	\$6,343,279	\$2,327,159	\$955,151	\$725,667	\$209,790
Supplies and materials.....	\$16,375,997	\$16,116,949	\$9,105,833	\$5,197,502	\$1,389,758	\$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.....	\$2,951,420	\$2,949,400	\$1,433,483	\$848,211	\$494,088	\$92,720	\$31,008	\$1,996
Power.....	\$1,180,858	\$1,181,603	\$925,302	\$11,683	\$200,673	\$22,927	\$21,023	\$8,250
Royalties and rents.....	\$6,343,386	\$6,330,316	\$1,420,770	\$4,814,709	\$64,009	\$15,869	\$24,399	\$3,570
Taxes.....	\$4,031,123	\$4,028,780	\$1,562,444	\$2,045,436	\$358,289	\$47,991	\$14,629	\$2,334
Contract work.....	\$3,944,652	\$3,929,476	\$371,603	\$3,412,458	\$120,421	\$24,934	.....	\$15,176
Expenditures for development (included in the above items).....	\$3,439,675	\$7,931,195	\$1,142,196	\$6,745,006	\$14,550	\$19,490	\$9,944	\$508,480
Value of products.....	\$134,518,505	\$134,518,505	\$77,988,602	\$45,483,525	\$9,742,496	\$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	.....
Salaries 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	2,282	875	586	173
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	30,831	.....	.....	.....	460	108
Foremen, shift bosses, etc.—								
Above ground.....	497	494	354	.....	94	29	17	3
Below ground.....	662	660	641	.....	.....	.....	19	2
Engineers, 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
Minors, quarrymen, and drillmen, including their helpers—								
Above ground.....	1,707	1,707	896	.....	917	328	66	.....
Below ground.....	18,341	18,163	17,943	.....	.....	.....	215	178
Timbermen, trackmen, and men engaged in hauling, tramming, etc.—								
Above ground.....	978	975	839	.....	100	21	15	3
Below ground.....	7,736	7,720	7,622	.....	.....	.....	104	10
Muckers, loaders, laborers, and others not classified—								
Above ground.....	5,046	5,034	3,776	1,072	892	150	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	40	.....
Mineral and oil land operated..... acres.....	1,947,462	1,914,023	442,887	1,440,239	9,437	2,978	9,482	33,439
Land controlled, total..... acres.....	1,996,126	1,962,687	488,852	1,440,239	10,759	3,094	10,743	33,439
Mineral and oil land owned.....	414,697	413,597	348,214	49,655	8,849	2,889	4,100	1,000
Mineral and oil land leased.....	1,551,640	1,519,201	113,280	1,300,584	756	289	5,292	32,439
Timber and other lands owned and leased.....	29,839	29,839	27,358	.....	1,154	116	1,261	.....
Power used: Aggregate horsepower.....	337,982	337,611	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 and turbines—								
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.....	863,191	862,717	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.

OKLAHOMA.

Oklahoma, which ranks seventeenth in size among the states (land area 69,414 square miles) and twenty-first in population (2,028,283 in 1920), ranked third in the value of mineral products for 1919. The state ranked sixth in the total number of persons engaged in the mining industries and in the average number of wage earners employed.

The gross amount received for products by operators of all mines, quarries, and wells in Oklahoma in 1919 was \$281,927,732. Deducting from this amount, \$9,758,073, the value of natural gas sold by some producers to others who used it as material or resold it and included it in the value of products reported by them, leaves \$272,169,659 as the net value of products for the state. This was an increase of 967 per cent as compared with the corresponding amount for 1909. The value of products reported for 1919 includes \$1,076,195, the value of by-products and receipts for power sold and for work or miscellaneous services for other enterprises. The increases in value of products, capital, wages, cost of supplies and materials and fuel and power, as shown in Table 1, are due in large part to general price increases and therefore exaggerate the growth of the industries which is indicated by the large increases in number of enterprises, wells operated, and in the average number of wage earners. The large increase shown in taxes is accounted for by impost of state output tax and addition of Federal income taxes since 1909.

The mining industries in Oklahoma in 1919, classified according to principal products and listed in order of value of products, were petroleum and natural gas, lead and zinc, bituminous coal, limestone, gypsum, granite, sandstone, asphalt, and abrasive materials. The industries for which statistics can be shown without disclosure of individual operations are ranked by value of products in Table 2.

The principal industry in Oklahoma in 1919 was the production of petroleum and natural gas. The statistics herein presented 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 enterprises operating wells or not. The petroleum and natural-gas industry embraced approximately 90 per cent of all enterprises in the mineral industries, employed 62.5 per cent of the total number of wage earners, and contributed 87.8 per cent of the gross value of all mineral products. The net value of products, after eliminating duplications resulting from sales of products by some producers to others, was \$237,739,377, which was much larger than the net value of products reported by any other state, and was more than 25 per cent of the total net value of products for the industry in the United States. Production of petroleum and natural gas was reported to the census from 31 counties. In these counties there were some 90 recognized produc-

tive pools or local oil fields distributed over approximately 7,500 square miles, all of this territory being part of the Mid-Continent Oil Field which extends into Kansas, Texas, and Louisiana.

The industry second in importance, ranked by value of products but third on basis of number of wage earners, was the mining of lead and zinc ores in Ottawa County. This industry included 5.7 per cent of the total number of enterprises in the state, employed 15.5 per cent of the total number of wage earners, and reported value of products to the amount of \$18,979,726, or 6.7 per cent of the total value of products for the state. In the production of lead and zinc ores Oklahoma outranked all other states.

The bituminous-coal mining industry was third in importance in Oklahoma in 1919 on basis of value of products, but second on basis of number of wage earners employed. This industry included practically 5 per cent of the total number of enterprises, employed 20.8 per cent of the total number of wage earners, and reported products valued at \$14,477,317, or 5.1 per cent of the total value of products of the state. The Oklahoma coal fields lie in the eastern part of the state and extend over a very wide territory from which 12 counties reported production in 1919.

Mining enterprises in Oklahoma in 1919 are classified in Table 3 according to the form or character of operating organizations. This table shows that corporations conducted the most important enterprises in all industries, and outclassed other forms of operating organizations in the number of wage earners employed and in the 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 in Oklahoma, 13.4 per cent had no wage earners and 82.6 per cent reported fewer than 101 wage earners each and employed 48.5 per cent of the total number of wage earners. On the other hand, only 4 per cent of the total number of enterprises had more than 100 wage earners each and these enterprises employed 51.4 per cent of the total number of wage earners. The larger enterprises were reported by the petroleum and natural-gas, coal-mining, lead and zinc mining, and limestone-quarrying industries.

Table 5 shows that in a majority of enterprises employing wage earners and for more than half the wage earners in mining industries in Oklahoma in 1919 the prevailing hours of labor were 54 or more per week. Of the enterprises and wage earners in this class 97 per cent were in the petroleum and natural-gas industry. The 8-hour day and 6-day week prevailed in the coal-mining and lead and zinc mining industries. In the last-named industry, however, a number of enterprises which reported an 8-hour day for miners, also reported a 10-hour day for those wage earners employed in mills and otherwise above ground.

MINES AND QUARRIES—OKLAHOMA.

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 coal industry in the month of November was due to the great coal strike during which the unemployment

in this important industry was so extensive as to abnormally reduce the number reported for all 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.

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.....	1,934	864	123.8	Capital.....	\$740,757,178	\$70,696,411	947.8
Number of mines and quarries.....	284	212	34.0	Principal expenses:			
Number of petroleum and natural-gas wells.....	44,735	12,113	269.3	Salaries.....	12,532,452	1,342,557	833.5
Number of natural-gas gasoline plants.....	311			Wages.....	46,809,200	7,775,413	502.0
Persons engaged.....	40,855	13,580	200.8	Contract work.....	18,982,377	2,137,314	788.1
Proprietors and firm members, total.....	1,106	648	70.7	Supplies and materials ²	65,216,973	5,027,763	1,197.1
Number performing manual labor in or about the mines, quarries, and wells.....	58	89		Fuel and power.....	4,793,574	384,186	1,147.7
Salaried employees.....	5,835	1,274	358.0	Royalties and rents.....	30,688,890	2,783,075	1,002.3
Wage earners (average number).....	33,914	11,668	190.9	Taxes.....	10,338,243	308,216	3,254.2
Power used (horsepower).....	448,173	95,074	371.4	Value of products.....	281,927,732	25,637,892	999.7

¹ Percentages are omitted where base is less than 100.

² Includes 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.....	1,934	33,914	100.0	\$281,927,732	100.0	Coal, bituminous.....	94	7,040	20.8	\$14,477,317	5.1
Petroleum and natural gas.....	1,099	21,180	62.5	247,497,450	87.8	Limestone.....	13	278	0.8	567,288	0.2
Lead and zinc.....	111	5,253	15.5	18,979,726	6.7	Gypsum.....	5	122	0.4	283,025	0.1
						All other industries ¹	12	41	0.1	122,926	(?)

¹ Includes enterprises in industries as follows: Abrasive materials, 2; asphalt, 2; granite, 6; sandstone, 2.

² Less than one-tenth of 1 per cent.

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.....	1,934	33,014	\$281,927,732	\$145,774	100.0	100.0	100.0
Corporation.....	1,375	31,010	254,299,664	184,945	71.1	91.4	90.2
Individual.....	168	1,421	11,776,925	70,101	8.7	4.2	4.2
Firm.....	301	1,094	10,193,715	33,806	15.0	3.2	3.6
Other.....	90	389	5,687,428	62,800	4.7	1.1	2.0
PETROLEUM AND NATURAL GAS.....	1,099	21,180	247,497,450	145,672	100.0	100.0	100.0
Corporation.....	1,197	19,313	223,366,976	186,606	70.5	91.2	90.2
Individual.....	147	983	10,058,632	68,426	8.7	4.6	4.1
Firm.....	270	629	8,776,184	32,504	15.9	3.0	3.5
Other.....	85	255	5,295,668	62,302	5.0	1.2	2.1
LEAD AND ZINC.....	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 ¹	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
COAL, BITUMINOUS.....	94	7,040	14,477,317	154,014	100.0	100.0	100.0
Corporation.....	75	6,777	13,936,627	186,488	79.8	96.3	96.6
Individual.....	12	154	274,234	22,853	12.8	2.2	1.9
Firm.....	7	109	216,456	30,922	7.4	1.5	1.5
LIMESTONE.....	13	278	567,288	43,638	100.0	100.0	100.0
Corporation.....	6	186	358,617	59,770	46.2	66.9	63.2
Individual ²	7	92	208,671	29,810	53.8	33.1	36.8
GYP SUM.....	5	122	283,025	56,605	100.0	100.0	100.0
Corporation.....	5	122	283,025	56,605	100.0	100.0	100.0

¹ Includes 2 individuals.

² Includes 2 firms.

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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.....	1,934	100.0	33,914	100.0	LEAD AND ZINC.....	111	100.0	5,253	100.0
No wage earners.....	259	13.4			1 to 5.....	14	12.6	47	0.9
1 to 5.....	994	51.4	1,966	5.8	6 to 20.....	29	26.1	333	6.3
6 to 20.....	359	18.0	3,740	11.0	21 to 50.....	33	29.7	1,161	22.1
21 to 50.....	167	8.6	5,356	15.8	51 to 100.....	21	18.9	1,370	26.2
51 to 100.....	77	4.0	5,408	15.9	101 to 500.....	14	12.6	2,336	44.5
101 to 500.....	72	3.7	13,229	39.0					
501 to 1,000.....	6	0.3	4,215	12.4	LIMESTONE.....	13	100.0	278	100.0
PETROLEUM AND NATURAL GAS.....	1,699	100.0	21,180	100.0	No wage earners.....	1	7.7		
No wage earners.....	253	14.9			1 to 5.....	2	15.4	5	1.8
1 to 5.....	963	56.7	1,878	8.9	6 to 20.....	5	38.5	57	20.5
6 to 20.....	307	18.1	3,160	14.9	21 to 50.....	4	30.8	115	41.4
21 to 50.....	99	5.8	3,051	14.4	101 to 500.....	1	7.7	101	36.3
51 to 100.....	39	2.3	2,810	13.3					
101 to 500.....	33	1.9	6,617	31.2	GYPSUM.....	5	100.0	122	100.0
501 to 1,000.....	5	0.3	3,664	17.3	6 to 20.....	1	20.0	9	7.4
COAL, BITUMINOUS.....	94	100.0	7,040	100.0	21 to 50.....	4	30.0	113	92.6
No wage earners.....	1	1.1							
1 to 5.....	10	10.6	24	0.3					
6 to 20.....	14	14.9	152	2.2					
21 to 50.....	27	28.7	916	13.0					
51 to 100.....	17	18.1	1,222	17.4					
101 to 500.....	24	25.5	4,175	59.3					
501 to 1,000.....	1	1.1	551	7.8					

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—											
	Enterprises.	Wage earners.	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.
All industries.....	1,075	33,914	98	1,022	43	151	408	13,274	598	8,524	267	3,297	261	2,646
Petroleum and natural gas.....	1,446	21,180	91	185	38	51	218	2,004	573	8,029	266	3,267	260	2,644
Coal, bituminous.....	93	7,040	7	837	5	100	77	6,014	4	89				
Lead and zinc.....	111	5,253					104	5,178	6	73			1	2
Limestone.....	12	278					4	51	8	227				
Gypsum.....	5	122							4	92	1	30		
All other industries.....	8	41					5	27	3	14				

¹ Exclusive of 259 enterprises employing no wage earners in industries as follows: Coal, bituminous, 1; granite, 4; limestone, 1; petroleum and natural gas, 253.

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.....	23,959	32,974	32,569	32,750	33,094	33,247	33,056	34,366	35,940	36,677	36,726	39,557	36,546	80.5
Producing enterprises.....	33,914	32,940	32,531	32,713	33,058	33,205	33,015	34,320	35,886	36,617	36,674	39,510	36,499	80.5
Petroleum and natural gas.....	21,180	<i>18,544</i>	19,572	20,280	20,425	20,783	20,828	21,555	22,082	22,080	22,169	22,364	22,488	37.0
Coal, bituminous.....	7,040	7,596	7,589	6,960	7,206	7,337	7,293	7,512	7,850	8,102	8,299	8,962	7,754	11.6
Lead and zinc.....	5,253	5,429	4,950	5,064	5,024	4,663	4,503	4,857	5,346	5,847	5,759	5,745	5,849	77.0
Limestone.....	278	252	233	269	230	239	228	217	391	387	281	277	282	55.5
Gypsum.....	122	101	112	109	116	121	122	132	122	121	127	123	118	62.7
All other industries.....	41	13	25	31	57	62	41	47	65	40	39	39	28	27.7
Nonproducing enterprises.....	45	34	38	43	36	42	41	46	54	60	52	47	47	56.7

MINES AND QUARRIES—OKLAHOMA.

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

	Aggregate.	PRODUCING ENTERPRISES.							Nonproducing enterprises. ¹
		Total.	Petroleum and natural gas.	Lead and zinc. ¹	Coal, bituminous.	Limestone.	Gypsum.	All other. ²	
Number of enterprises.....	1,964	1,934	1,099	111	94	13	5	12	30
Number of mines and quarries.....	289	284		123	131	13	5	12	2
Number of petroleum and natural-gas wells.....	44,735	44,735	44,735						
Number of natural-gas gasoline plants.....	311	311	311						
Capital.....	\$742,564,134	\$740,757,178	\$609,663,144	\$27,628,030	\$12,238,946	\$699,356	\$330,882	\$196,814	\$2,106,956
Principal expenses:									
Salaries and wages—									
Officers.....	\$3,327,771	\$3,322,871	\$2,818,505	\$152,069	\$324,684	\$23,800	\$3,213	\$600	\$4,900
Superintendents and managers.....	\$4,142,032	\$4,126,422	\$3,375,531	\$347,989	\$361,097	\$29,561	\$9,244	\$3,000	\$15,610
Technical employees.....	\$720,769	\$720,769	\$664,013	\$37,405	\$16,351	\$3,000			
Clerks, etc.....	\$4,367,075	\$4,362,390	\$3,927,418	\$147,006	\$230,210	\$48,172	\$9,134	\$450	\$4,685
Wage earners.....	\$46,894,389	\$46,800,200	\$30,749,438	\$6,908,259	\$8,789,936	\$210,489	\$109,099	\$41,979	\$85,189
Supplies and materials.....	\$55,733,660	\$55,458,900	\$49,598,967	\$4,218,142	\$1,391,771	\$117,656	\$97,604	\$34,760	\$274,760
Cost of natural gas purchased as material and resold.....	\$9,758,073	\$9,758,073	\$0,758,073						
Fuel.....	\$3,858,714	\$3,826,667	\$2,373,833	\$733,285	\$636,314	\$40,107	\$32,465	\$10,603	\$32,047
Power.....	\$966,907	\$966,907	\$107,765	\$743,944	\$112,573	\$2,625			
Royalties and rents.....	\$30,733,964	\$30,688,890	\$27,211,429	\$3,106,495	\$349,853	\$16,920	\$807	\$3,336	\$45,074
Taxes.....	\$19,341,126	\$19,338,243	\$9,782,360	\$359,546	\$186,140	\$5,029	\$4,166	\$1,002	\$2,883
Contract work.....	\$19,181,264	\$18,982,377	\$18,695,838	\$228,399	\$58,140				\$108,887
Expenditures for development (included in the above items).....	\$55,823,200	\$55,218,005	\$54,346,776	\$590,701	\$279,428			\$2,000	\$604,295
Value of products.....	\$281,027,732	\$281,927,732	\$247,497,450	\$18,979,726	\$14,477,317	\$567,288	\$283,025	\$122,926	
Persons engaged in industry.....	40,928	40,855	26,378	5,635	8,296	351	134	61	73
Proprietors and firm members (total).....	1,109	1,106	980	68	33	9		16	3
Number performing manual labor.....	58	58	24	2	21	1		10	
Salaries officers.....	849	840	701	46	86	5	1	1	9
Superintendents and managers.....	1,670	1,656	1,340	133	154	21	6	2	14
Technical employees.....	327	327	288	20	17	2			
Clerks, etc.....	3,014	3,012	1,889	116	966	36	5	1	2
Wage earners (average number).....	33,959	33,914	21,180	5,253	7,040	278	122	41	45
Wage earners by occupation (Dec. 15):									
Above ground (total).....	426,873	426,806	422,615	2,174	1,454	397	111	55	67
Below ground (total).....	11,338	11,333		4,580	6,746		7		5
Foremen, shift bosses, etc.—									
Above ground.....	193	197		117	63	11	3	3	1
Below ground.....	291	291		151	140				
Enginemen, holstmen, electricians, mechanics, etc.—									
Above ground.....	13,882	13,837	12,534	674	578	44	3	4	45
Below ground.....	124	124		58	66				
Miners, quarrymen, and drillmen, including their helpers—									
Above ground.....	238	238		1	101	72	47	17	
Below ground.....	6,150	6,145		2,054	4,086		5		5
Timbermen, trackmen, and men engaged in hauling, tramming, etc.—									
Above ground.....	297	297		27	226	33	11		
Below ground.....	2,771	2,771		925	1,844		2		
Muckers, loaders, laborers, and others not classified—									
Above ground.....	11,074	11,053	10,081	214	486	237	10	25	21
Below ground.....	2,002	2,002		1,392	610				
Wage earners employed in mills and beneficiating plants—									
Above ground.....	1,184	1,184		1,141			37	6	
Mineral and oil land operated..... acres..	1,850,229	1,844,305	1,730,661	4,914	104,936	1,099	1,625	1,070	5,924
Land controlled, total..... acres..	1,855,909	1,849,985	1,730,661	4,904	110,536	1,999	1,625	1,070	5,924
Mineral and oil land owned.....	192,921	192,771	193,546		20,729	394	1,265	837	150
Mineral and oil land leased.....	1,657,520	1,651,749	1,567,115	4,994	73,339	705	360	233	5,774
Timber and other lands owned and leased.....	5,468	5,468			5,468				
Power used: Aggregate horsepower.....	449,234	448,173	353,234	55,182	36,483	2,076	498	700	1,061
Prime movers (horsepower, total).....	416,842	415,781	349,243	33,324	30,140	1,876	498	700	1,061
Steam engines—									
Number.....	2,666	2,649	2,209	127	277	23	7	6	17
Horsepower.....	100,569	99,792	57,826	10,210	29,187	1,545	454	570	777
Steam turbines—									
Number.....	4	4			4				
Horsepower.....	700	700			700				
Internal-combustion engines—									
Number.....	9,617	9,603	9,328	227	31	8	2	7	14
Horsepower.....	315,273	314,989	201,417	22,814	253	331	44	130	284
Water wheels and turbines—									
Number.....	2	2			2				
Horsepower.....	300	300			300				
Purchased power (horsepower, total).....	32,392	32,392	3,991	21,853	6,343	200			
Electric motors operated by purchased current—									
Number.....	695	695	139	346	207	3			
Horsepower.....	31,492	31,492	3,081	21,853	6,343	200			
Other equipment operated by purchased power—									
Horsepower.....	900	900							
Electric motors run by current generated by enterprise using:									
Number.....	207	207	41	13	142		11		
Horsepower.....	6,161	6,161	394	490	5,159		118		
Fuel used:									
Coal, bituminous..... tons, 2,000 pounds..	282,539	280,339	7,209	90,022	177,287	3,615	1,630	596	2,200
Wood..... cords..	110	110	70	40					
Fuel oils..... barrels..	239,966	237,780	186,922	21,627					
Gasoline and other volatile oils..... barrels..	21,011	21,011	17,336	2,064		13,518	12,435	3,278	2,186
Natural gas..... 1,000 cubic feet..	16,392,807	16,338,799	15,134,427	1,040,381	154,670	331	626	203	54,698

¹ Includes 1 reduction mill operated independently of mines and 4 operations on dumps and old tailings.

² Includes enterprises as follows: Abrasive materials, 2; asphalt, 2; granite, 6; sandstone, 2.

³ Includes enterprises as follows: Lead and zinc, 2; petroleum and natural gas, 28.

⁴ Includes 2 females reported by 2 enterprises.

OREGON.

Oregon, which ranks ninth among the states in size (land area 95,607 square miles) and thirty-fourth in population (783,389 in 1920), ranked fortieth in value of mineral products for 1919. The state ranked forty-second in the total number of persons engaged in the mining industries and in the average number of wage earners employed.

The total amount received for products by operators of mines and quarries in Oregon in 1919 was \$1,884,871, an increase of 58.2 per cent over the value reported by the census for the year 1909. This increase and the increases in wages and cost of supplies and materials and fuel and power, as shown in Table 1, can not properly be used as a measure of growth or progress in mining during the decade. Nor, on the other hand, do the large decreases in number of enterprises and individual mines and quarries operated and in capital invested indicate notable decline in mining as they reflect the temporarily adverse industrial conditions in 1919. For purposes of comparison most significance should be attached to the moderate decrease in the average number of wage earners.

The industries reported for 1919, classified by principal products and listed in the order of value of products, were gold and silver ores, copper ores, gold and platinum from placer mines, basalt, limestone, gypsum, bituminous coal, granite, abrasive materials, chromite, quicksilver, and clay. The mining industries for which statistics can be shown without disclosure of individual operations are ranked according to value of products in Table 2.

The leading mineral industries in Oregon in 1919, the mining of gold and silver from lodes and placers and of copper ores, comprised 27 out of a total of 50 productive enterprises, employed 57.2 per cent of all wage earners in the mining industries, and reported \$1,221,552, or 64.8 per cent of the total value of products. Baker and Grant Counties in eastern Oregon were the principal sources of production; Josephine, Jackson, Curry, and Coos Counties also reported some production. The quarrying industries producing basalt, or traprock, and limestone were second

and third in importance in the state. Together they employed 26.1 per cent of all wage earners in the mineral industries and reported 23 per cent of the total value of products. Unproductive operations for the purpose of mine development were reported for one coal mine and five metalliferous lode mines in Oregon in 1919. These enterprises employed approximately 5 per cent of the aggregate number of wage earners employed in the mining industries and expended for development 5.6 per cent of the aggregate expenditures reported for all mining operations in the state in 1919.

Table 3 shows that 60 per cent of all producing enterprises were incorporated and that these employed 93.4 per cent of the total number of wage earners and reported 94.3 per cent of the total value of products.

The small number of large enterprises, as measured by the average number of wage earners, is shown in Table 4. One copper mine employed more than 50 and one gold mine more than 100 wage earners. Of the other enterprises, 11 employed no wage earners and 37 employed less than 50 and averaged only 12 wage earners each.

The mining enterprises are grouped by prevailing hours of labor per week in Table 5, which shows that a majority of enterprises, employing 39.2 per cent of the total number of wage earners, worked 44 to 53 hours per week; and that more than a third of the enterprises, employing 60.3 per cent of the total number of wage earners, worked 54 to 62 hours per week. The 8-hour day prevailed generally with a 7-day week in the metal-mining industries and a 6-day week in the quarrying industries.

The statistics for wage earners presented in Table 6, showing the changes in the number employed month by month, reflect conditions prevailing in the mining 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 the disclosure of individual operations.

MINES AND QUARRIES—OREGON.

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.....	50	116	-56.9	Principal expenses: Salaries..... Wages..... Contract work..... Supplies and materials..... Fuel and power..... Royalties and rents..... Taxes..... Value of products.....	\$147,821	\$124,833	18.4
Number of mines and quarries.....	52	161	-67.7		992,957	705,192	40.8
Persons engaged.....	847	1,072	-21.0		35,888	7,717	365.1
Proprietors and firm members, total.....	37	112	-67.0		545,940	186,796	192.3
Number performing manual labor in or about the mines and quarries.....	20	66	-----		133,472	96,592	38.2
Salaries.....	70	100	-30.0		48,047	16,935	183.7
Wage earners (average number).....	740	860	-14.0		26,656	12,917	106.4
Power used (horsepower).....	6,264	8,070	-22.4		1,884,871	1,191,512	58.2
Capital.....	\$4,780,913	\$9,166,834	-47.8				

¹ 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.....	50	740	100.0	\$1,884,871	100.0	Limestone.....	4	69	9.3	\$138,708	7.4
Gold and silver, lode and placer mines, and copper.....	27	423	57.2	1,221,552	64.8	Coal, bituminous.....	3	63	8.5	63,536	3.4
Basalt.....	9	124	16.8	294,812	15.6	All other industries ¹	7	61	8.2	166,238	8.8

¹ Includes enterprises in industries as follows: Abrasive materials, 1; chromite, 1; clay, 1; granite, 2; gypsum, 1; quicksilver, 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.....	50	740	\$1,884,871	\$37,697	100.0	100.0	100.0
Corporation.....	30	691	1,777,720	59,257	60.0	93.4	94.3
Individual.....	11	23	62,168	5,652	22.0	3.1	3.3
Firm ¹	9	26	44,983	4,998	18.0	3.5	2.4
GOLD AND SILVER, LODGE AND PLACER MINES, AND COPPER.....	27	423	1,221,552	45,243	100.0	100.0	100.0
Corporation.....	14	401	1,180,534	84,324	51.9	94.8	96.6
Individual.....	5	1	4,457	891	18.5	0.2	0.4
Firm ¹	8	21	36,561	4,670	29.6	5.0	3.0
BASALT AND LIMESTONE.....	13	193	433,520	33,348	100.0	100.0	100.0
Corporation.....	10	180	402,304	40,230	76.9	93.3	92.8
Individual ²	3	13	31,216	10,405	23.1	6.7	7.2

¹ Includes 1 other form of organization.

² Includes 1 firm.

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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.....	50	100.0	740	100.0	BASALT.....	9	100.0	124	100.0
No wage earners.....	11	22.0			1 to 5.....	2	22.2	9	7.3
1 to 5.....	13	26.0	39	5.3	6 to 20.....	5	55.6	58	45.2
6 to 20.....	17	34.0	184	24.9	21 to 50.....	2	22.2	59	47.6
21 to 50.....	7	14.0	223	30.1	LIMESTONE.....	4	100.0	69	100.0
51 to 100.....	1	2.0	78	10.5	1 to 5.....	1	25.0	4	5.8
101 to 500.....	1	2.0	216	29.2	6 to 20.....	1	25.0	7	10.1
GOLD AND SILVER, LOBE AND PLACER MINES, AND COPPER.....	27	100.0	423	100.0	21 to 50.....	2	50.0	58	84.1
No wage earners.....	9	33.3			COAL, BITUMINOUS.....	3	100.0	63	100.0
1 to 5.....	7	25.9	12	2.8	1 to 5.....	1	33.3	4	6.3
6 to 20.....	8	29.6	95	22.5	6 to 20.....	1	33.3	10	15.9
21 to 50.....	1	3.7	22	5.2	21 to 50.....	1	33.3	49	77.8
51 to 100.....	1	3.7	78	18.4					
101 to 500.....	1	3.7	216	51.1					

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—							
	Enterprises.	Wage earners.	44 to 53.		54 to 62.		63 to 71.		72 to 84.	
			Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners.
All industries.....	139	740	23	290	14	446	1	1	1	3
Gold and silver, lode and placer mines, and copper.....	18	423	5	25	11	394	1	1	1	3
Basalt.....	9	124	7	107	2	17				
Limestone.....	4	69	4	69						
Coal, bituminous.....	3	63	3	63						
All other industries.....	5	61	4	26	1	35				

¹ Exclusive of 11 enterprises employing no wage earners in industries as follows: Chromite, 1; clay, 1; gold and silver, lode and placer mines, and copper, 9.

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.....	776	638	592	537	603	722	735	832	916	999	962	879	847	58.8
Producing enterprises.....	740	617	565	556	580	695	721	810	869	934	912	820	796	59.4
Gold and silver, lode and placer mines, and copper.....	423	423	391	362	366	423	436	462	449	487	457	431	419	74.1
Basalt.....	124	<i>58</i>	69	70	88	101	108	147	207	214	190	137	99	27.1
Limestone.....	69	40	36	21	<i>19</i>	43	55	75	86	77	119	115	142	18.4
Coal, bituminous.....	63	63	64	63	60	60	59	<i>50</i>	50	69	71	68	82	61.0
All other industries.....	61	<i>55</i>	35	39	47	68	66	76	77	87	75	75	54	37.9
Nonproducing enterprises.....	36	21	27	32	23	27	14	22	47	65	50	53	51	21.5

MINES AND QUARRIES—OREGON.

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

	Aggregate.	PRODUCING ENTERPRISES.						Nonproducing enterprises. ²
		Total.	Gold and silver, lode and placer mines, and copper.	Basalt.	Limestone.	Coal, bituminous.	All other. ¹	
Number of enterprises.....	56	50	27	9	4	3	7	0
Number of mines and quarries.....	58	52	29	9	4	3	7	0
Capital.....	\$5,872,553	\$4,780,913	\$2,769,342	\$477,054	\$372,501	\$693,690	\$478,320	\$1,091,640
Principal expenses:								
Salaries and wages—								
Officers.....	\$31,299	\$31,299	\$19,740	\$9,417			\$2,142	
Superintendents and managers.....	\$79,788	\$77,088	\$52,972	\$11,160	\$4,350	\$2,400	\$6,206	\$2,700
Technical employees.....	\$17,867	\$17,065	\$14,665				\$2,400	\$802
Clerks, etc.....	\$23,769	\$22,369	\$9,300	\$4,840		\$1,800	\$6,429	\$1,400
Wage earners.....	\$1,038,820	\$902,957	\$576,373	\$189,123	\$60,868	\$91,549	\$70,044	\$45,863
Supplies and materials.....	\$593,623	\$545,949	\$341,410	\$102,114	\$63,083	\$4,253	\$35,089	\$47,074
Fuel.....	\$70,098	\$68,689	\$18,887	\$21,591	\$7,109	\$14,608	\$6,496	\$1,409
Power.....	\$64,783	\$64,783	\$58,366	\$8,121	\$269		\$2,963	
Royalties and rents.....	\$48,047	\$48,047	\$33,509	\$2,238	\$3,226	\$1,840	\$6,534	
Taxes.....	\$28,445	\$26,656	\$18,472	\$3,548	\$824		\$1,392	\$2,420
Contract work.....	\$50,362	\$35,888	\$14,349			\$10,217	\$11,322	\$14,474
Expenditures for development (included in the above items).....	\$320,209	\$205,972	\$179,708	\$420		\$3,806	\$21,948	\$114,237
Value of products.....	\$1,884,871	\$1,884,871	\$1,221,552	\$294,812	\$138,708	\$63,506	\$166,233	
Persons engaged in industry.....	589	847	492	142	72	67	74	42
Proprietors and firm members (total).....	38	37	20	3	1	2	2	1
Number performing manual labor.....	20	20	17	2			1	
Salaried officers.....	9	9	6	3				
Superintendents and managers.....	38	36	21	7	2	1	5	2
Technical employees.....	10	9	8				1	1
Clerks, etc.....	18	16	5	5		1	5	2
Wage earners (average number).....	776	740	423	124	69	63	61	36
Wage earners by occupation (Dec. 15):								
Above ground (total).....	675	651	240	173	158	20	60	24
Below ground (total).....	377	322	256			63	3	55
Foremen, shift bosses, etc.—								
Above ground.....	29	27	11	9	3	2	2	2
Below ground.....	15	13	12			1		2
Engineers, hoistmen, electricians, mechanics, etc.—								
Above ground.....	104	101	53	24	8	13	3	3
Below ground.....	39	37	32			5		2
Miners, quarrymen, and drillmen, including their helpers—								
Above ground.....	120	114	8	33			16	6
Below ground.....	169	139	97		57		2	30
Timbermen, trackmen, and men engaged in hauling, tramming, etc.—								
Above ground.....	88	82	25	35	20	1	1	6
Below ground.....	63	60	46			14		3
Muckers, loaders, laborers, and others not classified—								
Above ground.....	232	225	74	72	70	1	8	7
Below ground.....	91	73	69			3	1	18
Wage earners employed in mills and beneficiating plants—								
Above ground.....	102	102	69			3	30	
Number of females included in wage earners reported above—								
Above ground.....	9	9	4	2	1		2	
Mineral land operated..... acres.....	26,993	22,963	13,667	3,871	1,509	1,169	2,747	4,030
Land controlled, total..... acres.....	28,673	24,643	15,847	3,871	1,509	1,169	2,747	4,030
Mineral land owned.....	19,132	16,472	12,729	262	1,219	924	1,347	2,000
Mineral land leased.....	7,961	6,591	1,047	3,009	290	245	1,400	2,000
Timber and other lands owned and leased.....	1,580	1,580	1,580					1,370
Power used: Aggregate horsepower.....	6,499	6,264	3,894	1,235	35	393	657	235
Prime movers (horsepower, total).....	1,814	1,579	450	692	10	375	52	235
Steam engines—								
Number.....	30	27	3	18		6		3
Horsepower.....	1,311	1,201	140	686		375		110
Internal-combustion engines—								
Number.....	10	9	4	1	2			1
Horsepower.....	161	141	73	6	10		52	20
Water wheels and turbines—								
Number.....	12	10	10					2
Horsepower.....	342	237	237					105
Purchased power (horsepower, total).....	4,685	4,685	3,444	593	25	18	605	
Electric motors operated by purchased current—								
Number.....	111	111	88	10	1	3	9	
Horsepower.....	4,685	4,685	3,444	593	25	18	605	
Electric motors run by current generated by enterprise using:								
Number.....	22	22	7			15		
Horsepower.....	464	464	109			355		
Fuel used:								
Coal, bituminous..... tons, 2,000 pounds.....	5,280	5,280	161	250		4,869		
Wood..... cords.....	4,008	3,638	1,660	1,752	272		104	320
Fuel oils..... barrels.....	6,548	6,548	290	4,220			2,038	
Gasoline and other volatile oils..... barrels.....	710	692	259	6	321		76	49

¹ Includes enterprises as follows: Abrasive materials, 1; chromite, 1; clay, 1; granite, 2; gypsum, 1; quicksilver, 1.
² Includes enterprises as follows: Coal, bituminous, 1; gold, silver, copper, lead and zinc, lode mines, 6.

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 northeastern 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.

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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.....	5,807	4,851	19.7	Capital.....	\$1,317,519,280	\$866,207,208	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.....	34,964,473	13,057,340	167.8
Number of natural-gas-gasoline plants.....	319	.	.		Wages.....	445,218,643	197,473,862	125.5
Persons engaged.....	350,338	381,865	-8.3		Contract work.....	7,970,425	5,978,032	33.4
Proprietors and firm members, total.....	8,822	9,130	-3.4		Supplies and materials ²	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	6,423,190	331.4
Salaried employees.....	18,119	11,722	54.6		Royalties and rents.....	24,632,827	15,379,127	60.5
Wage earners (average number).....	323,397	361,013	-10.4		Taxes.....	28,747,401	5,699,466	404.4
Power used (horsepower).....	1,999,422	1,618,806	23.5		Value of products.....	819,451,109	349,059,786	134.9

¹ A minus sign (-) denotes decrease.

² 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	\$819,451,109	100.0	Slate.....	42	1,892	0.6	2,651,533	0.3
Coal, anthracite.....	254	147,372	45.6	364,084,142	44.4	Clay.....	62	1,337	0.4	2,546,485	0.3
Coal, bituminous.....	1,938	154,992	47.9	362,973,952	44.3	Basalt.....	29	1,721	0.2	2,298,791	0.3
Petroleum and natural gas.....	3,140	9,065	2.8	66,271,961	8.1	Granite.....	29	197	0.1	435,654	0.1
Limestone.....	184	5,573	1.7	12,881,213	1.6	Mineral pigments.....	13	115	(1)	344,739	(1)
Sandstone.....	100	1,673	0.5	3,534,563	0.4	Silica.....	4	43	(1)	54,867	(1)
						All other industries ²	12	417	0.1	1,373,209	0.2

¹ Less than one-tenth of 1 per cent.

² 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	\$819,451,109	\$141,114	100.0	100.0	100.0
Corporation.....	1,702	298,807	748,797,805	439,952	29.3	92.4	91.4
Individual.....	1,769	10,372	28,461,348	16,089	30.5	3.2	3.5
Firm.....	2,056	12,265	34,778,893	16,916	35.4	3.8	4.2
Other.....	280	1,953	7,413,063	26,475	4.8	0.6	0.9
COAL, ANTHRACITE.....	254	147,372	364,084,142	1,433,402	100.0	100.0	100.0
Corporation.....	170	143,015	355,323,907	2,090,170	66.9	97.4	97.6
Individual.....	37	431	962,441	26,012	14.6	0.3	0.3
Firm.....	42	2,879	6,741,024	180,501	16.5	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	139,535	328,381,965	328,332	51.6	90.0	90.5
Individual.....	487	7,706	17,487,290	35,908	25.1	5.0	4.8
Firm.....	440	6,870	16,352,035	34,891	22.7	4.4	4.2
Other.....	11	881	1,752,662	159,333	0.6	0.6	0.5
PETROLEUM AND NATURAL GAS.....	3,140	9,065	66,271,961	21,106	100.0	100.0	100.0
Corporation.....	295	6,220	44,016,627	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	10,685,470	7,196	47.3	15.7	16.1
Other.....	258	326	3,722,781	14,429	8.2	3.6	5.6
LIMESTONE.....	184	5,573	12,881,213	70,607	100.0	100.0	100.0
Corporation.....	69	4,352	10,611,380	153,788	37.5	78.1	82.4
Individual.....	76	682	1,263,417	16,624	41.3	12.2	9.8
Firm ¹	39	539	1,006,416	25,806	21.2	9.7	7.8
SANDSTONE.....	100	1,673	3,534,563	35,346	100.0	100.0	100.0
Corporation.....	52	1,238	2,733,682	52,571	52.0	74.0	77.3
Individual.....	25	156	281,979	11,279	25.0	9.3	8.0
Firm.....	23	279	518,902	22,561	23.0	16.7	14.7

¹ Includes 2 other forms of organization.

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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	68	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	2,540,485	41,072	100.0	100.0	100.0
Corporation.....	43	1,122	2,107,899	49,021	69.4	83.0	82.8
Individual.....	8	63	111,979	13,997	12.9	4.7	4.4
Firm ¹	11	152	326,607	29,692	17.7	11.4	12.8
BASALT.....	29	721	2,298,701	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	164,090	16,469	34.5	6.7	7.2
Firm ²	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	86	179,383	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 ³	5	33	91,534	18,307	38.5	28.7	26.6

¹ Includes 2 other forms of organization.

² Includes 1 other form of organization.

³ 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	.....	.....	6 to 20.....	11	26.2	117	6.2
1 to 5.....	2,243	38.6	4,301	1.3	21 to 50.....	20	47.6	669	35.4
6 to 20.....	830	14.3	9,247	2.9	51 to 100.....	7	16.7	521	27.5
21 to 50.....	496	8.5	15,947	4.9	101 to 500.....	4	9.5	585	30.9
51 to 100.....	273	4.7	20,049	6.2	SANDSTONE.....	100	100.0	1,673	100.0
101 to 500.....	355	6.1	78,772	24.4	No wage earners.....	2	2.0	.....	.....
501 to 1,000.....	63	1.1	42,817	13.2	1 to 5.....	40	40.0	106	6.3
Over 1,000.....	41	0.7	152,284	47.1	6 to 20.....	36	36.0	394	23.6
COAL, BITUMINOUS.....	1,938	100.0	154,992	100.0	21 to 50.....	14	14.0	455	27.2
No wage earners.....	11	0.6	.....	.....	51 to 100.....	5	5.0	342	20.4
1 to 5.....	554	28.6	1,557	1.0	101 to 500.....	3	3.0	376	22.5
6 to 20.....	486	25.1	5,702	3.7	CLAY.....	62	100.0	1,337	100.0
21 to 50.....	363	18.7	11,704	7.6	1 to 5.....	9	14.5	33	2.5
51 to 100.....	216	11.1	15,792	10.2	6 to 20.....	32	51.6	396	29.6
101 to 500.....	263	13.6	65,281	35.7	21 to 50.....	16	25.8	519	38.8
501 to 1,000.....	26	1.3	17,742	11.4	51 to 100.....	5	8.1	389	29.1
Over 1,000.....	19	1.0	47,154	30.4	101 to 500.....	3	10.4	330	45.8
COAL, ANTHRACITE.....	254	100.0	147,372	100.0	BASALT.....	29	100.0	721	100.0
No wage earners.....	2	0.8	.....	.....	1 to 5.....	7	24.1	13	1.8
1 to 5.....	62	24.4	139	0.1	6 to 20.....	11	37.9	98	12.9
6 to 20.....	39	15.4	469	0.3	21 to 50.....	7	24.1	230	31.9
21 to 50.....	20	7.9	629	0.4	51 to 100.....	1	3.4	55	7.5
51 to 100.....	13	5.1	981	0.7	101 to 500.....	3	10.4	330	45.8
101 to 500.....	63	24.8	18,240	12.4	GRANITE.....	29	100.0	197	100.0
501 to 1,000.....	33	13.0	21,804	14.8	1 to 5.....	7	24.1	20	10.2
Over 1,000.....	22	8.7	105,110	71.3	6 to 20.....	20	69.0	122	61.9
PETROLEUM AND NATURAL GAS.....	3,140	100.0	9,065	100.0	21 to 50.....	2	6.9	55	27.9
No wage earners.....	1,487	47.4	.....	.....	MINERAL PIGMENTS.....	13	100.0	115	100.0
1 to 5.....	1,492	47.5	2,264	25.0	No wage earners.....	1	7.7	.....	.....
6 to 20.....	122	3.9	1,157	12.8	1 to 5.....	4	30.8	13	11.3
21 to 50.....	23	0.7	749	8.3	6 to 20.....	7	53.8	70	60.9
51 to 100.....	7	0.2	554	6.1	21 to 50.....	1	7.7	32	27.8
101 to 500.....	5	0.2	1,070	11.8	LIMESTONE.....	184	100.0	5,573	100.0
501 to 1,000.....	4	0.1	3,271	36.1	No wage earners.....	2	1.1	.....	.....
Over 1,000.....	.....	.....	.....	.....	1 to 5.....	64	34.8	144	2.6
LIMESTONE.....	184	100.0	5,573	100.0	6 to 20.....	59	32.1	635	11.4
No wage earners.....	2	1.1	.....	.....	21 to 50.....	28	15.2	790	14.2
1 to 5.....	64	34.8	144	2.6	51 to 100.....	19	10.3	1,415	25.4
6 to 20.....	59	32.1	635	11.4	101 to 500.....	12	6.5	2,589	46.5
21 to 50.....	28	15.2	790	14.2					
51 to 100.....	19	10.3	1,415	25.4					
101 to 500.....	12	6.5	2,589	46.5					

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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.....	14,301	323,397	423	1,262	162	1,556	2,644	294,591	923	22,974	30	2,361	105	653
Coal, bituminous.....	1,927	154,992	40	769	63	1,098	1,706	143,357	108	8,001	0	1,769	1	8
Coal, anthracite.....	252	147,372	.....	.....	1	315	176	145,787	71	807	3	442	1	21
Petroleum and natural gas.....	1,653	9,065	388	503	94	121	659	2,814	387	4,923	22	80	103	624
Limestone.....	182	5,573	.....	.....	2	3	22	308	157	5,257	1	5	.....	.....
Slate.....	42	1,892	.....	.....	.....	.....	12	949	28	898	2	45	.....	.....
Sandstone.....	98	1,673	.....	.....	.....	.....	13	200	24	1,448	1	16	.....	.....
Clay.....	62	1,337	.....	.....	1	17	37	347	84	473	.....	.....	.....	.....
Basalt.....	29	721	.....	.....	.....	.....	4	78	25	643	.....	.....	.....	.....
Granite.....	29	197	.....	.....	1	2	3	80	10	111	1	4	.....	.....
Mineral pigments.....	12	115	.....	.....	.....	.....	3	36	9	79	.....	.....	.....	.....
All other industries.....	15	400	.....	.....	.....	.....	4	126	11	334	.....	.....	.....	.....

¹ Exclusive of 1,506 enterprises employing no wage earners in industries as follows: Coal, anthracite, 2; coal, bituminous, 11; iron ore, 1; limestone, 2; mineral pigments, 1; petroleum and natural gas, 1,487; 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.....	323,507	330,722	323,117	319,027	314,642	315,655	321,210	333,334	340,486	341,505	340,498	<i>265,417</i>	336,471	77.7
Producing enterprises.....	323,397	330,698	323,086	318,975	314,592	315,610	321,150	333,232	340,386	341,352	340,318	<i>265,170</i>	336,197	77.7
Coal, bituminous.....	154,992	165,568	158,465	156,116	151,807	150,261	154,525	162,681	168,107	168,979	167,191	<i>82,833</i>	163,378	54.9
Coal, anthracite.....	147,372	146,241	145,985	143,437	143,691	144,026	145,010	148,397	149,220	149,522	150,847	<i>150,594</i>	151,595	94.1
Petroleum and natural gas.....	9,065	8,495	8,363	8,626	8,537	8,642	9,152	9,321	9,331	9,343	9,477	<i>9,283</i>	9,310	85.0
Limestone.....	5,573	5,135	5,061	5,254	5,336	5,237	5,701	5,873	6,181	6,111	6,910	<i>5,691</i>	5,366	81.7
Slate.....	1,892	1,373	1,455	1,592	1,365	1,949	2,013	2,070	2,058	2,064	2,106	<i>2,083</i>	2,076	65.2
Sandstone.....	1,673	1,413	1,263	1,404	1,551	1,650	1,780	1,859	1,942	1,877	1,871	<i>1,815</i>	1,846	65.3
Clay.....	1,337	1,324	1,313	1,313	1,306	1,311	1,307	1,354	1,373	1,364	1,351	<i>1,354</i>	1,374	95.1
Basalt.....	721	499	501	616	755	862	860	833	812	781	763	<i>728</i>	642	57.9
Granite.....	197	130	129	141	181	214	235	261	251	213	208	<i>208</i>	198	49.4
Mineral pigments.....	115	99	101	103	92	113	111	122	122	124	126	<i>131</i>	130	74.8
Silica.....	43	37	37	39	42	46	50	53	50	46	41	<i>38</i>	37	69.8
All other industries.....	417	584	418	434	423	400	406	408	439	435	430	<i>412</i>	415	87.5
Nonproducing enterprises.....	110	24	31	52	50	45	60	102	100	153	182	<i>247</i>	274	8.8
Coal, bituminous.....	109	23	30	51	49	44	59	101	99	152	181	<i>246</i>	273	8.4
Petroleum and natural gas.....	1	1	1	1	1	1	1	1	1	1	1	<i>1</i>	1

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

	Aggregate.	PRODUCING ENTERPRISES.					
		Total.	Coal.		Petroleum and natural gas. ¹	Limestone.	Sandstone.
			Anthracite.	Bituminous.			
Number of enterprises.....	5,820	5,807	254	1,938	3,140	184	100
Number of mines and quarries.....	3,631	3,621	534	2,584		200	107
Number of petroleum and natural-gas wells.....	77,325	77,325			77,325		
Number of natural-gas gasoline plants.....	319	319			319		
Capital.....	\$1,320,763,501	\$1,317,519,289	\$433,868,039	\$848,626,810	\$201,186,270	\$12,941,066	\$6,775,967
Principal expenses:							
Salaries and wages—							
Officers.....	\$8,266,738	\$8,263,538	\$1,275,904	\$5,969,693	\$605,550	\$116,395	\$63,185
Superintendents and managers.....	\$13,668,305	\$13,665,082	\$6,149,017	\$6,054,762	\$849,044	\$234,033	\$68,799
Technical employees.....	\$2,579,708	\$2,561,196	\$1,423,614	\$998,268	\$92,775	\$21,508	
Clerks, etc.....	\$10,476,102	\$10,474,657	\$4,146,934	\$5,018,500	\$966,580	\$148,800	\$54,583
Wage earners.....	\$145,353,348	\$145,218,643	\$210,289,473	\$211,346,693	\$10,219,433	\$6,824,164	\$1,688,674
Supplies and materials.....	\$118,983,907	\$118,817,334	\$59,738,376	\$44,912,367	\$8,962,963	\$2,758,379	\$695,265
Cost of coal and natural gas purchased as material and for resale.....	\$5,510,433	\$5,510,433	\$433,318		\$5,077,115		
Fuel.....	\$21,819,600	\$21,818,407	\$11,406,117	\$7,599,659	\$1,566,224	\$559,646	\$215,423
Power.....	\$5,890,320	\$5,888,996	\$1,899,835	\$3,522,701	\$21,825	\$255,957	\$82,522
Royalties and rents.....	\$24,683,877	\$24,682,327	\$11,766,598	\$6,008,527	\$6,170,090	\$234,488	\$58,266
Taxes.....	\$28,787,625	\$28,747,401	\$14,060,963	\$12,258,433	\$1,985,648	\$247,700	\$75,607
Contract work.....	\$8,011,641	\$7,970,425	\$1,557,845	\$618,094	\$5,523,072	\$194,748	\$2,434
Expenditures for development (included in the above items).....	\$25,232,489	\$24,930,973	\$6,189,990	\$8,344,445	\$9,704,215	\$199,199	\$39,411
Value of products.....	\$319,451,109	\$319,451,109	\$364,084,142	\$362,973,952	\$66,271,961	\$12,881,213	\$3,534,563
Persons engaged in industry.....	350,490	350,338	154,882	165,044	17,255	6,080	1,898
Proprietors and firm members (total).....	8,540	8,522	159	1,743	6,548	165	78
Number performing manual labor.....	2,129	2,126	34	575	1,429	44	20
Salaries and wages.....	2,044	2,042	233	1,410	227	49	34
Superintendents and managers.....	6,083	6,077	2,821	2,480	451	113	56
Technical employees.....	1,593	1,550	907	572	54	7	
Clerks, etc.....	8,463	8,450	3,390	3,847	910	129	57
Wage earners (average number).....	323,507	323,397	147,372	154,992	9,065	5,573	1,673
Wage earners by occupation (Dec. 15):							
Above ground (total).....	95,998	95,748	46,618	28,639	9,417	5,217	1,872
Below ground (total).....	250,844	250,822	105,625	143,468		663	
Foremen, shift bosses, etc.—							
Above ground.....	2,069	2,063	435	1,219		194	77
Below ground.....	4,805	4,803	1,098	3,063		8	
Engineers, hoistmen, electricians, mechanics, etc.—							
Above ground.....	27,316	27,305	10,488	8,966	6,453	720	164
Below ground.....	11,398	11,398	4,331	7,042		20	
Miners, quarrymen, and drillmen, including their helpers—							
Above ground.....	5,334	5,305	138	1,609		2,072	596
Below ground.....	151,957	151,949	50,401	91,675		171	
Timbermen, trackmen, and men engaged in hauling, tramming, etc.—							
Above ground.....	7,274	7,219	2,769	3,409		400	138
Below ground.....	41,010	41,006	17,325	23,457		78	
Muckers, loaders, laborers, and others not classified—							
Above ground.....	32,261	32,112	12,291	13,202	2,964	1,769	640
Below ground.....	41,074	41,066	23,470	17,721		386	
Wage earners employed in mills and beneficiating plants—							
Above ground.....	21,744	21,744	20,497	234		62	227
Number of wage earners under 16 years of age included in those reported above—							
Above ground.....	163	162	110	34		5	
Mineral and oil land operated..... acres..	4,361,129	4,352,082	201,355	1,491,919	2,509,870	31,175	31,469
Land controlled, total..... acres..	4,734,637	4,724,927	432,025	1,682,398	2,509,879	33,431	36,903
Mineral and oil land owned.....	1,767,769	1,760,822	194,390	1,112,956	396,709	6,165	26,253
Mineral and oil land leased.....	2,617,152	2,615,052	77,955	381,720	2,110,179	25,045	5,230
Timber and other lands owned and leased.....	350,116	359,053	159,710	187,722		2,221	5,424
Power used: Aggregate horsepower.....	1,999,581	1,999,422	899,783	658,963	371,267	30,155	10,844
Prime movers (horsepower, total).....	1,638,707	1,638,599	782,000	444,690	365,082	15,641	8,268
Steam engines—							
Number.....	16,845	16,841	5,298	2,194	8,511	378	149
Horsepower.....	1,274,193	1,274,108	730,141	348,402	156,490	14,516	7,057
Steam turbines—							
Number.....	146	146	45	100		1	
Horsepower.....	137,213	137,213	50,665	86,273		275	
Internal-combustion engines—							
Number.....	14,435	14,433	73	319	13,910	55	28
Horsepower.....	226,536	226,513	1,284	10,015	208,552	800	1,211
Water wheels and turbines—							
Number.....	12	12			2	2	
Horsepower.....	765	765			40	50	
Purchased power (horsepower, total).....	360,874	360,823	117,693	214,273	6,185	14,514	2,576
Electric motors operated by purchased current—							
Number.....	8,526	8,521	1,881	5,953	41	358	100
Horsepower.....	355,221	355,170	117,693	214,208	637	14,514	2,576
Other equipment operated by purchased power—							
Horsepower.....	5,653	5,653		65	5,548		
Electric motors run by current generated by enterprise using:							
Number.....	12,146	12,146	3,801	8,045	203	9	20
Horsepower.....	471,216	471,216	185,723	278,780	2,341	225	1,165
Fuel used:							
Coal, anthracite..... tons, 2,240 pounds..	8,561,045	8,561,045	8,548,201			702	2,385
Coal, bituminous..... tons, 2,000 pounds..	3,674,852	3,674,674	4,096	3,304,925	6,602	130,836	41,643
Coke..... tons, 2,000 pounds..	210	219				179	
Wood..... cords.....	2,376	2,376			1,532	237	87
Fuel oils..... barrels.....	1,808	1,608	671	166	108	201	3
Gasoline and other volatile oils..... barrels.....	13,811	13,801	1,381	5,008	2,447	3,408	285
Natural gas..... 1,000 cubic feet.....	410,047,604	410,047,604		310,914	9,483,454	4,080	145,627

¹ Includes a small operation in New York inseparably combined with report on Pennsylvania operations.² Includes 156 collieries embracing 374 mines, 245 breakers and 60 culm washeries; 19 enterprises operating 19 culm washeries; and 70 enterprises operating 81 river dredges.³ Includes 374 mines, 79 culm washeries and 81 river dredges.⁴ Includes 89,354 M. cu. ft. of manufactured (coke oven) gas reported as fuel used in the mining of iron ore.

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

	PRODUCING ENTERPRISES—continued.							NONPRODUCING ENTERPRISES.		
	Slate.	Clay.	Basalt.	Granite.	Mineral pigments.	Silica.	All other. ¹	Total.	Coal, bituminous.	Petroleum and natural gas.
Number of enterprises.....	42	62	29	29	13	4	12	13	10	3
Number of mines and quarries.....	42	63	32	30	13	4	12	10	10	
Number of petroleum and natural-gas wells.....										
Number of natural-gas gasoline plants.....										
Capital.....	\$2,829,629	\$4,357,640	\$3,562,049	\$475,238	\$515,762	\$147,565	\$2,248,554	\$3,244,212	\$3,191,812	\$52,400
Principal expenses:										
Salaries and wages—										
Officers.....	\$79,310	\$52,229	\$63,050	\$8,422	\$10,575	\$1,550	\$17,675	\$3,200	\$3,200	
Superintendents and managers.....	\$96,085	\$80,588	\$54,954	\$10,633	\$5,380	\$3,400	\$40,387	\$3,223	\$3,223	
Technical employees.....	\$900		\$7,600				\$15,631	\$18,512	\$17,497	\$1,015
Clerks, etc.....	\$32,589	\$44,111	\$39,466	\$4,624	\$7,267		\$11,187	\$1,445	\$1,445	
Wage earners.....	\$1,655,082	\$1,533,468	\$792,637	\$237,481	\$116,330	\$40,290	\$474,918	\$134,705	\$133,945	\$760
Supplies and materials.....	\$207,941	\$410,395	\$618,769	\$43,396	\$65,767	\$9,720	\$303,096	\$166,573	\$156,161	\$10,412
Cost of coal and natural gas purchased as material and for resale.....										
Fuel.....	\$164,461	\$66,880	\$152,792	\$20,585	\$11,511	\$3,775	\$51,334	\$1,193	\$195	\$998
Power.....	\$42,234	\$15,950	\$10,277	\$1,730	\$590	\$479	\$34,926	\$1,324	\$1,264	\$60
Royalties and rents.....	\$110,931	\$72,277	\$50,635	\$12,338	\$7,598		\$106,143	\$1,050	\$900	\$150
Taxes.....	\$33,185	\$30,271	\$91,046	\$3,774	\$1,672	\$1,371	\$42,748	\$40,224	\$40,204	\$20
Contract work.....	\$25,033	\$4,121	\$2,507	\$540	\$1,182		\$13,719	\$41,216	\$11,616	\$29,600
Expenditures for development (included in the above items).....	\$36,717	\$69,265	\$85,254	\$18,700	\$5,456	\$20,000	\$218,321	\$301,516	\$258,351	\$42,665
Value of products.....	\$2,651,533	\$2,546,485	\$2,208,791	\$435,654	\$344,739	\$54,867	\$1,373,209			
Persons engaged in industry.....	2,051	1,440	823	252	140	51	466	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
Salaried officers.....	47	9	18	5	4	2	4	2	2	
Superintendents and managers.....	63	33	30	7	5	3	15	6	6	
Technical employees.....	1		1				8	13	11	2
Clerks, etc.....	31	27	39	6	6		8	3	3	
Wage earners (average number).....	1,892	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	249	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.....	16	12			3		3	2	2	
Enginemen, 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	166	212	131	11	2	47	29	29	
Below ground.....	270	481			14		37	8	8	
Timbermen, trackmen, and men engaged in hauling, tramping, etc.—										
Above ground.....	127	210	49	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	268	54	53	10	138	149	149	
Below ground.....	21	22			6		40	8	8	
Wage earners employed in mills and beneficiating plants—										
Above ground.....	560	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.....	1,054	20,892	4,258	480	1,211	410	980	9,047	8,722	325
Land controlled, total..... acres.....	1,391	22,035	4,758	489	2,977	499	1,112	9,110	8,785	325
Mineral and oil land owned.....	629	11,129	733	402	825	410	230	6,947	6,946	1
Mineral and oil land leased.....	425	9,763	3,525	78	386		750	2,100	1,776	324
Timber and other lands owned and leased.....	337	1,143	500	9	1,766	89	132	63	68	
Power used: Aggregate horsepower.....	9,678	3,892	6,058	1,232	1,198	390	5,962	159	103	56
Prime movers (horsepower, total).....	7,393	2,638	5,147	852	1,183	365	5,250	108	53	55
Steam engines—										
Number.....	155	44	53	30	12	1	16	4	1	3
Horsepower.....	7,385	2,357	5,000	768	585	125	1,282	85	30	55
Steam turbines—										
Number.....										
Horsepower.....										
Internal-combustion engines—										
Number.....	1	17	6	9	6	4	5	2	2	
Horsepower.....	8	281	147	84	228	240	3,663	23	23	
Water wheels and turbines—										
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	36	28	5	2	2	20	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					54			
Horsepower.....		201					2,781			
Fuel used:										
Coal, anthracite..... tons, 2,240 pounds.....	8,504	337			863		50			
Coal, bituminous..... tons, 2,000 pounds.....	24,106	14,597	30,847	3,662	1,552	682	11,071	178	40	138
Coke..... tons, 2,000 pounds.....							40			
Wood..... cords.....		50			290		130			
Fuel oils..... barrels.....	36		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	² 89,354			

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

² Manufactured (coke oven) gas.

RHODE ISLAND.

Rhode Island, which ranks forty-eighth among the states in size (land area 1,067 square miles) and thirty-eighth in population (604,397 in 1920), ranked forty-fifth in value of mineral products in 1919. The state also ranked forty-fifth 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 Rhode Island in 1919 was \$952,204, which was an increase of 6.1 per cent over the corresponding amount for 1909. Nevertheless, a decline in the quarrying industries in Rhode Island is indicated by Table 1. The decreases therein shown in the number of enterprises and individual quarries and mines operated and in the number of wage earners employed are more significant than the increases in cost of supplies and materials and fuel and power, and in value of products, which are largely due to general price increases. The large increase in taxes shown is accounted for by the incidence of new taxes since 1909.

The mining and quarrying industries reported for 1919, classified by principal products and listed in order of value of products, were granite, basalt or trap rock, and graphite.

Production of granite was the leading mineral industry in Rhode Island. This industry included 8 out of a total of 14 mineral enterprises reported in the state, employed 71 per cent of the total number of wage earners, and produced stone to the value of

\$733,683, or 77.1 per cent of the total value of products of all mines and quarries in the state.

Table 2 shows that among operators of quarrying and mining enterprises in Rhode Island corporations were in the majority. This form of organization conducted 57.1 per cent of the number of enterprises, employed 75.1 per cent of the total number of wage earners, and reported 81.5 per cent of the total value of products.

The relative importance of enterprises, as determined by the average number of wage earners employed, is shown in Table 3. The small enterprises, employing less than 101 wage earners each, included 13 out of a total of 14, and only 1 of the 13 employed more than 50 wage earners. The 12 smaller enterprises, each having less than 50 wage earners, together employed 51 per cent of the total number of wage earners, whereas the two larger enterprises employed 49 per cent.

The prevailing hours of labor, as shown in Table 4, were 44 to 53 per week in the majority of enterprises and for 75.6 per cent of the wage earners.

The statistics for wage earners given in Table 5, showing changes in the number employed month by month, reflect conditions prevailing in the industries during the census year.

Table 6 presents for 1919 statistics in detail for the state as a whole and for granite, the only industry that can be shown without disclosing 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.....	14	21		Capital.....	\$810,066	\$567,015	42.9
Number of mines and quarries.....	15	27		Principal expenses:			
Persons engaged.....	421	725	-41.9	Salaries.....	82,681	57,889	42.8
Proprietors and firm members, total.....	6	18		Wages.....	309,648	409,883	-2.5
Number performing manual labor in or about the mines and quarries.....		7		Contract work.....	1,000		
Salaried employees.....	46	42		Supplies and materials.....	146,637	130,947	12.0
Wage earners (average number).....	369	665	-44.5	Fuel and power.....	55,075	28,991	104.0
Power used (horsepower).....	3,000	2,350	27.7	Royalties and rents.....	6,755	8,552	-32.7
				Taxes.....	9,279	3,343	177.6
				Value of products.....	952,204	897,606	6.1

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

MINES AND QUARRIES—RHODE ISLAND.

TABLE 2.—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.....	14	369	\$952,204	\$68,015	100.0	100.0	100.0
Corporation.....	8	277	775,855	96,982	57.1	75.1	81.5
Individual.....	6	92	176,349	29,392	42.9	24.9	18.5
GRANITE.....	8	262	733,683	91,710	100.0	100.0	100.0
Corporation.....	4	238	687,510	171,878	50.0	90.8	93.7
Individual.....	4	24	46,173	11,543	50.0	9.2	6.3

TABLE 3.—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.....	14	100.0	369	100.0	GRANITE.....	8	100.0	262	100.0
1 to 5.....	5	35.7	21	5.7	1 to 5.....	3	37.5	15	5.7
6 to 20.....	3	21.4	32	8.7	6 to 20.....	2	25.0	20	7.6
21 to 50.....	4	28.6	135	36.6	21 to 50.....	1	12.5	46	17.6
51 to 100.....	1	7.1	74	20.1	51 to 100.....	1	12.5	74	28.2
101 to 500.....	1	7.1	107	29.0	101 to 500.....	1	12.5	107	40.8

TABLE 4.—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—					
	Enterprises.	Wage earners.	35 and under.		44 to 53.		54 to 62.	
			Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners.
All industries.....	14	369	1	5	8	279	5	85
Granite.....	8	262	1	5	6	247	1	10
All other industries.....	6	107	.....	.....	2	32	4	75

TABLE 5.—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.....	369	246	281	303	349	380	393	427	424	433	395	404	370	55.2
Granite.....	262	192	202	209	235	272	275	304	302	316	278	287	272	60.8
All other industries.....	107	<i>54</i>	79	94	114	117	118	123	122	122	117	117	107	43.9

MINES AND QUARRIES—RHODE ISLAND.

TABLE 6.—DETAILED STATISTICS FOR MINING INDUSTRIES: 1919.

	PRODUCING ENTERPRISES.				PRODUCING ENTERPRISES.		
	Total.	Granite.	All other. ¹		Total.	Granite.	All other. ¹
Number of enterprises.....	14	8	6	Persons engaged in industry—Continued. Wage earners by occupation (Dec. 15)—Con. Miners, quarrymen, and drillmen, including their helpers—			
Number of mines and quarries.....	15	8	7		Above ground.....	166	114	52
Capital.....	\$310,066	\$553,866	\$256,200	Below ground.....	2		2
Principal expenses:				Timbermen, trackmen, and men engaged in hauling, tramping, etc.—			
Salaries and wages—				Above ground.....	11	5	6
Officers.....	\$22,435	\$18,355	\$4,100	Muckers, loaders, laborers, and others not classified—			
Superintendents and managers.....	\$34,185	\$17,321	\$16,864	Above ground.....	100	63	37
Technical employees.....	\$11,073	\$11,073		Wage earners employed in mills and beneficiating plants—			
Clerks, etc.....	\$14,988	\$10,846	\$4,142	Above ground.....	70	70	
Wage earners.....	\$309,648	\$280,227	\$119,421	Mineralland operated.....acres..	570	433	137
Supplies and materials.....	\$146,637	\$122,500	\$24,137	Land controlled, total.....acres..	1,334	1,197	137
Fuel.....	\$45,526	\$30,999	\$14,527	Mineralland owned.....	512	377	135
Power.....	\$9,549	\$7,293	\$2,256	Mineralland leased.....	58	56	2
Royalties and rents.....	\$5,755	\$5,645	\$110	Timber and other lands owned and leased..	764	764	
Taxes.....	\$9,279	\$7,764	\$1,525	Power used: Aggregate horsepower.....	3,000	2,460	540
Contract work.....	\$1,000		\$1,000	Prime movers (horsepower, total).....	1,844	1,520	324
Expenditures for development (included in the above items).....	\$14,200	\$11,200	\$3,000	Steam engines—			
Value of products.....	\$952,204	\$733,683	\$218,521	Number.....	58	40	9
Persons engaged in industry.....	421	266	125	Horsepower.....	1,840	1,520	320
Proprietors and firm members (total).....	6	4	2	Internal-combustion engines—			
Salaried officers.....	5	3	2	Number.....	1		1
Superintendents and managers.....	20	11	9	Horsepower.....	4		4
Technical employees.....	6	6		Purchased power (horsepower, total).....	1,156	940	216
Clerks, etc.....	15	10	5	Electric motors operated by purchased current—			
Wage earners (average number).....	369	262	107	Number.....	20	21	8
Wage earners by occupation (Dec. 15):				Horsepower.....	1,156	940	216
Above ground (total).....	420	307	113	Fuel used:			
Below ground (total).....	2		2	Coal, anthracite..... tons, 2,240 pounds..	118	18	100
Foremen, shift bosses, etc.—				Coal, bituminous..... tons, 2,000 pounds..	6,316	5,098	1,218
Above ground.....	20	17	3	Wood..... cords.....	6		6
Enginemen, hoistmen, electricians, mechanics, etc.—				Gasoline and other volatile oils.....barrels..	187	125	62
Above ground.....	53	38	15				

Includes enterprises as follows: Basalt, 4; graphite, 2.

SOUTH CAROLINA.

South Carolina, which ranks thirty-ninth among the states in size (land area 30,495 square miles) and twenty-sixth in population (1,683,724 in 1920), ranked forty-fourth in value of mineral products in 1919. The state ranked fortieth 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 South Carolina in 1919 was \$1,350,747, an increase of 7.8 per cent as compared with 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, were largely affected by general price increases during the census interval and are therefore not a measure of progress in mining. Decline of the mining industries is indicated by decrease in the number of enterprises and individual mines and quarries operated and in the average number of wage earners employed.

The mineral industries reported in South Carolina in 1919 were the quarrying of granite and the mining of phosphate rock, clay, and barytes.

The leading industry, and the only one for which statistics can be shown without disclosure of individual operations, was the quarrying of granite.

This industry included one-half the enterprises reported, employed 34.5 per cent of the total number of wage earners, and reported products valued at \$747,976 or 55.4 per cent of the total value of products.

The mining enterprises in South Carolina in 1919 are classified according to form of operating organization in Table 2, which shows that corporations were most numerous and conducted the largest enterprises.

In Table 3 the mining enterprises are grouped by size according to number of wage earners employed. All enterprises were small, that is, employed fewer than 101 wage earners, except two which were in the phosphate-rock-mining industry.

Table 4 shows that in four-fifths of the enterprises and for nearly three-fourths of the wage earners the hours of labor were 54 to 62 per week in the mining industries. The 10-hour workday and 6-day week prevailed.

The statistics for wage earners presented in Table 5, showing changes in the number employed month by month, reflect conditions prevailing in the industries during the census year.

Table 6 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.

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.....	20	29		Capital.....	\$3,205,232	\$1,209,390	165.0
Number of mines and quarries.....	20	32		Principal expenses:			
Persons engaged.....	1,008	1,879	-46.4	Salaries.....	139,843	82,240	70.0
Proprietors and firm members, total.....	15	13		Wages.....	680,484	626,423	8.6
Number performing manual labor in or about the mines and quarries.....	2	3		Contract work.....		6,680	
Salaried employees.....	60	52		Supplies and materials.....	303,371	124,618	143.4
Wage earners (average number).....	933	1,814	-48.6	Fuel and power.....	180,440	117,869	27.6
Power used (horsepower).....	4,666	7,012	-33.6	Royalties and rents.....	7,512	10,336	-27.3
				Taxes.....	17,559	10,733	62.8
				Value of products.....	1,350,747	1,252,792	7.8

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

MINES AND QUARRIES—SOUTH CAROLINA.

TABLE 2.—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.....	20	933	\$1,350,747	\$67,537	100.0	100.0	100.0
Corporation.....	12	673	1,097,732	91,478	80.0	72.1	81.3
Individual.....	4	19	10,716	2,079	20.0	2.0	0.8
Firm.....	4	241	242,299	60,575	20.0	25.8	17.9
GRANITE.....	10	322	747,976	74,798	100.0	100.0	100.0
Corporation.....	5	236	586,023	117,205	50.0	73.3	78.3
Firm ¹	5	86	161,953	32,391	50.0	26.7	21.7

¹ Includes 3 individuals.

TABLE 3.—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.....	20	100.0	933	100.0	GRANITE.....	10	100.0	322	100.0
1 to 5.....	4	20.0	11	1.2	1 to 5.....	4	40.0	11	3.4
6 to 20.....	5	25.0	64	6.9	6 to 20.....	2	20.0	24	7.5
21 to 50.....	4	20.0	128	13.7	21 to 50.....	1	10.0	41	12.7
51 to 100.....	5	25.0	359	38.5	51 to 100.....	3	30.0	246	76.4
101 to 500.....	2	10.0	371	39.8					

TABLE 4.—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—					
	Enterprises.	Wage earners.	36 to 43.		44 to 53.		54 to 62.	
			Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners.
All industries.....	20	933	1	77	3	174	16	682
Granite.....	10	322	1	77	3	174	6	71
All other industries.....	10	611					10	611

TABLE 5.—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.....	933	793	784	913	922	896	893	974	1,031	1,006	908	1,010	1,006	76.0
Granite.....	322	307	301	302	311	315	294	320	348	343	324	351	350	83.8
All other industries.....	611	486	483	611	611	581	599	654	685	663	584	659	656	70.5

MINES AND QUARRIES—SOUTH CAROLINA.

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TABLE 6.—DETAILED STATISTICS FOR MINING INDUSTRIES: 1919.

	PRODUCING ENTERPRISES.				PRODUCING ENTERPRISES.		
	Total.	Granite.	All other. ¹		Total.	Granite.	All other. ¹
Number of enterprises.....	20	10	10	Persons engaged in industry—Continued. Wage earners by occupation (Dec. 15)— Continued.			
Number of mines and quarries.....	20	10	10				
Capital.....	\$3,205,232	\$994,240	\$2,210,992	Timbermen, trackmen, and men engaged in hauling, tramping, etc.— Above ground.....	86		86
Principal expenses:				Muckers, loaders, laborers, and others not classified— Above ground.....	395	110	285
Salaries and wages—				Below ground.....	18		18
Officers.....	\$67,949	\$58,789	\$9,160	Wage earners employed in mills and beneficiating plants— Above ground.....	89	8	81
Superintendents and managers.....	\$40,926	\$12,348	\$28,578	Number of females included in wage earners reported above— Above ground.....	5		5
Technical employees.....	\$6,000	\$3,000	\$3,000	Mineral land operated.....acres..	31,684	2,364	29,320
Clerks, etc.....	\$24,968	\$13,293	\$11,675	Land controlled, total.....acres..	31,744	2,374	29,370
Wage earners.....	\$380,484	\$278,162	\$402,322	Mineral land owned.....	31,630	2,310	29,320
Supplies and materials.....	\$303,371	\$199,372	\$103,999	Mineral land leased.....	104	54	50
Fuel.....	\$122,170	\$33,742	\$88,428	Timber and other lands owned and leased...	10	10	
Power.....	\$28,270	\$24,687	\$3,583	Power used: Aggregate horsepower.....	4,656	2,392	2,264
Royalties and rents.....	\$7,512	\$3,762	\$3,750	Prime movers (horsepower, total).....	2,572	1,057	1,515
Taxes.....	\$17,556	\$7,278	\$10,278	Steam engines— Number.....	48	21	27
Expenditures for development (included in the above items).....	\$111,693		\$111,693	Horsepower.....	2,450	1,020	1,430
Value of products.....	\$1,350,747	\$747,976	\$602,771	Internal-combustion engines— Number.....	10	3	7
Persons engaged in industry.....	1,008	356	652	Horsepower.....	122	87	85
Proprietors and firm members (total).....	15	9	6	Purchased power (horsepower, total).....	2,034	1,335	749
Number performing manual labor.....	2	2		Electric motors operated by purchased current— Number.....	36	18	18
Salaried officers.....	14	10	4	Horsepower.....	2,034	1,335	749
Superintendents and managers.....	20	6	14	Electric motors run by current generated by enterprise using: Number.....	4		4
Technical employees.....	2	1	1	Horsepower.....	200		206
Clerks, etc.....	24	8	16	Fuel used: Coal, bituminous..... tons, 2,000 pounds..	18,949	5,288	13,661
Wage earners (average number).....	933	322	611	Wood..... cords..	3,113	432	2,681
Wage earners by occupation (Dec. 15):				Gasoline and other volatile oils..... barrels..	86	12	74
Above ground (total).....	1,003	363	640				
Below ground (total).....	29		29				
Foremen, shift bosses, etc.— Above ground.....	34	17	17				
Below ground.....	2		2				
Enginemen, hoistmen, electricians, mechanics, etc.— Above ground.....	82	34	48				
Below ground.....	1		1				
Miners, quarrymen, and drillmen, including their helpers— Above ground.....	317	104	123				
Below ground.....	8		8				

¹ Includes enterprises as follows: Barytes, 1; clay, 7; phosphate rock, 2.