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FOURTEENTH CENSUS OF THE UNITED STATES
MINES AND QUARRIES: 1919

IDAHO, NEVADA, UTAH

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

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EXPLANATION OF TERMS.

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

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

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

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

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

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

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

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

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

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

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

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

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

Salaries and wages.—Under these heads are given the total payments during the year for salaries and wages, respectively. The Census Bureau has not undertaken to calculate the average annual earnings of either salaried employees or wage earners. Such averages would possess little real value, because they would be based on the earnings of employees of both sexes, of all ages, in different occupations, and of widely varying degrees of skill. Furthermore, so far as wage earners

are concerned, it would be impossible to calculate accurately even so simple an average as this, since the number of wage earners fluctuates rapidly and irregularly in every industry, and in some to a very great extent from day to day. The Census Bureau's figures for wage earners, as already explained, are averages based on the number employed on the 15th of each month and while representing the number according to the pay rolls to whom wages were paid on that date, no doubt represent a larger number than would be required to perform the work in any industry if all were continuously employed during the year.

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

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

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

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

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

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

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

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

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

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

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

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

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

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.

MINES AND QUARRIES—IDAHO.

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.....	82	174	-52.9	Capital.....	\$71,093,746	\$48,892,888	45.4
Number of mines and quarries.....	83	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.....	2,026,256	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	560.0
				Taxes.....	649,009	158,145	310.4
				Value of products.....	11,840,301	8,649,342	36.9

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	340,300	2.9
						All other industries ¹	22	199	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	66.7	88.8	89.7
Individual.....	4	9	10,600	2,650	0.7	0.4	0.1
Firm ¹	16	243	1,154,345	72,147	20.7	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 distrib- ution.	Number.	Per cent distrib- ution.		Number.	Per cent distrib- ution.	Number.	Per cent distrib- ution.
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.		
All industries.....	169	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	128

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 num- ber em- ployed during year.	NUMBER EMPLOYED ON 15TH DAY OF THE MONTH OR NEAREST REPRESENTATIVE DAY.												Per cent mini- mum is of maxi- mum.
		Janu- ary.	Febru- ary.	March.	April.	May.	June.	July.	August.	Sep- tember.	Octo- ber.	Novem- ber.	Decem- ber.	
All industries.....	2,828	3,005	2,090	2,316	2,337	2,738	2,921	3,208	2,637	2,103	2,492	3,515	3,674	57.2
Producing enterprises.....	2,455	2,773	2,733	2,087	2,056	2,391	2,517	2,746	2,175	1,648	2,008	3,078	3,268	50.4
Lead and zinc.....	1,820	2,258	2,230	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	466	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	155	150	176	239	250	220	238	231	201	203	54.0
Nonproducing enterprises.....	373	432	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	\$71,093,746	\$54,762,584	\$8,525,765	\$3,814,280	\$3,001,117	\$8,973,508
Principal expenses:							
Salaries and wages—							
Officers.....	\$104,320	\$82,515	\$57,900	\$12,193	\$3,910	\$8,512	\$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	\$50,007	\$5,494	\$3,000	\$2,780	\$10,076
Clerks, etc.....	\$145,793	\$138,616	\$111,026	\$14,930	\$5,962	\$6,727	\$7,148
Wage earners.....	\$4,735,100	\$4,201,624	\$3,251,042	\$541,206	\$159,033	\$249,443	\$538,476
Supplies and materials.....	\$2,398,248	\$2,026,250	\$1,568,866	\$275,682	\$72,515	\$110,193	\$371,902
Fuel.....	\$205,852	\$159,254	\$118,176	\$17,842	\$7,603	\$15,613	\$40,658
Power.....	\$365,950	\$354,454	\$280,312	\$43,501	\$11,205	\$10,286	\$11,400
Royalties and rents.....	\$196,502	\$182,364	\$138,303	\$25,521	\$9,283	\$12,257	\$14,138
Taxes.....	\$650,020	\$649,069	\$537,512	\$94,959	\$3,951	\$12,647	\$6,951
Contract work.....	\$216,088	\$193,657	\$156,759	\$15,854	\$3,514	\$17,530	\$22,431
Expenditures for development (included in the above items).....	\$1,620,612	\$532,077	\$200,577	\$211,728	\$96,439	\$23,333	\$1,007,535
Value of products.....	\$11,840,301	\$11,840,301	\$9,529,723	\$1,396,915	\$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	12	8
Number performing manual labor.....	34	32	3	17	.....	20	2
Salaried officers.....	40	27	11	9	3	4	13
Superintendents and managers.....	111	69	36	15	8	10	42
Technical employees.....	46	38	28	5	1	2	10
Clerks, etc.....	98	89	61	18	4	6	9
Wage earners (average number).....	2,828	2,455	1,820	349	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	79	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	164
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	1,560	8,612	20,513
Land controlled, total..... acres.....	51,928	31,260	13,035	7,618	1,585	9,022	20,608
Mineral land owned.....	42,560	24,877	10,414	6,006	1,295	7,162	17,683
Mineral land leased.....	5,927	3,097	440	942	265	1,450	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	25
Horsepower.....	2,510	1,103	138	280	.....	683	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, turbines, and motors—							
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	20	18
Horsepower.....	29,115	28,248	24,258	2,186	750	1,054	867
Other equipment operated by purchased power—							
Number.....	212	180	50	130	.....	.....	32
Horsepower.....	19	19	7	9	.....	3	.....
Electric motors run by current generated by enterprise using:							
Number.....	1,120	1,120	750	260	.....	110	.....
Horsepower.....							
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	3,591	1,516	1,918	25	432	3,426
Fuel oils..... barrels.....	1,029	726	561	.....	105	.....	303
Gasoline and other volatile oils..... barrels.....	1,009	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.

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. Enterprises classed as 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 employed 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.....	\$1,000,848	\$870,050	25.5
Persons engaged.....	4,800	5,333	-8.9	Wages.....	7,301,113	5,025,070	24.9
Proprietors and firm members, total.....	151	213	-29.1	Contract work.....	215,129	196,708	24.7
Number performing manual labor in or about the mines and quarries.....	120	143	-16.1	Supplies and materials.....	5,330,511	4,085,012	7.1
Salaried employees.....	478	478	—	Fuel and power.....	1,751,200	1,311,025	33.5
Wage earners (average number).....	4,231	4,642	-8.9	Royalties and rents.....	143,708	273,550	-47.8
Power used (horsepower).....	50,786	26,862	89.1	Taxes.....	402,003	215,120	90.3
Capital.....	\$82,500,057	\$120,002,830	-31.3	Value of products.....	18,053,084	23,271,507	-22.4

¹ A minus sign (-) denotes decrease.

¹ 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	\$18,053,084	100.0	Gold, placer mines.....	8	10	0.4	\$63,049	0.4
Gold and silver, lode mines.....	148	2,084	49.3	9,687,431	53.7	Quicksilver.....	4	23	0.5	57,050	0.3
Copper and lead and zinc.....	30	1,881	44.5	7,393,392	41.0	All other industries.....	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	\$18,053,084	\$88,936	100.0	100.0	100.0
Corporation.....	118	4,011	17,885,880	147,338	58.1	94.8	95.3
Individual.....	40	88	180,472	4,512	19.7	2.1	1.0
Firm.....	45	132	487,026	10,836	22.2	3.1	2.7
GOLD AND SILVER, LODGE MINES.....	148	2,084	9,687,431	65,460	100.0	100.0	100.0
Corporation.....	85	1,890	9,105,027	107,118	57.4	91.0	94.0
Individual.....	30	60	154,010	5,134	20.3	3.2	1.0
Firm.....	33	122	428,385	12,981	22.3	5.0	4.4
COPPER AND LEAD AND ZINC.....	30	1,881	7,393,392	246,440	100.0	100.0	100.0
Corporation.....	18	1,870	7,354,412	408,578	90.0	90.0	90.5
Individual.....	7	5	15,708	2,244	21.3	0.3	0.2
Firm.....	5	3	23,272	4,654	10.7	0.2	0.3

MINES AND QUARRIES—NEVADA.

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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.....	201	100.0	4,231	100.0	COPPER AND LEAD AND ZINC.....	30	100.0	1,884	100.0
No wage earners.....	30	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	702	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	1,132	33.8	QUICKSILVER.....	4	100.0	23	100.0
GOLD AND SILVER, LODE MINES.....	148	100.0	2,081	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.....	50	30.0	120	6.0	GOLD, PLACER MINES.....	8	100.0	19	100.0
6 to 20.....	33	22.3	350	16.8	No wage earners.....	5	62.5	.....	.....
21 to 50.....	16	10.8	548	26.3	1 to 5.....	2	25.0	5	26.8
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—							
	Enter-prises.	Wage earners.	36 to 43.		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.
All industries.....	164	4,231	1	2	27	345	135	3,883	1	1
Gold and silver, lode mines.....	120	2,084	1	2	21	323	97	1,758	1	1
Copper and lead and zinc.....	24	1,884	.....	.....	2	2	22	1,882	.....	.....
Quicksilver.....	4	23	.....	.....	.....	.....	4	23	.....	.....
Gold, placer mines.....	3	19	.....	.....	.....	.....	3	19	.....	.....
All other industries.....	13	221	.....	.....	4	20	9	201	.....	.....

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.....	4,016	5,499	4,678	4,590	4,647	4,073	5,245	5,301	4,196	4,271	4,818	5,292	5,473	76.3
Producing enterprises.....	4,231	5,118	4,275	4,143	4,003	4,227	4,428	4,381	3,866	3,656	4,081	4,467	4,567	65.8
Gold and silver, lode mines.....	2,084	1,763	1,972	2,070	2,018	2,212	2,383	2,457	2,394	1,690	1,817	2,061	2,225	60.3
Copper and lead and zinc.....	1,884	3,075	2,055	1,841	1,707	1,736	1,803	1,638	672	1,767	2,006	2,143	2,075	21.9
Quicksilver.....	23	22	22	22	17	18	28	28	28	28	27	21	16	53.6
Placer mines.....	19	28	25	27	24	18	15	17	18	18	16	10	11	36.7
All other industries.....	221	230	200	177	207	243	199	241	254	213	215	232	241	69.7
Nonproducing enterprises.....	685	387	403	450	584	746	817	920	830	615	737	825	906	41.4

MINES AND QUARRIES—NEVADA.

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

	Aggregate.	PRODUCING ENTERPRISES.						Non-producing enterprises. ¹
		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.....	\$100,606,025	\$82,500,057	\$38,262,116	\$40,130,508	\$70,500	\$211,000	\$3,819,933	\$18,105,968
Principal expenses:								
Salaries and wages—								
Officers.....	\$339,313	\$240,254	\$103,402	\$46,002	.....	\$000	\$0,070	\$03,050
Superintendents and managers.....	\$649,884	\$475,260	\$326,231	\$112,233	.....	\$7,010	\$20,180	\$174,874
Technical employees.....	\$175,406	\$145,441	\$109,523	\$35,518	.....	\$400	.....	\$30,025
Clerks, etc.....	\$267,737	\$232,893	\$134,179	\$78,037	.....	.....	\$10,777	\$34,844
Wage earners.....	\$8,503,318	\$7,401,113	\$3,808,482	\$3,235,703	\$30,662	\$43,001	\$282,275	\$1,102,205
Supplies and materials.....	\$0,351,609	\$5,339,511	\$2,090,091	\$2,362,403	\$11,780	\$17,427	\$251,810	\$1,015,098
Fuel.....	\$1,171,459	\$1,112,427	\$265,403	\$802,610	\$500	\$4,010	\$30,835	\$50,032
Power.....	\$741,371	\$638,839	\$534,707	\$67,730	\$1,544	.....	\$34,852	\$102,532
Royalties and rents.....	\$144,144	\$143,708	\$121,179	\$14,584	\$928	\$0,617	\$400	\$430
Taxes.....	\$400,425	\$402,603	\$250,450	\$197,088	\$750	\$507	\$13,202	\$27,762
Contract work.....	\$354,916	\$245,420	\$177,312	\$68,117	.....	.....	.....	\$100,487
Expenditures for development (included in the above items).....	\$5,179,347	\$2,486,280	\$1,672,213	\$754,613	.....	\$21,327	\$38,127	\$2,603,007
Value of products.....	\$18,053,984	\$18,053,984	\$9,687,431	\$7,393,302	\$63,640	\$57,050	\$862,463	.....
Persons engaged in industry.....	5,798	4,860	2,515	2,024	32	30	250	938
Proprietors and firm members (total).....	161	151	112	10	13	2	5	10
Number performing manual labor.....	122	120	80	17	12	2	.....	2
Salaried officers.....	161	86	66	17	.....	1	2	75
Superintendents and managers.....	255	156	106	33	.....	3	14	90
Technical employees.....	90	68	53	14	.....	1	.....	23
Clerks, etc.....	215	168	94	57	.....	.....	17	47
Wage earners (average number).....	4,916	4,231	2,084	1,884	10	23	221	685
Wage earners by occupation (Dec. 15):								
Above ground (total).....	3,068	2,725	851	1,640	8	14	212	313
Below ground (total).....	3,208	2,517	1,720	622	3	12	100	601
Foremen, shift bosses, etc.—								
Above ground.....	254	221	62	155	.....	2	13	33
Below ground.....	205	153	82	66	.....	.....	5	32
Engineers, hoistmen, electricians, mechanics, etc.—								
Above ground.....	832	693	260	405	1	1	26	130
Below ground.....	109	69	32	32	.....	.....	6	40
Miners, quarrymen, and drillmen, including their helpers—								
Above ground.....	199	119	28	66	5	.....	20	80
Below ground.....	1,581	1,210	815	200	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	70	.....	.....	3	67
Muckers, loaders, laborers, and others not classified—								
Above ground.....	456	388	167	152	1	3	65	68
Below ground.....	757	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
Mineral land operated..... acres.....	64,210	45,114	23,615	12,965	2,848	1,195	4,491	10,006
Land controlled, total..... acres.....	72,002	52,167	24,700	18,928	2,848	1,195	4,490	10,835
Mineral land owned.....	64,060	35,901	17,849	10,100	2,782	720	4,361	18,168
Mineral land leased.....	10,164	9,236	5,776	2,770	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	32,005	10,000	140	30	1,096	8,000
Prime movers (horsepower, total).....	20,896	18,342	5,202	12,260	24	86	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.....	280	193	142	31	4	6	10	90
Horsepower.....	8,003	5,539	4,444	639	24	30	309	2,494
Water wheels, turbines, and motors—								
Number.....	5	5	5	.....	.....	.....	.....	.....
Horsepower.....	168	168	168	.....	.....	.....	.....	.....
Purchased power (horsepower, total).....	38,886	32,444	27,403	3,740	116	.....	1,185	0,442
Electric motors operated by purchased current—								
Number.....	959	801	705	47	21	.....	28	158
Horsepower.....	38,866	32,444	27,403	3,740	110	.....	1,185	0,422
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	9,820	.....	.....	2	46
Fuel used:								
Coal, bituminous..... tons, 2,000 pounds.....	113,862	113,708	1,802	111,401	25	.....	420	154
Coke..... tons, 2,000 pounds.....	376	376	.....	376	.....	.....	.....	.....
Wood..... cords.....	3,340	2,977	2,280	190	.....	508	20	865
Fuel oils..... barrels.....	67,443	64,363	40,306	3,660	.....	6	11,391	3,080
Gasoline and other volatile oils..... barrels.....	10,020	8,476	5,603	1,801	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.

UTAH.

Utah, which ranks tenth among the states in size (land area 82,184 square miles) and fortieth in population (449,396 in 1920), ranked eighteenth in value of mineral products in 1919. The state ranked twenty-first 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 Utah in 1919 was \$41,510,802, an increase of 88 per cent as compared with the corresponding amount, \$22,083,282, reported at the census of 1909. After eliminating duplication of \$297,961, the value of gold and silver ores marketed in 1919 by some producers and again reported after further treatment and resale by others, and, for 1909, a similar duplication in the value of lead and zinc ores of \$106,910, the net value of products for 1919 is \$41,212,841 and for 1909, \$21,976,372. The figures for value of products for 1919 include receipts for mineral by-products, custom milling, power sold, and for work or miscellaneous services for other enterprises, which amounted to \$74,905.

The increases in value of products and in salaries, wages, cost of supplies and materials and fuel and power, as shown in Table 1, should not be used as a measure of the growth or progress of mining in Utah during the census period 1909 to 1919, for the reason that they are largely due to general price increases in recent years. Nor, on the other hand, are the decreases in number of enterprises and number of individual mines and quarries operated an indication of decline in mining, as these decreases are due, at least in part, to the temporarily adverse industrial conditions in 1919. The fact that, in the face of these conditions, there was only a slight falling off in the number of wage earners employed is a better indication of the sustained volume of operations in the industry in 1919. The large increase in taxes is due to the impost of Federal income taxes since 1909.

The mining industries reported for 1919, classified by principal products and listed in order of value of products, were copper, bituminous coal, gold and silver (lode), lead and zinc, asphalt, limestone, iron ore, gypsum, ores of rare metals (uranium and vanadium), clay, sandstone, phosphate rock, fluorspar, mineral pigments, and slate. 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 activities in Utah in 1919 were the mining and milling of gold, silver, copper, lead, and zinc ores. Sixty-one per cent of all mining enterprises were engaged in metalliferous lode mining, and these enterprises employed 59.7 per cent of the total number of wage earners and reported a product valued

at \$27,824,207, which was 67 per cent of the total value of mineral products of the state. The value of the products as here given is not the value of the metals produced or recoverable; it is the sales value of the mine and mill products—ores, concentrates, bullion, and mine-water precipitates—or the estimated equivalent of sales value when these were not sold by the producers but were smelted and refined by them. The statistics on smelting and refining operations and the value of the recovered metals, the final products, will be found in the reports of the census of manufactures. On the basis of combined products of gold, silver, copper, lead, and zinc lode mines Utah ranked fourth among the states. It was also fourth in rank in the value of output of mines of which the principal product was gold and silver, fourth in value of output of mines producing principally copper, and ninth in value of output of mines producing principally lead and zinc. Production of these metals was chiefly from the Big Cottonwood and Little Cottonwood districts and the Bingham district in Salt Lake County. Important production was obtained also from Juab, Summit, Utah, and Tooele Counties.

Coal mining was second in importance in Utah in 1919, with production valued at \$12,632,035, representing 30.4 per cent of the total value of mineral products of the state, and employing 37 per cent of the total number of wage earners. The principal producing county was Carbon in central Utah. There was some production also from Emery, Grand, Iron, Summit, and Uintah Counties.

The production of asphaltic materials was third in importance among the mining industries in Utah, which ranked first among the states in the output of such materials. Statistics for the industry in this state can not be shown, however, without disclosure of individual operations.

Operations for development on mining properties, not productive in 1919, were reported by 48 enterprises—1, an iron ore mine and the others, gold, silver, copper, lead or zinc mines. These enterprises, reporting a combined capital of \$8,521,338, employed 394 wage earners and expended \$1,695,273, which figures represent 3.8 per cent of the aggregate number of wage earners and 5 per cent of the aggregate expenditures reported for all mining operations in the state in 1919.

The character of organizations conducting mining enterprises in Utah in 1919 is shown in Table 3, which clearly brings out the extent of corporate control. Of all the enterprises, 81.6 per cent were operated by corporations, which employed 99.1 per cent of the total number of wage earners and reported 99.4 per cent of the total value of products. Table 3 also

shows that on a basis of average value of products per enterprise for all industries combined and for the metal-mining and coal-mining industries separately corporations conducted the largest 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 Utah, 85.1 per cent were in classes having no wage earners or fewer than 101, and the wage earners employed were only 20.2 per cent of the total number of wage earners. On the other hand, only 14.9 per cent of the total number of enterprises had more than 100 wage earners each, and these enterprises employed 79.8 per cent of the total number of wage earners. The larger enterprises were in the metal-mining and coal-mining industries.

Table 5 shows that in 42 per cent of the enterprises employing wage earners and for 31.2 per cent of the total number of wage earners the prevailing hours of labor were 44 to 53 and that in 50.7 per cent of the enterprises and for 67.1 per cent of the total number of wage earners the hours of labor were 54 to 62 per week. The 8-hour day was the rule with a 7-day week prevailing in the metal-mining industry and a 6-day week in the coal-mining industry.

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.

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.....	141	188	-25.0	Capital.....	\$178,521,270	\$81,000,043	120.4
Number of mines and quarries.....	154	235	-33.3	Principal expenses:			
Persons engaged.....	10,758	10,820	-0.6	Salaries.....	1,916,913	1,197,527	60.1
Proprietors and firm members, total.....	53	102	-48.0	Wages.....	17,106,652	8,086,851	91.4
Number performing manual labor in or about the mines and quarries.....	16	30	-46.7	Contract work.....	401,178	265,000	50.6
Salaried employees.....	858	629	36.4	Supplies and materials ²	8,043,453	4,627,324	90.7
Wage earners (average number).....	9,847	10,089	-2.4	Fuel and power.....	2,019,110	1,074,110	88.0
Power used (horsepower).....	86,131	47,226	82.4	Royalties and rents.....	150,955	71,911	109.9
				Taxes.....	2,066,154	211,920	874.5
				Value of products.....	41,510,802	22,083,283	88.0

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.....	141	9,847	100.0	\$41,510,802	100.0	Coal, bituminous.....	27	3,647	37.0	\$12,632,035	30.4
Gold, silver, copper, lead, and zinc, lode mines.....	86	5,874	59.7	27,824,207	67.0	Limestone.....	7	148	1.5	201,231	0.7
						Rare metals ¹	5	17	0.2	37,658	0.1
						All other industries ²	16	161	1.0	725,398	1.7

¹ Uranium and vanadium.

² Includes enterprises in industries as follows: Asphalt, 3; clay, 3; fluor spar, 1; gypsum, 2; iron ore, 2; mineral pigments, 1; phosphate rock, 1; sandstone, 2; slate, 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.....	141	9,847	\$41,510,802	\$294,408	100.0	100.0	100.0
Corporation.....	115	9,750	41,252,243	358,715	81.6	99.1	99.4
Individual.....	12	45	139,168	11,597	8.5	0.5	0.3
Firm.....	14	43	110,391	8,528	9.9	0.4	0.3
GOLD, SILVER, COPPER, LEAD, AND ZINC, LODE MINES.....	86	5,874	27,824,207	323,537	100.0	100.0	100.0
Corporation.....	77	5,840	27,719,741	359,967	80.5	99.6	99.0
Individual.....	4	10	55,794	13,949	4.7	0.2	0.2
Firm.....	5	15	48,672	9,734	5.8	0.3	0.2
COAL, BITUMINOUS.....	27	3,647	12,632,035	467,853	100.0	100.0	100.0
Corporation.....	18	3,610	12,554,081	697,449	66.7	99.2	99.4
Individual.....	3	9	10,545	3,515	11.1	0.2	0.2
Firm.....	6	10	58,409	9,735	22.2	0.6	0.6

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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 distribu- tion.	Number.	Per cent distribu- tion.		Number.	Per cent distribu- tion.	Number.	Per cent distribu- tion.
ALL INDUSTRIES.....	141	100.0	9,847	100.0	COAL, BITUMINOUS.....	27	100.0	3,647	100.0
No wage earners.....	3	2.1	.....	.....	1 to 5.....	9	33.3	19	0.5
1 to 5.....	51	36.2	119	1.2	6 to 20.....	2	7.4	13	0.4
6 to 20.....	33	23.1	372	3.8	21 to 50.....	3	11.1	61	2.5
21 to 50.....	23	16.3	775	7.9	51 to 100.....	3	11.1	192	5.3
51 to 100.....	10	7.1	715	7.3	101 to 500.....	3	29.0	1,330	36.5
101 to 500.....	18	12.8	3,645	37.0	501 to 1,000.....	1	3.7	392	22.8
501 to 1,000.....	1	0.7	832	8.4	Over 1,000.....	1	3.7	1,170	32.1
Over 1,000.....	2	1.4	3,389	34.4					
					LIMESTONE.....	7	100.0	143	100.0
GOLD, SILVER, COPPER, LEAD, AND ZINC, LODE MINES.....	80	100.0	5,874	100.0	1 to 5.....	2	28.6	6	4.1
No wage earners.....	2	2.3	.....	.....	6 to 20.....	1	14.3	20	13.5
1 to 5.....	28	32.6	74	1.3	21 to 50.....	4	57.1	122	82.4
6 to 20.....	25	29.1	273	4.6					
21 to 50.....	13	15.1	470	8.0	RARE METALS.....	5	100.0	17	100.0
51 to 100.....	7	8.1	523	8.9	1 to 5.....	4	80.0	6	35.3
101 to 500.....	10	11.6	2,315	39.4	6 to 20.....	1	20.0	11	64.7
Over 1,000.....	1	1.2	2,219	37.8					

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—									
	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.....	1 138	9,847	1	7	5	69	58	3,070	70	6,612	4	89
Gold, silver, copper, lead, and zinc, lode mines.....	84	5,874	.....	.....	1	4	27	835	55	5,016	1	19
Coal, bituminous.....	27	3,647	1	7	4	65	16	2,143	5	1,430	1	2
Limestone.....	7	148	.....	.....	.....	.....	2	20	3	51	2	68
Rare metals.....	5	17	.....	.....	.....	.....	3	5	2	12	.....	.....
All other industries.....	15	161	.....	.....	.....	.....	10	58	5	103	.....	.....

¹ Exclusive of 3 enterprises employing no wage earners in industries as follows: Gold, silver, copper, lead, and zinc, lode mines 2; slate, 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.	Aver- age num- ber em- ployed during year.	NUMBER EMPLOYED ON 15TH DAY OF THE MONTH OR NEAREST REPRESENTATIVE DAY.												Per cent mini- mum is of maxi- mum.
		Janu- ary.	Febru- ary.	March.	April.	May.	June.	July.	August.	Sep- tember.	Octo- ber.	Novem- ber.	Decem- ber.	
All industries.....	10,241	12,246	10,886	9,091	9,835	8,477	8,480	9,548	10,510	10,797	10,775	11,048	11,159	68.8
Producing enterprises.....	9,847	11,992	10,030	9,283	8,937	8,098	8,072	9,184	10,069	10,319	10,315	10,577	10,712	67.5
Gold, silver, copper, lead, and zinc, lode mines.....	5,874	7,925	6,003	5,849	5,371	4,604	4,625	5,335	5,995	6,171	6,147	6,134	6,069	57.1
Coal, bituminous.....	3,647	3,728	3,034	3,417	3,266	3,204	3,255	3,531	3,731	3,791	3,841	4,056	4,280	75.2
Limestone.....	148	158	142	164	156	146	144	158	162	166	172	149	129	67.5
Rare metals.....	17	1	.....	.....	.....	2	.....	.....	19	27	42	57	56	1.8
All other industries.....	161	160	147	153	144	148	148	160	172	164	173	181	198	71.7
Nonproducing enterprises.....	394	284	850	408	398	379	348	364	441	478	460	471	447	52.3

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

	Aggregate.	PRODUCING ENTERPRISES.						Non-producing enterprises. ⁴
		Total.	Gold, silver, copper, lead, and zinc, lode mines. ¹	Coal, bituminous.	Limestone.	Rare metals. ²	All other. ³	
Number of enterprises.....	189	111	86	27	7	5	16	48
Number of mines and quarries.....	202	151	88	31	8	5	19	48
Capital.....	\$187,012,614	\$178,521,276	\$141,525,188	\$32,831,106	\$191,530	\$15,500	\$3,021,052	\$8,521,338
Principal expenses:								
Salaries and wages—								
Officers.....	\$385,571	\$369,099	\$233,850	\$117,994	\$805		\$16,050	\$16,472
Superintendents and managers.....	\$604,246	\$644,232	\$158,005	\$110,576	\$14,712	\$3,371	\$27,538	\$50,014
Technical employees.....	\$208,718	\$260,020	\$210,368	\$50,252				\$2,008
Clerks, etc.....	\$641,706	\$636,962	\$357,631	\$263,071	\$1,031	\$700	\$11,526	\$1,744
Wage earners.....	\$17,767,681	\$17,190,652	\$9,176,378	\$7,598,707	\$187,171	\$18,075	\$216,261	\$571,029
Supplies and materials.....	\$8,008,844	\$7,745,492	\$5,050,733	\$1,561,955	\$11,130	\$12,728	\$175,937	\$863,352
Cost of ore purchased as material.....	\$297,961	\$297,961	\$297,961					
Fuel.....	\$851,900	\$834,480	\$613,731	\$169,918	\$5,488	\$205	\$15,015	\$20,489
Power.....	\$1,233,253	\$1,181,630	\$1,072,015	\$99,006	\$7,227		\$5,392	\$18,623
Royalties and rents.....	\$168,031	\$150,055	\$95,633	\$30,273		\$565	\$13,481	\$17,076
Taxes.....	\$2,075,036	\$2,065,161	\$1,508,738	\$152,159	\$1,216	\$10	\$13,031	\$9,882
Contract work.....	\$617,596	\$491,178	\$186,878				\$1,300	\$126,418
Expenditures for development (included in the above items).....	\$1,863,916	\$3,168,613	\$2,894,491	\$221,500	\$3,000	\$7,112	\$30,441	\$1,095,273
Value of products.....	\$11,510,802	\$11,510,802	\$27,824,207	\$12,632,035	\$201,234	\$37,958	\$725,368	
Persons engaged in industry.....	11,216	10,758	6,418	3,026	159	27	108	488
Proprietors and firm members (total).....	76	53	13	26		5	0	23
Number performing manual labor.....	16	16	5	9		1	1	
Salaried officers.....	117	99	57	35			4	21
Superintendents and managers.....	230	200	128	46	9	4	13	30
Technical employees.....	138	136	110	26				2
Clerks, etc.....	444	426	206	146	2	1	11	18
Wage earners (average number).....	10,241	9,847	5,874	3,017	148	17	161	394
Wage earners, by occupation (Dec. 15):								
Above ground (total).....	4,695	4,536	2,885	1,363	159	35	91	129
Below ground (total).....	6,722	6,370	3,341	2,902		22	105	352
Foremen, shift bosses, etc.—								
Above ground.....	204	190	145	26	7	3	9	14
Below ground.....	176	159	123	32		1	3	17
Engineers, holstmen, electricians, mechanics, etc.—								
Above ground.....	1,158	1,124	817	289	10		8	34
Below ground.....	528	494	286	208				34
Miners, quarrymen, and drillmen, including their helpers—								
Above ground.....	345	327	245	5	53	10	14	18
Below ground.....	2,651	2,510	1,117	1,313		12	38	141
Timbermen, trackmen, and men engaged in hauling, tramming, etc.—								
Above ground.....	955	943	415	511	7	5	5	12
Below ground.....	1,578	1,516	620	859		3	34	62
Muckers, loaders, laborers, and others not classified—								
Above ground.....	1,065	1,014	345	532	82	17	38	51
Below ground.....	1,789	1,691	1,195	460		0	30	98
Wage earners employed in mills and beneficiating plants—								
Above ground.....	938	938	918				20	
Number of females included in wage earners reported above—								
Above ground.....	20	12	2	8		2		8
Mineral land operated..... acres.....	341,400	324,582	204,860	40,891	1,031	1,774	9,026	10,878
Land controlled, total..... acres.....	358,560	330,962	208,516	50,065	1,031	1,774	11,046	18,588
Mineral land owned.....	334,385	310,143	201,283	44,532	1,800	003	10,916	15,212
Mineral land leased.....	8,659	7,023	3,081	2,519	122	1,171	130	1,056
Timber and other lands owned and leased.....	15,516	13,796	4,182	9,614				1,720
Power used: Aggregate horsepower.....	89,629	86,131	61,085	24,029	390		657	3,408
Prime movers (horsepower, total).....	31,879	31,083	20,091	9,840	75		507	790
Steam engines—								
Number.....	279	275	229	40	3		3	4
Horsepower.....	26,925	26,730	18,735	7,755	60		180	195
Steam turbines—								
Number.....	4	4		4				
Horsepower.....	2,085	2,085		2,085				
Internal-combustion engines—								
Number.....	40	22	18		1		3	18
Horsepower.....	1,032	471	403		15		53	561
Water wheels, turbines, and motors—								
Number.....	9	8	5				3	1
Horsepower.....	1,837	1,797	1,463				334	40
Purchased power (horsepower, total).....	57,750	55,048	40,484	14,189	285		90	2,702
Electric motors operated by purchased current—								
Number.....	2,416	2,300	2,018	276	3		3	116
Horsepower.....	57,325	54,733	40,169	14,189	285		90	2,592
Other equipment operated by purchased power—								
Horsepower.....	425	315	315					110
Electric motors run by current generated by enterprise using:								
Number.....	186	166	23	143				20
Horsepower.....	8,875	8,645	881	7,764				230
Fuel used:								
Coal, bituminous..... tons, 2,000 pounds.....	198,824	197,397	111,853	82,907	700	2	1,875	1,427
Coke..... tons, 2,000 pounds.....	1,123	1,123	1,123					
Wood..... cords.....	334	30	9					205
Fuel oils..... barrels.....	3,626	2,276	1,357					1,350
Gasoline and other volatile oils..... barrels.....	1,736	1,487	1,400					219

¹ Includes 1 reduction mill operated independently of mines and 2 operations on dumps and old tailings.² Uranium and vanadium.³ Includes enterprises as follows: Asphalt, 3; clay, 3; flourspar, 1; gypsum, 2; iron ore, 2; mineral pigments, 1; phosphate rock, 1; sandstone, 2; slate, 1.⁴ Includes enterprises as follows: Gold, silver, copper, lead, or zinc, lode mines, 47; iron ore, 1.⁵ Includes 31 tons (net) anthracite coal.