

DEPARTMENT OF COMMERCE  
BUREAU OF THE CENSUS  
WASHINGTON

FOURTEENTH CENSUS OF THE UNITED STATES  
MINES AND QUARRIES: 1919

KENTUCKY, TENNESSEE  
WEST VIRGINIA

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## EXPLANATION OF TERMS.

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

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

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

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

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

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

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

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

**Persons engaged in the industry.**—The following general classes of persons engaged in the mines and quarries and petroleum and natural-gas industries were distinguished: (1) Proprietors and firm members, (2) salaried officers of corporations, (3) superintendents and managers, (4) technical employees, (5) clerks (including other subordinate salaried employees), and (6) wage earners. In the reports for the census of 1900 the fourth class, technical employees, was not distinguished and was probably included with other salaried employees.

The number of persons engaged in each industry, segregated by occupation, sex, and, in the case of wage earners, also by age (whether under 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 1900. The reports received in respect to capital, however, at both censuses, have in so many cases been defective that the data compiled are of value only as indicating very general conditions. While there are some enterprises maintaining accounting systems such that an accurate return for capital could be made, this is not true of the great majority, and the figures therefore do not show the actual amount of capital invested.

**Expenses.**—The expenses reported in the Census of 1919 include salaries and wages; the cost of supplies, materials, and fuels, including the freight on these; cost of power purchased; the cost of contract work; royalties and rents paid; and taxes paid or assessed. The Census of 1900 reported in addition to the items of expenses covered by the present census all other items of expense incident to that year's business except interest on indebtedness, dividends, and allowances for depreciation.

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

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

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

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

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

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

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

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

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

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

## 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 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. <sup>1</sup> |                             | MINING INDUSTRIES. |              | Per cent of increase. <sup>1</sup> |
|--|--------------------|--------|------------------------------------|-----------------------------|--------------------|--------------|------------------------------------|
|  | 1919               | 1909   |                                    |                             | 1919               | 1909         |                                    |
| Number of enterprises.....   | 938                | 437    | 114.6                              | Capital.....                | \$201,247,725      | \$20,780,040 | 651.3                              |
| Number of mines and quarries.....  | 804                | 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.....                  | 49,550,588         | 7,827,514    | 533.0                              |
| Persons engaged.....   | 47,893             | 19,657 | 143.6                              | Contract work.....          | 3,295,715          | 184,003      | 1,666.2                            |
| Proprietors and firm members, total.....                                       | 386                | 338    | 14.2                               | Supplies and materials..... | 15,650,195         | 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).....   | 43,583             | 18,297 | 138.1                              | Taxes.....                  | 2,605,300          | 90,122       | 2,610.4                            |
| Power used (horsepower).....   | 148,893            | 53,203 | 179.9                              | Value of products.....      | 98,486,910         | 12,100,075   | 713.9                              |

<sup>1</sup> Percentages are omitted where base is less than 100.<sup>2</sup> 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                  | Flourspar.....                          | 29                     | 370             | 0.8                    | \$777,405          | 0.8                    |
| Coal, bituminous.....          | 635                    | 39,769          | 91.3                   | 72,432,840         | 73.5                   | Clay.....                               | 18                     | 260             | 0.6                    | 375,577            | 0.4                    |
| Petroleum and natural gas..... | 196                    | 2,119           | 4.9                    | 23,329,521         | 23.7                   | Sandstone.....                          | 5                      | 50              | 0.1                    | 91,363             | 0.1                    |
| Limestone.....                 | 47                     | 676             | 1.6                    | 1,126,109          | 1.1                    | Barytes.....                            | 5                      | 5               | ( <sup>1</sup> )       | 9,375              | ( <sup>1</sup> )       |
|                                |                        |                 |                        |                    |                        | All other industries <sup>2</sup> ..... | 8                      | 299             | 0.7                    | 344,720            | 0.3                    |

<sup>1</sup> Less than one-tenth of 1 per cent.<sup>2</sup> 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                    | 42,621                  | 94,408,284         | 134,203         | 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          | 29,578          | 10.4                   | 1.9              | 2.9                |
| Other.....                              | 5                      | 18                      | 134,940            | 26,988          | 0.5                    | ( <sup>1</sup> ) | 0.1                |
| COAL, BITUMINOUS.....                   | 635                    | 39,769                  | 72,432,840         | 114,067         | 100.0                  | 100.0            | 100.0              |
| Corporation.....                        | 472                    | 28,597                  | 70,608,050         | 149,593         | 74.3                   | 97.1             | 97.5               |
| Individual.....                         | 96                     | 536                     | 782,735            | 8,153           | 15.1                   | 1.3              | 1.1                |
| Firm.....                               | 67                     | 636                     | 1,042,055          | 15,533          | 10.6                   | 1.6              | 1.4                |
| PETROLEUM AND NATURAL GAS.....          | 196                    | 2,119                   | 23,329,521         | 110,028         | 100.0                  | 100.0            | 100.0              |
| Corporation.....                        | 169                    | 2,018                   | 21,507,275         | 127,262         | 80.2                   | 96.2             | 92.2               |
| Individual.....                         | 7                      | 8                       | 81,831             | 11,600          | 3.0                    | 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          | 2.0                    | 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             | 74.3               |
| Individual.....                         | 21                     | 126                     | 159,809            | 7,610           | 40.4                   | 17.2             | 13.1               |
| Firm.....                               | 8                      | 79                      | 147,046            | 18,881          | 15.4                   | 10.8             | 12.1               |
| FLOURSAPAR.....                         | 29                     | 370                     | 777,405            | 26,807          | 100.0                  | 100.0            | 100.0              |
| Corporation.....                        | 20                     | 322                     | 672,588            | 33,629          | 69.0                   | 87.0             | 86.5               |
| Firm <sup>2</sup> .....                 | 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              |

<sup>1</sup> Less than one-tenth of 1 per cent.<sup>2</sup> Includes 2 individuals.

MINES AND QUARRIES—KENTUCKY.

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                  | 43,503        | 100.0                  | PETROLEUM AND NATURAL GAS..               | 196          | 100.0                  | 2,119         | 100.0                  |
| No wage earners.....                      | 30           | 3.8                    |               |                        | No wage earners.....                      | 32           | 16.3                   |               |                        |
| 1 to 5.....                               | 269          | 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                    | 500           | 23.6                   |
| 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                    | 5,908         | 13.7                   | LIMESTONE AND SANDSTONE.....              | 52           | 100.0                  | 732           | 100.0                  |
| COAL, BITUMINOUS.....                     | 635          | 100.0                  | 39,769        | 100.0                  | 1 to 5.....                               | 20           | 38.5                   | 60            | 8.2                    |
| No wage earners.....                      | 1            | 0.2                    |               |                        | 6 to 20.....                              | 21           | 40.4                   | 271           | 37.0                   |
| 1 to 5.....                               | 138          | 21.7                   | 390           | 1.0                    | 21 to 50.....                             | 9            | 17.3                   | 275           | 37.6                   |
| 6 to 20.....                              | 180          | 28.3                   | 2,074         | 5.2                    | 51 to 100.....                            | 2            | 3.8                    | 123           | 17.2                   |
| 21 to 50.....                             | 122          | 19.2                   | 4,024         | 10.1                   |   |              |                        |               |                        |
| 51 to 100.....                            | 97           | 15.3                   | 6,989         | 17.5                   | FLUORSPAR.....                            | 20           | 100.0                  | 370           | 100.0                  |
| 101 to 500.....                           | 89           | 14.0                   | 10,976        | 27.2                   | No wage earners.....                      | 2            | 6.0                    |               |                        |
| 501 to 1,000.....                         | 5            | 0.8                    | 3,368         | 8.6                    | 1 to 5.....                               | 8            | 27.6                   | 24            | 6.5                    |
| Over 1,000.....                           | 3            | 0.5                    | 5,908         | 15.0                   | 6 to 20.....                              | 14           | 48.2                   | 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.   |               | 30 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.....            | 1,902        | 43,503        | 55  | 1,766         | 69           | 2,014         | 479          | 31,643        | 266          | 7,827         | 17           | 80            | 16           | 227           |
| Coal, bituminous.....          | 684          | 39,769        | 51  | 1,718         | 66           | 2,000         | 489          | 30,970        | 78           | 5,075         |              |               |              |               |
| Petroleum and natural gas..... | 164          | 2,119         | 2   | 3             | 1            | 5             | 25           | 531           | 108          | 1,207         | 17           | 80            | 16           | 227           |
| Limestone and sandstone.....   | 52           | 732           | 1   | 43            | 1            | 4             | 4            | 75            | 46           | 610           |              |               |              |               |
| Fluorspar.....                 | 27           | 370           |   |               |              |               | 4            | 21            | 23           | 349           |              |               |              |               |
| All other industries.....      | 25           | 573           | 1   | 2             | 1            | 5             | 7            | 40            | 16           | 526           |              |               |              |               |

\* 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.....            | 43,531                               | 44,012  | 40,995    | 41,042 | 40,155 | 41,221 | 42,279 | 46,305 | 47,420  | 47,452     | 48,594   | 35,589    | 45,208    | 72.8                            |
| Producing enterprises.....     | 43,503                               | 43,080  | 40,049    | 40,949 | 40,081 | 41,154 | 42,203 | 46,281 | 47,350  | 47,378     | 48,534   | 35,516    | 45,136    | 72.7                            |
| Coal, bituminous.....          | 39,769                               | 40,839  | 37,590    | 37,742 | 36,008 | 37,620 | 38,507 | 41,375 | 42,019  | 42,946     | 44,582   | 31,408    | 44,346    | 70.5                            |
| Petroleum and natural gas..... | 2,119                                | 1,874   | 1,955     | 1,954  | 1,984  | 2,032  | 2,090  | 2,225  | 2,337   | 2,309      | 2,248    | 2,218     | 2,195     | 80.2                            |
| Limestone.....                 | 52                                   | 545   | 361       | 468    | 987    | 734    | 778    | 885    | 903     | 879        | 788      | 710       | 583       | 38.2                            |
| Fluorspar.....                 | 370                                  | 538   | 330       | 288    | 293    | 237    | 203    | 320    | 375     | 492        | 520      | 441       | 309       | 44.2                            |
| Clay.....                      | 209                                  | 202   | 203       | 201    | 245    | 240    | 225    | 258    | 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                                    |   |           | 4      | 4      | 4      | 4      | 4      | 7       | 6          | 11       | 8         | 8         | 36.4                            |
| All other industries.....      | 200                                  | 179   | 131       | 180    | 193    | 205    | 240    | 392    | 471     | 377        | 374      | 367       | 349       | 20.1                            |
| Nonproducing enterprises.....  | 68                                   | 52  | 46        | 93     | 74     | 67     | 76     | 74     | 70      | 79         | 60       | 73        | 72        | 34.4                            |
| Coal, bituminous.....          | 59                                   | 50  | 38        | 71     | 55     | 57     | 64     | 63     | 63      | 62         | 52       | 56        | 60        | 42.3                            |
| Petroleum and natural gas..... | 12                                   | 2   | 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.

|  | Aggregate.    | PRODUCING ENTERPRISES. |                   |                            |             |             |           |            |          |                         | NONPRODUCING ENTERPRISES. |                            |                   |
|--|---------------|------------------------|-------------------|----------------------------|-------------|-------------|-----------|------------|----------|-------------------------|---------------------------|----------------------------|-------------------|
|  |               | Total.                 | Coal, bituminous. | Petroleum and natural gas. | Limestone.  | Flint-spar. | Clay.     | Sandstone. | Barytes. | All other. <sup>1</sup> | Total.                    | Petroleum and natural gas. | Coal, bituminous. |
| Number of enterprises.....                                       | 940           | 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                       | 1                         |                            | 3                 |
| Number of petroleum and natural-gas wells.....                   | 5,214         | 5,214                  |                   | 5,214                      |             |             |           |            |          |                         |                           |                            |                   |
| Number of natural-gas gasoline plants.....                       | 7             | 7                      |                   | 7                          |             |             |           |            |          |                         |                           |                            |                   |
| Capital.....   | \$201,811,996 | \$201,247,725          | \$137,500,306     | \$56,788,005               | \$975,318   | \$3,213,822 | \$728,301 | \$189,212  | \$610    | \$1,456,581             | \$564,271                 | \$332,320                  | \$231,045         |
| Principal expenses:  |               |                        |                   |                            |             |             |           |            |          |                         |                           |                            |                   |
| Salaries and wages—  |               |                        |                   |                            |             |             |           |            |          |                         |                           |                            |                   |
| Officers.....  | \$2,477,087   | \$2,472,087            | \$2,011,061       | \$209,098                  | \$27,365    | \$56,200    | \$8,283   | \$8,430    |          | \$30,150                | \$5,000                   | \$800                      | \$4,200           |
| Superintendents and managers.....                                | \$2,558,468   | \$2,542,675            | \$2,095,102       | \$345,020                  | \$19,949    | \$43,044    | \$17,451  | \$2,425    |          | \$22,621                | \$15,703                  | \$9,193                    | \$6,000           |
| Technical employees.....   | \$452,667     | \$452,547              | \$388,508         | \$33,328                   |             | \$1,500     | \$3,115   | \$2,100    |          | \$23,900                | \$120                     | \$120                      |                   |
| Clerks, etc.....   | \$1,845,883   | \$1,843,307            | \$1,617,230       | \$147,904                  | \$8,405     | \$10,871    | \$8,097   | \$600      |          | \$22,101                | \$1,570                   | \$630                      | \$646             |
| Wage earners.....  | \$19,022,104  | \$19,550,588           | \$15,015,853      | \$2,645,512                | \$626,099   | \$281,273   | \$222,789 | \$35,087   | \$2,982  | \$220,493               | \$71,510                  | \$13,201                   | \$58,225          |
| Supplies and materials.....                                      | \$15,734,345  | \$15,618,091           | \$10,914,940      | \$4,066,774                | \$216,310   | \$150,863   | \$48,029  | \$11,710   | \$87     | \$245,330               | \$110,254                 | \$56,785                   | \$59,400          |
| Cost of natural gas purchased as material and for resale.....    | \$41,104      | \$41,104               |                   | \$41,104                   |             |             |           |            |          |                         |                           |                            |                   |
| Fuel.....  | \$1,041,526   | \$1,037,821            | \$1,553,058       | \$233,411                  | \$95,073    | \$43,007    | \$5,050   | \$7,383    |          | \$30,173                | \$4,705                   | \$2,365                    | \$1,350           |
| Power.....   | \$585,065     | \$584,928              | \$578,435         |                            | \$9,249     |             |           |            |          | \$7,244                 | \$137                     |                            | \$137             |
| Royalties and rents.....   | \$5,827,674   | \$5,814,424            | \$1,724,793       | \$3,970,910                | \$7,557     | \$93,600    | \$5,233   | \$71       | \$2,000  | \$10,300                | \$13,250                  | \$9,274                    | \$6,976           |
| Taxes.....   | \$2,005,388   | \$2,005,300            | \$1,017,639       | \$991,974                  | \$8,233     | \$8,931     | \$1,005   | \$770      |          | \$3,148                 | \$1,088                   | \$928                      | \$160             |
| Contract work.....   | \$3,332,548   | \$3,265,715            | \$199,012         | \$2,912,770                | \$1,600     | \$146,916   | \$3,708   |            |          | \$2,613                 | \$90,833                  | \$95,914                   | \$910             |
| Expenditures for development (included in the above items).....  | \$13,103,070  | \$12,847,064           | \$5,503,157       | \$9,820,041                | \$1,500     | \$158,391   | \$7,900   |            |          | \$34,069                | \$255,112                 | \$147,371                  | \$107,741         |
| Value of products.....   | \$98,486,810  | \$98,486,910           | \$72,432,810      | \$23,320,521               | \$1,126,109 | \$777,405   | \$375,577 | \$91,363   | \$9,375  | \$344,720               |                           |                            |                   |
| Persons engaged in industry.....                                 | 48,026        | 47,893                 | 43,347            | 2,034                      | 754         | 444         | 207       | 60         | 10       | 341                     | 133                       | 70                         | 68                |
| 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                        | 13          | 18          | 8         | 4          |          | 5                       | 4                         | 2                          | 2                 |
| Superintendents and managers.....                                | 1,127         | 1,118                  | 876               | 180                        | 15          | 24          | 9         | 2          |          | 12                      | 0                         | 6                          | 3                 |
| Technical employees.....   | 331           | 301                    | 301               | 16                         |             | 1           | 2         | 2          |          | 0                       |                           |                            |                   |
| Clerks, etc.....   | 1,693         | 1,690                  | 1,488             | 158                        | 11          | 10          | 6         | 1          |          | 10                      | 3                         | 2                          | 1                 |
| Wage earners (average number).....                               | 43,631        | 43,563                 | 39,769            | 2,119                      | 676         | 370         | 209       | 56         | 5        | 209                     | 68                        | 12                         | 60                |
| Wage earners by occupation (Dec. 15):                            |               |                        |                   |                            |             |             |           |            |          |                         |                           |                            |                   |
| Above ground, total.....   | 13,382        | 13,321                 | 9,168             | 2,297                      | 386         | 320         | 163       | 83         | 29       | 375                     | 61                        | 10                         | 42                |
| Below ground, total.....   | 36,304        | 36,339                 | 36,038            |                            |             | 140         | 101       |            |          |                         | 25                        |                            | 26                |
| 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                 |
| Enginemen, hoistmen, electricians, mechanics, etc.—              |               |                        |                   |                            |             |             |           |            |          |                         |                           |                            |                   |
| Above ground.....  | 3,879         | 3,800                  | 2,100             | 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        | 70                      |                           |                            |                   |
| Below ground.....  | 19,599        | 19,584                 | 19,402            |                            |             | 69          | 118       |            |          |                         | 15                        |                            | 15                |
| Timbermen, trackmen, and men engaged in hauling, tramping, etc.— |               |                        |                   |                            |             |             |           |            |          |                         |                           |                            |                   |
| Above ground.....  | 1,578         | 1,575                  | 1,320             |                            | 195         | 17          | 26        |            |          |                         | 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             | 809                        | 187         | 51          | 76        | 5          | 21       | 208                     | 36                        | 13                         | 28                |
| Below ground.....  | 7,304         | 7,295                  | 7,268             |                            |             | 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           | 328,015                    | 1,984       | 5,232       | 20,860    | 440        | 647      | 4,057                   | 20,139                    | 21,109                     | 5,080             |
| Land controlled, total..... acres.....                           | 1,222,002     | 1,196,334              | 832,097           | 328,015                    | 2,159       | 5,782       | 27,217    | 680        | 647      | 4,057                   | 20,138                    | 21,109                     | 5,069             |
| Mineral and oil land owned.....                                  | 510,033       | 500,713                | 451,374           | 20,213                     | 1,731       | 2,893       | 20,803    | 437        | 165      | 3,597                   | 3,370                     | 70                         | 3,300             |
| Mineral and oil land leased.....                                 | 608,962       | 687,223                | 280,037           | 302,802                    | 253         | 2,889       | 547       | 3          | 782      | 400                     | 22,769                    | 21,039                     | 1,730             |
| Timber and other lands owned and leased.....                     | 101,927       | 101,898                | 100,596           |                            | 175         | 550         | 367       | 210        |          |                         | 20                        |                            | 29                |
| Power used: Aggregate horsepower.....                            | 148,579       | 148,893                | 120,804           | 13,795                     | 4,485       | 2,208       | 226       | 640        |          | 690                     | 686                       | 100                        | 580               |
| Prime movers (horsepower, total).....                            | 102,582       | 102,170                | 81,263            | 13,795                     | 3,569       | 2,208       | 226       | 610        |          | 400                     | 408                       | 100                        | 300               |
| Steam engines—   |               |                        |                   |                            |             |             |           |            |          |                         |                           |                            |                   |
| Number.....  | 722           | 716                    | 442               | 151                        | 55          | 42          | 8         | 14         |          | 4                       | 0                         | 4                          | 2                 |
| Horsepower.....  | 66,193        | 65,827                 | 57,005            | 2,738                      | 3,320       | 1,536       | 170       | 640        |          | 400                     | 308                       | 60                         | 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                         | 3                          |                   |
| Horsepower.....  | 12,603        | 12,563                 | 462               | 11,057                     | 240         | 757         | 47        |            |          |                         | 40                        | 40                         |                   |
| Purchased power (horsepower, total).....                         | 46,997        | 46,717                 | 45,551            |                            | 610         |             |           |            |          |                         | 280                       | 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            |                            | 610         |             |           |            |          |                         | 280                       | 280                        | 280               |
| Electric motors run by current generated by enterprise using:    |               |                        |                   |                            |             |             |           |            |          |                         |                           |                            |                   |
| Number.....  | 1,955         | 1,953                  | 1,925             | 1                          | 4           | 21          |           | 2          |          |                         |                           |                            | 2                 |
| Horsepower.....  | 53,957        | 53,817                 | 53,222            | 1                          | 240         | 329         |           | 26         |          |                         | 140                       |                            | 140               |
| Fuel used:   |               |                        |                   |                            |             |             |           |            |          |                         |                           |                            |                   |
| Coal, bituminous, tons, 2,000 lbs. cords.....                    | 725,101       | 724,385                | 679,943           | 3,406                      | 14,900      | 9,183       | 1,127     | 2,040      |          | 8,726                   | 716                       | 176                        | 540               |
| Wood..... cords.....   | 675           | 675                    |                   |                            | 70          | 570         |           | 35         |          |                         |                           |                            |                   |
| Fuel oil..... barrels.....                                       | 38,148        | 38,148                 | 467               | 37,630                     | 9           | 15          |           |            |          |                         |                           |                            |                   |
| Gasoline and other volatile oils..... barrels.....               | 12,077        | 12,069                 | 1,338             | 9,437                      | 322         | 780         |           |            |          |                         |                           |                            |                   |
| Natural gas..... 1,000 cubic feet.....                           | 752,145       | 751,455                |                   | 751,455                    |             |             |           |            |          | 150                     | 8                         | 8                          |                   |

<sup>1</sup> Includes enterprises as follows: Asphalt, 1; mineral pigments, 1; phosphate rock, 1.

<sup>2</sup> Includes 8 wage earners under 16 years of age.

## TENNESSEE.

Tennessee, which ranks thirty-fourth among the states in size (land area 41,687 square miles) and nineteenth in population (2,337,885 in 1920), ranked twenty-third in the value of mineral products in 1919. The state ranked nineteenth 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 all mines, quarries, and wells in Tennessee in 1919 was \$23,292,114, which was an increase of 83.5 per cent as compared with the gross value of products reported at the census of 1909. The value for 1919 includes receipts for mineral by-products, for power sold, and for work or miscellaneous services for other enterprises amounting to \$70,375. The statistics for 1909 include data on smelters operated in connection with mines, but similar data were excluded from the statistics for 1919.

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

The mining industries reported in Tennessee, classified according to principal products and listed in order of value of products, were bituminous coal, phosphate rock, zinc (and lead), marble, iron ore, copper, limestone, barytes, clay, silica, petroleum and natural gas, mineral pigments, bauxite, manganese ore, 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 industry in 1919 was the mining of bituminous coal. More than half of the mining enterprises in the state were engaged in this industry, and they employed 66 per cent of the total number of wage earners and reported products valued at \$14,024,432, or 60.2 per cent of the total. The coal-producing area is a northeast-southwest belt a little east of the center of the state. Production was reported from 10 northern counties which form part of the Middle Appalachian coal field, and 6 southern counties which form part of the Southern Appalachian coal field.

The industry second in importance in Tennessee was the mining of phosphate rock. The 19 enterprises reporting in this industry employed 10.8 per cent of the total number of wage earners and contributed as value of products \$3,139,671, or 13.5 per cent of the total value of products. The combined production of five counties, in the central and south-central sections of the state, gave Tennessee second rank in the United States in this industry in 1919.

The mining of lead-bearing zinc ores ranked third. The statistics for the three enterprises in this industry

have been combined with those for two copper enterprises in order to avoid disclosure of individual operations. These industries together employed 8.9 per cent of the total number of wage earners and reported 13.4 per cent of the total value of products. The operating copper mines are in the southeastern part of the state and the operating zinc mines in the northeastern part.

The marble industry was fourth in importance in the state, and Tennessee ranked second in the United States in 1919 in the value of marble products. Thirteen enterprises in this industry employed 3.7 per cent of the total number of wage earners and reported products valued at \$1,088,131, or 4.7 per cent of the total value of products.

The mining enterprises in Tennessee in 1919 are classified according to form of operating organization in Table 3, which shows that, for the state as a whole and for each of the industries presented separately, corporations outnumbered other forms of organization and conducted 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 Tennessee, 76.9 per cent had fewer than 101 wage earners each and employed 27.3 per cent of the total number of wage earners. On the other hand, only 44 enterprises, or 21.7 per cent of the total number, had more than 100 wage earners each, and these enterprises employed 72.8 per cent of the total number of wage earners. The largest enterprises were in the coal and copper mining industries.

Table 5 shows that in nearly one-half of the enterprises employing wage earners, and for 63.1 per cent of the wage earners reported, the hours of labor were 44 to 53 per week. In one-third of the enterprises and for about one-fourth of the wage earners the hours were 54 to 62 per week. In the coal and copper and zinc mining industries the 8-hour day and 6-day week was the rule, but a considerable number of enterprises in the coal industry reported a shorter week. In iron-ore mining, phosphate-rock mining, and in the quarrying industries the prevailing hours were 54 to 62 per week with 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 very low minimum in the coal industry in November was due to the great strike of the coal miners. The abnormal minimum in this industry accounts for the very low minimum in the same month for the combined statistics 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—TENNESSEE.

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

|  | MINING INDUSTRIES. |        | Per cent of increase. <sup>1</sup> |                             | MINING INDUSTRIES. |              | Per cent of increase. <sup>1</sup> |
|--|--------------------|--------|------------------------------------|-----------------------------|--------------------|--------------|------------------------------------|
|  | 1919               | 1909   |                                    |                             | 1919               | 1909         |                                    |
| Number of enterprises.....   | 203                | 216    | -6.0                               | Capital.....                | \$51,400,346       | \$33,819,977 | 52.2                               |
| Number of mines and quarries.....  | 203                | 365    | -27.9                              | Principal expenses:         |                    |              |                                    |
| Number of petroleum and natural-gas wells.....                                 | 14                 | 21     |                                    | Salaries.....               | 1,638,395          | 988,288      | 65.8                               |
| Persons engaged.....   | 15,460             | 17,278 | -10.6                              | Wages.....                  | 12,987,338         | 7,358,888    | 76.5                               |
| Proprietors and firm members, total.....                                       | 67                 | 87     |                                    | Contract work.....          | 173,796            | 54,372       | 219.6                              |
| Number performing manual labor in or about the mines, quarries, and wells..... | 17                 | 24     |                                    | Supplies and materials..... | 3,892,397          | * 1,613,571  | 141.2                              |
| Salaried employees.....  | 913                | 853    | 7.0                                | Fuel and power.....         | 1,259,983          | 645,376      | 95.2                               |
| Wage earners (average number).....   | 14,470             | 10,338 | -11.4                              | Royalties and rents.....    | 554,743            | 617,997      | -10.1                              |
| Power used (horsepower).....   | 56,685             | 34,523 | 64.2                               | Taxes.....                  | 608,917            | 64,875       | 543.8                              |
|  |                    |        |                                    | Value of products.....      | 23,202,114         | 12,002,547   | 83.5                               |

<sup>1</sup> A minus sign (-) denotes decrease. Percentages are omitted where base is less than 100.<sup>\*</sup> Includes cost of ore and coal purchased for 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                    | 14,470          | 100.0                  | \$23,202,114       | 100.0                  | Iron ore.....                           | 12                     | 824             | 5.7                    | \$820,118          | 3.6                    |
| Coal, bituminous.....         | 107                    | 9,556           | 66.0                   | 14,024,432         | 60.2                   | Limestone.....                          | 21                     | 340             | 2.4                    | 534,848            | 2.3                    |
| Phosphate rock.....           | 19                     | 1,568           | 10.8                   | 3,139,671          | 13.5                   | Barytes.....                            | 5                      | 108             | 0.7                    | 239,019            | 1.0                    |
| Copper and lead and zinc..... | 5                      | 1,282           | 8.9                    | 3,121,803          | 13.4                   | Clay.....                               | 10                     | 177             | 1.2                    | 182,705            | 0.8                    |
| Marble.....                   | 13                     | 540             | 3.7                    | 1,088,181          | 4.7                    | All other industries <sup>1</sup> ..... | 11                     | 66              | 0.5                    | 131,706            | 0.6                    |

<sup>1</sup> Includes enterprises in industries as follows: Bauxite, 1; manganese ore 3; mineral pigments, 2; petroleum and natural gas, 1; sandstone, 2; 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.....                     | 203                    | 14,470                  | \$23,202,114       | \$114,730       | 100.0                  | 100.0         | 100.0              |
| Corporation.....                        | 158                    | 14,015                  | 22,689,088         | 143,008         | 77.8                   | 99.0          | 97.4               |
| Individual.....                         | 27                     | 283                     | 365,084            | 13,580          | 18.3                   | 2.0           | 1.6                |
| Firm <sup>1</sup> .....                 | 18                     | 169                     | 237,002            | 18,172          | 8.9                    | 1.2           | 1.0                |
| COAL, BITUMINOUS.....                   | 107                    | 9,556                   | 14,024,432         | 131,069         | 100.0                  | 100.0         | 100.0              |
| Corporation.....                        | 85                     | 9,330                   | 13,738,409         | 101,570         | 79.4                   | 97.6          | 97.9               |
| Individual.....                         | 10                     | 81                      | 90,997             | 9,610           | 9.8                    | 0.8           | 0.7                |
| Firm <sup>1</sup> .....                 | 12                     | 145                     | 194,026            | 16,244          | 11.2                   | 1.5           | 1.4                |
| PHOSPHATE ROCK.....                     | 19                     | 1,568                   | 3,139,671          | 165,246         | 100.0                  | 100.0         | 100.0              |
| Corporation.....                        | 15                     | 1,524                   | 3,054,688          | 208,640         | 78.0                   | 97.2          | 97.8               |
| Individual <sup>1</sup> .....           | 4                      | 44                      | 84,983             | 21,246          | 21.1                   | 2.8           | 2.7                |
| MARBLE.....                             | 13                     | 540                     | 1,088,181          | 88,702          | 100.0                  | 100.0         | 100.0              |
| Corporation.....                        | 13                     | 540                     | 1,088,181          | 88,702          | 100.0                  | 100.0         | 100.0              |
| LIMESTONE.....                          | 21                     | 340                     | 534,848            | 25,469          | 100.0                  | 100.0         | 100.0              |
| Corporation.....                        | 14                     | 283                     | 439,149            | 81,368          | 66.7                   | 81.1          | 82.1               |
| Individual.....                         | 4                      | 47                      | 60,824             | 16,706          | 19.0                   | 13.5          | 12.5               |
| Firm.....                               | 3                      | 19                      | 28,875             | 9,625           | 14.3                   | 5.4           | 5.4                |
| CLAY.....                               | 10                     | 177                     | 182,705            | 18,271          | 100.0                  | 100.0         | 100.0              |
| Corporation.....                        | 6                      | 172                     | 174,619            | 20,103          | 60.0                   | 97.2          | 95.6               |
| Individual <sup>1</sup> .....           | 4                      | 5                       | 8,086              | 2,022           | 40.0                   | 2.8           | 4.4                |

<sup>1</sup> Includes 2 other forms of organization.<sup>1</sup> 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. |
| <b>ALL INDUSTRIES.....</b>                | <b>203</b>   | <b>100.0</b>           | <b>14,470</b> | <b>100.0</b>           | <b>IRON ORE.....</b>                      | <b>12</b>    | <b>100.0</b>           | <b>824</b>    | <b>100.0</b>           |
| No wage earners.....                      | 3            | 1.5                    | .....         | .....                  | 1 to 5.....                               | 1            | 8.3                    | 2             | 0.2                    |
| 1 to 5.....                               | 30           | 14.8                   | 71            | 0.5                    | 6 to 20.....                              | 2            | 16.7                   | 38            | 4.6                    |
| 6 to 20.....                              | 56           | 27.6                   | 717           | 5.0                    | 21 to 50.....                             | 3            | 25.0                   | 112           | 13.6                   |
| 21 to 50.....                             | 47           | 23.2                   | 1,516         | 10.5                   | 51 to 100.....                            | 4            | 33.3                   | 244           | 29.6                   |
| 51 to 100.....                            | 23           | 11.3                   | 1,630         | 11.3                   | 101 to 500.....                           | 2            | 18.7                   | 428           | 51.9                   |
| 101 to 500.....                           | 41           | 20.2                   | 8,657         | 59.8                   |   |              |                        |               |                        |
| 501 to 1,000.....                         | 3            | 1.5                    | 1,879         | 13.0                   |   |              |                        |               |                        |
| <b>COAL, BITUMINOUS.....</b>              | <b>107</b>   | <b>100.0</b>           | <b>9,550</b>  | <b>100.0</b>           | <b>MARBLE.....</b>                        | <b>13</b>    | <b>100.0</b>           | <b>540</b>    | <b>100.0</b>           |
| 1 to 5.....                               | 12           | 11.2                   | 33            | 0.3                    | 6 to 20.....                              | 5            | 38.5                   | 66            | 12.2                   |
| 6 to 20.....                              | 28           | 26.2                   | 350           | 3.7                    | 21 to 50.....                             | 5            | 38.5                   | 179           | 33.1                   |
| 21 to 50.....                             | 22           | 20.6                   | 778           | 8.1                    | 51 to 100.....                            | 2            | 15.4                   | 147           | 27.2                   |
| 51 to 100.....                            | 14           | 13.1                   | 993           | 10.4                   | 101 to 500.....                           | 1            | 7.7                    | 148           | 27.4                   |
| 101 to 500.....                           | 20           | 27.1                   | 6,165         | 64.5                   |   |              |                        |               |                        |
| 501 to 1,000.....                         | 2            | 1.9                    | 1,237         | 12.9                   | <b>LIMESTONE.....</b>                     | <b>21</b>    | <b>100.0</b>           | <b>349</b>    | <b>100.0</b>           |
| <b>PHOSPHATE ROCK.....</b>                | <b>19</b>    | <b>100.0</b>           | <b>1,568</b>  | <b>100.0</b>           | 1 to 5.....                               | 3            | 14.3                   | 2             | 0.6                    |
| No wage earners.....                      | 1            | 5.3                    | .....         | .....                  | 6 to 20.....                              | 11           | 52.4                   | 163           | 46.7                   |
| 1 to 5.....                               | 2            | 10.5                   | 9             | 0.6                    | 21 to 50.....                             | 7            | 33.3                   | 184           | 52.7                   |
| 6 to 20.....                              | 4            | 21.1                   | 44            | 2.8                    |   |              |                        |               |                        |
| 21 to 50.....                             | 4            | 21.1                   | 113           | 7.2                    | <b>CLAY.....</b>                          | <b>10</b>    | <b>100.0</b>           | <b>177</b>    | <b>100.0</b>           |
| 51 to 100.....                            | 3            | 15.8                   | 246           | 15.7                   | No wage earners.....                      | 2            | 20.0                   | .....         | .....                  |
| 101 to 500.....                           | 5            | 26.3                   | 1,156         | 73.7                   | 1 to 5.....                               | 4            | 40.0                   | 6             | 3.4                    |
| <b>COPPER AND LEAD AND ZINC.....</b>      | <b>5</b>     | <b>100.0</b>           | <b>1,282</b>  | <b>100.0</b>           | 6 to 20.....                              | 2            | 20.0                   | 14            | 7.9                    |
| 6 to 20.....                              | 1            | 20.0                   | 7             | 0.5                    | 21 to 50.....                             | 1            | 10.0                   | 30            | 16.9                   |
| 101 to 500.....                           | 3            | 60.0                   | 633           | 49.4                   | 101 to 500.....                           | 1            | 10.0                   | 127           | 71.8                   |
| 501 to 1,000.....                         | 1            | 20.0                   | 642           | 50.1                   | <b>BARYTES.....</b>                       | <b>5</b>     | <b>100.0</b>           | <b>108</b>    | <b>100.0</b>           |
|   |              |                        |               |                        | 6 to 20.....                              | 1            | 20.0                   | 17            | 15.7                   |
|   |              |                        |               |                        | 21 to 50.....                             | 4            | 80.0                   | 91            | 84.3                   |

**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. |
| <b>All industries.....</b>    | <b>200</b>   | <b>14,470</b> | <b>13</b>   | <b>470</b>    | <b>26</b>    | <b>1,117</b>  | <b>98</b>    | <b>9,132</b>  | <b>67</b>    | <b>3,709</b>  | <b>1</b>     | <b>33</b>     |
| Coal, bituminous.....         | 107          | 9,550         | 8   | 455           | 22           | 1,077         | 75           | 7,791         | 2            | 233           | .....        | .....         |
| Phosphate rock.....           | 18           | 1,568         | 1   | 6             | 1            | 30            | 1            | 25            | 15           | 1,508         | .....        | .....         |
| Copper and lead and zinc..... | 5            | 1,282         | .....   | .....         | .....        | .....         | 3            | 1,107         | 2            | 175           | .....        | .....         |
| Iron ore.....                 | 12           | 824           | .....   | .....         | .....        | .....         | 1            | 19            | 11           | 805           | .....        | .....         |
| Marble.....                   | 13           | 540           | .....   | .....         | .....        | .....         | .....        | .....         | 13           | 540           | .....        | .....         |
| Limestone.....                | 21           | 349           | 1   | 8             | 1            | 8             | 7            | 124           | 11           | 176           | 1            | 33            |
| Clay.....                     | 8            | 177           | 3   | 11            | 1            | 1             | 1            | 30            | 3            | 135           | .....        | .....         |
| Barytes.....                  | 5            | 108           | .....   | .....         | .....        | .....         | 1            | 25            | 4            | 83            | .....        | .....         |
| All other industries.....     | 11           | 66            | .....   | .....         | 1            | 1             | 4            | 11            | 6            | 54            | .....        | .....         |

<sup>1</sup> Exclusive of 3 enterprises employing no wage earners in the following industries: Clay, 2; phosphate rock, 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.    |                                 |
| <b>All industries.....</b>    | <b>14,470</b>                        | <b>15,364</b>   | <b>14,322</b> | <b>14,114</b> | <b>13,677</b> | <b>14,572</b> | <b>14,731</b> | <b>14,974</b> | <b>15,304</b> | <b>15,227</b> | <b>15,777</b> | <b>10,408</b> | <b>15,172</b> | <b>66.0</b>                     |
| Coal, bituminous.....         | 9,550                                | 10,632  | 9,550         | 9,124         | 8,796         | 9,710         | 9,964         | 10,126        | 10,223        | 10,109        | 10,763        | 5,367         | 10,252        | 49.8                            |
| Phosphate rock.....           | 1,568                                | 1,301   | 1,403         | 1,458         | 1,577         | 1,649         | 1,624         | 1,657         | 1,733         | 1,695         | 1,577         | 1,633         | 1,419         | 75.1                            |
| Copper and lead and zinc..... | 1,282                                | 1,423   | 1,332         | 1,420         | 1,272         | 1,284         | 1,261         | 1,159         | 1,184         | 1,182         | 1,206         | 1,370         | 1,311         | 80.0                            |
| Iron ore.....                 | 824                                  | 1,007   | 933           | 980           | 790           | 644           | 601           | 639           | 763           | 822           | 885           | 849           | 922           | 60.0                            |
| Marble.....                   | 540                                  | 407   | 408           | 502           | 520           | 553           | 558           | 536           | 564           | 564           | 531           | 540           | 568           | 78.8                            |
| Limestone.....                | 349                                  | 311   | 319           | 380           | 347           | 356           | 334           | 354           | 378           | 376           | 372           | 501           | 380           | 79.2                            |
| Clay.....                     | 177                                  | 107   | 108           | 128           | 171           | 173           | 193           | 211           | 221           | 210           | 203           | 199           | 200           | 48.4                            |
| Barytes.....                  | 108                                  | 53  | 33            | 58            | 124           | 132           | 122           | 145           | 146           | 139           | 124           | 114           | 106           | 22.6                            |
| All other industries.....     | 66                                   | 63  | 66            | 84            | 80            | 71            | 61            | 67            | 93            | 70            | 66            | 37            | 54            | 36.6                            |

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

|  | PRODUCING ENTERPRISES. |                   |                 |                           |             |             |            |           |           |                         |
|--|------------------------|-------------------|-----------------|---------------------------|-------------|-------------|------------|-----------|-----------|-------------------------|
|  | Total.                 | Coal, bituminous. | Phosphate rock. | Copper and lead and zinc. | Marble.     | Iron ore.   | Limestone. | Barytes.  | Clay.     | All other. <sup>1</sup> |
| Number of enterprises.....   | 203                    | 107               | 19              | 5                         | 13          | 12          | 21         | 5         | 10        | 11                      |
| Number of mines and quarries.....  | 203                    | 143               | 23              | 8                         | 17          | 24          | 21         | 7         | 10        | 10                      |
| Number of petroleum and natural-gas wells.....                                 | 14                     |                   |                 |                           |             |             |            |           |           | 14                      |
| Capital.....   | \$51,400,345           | \$20,951,471      | \$14,657,404    | \$8,016,670               | \$1,001,333 | \$3,788,115 | \$350,106  | \$334,067 | \$231,375 | \$1,330,060             |
| Principal expenses:  |                        |                   |                 |                           |             |             |            |           |           |                         |
| Salaries and wages—  |                        |                   |                 |                           |             |             |            |           |           |                         |
| Officers.....  | \$515,630              | \$362,410         | \$31,618        | \$12,135                  | \$38,070    | \$14,002    | \$33,982   | \$1,729   | \$16,800  | \$3,075                 |
| Superintendents and managers.....  | \$615,081              | \$367,238         | \$73,744        | \$72,806                  | \$33,895    | \$22,040    | \$11,344   | \$15,420  | \$9,140   | \$3,375                 |
| Technical employees.....   | \$128,083              | \$72,887          | \$14,440        | \$20,737                  |             | \$3,002     | \$863      | \$5,300   |           | \$875                   |
| Clerks, etc.....   | \$370,591              | \$229,262         | \$54,692        | \$55,207                  | \$10,832    | \$12,000    | \$3,823    | \$1,500   | \$1,800   | \$575                   |
| Wage earners.....  | \$12,987,338           | \$8,699,051       | \$1,174,759     | \$1,646,278               | \$407,012   | \$583,033   | \$243,393  | \$67,275  | \$71,028  | \$62,700                |
| Supplies and materials.....  | \$3,892,397            | \$2,009,072       | \$628,533       | \$621,239                 | \$249,023   | \$160,791   | \$95,398   | \$44,406  | \$23,455  | \$10,880                |
| Fuel.....  | \$1,037,175            | \$863,956         | \$370,182       | \$91,077                  | \$81,834    | \$61,780    | \$20,658   | \$10,952  | \$5,802   | \$3,798                 |
| Power.....   | \$222,308              | \$50,055          | \$1,750         | \$153,477                 | \$9,241     | \$120       | \$7,351    | \$1,208   |           |                         |
| Royalties and rents.....   | \$551,743              | \$384,375         | \$70,553        | \$54,124                  | \$5,201     | \$10,084    | \$9,735    | \$4,000   | \$265     | \$10,770                |
| Taxes.....   | \$608,917              | \$460,768         | \$93,423        | \$47,056                  | \$15,655    | \$3,430     | \$706      |           | \$1,540   | \$3,200                 |
| Contract work.....   | \$173,796              | \$72,922          | \$35,421        | \$48,200                  |             |             | \$1,382    |           | \$11,011  | \$4,600                 |
| Expenditures for development (included in the above items).....                | \$537,964              | \$140,992         | \$32,065        | \$206,075                 | \$2,500     | \$102,871   | \$3,000    |           | \$1,500   | \$42,888                |
| Value of products.....   | \$23,292,114           | \$14,024,432      | \$3,139,671     | \$3,121,838               | \$1,088,131 | \$829,118   | \$534,848  | \$250,610 | \$182,705 | \$131,796               |
| Persons engaged in industry.....   | 15,450                 | 10,170            | 1,674           | 1,373                     | 590         | 850         | 385        | 125       | 107       | 77                      |
| Proprietors and firm members (total).....                                      | 67                     | 36                | 5               | 1                         |             | 2           | 12         | 2         | 5         | 4                       |
| Number performing manual labor.....  | 17                     | 9                 |                 |                           |             |             | 5          |           | 2         | 1                       |
| Salaried officers.....   | 170                    | 108               | 16              | 3                         | 10          | 2           | 13         | 2         | 5         | 2                       |
| Superintendents and managers.....  | 303                    | 191               | 31              | 27                        | 18          | 13          | 8          | 8         | 7         | 3                       |
| Technical employees.....   | 75                     | 42                | 7               | 18                        |             | 2           | 1          | 4         |           | 1                       |
| Clerks, etc.....   | 362                    | 237               | 47              | 42                        | 13          | 10          | 2          | 1         | 3         | 1                       |
| Wage earners (average number).....   | 14,470                 | 9,656             | 1,568           | 1,282                     | 540         | 824         | 349        | 103       | 177       | 65                      |
| Wage earners by occupation (Dec. 15):  |                        |                   |                 |                           |             |             |            |           |           |                         |
| Above ground (total).....  | 6,882                  | 2,744             | 1,456           | 851                       | 580         | 680         | 414        | 120       | 210       | 118                     |
| Below ground (total).....  | 9,382                  | 7,089             | 115             | 663                       |             | 315         |            |           |           |                         |
| Foremen, shift bosses, etc.—   |                        |                   |                 |                           |             |             |            |           |           |                         |
| Above ground.....  | 249                    | 101               | 48              | 8                         | 19          | 25          | 21         | 8         | 12        | 7                       |
| Below ground.....  | 195                    | 145               | 2               | 47                        |             | 1           |            |           |           |                         |
| Enginemen, hoist men, electricians, mechanics, etc.—                           |                        |                   |                 |                           |             |             |            |           |           |                         |
| Above ground.....  | 973                    | 530               | 180             | 108                       | 22          | 80          | 15         | 11        | 14        | 4                       |
| Below ground.....  | 471                    | 392               |                 | 71                        |             | 8           |            |           |           |                         |
| Miners, quarrymen, and drill men, including their helpers—                     |                        |                   |                 |                           |             |             |            |           |           |                         |
| Above ground.....  | 1,207                  | 374               | 204             | 15                        | 100         | 121         | 179        | 22        | 0         | 24                      |
| Below ground.....  | 5,502                  | 5,030             | 60              | 241                       |             | 201         |            |           |           |                         |
| Timberman, trackmen, and men engaged in hauling, tramming, etc.—               |                        |                   |                 |                           |             |             |            |           |           |                         |
| Above ground.....  | 872                    | 540               | 102             | 34                        | 12          | 60          | 40         | 4         | 2         |                         |
| Below ground.....  | 2,069                  | 1,638             | 7               | 415                       |             | 39          |            |           |           |                         |
| Muckers, loaders, laborers, and others not classified—                         |                        |                   |                 |                           |             |             |            |           |           |                         |
| Above ground.....  | 2,798                  | 1,167             | 639             | 55                        | 157         | 322         | 141        | 67        | 173       | 77                      |
| Below ground.....  | 1,055                  | 784               | 10              | 180                       |             | 66          |            |           |           |                         |
| Wage earners employed in mills and beneficiating plants—                       |                        |                   |                 |                           |             |             |            |           |           |                         |
| Above ground.....  | 583                    | 32                | 124             | 131                       | 210         | 63          | 9          | 8         |           | 6                       |
| Number of wage earners under 16 years of age included in those reported above— |                        |                   |                 |                           |             |             |            |           |           |                         |
| Above ground.....  | 3                      | 1                 | 1               |                           |             |             |            | 1         |           |                         |
| Mineral and oil land operated..... acres.....                                  | 361,600                | 298,304           | 23,462          | 14,519                    | 1,244       | 4,404       | 504        | 2,060     | 749       | 21,201                  |
| Land controlled, total..... acres.....   | 475,006                | 368,117           | 25,738          | 40,417                    | 1,312       | 11,544      | 594        | 2,070     | 968       | 21,246                  |
| Mineral land owned.....  | 205,832                | 165,007           | 22,073          | 14,249                    | 967         | 1,380       | 462        | 800       | 549       | 749                     |
| Mineral and oil land leased.....   | 156,866                | 120,317           | 1,879           | 270                       | 255         | 3,108       | 132        | 1,750     | 103       | 20,182                  |
| Timber and other lands owned and leased.....                                   | 112,318                | 70,793            | 2,280           | 31,898                    | 60          | 7,030       | 20         | 20        | 225       | 46                      |
| Power used: Aggregate horsepower.....  | 56,685                 | 22,946            | 7,168           | 15,987                    | 3,885       | 8,050       | 1,990      | 471       | 106       | 464                     |
| Prime movers (horsepower, total).....  | 30,297                 | 20,743            | 7,070           | 2,640                     | 3,135       | 3,619       | 1,231      | 850       | 106       | 464                     |
| Steam engines—   |                        |                   |                 |                           |             |             |            |           |           |                         |
| Number.....  | 327                    | 146               | 55              | 8                         |             |             |            |           |           |                         |
| Horsepower.....  | 36,226                 | 19,093            | 7,020           | 1,437                     | 32          | 47          | 22         | 4         | 4         | 9                       |
| Steam turbines—  |                        |                   |                 |                           |             |             |            |           |           |                         |
| Number.....  | 4                      | 2                 |                 | 1                         |             |             |            |           |           |                         |
| Horsepower.....  | 2,008                  | 923               |                 | 1,000                     |             |             | 1          |           |           |                         |
| Internal-combustion engines—   |                        |                   |                 |                           |             |             |            |           |           |                         |
| Number.....  | 69                     | 40                | 1               | 1                         |             |             |            |           |           |                         |
| Horsepower.....  | 1,046                  | 722               | 50              | 3                         |             | 1           | 1          | 8         | 3         | 4                       |
| Water wheels, turbines, and motors—  |                        |                   |                 |                           |             |             |            |           |           |                         |
| Number.....  | 1                      |                   |                 |                           |             |             |            |           |           |                         |
| Horsepower.....  | 17                     |                   |                 |                           |             |             |            |           |           |                         |
| Purchased power (horsepower, total).....                                       | 17,388                 | 2,293             | 98              | 13,447                    | 17          | 10          | 705        | 115       |           |                         |
| Electric motors operated by purchased current—                                 |                        |                   |                 |                           |             |             |            |           |           |                         |
| Number.....  | 324                    | 73                | 5               | 215                       |             |             |            |           |           |                         |
| Horsepower.....  | 17,378                 | 2,293             | 98              | 13,447                    | 15          | 750         | 11         | 5         |           |                         |
| Other equipment operated by purchased power—                                   |                        |                   |                 |                           |             |             |            |           |           |                         |
| Horsepower.....  | 10                     |                   |                 |                           |             |             |            |           |           |                         |
| Electric motors run by current generated by enterprise using:                  |                        |                   |                 |                           |             |             |            |           |           |                         |
| Number.....  | 342                    | 263               | 63              | 0                         | 7           |             |            |           |           |                         |
| Horsepower.....  | 12,562                 | 10,520            | 1,792           | 50                        | 200         |             |            |           |           |                         |
| Fuel used:   |                        |                   |                 |                           |             |             |            |           |           |                         |
| Coal, bituminous..... tons, 2,000 pounds.....                                  | 298,649                | 141,222           | 88,029          | 17,209                    | 20,704      | 10,523      | 8,354      | 1,450     | 1,430     | 223                     |
| Coke..... tons, 2,000 pounds.....  | 29                     |                   |                 | 23                        |             |             |            |           |           |                         |
| Wood..... cords.....   | 5,831                  | 104               | 5,079           |                           |             |             |            |           |           |                         |
| Fuel oils..... barrels.....  | 1,240                  | 187               | 245             | 800                       |             | 20          | 28         |           |           |                         |
| Gasoline and other volatile oils..... barrels.....                             | 1,017                  | 353               | 42              | 8                         |             |             |            |           |           |                         |
| Natural gas..... 1,000 cubic feet.....   | 1,360                  |                   |                 |                           |             | 2           | 205        | 302       | 12        | 1,350                   |

<sup>1</sup>Includes enterprises as follows: Bauxite, 1; manganese ore, 3; mineral pigments, 2; petroleum and natural gas, 1; sandstone, 2; silica, 2.

## WEST VIRGINIA.

West Virginia, which ranks fortieth among the states in size (land area 24,022 square miles) and twenty-seventh in population (1,463,701 in 1920), ranked second in the value of mineral products in 1919. The state also ranked second in the 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 West Virginia in 1919 was \$295,606,620. This amount includes, in addition to the value of specified mineral products, amounts received by operators for other products, for power sold, and for work or miscellaneous services for other enterprises. The gross value of products shows an increase of 287.5 per cent as compared with the gross value of products reported at the census of 1909. Deducting from this gross value \$5,871,497, the value of natural gas sold by some producers to others who used it as material or sold it again, leaves \$289,735,123, the net value of products for 1919, which is 284.3 per cent larger than the corresponding value for 1909.

This increase and the increases in capital, wages, cost of supplies and materials and fuel and power, as shown in Table 1, although in large part due to general price increases during the census interval, nevertheless show growth in mining as do also the increases in number of enterprises, number of individual mines, quarries, and wells operated, and in average number of wage earners employed.

The mining industries in West Virginia in 1919, classified according to principal products, were bituminous coal, petroleum and natural gas, limestone, sandstone, and clay, which are ranked by value of products in the order named, in Table 2.

The leading industry was the mining of bituminous coal in which West Virginia was outclassed only by Pennsylvania. This industry included 926 enterprises, or 54 per cent of the total number in the state, employed 86.4 per cent of the total number of wage earners, and reported products to the value of \$193,108,343, or 65.3 per cent of the total. The state produces bituminous and semibituminous coals in varieties for all uses. The productive territory lies in a central belt extending across the state from northeast to southwest and in a zone along the Ohio River. The producing districts are part of the Northern and Middle Appalachian coal fields and occupy approximately 9,500 square miles in parts of 36 counties.

The industry second in importance was the production of petroleum and natural gas. The statistics here 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 well operations or not. Seven hundred and fifty-one enterprises, or 43.8 per cent of the total number in the mineral industries of the state in 1919, were petroleum or natural-gas or natural-gas gasoline enterprises. They reported 12.2 per cent of

the total number of wage earners and products valued at \$99,518,304, or 33.7 per cent of the total value of products of the state. The producing pools or local fields cover approximately 10,000 square miles throughout the northwestern half of the state, 30 counties reporting production in 1919.

The total value of products for the coal and petroleum and natural-gas industries combined was 99 per cent of the total value of products of the state. The other industries are therefore relatively small, but both the limestone and sandstone quarrying industries in West Virginia are important, in that they furnish a large share of the country's supply of limestone and sandstone (silica) used in manufacturing industries as well as furnishing stone for construction work.

In addition to the activities of producing mines, three coal and five petroleum and natural-gas enterprises reported operations for development of non-producing properties; these enterprises reported \$133,107 expended for development work, which represented a very small portion of the aggregate expenditures reported for the state.

Table 3 classifies the producing mining enterprises of the state according to form of organization and shows that, for the mining industries as a whole, corporations conducted 68.3 per cent of the total number of enterprises, employed 97.4 per cent of the wage earners, and reported 96.8 per cent of the total value of products. A preponderance of corporations over other forms of organization is shown for each of the industries considered separately.

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 West Virginia, 16.2 per cent employed no wage earners, and 68.3 per cent employed fewer than 101 wage earners. On the other hand, 266 enterprises, or 15.6 per cent of the total number, had more than 100 wage earners each and employed 74.7 per cent of the total number of wage earners. Most of these larger enterprises were in the coal-mining industry; the remainder were in the petroleum and natural-gas and limestone industries.

Table 5 shows that in a majority of enterprises employing wage earners and for 76.7 per cent of the total number of wage earners the hours of labor were 44 to 53 per week. In the coal-mining industry these hours prevailed with an 8-hour day and a 6-day week, but in the petroleum and natural-gas industry and in the quarrying industries 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.

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—WEST VIRGINIA.

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

|  | MINING INDUSTRIES. |         | Per cent of increase. <sup>1</sup> | MINING INDUSTRIES.                        |               | Per cent of increase. <sup>1</sup> |         |
|--|--------------------|---------|------------------------------------|---|---------------|------------------------------------|---------|
|  | 1919               | 1909    |                                    | 1919                                      | 1909          |                                    |         |
| Number of enterprises.....   | 1,714              | 798     | 114.8                              | Capital.....                              | \$533,138,835 | \$219,460,909                      | 142.9   |
| Number of mines and quarries.....  | 1,325              | 718     | 84.5                               | Principal expenses:                       |               |                                    |         |
| Number of petroleum and natural-gas wells.....                                 | 27,363             | 15,146  | 80.7                               | Salaries.....                             | 14,054,240    | 3,828,884                          | 260.6   |
| Number of natural-gas gasoline plants.....                                     | 230                |         |                                    | Wages.....                                | 110,577,940   | 35,980,736                         | 252.3   |
| Persons engaged.....   | 110,327            | 77,814  | 41.8                               | Contract work.....                        | 3,880,691     | 4,465,926                          | 12.9    |
| Proprietors and firm members, total.....                                       | 1,667              | 909     | 83.4                               | Supplies and materials <sup>2</sup> ..... | 40,611,674    | 12,541,375                         | 271.7   |
| Number performing manual labor in or about the mines, quarries, and wells..... | 124                | 81      |                                    | Fuel and power.....                       | 6,608,796     | 1,212,825                          | 469.6   |
| Salaried employees.....  | 7,848              | 3,495   | 124.5                              | Royalties and rents.....                  | 14,845,553    | 7,790,472                          | 90.4    |
| Wage earners (average number).....   | 100,812            | 78,410  | 37.3                               | Taxes.....                                | 11,078,927    | 965,443                            | 1,047.5 |
| Power used (horsepower).....   | 704,279            | 410,282 | 69.2                               | Value of products.....                    | 265,006,020   | 76,287,889                         | 287.5   |

<sup>1</sup> A minus sign (—) denotes decrease. Percentages are omitted where base is less than 100.<sup>2</sup> Includes cost of natural gas purchased as material and for resale.

TABLE 2.—MINING 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.....            | 1,714                  | 100,812         | 100.0                  | \$295,006,020      | 100.0                  | Limestone..... | 17                     | 1,003           | 1.0                    | \$1,027,490        | 0.7                    |
| Coal, bituminous.....          | 926                    | 87,095          | 86.4                   | 193,108,343        | 65.3                   | Sandstone..... | 15                     | 343             | 0.3                    | 885,588            | 0.3                    |
| Petroleum and natural gas..... | 751                    | 12,302          | 12.2                   | 99,518,304         | 33.7                   | Clay.....      | 5                      | 69              | 0.1                    | 166,805            | 0.1                    |

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.....                     | 1,714                  | 100,812                 | \$295,006,020      | \$172,460       | 100.0                  | 100.0         | 100.0              |
| Corporation.....                        | 1,170                  | 98,207                  | 286,062,517        | 244,458         | 68.3                   | 67.4          | 98.8               |
| Individual.....                         | 196                    | 704                     | 2,920,406          | 17,698          | 0.7                    | 0.7           | 1.0                |
| Firm.....                               | 351                    | 1,847                   | 6,155,479          | 17,537          | 20.5                   | 1.8           | 2.1                |
| Other.....                              | 27                     | 51                      | 468,218            | 17,811          | 1.0                    | 0.1           | 0.2                |
| COAL, BITUMINOUS.....                   | 926                    | 87,095                  | 193,108,343        | 208,540         | 100.0                  | 100.0         | 100.0              |
| Corporation.....                        | 804                    | 85,289                  | 189,232,443        | 235,364         | 80.8                   | 67.9          | 98.0               |
| Individual.....                         | 53                     | 475                     | 1,095,619          | 20,672          | 5.7                    | 0.5           | 0.6                |
| Firm <sup>1</sup> .....                 | 69                     | 1,394                   | 2,780,281          | 40,204          | 7.5                    | 1.6           | 1.4                |
| PETROLEUM AND NATURAL GAS.....          | 751                    | 12,302                  | 99,518,304         | 132,511         | 100.0                  | 100.0         | 100.0              |
| Corporation.....                        | 339                    | 11,581                  | 93,042,568         | 277,117         | 45.1                   | 94.1          | 94.4               |
| Individual.....                         | 108                    | 197                     | 1,762,791          | 10,822          | 14.4                   | 1.6           | 1.8                |
| Firm.....                               | 278                    | 473                     | 3,848,198          | 12,044          | 37.0                   | 3.8           | 3.4                |
| Other.....                              | 23                     | 51                      | 464,767            | 17,875          | 3.5                    | 0.4           | 0.5                |
| LIMESTONE.....                          | 17                     | 1,003                   | 1,027,490          | 113,382         | 100.0                  | 100.0         | 100.0              |
| Corporation.....                        | 13                     | 991                     | 1,397,479          | 145,660         | 70.5                   | 68.8          | 98.4               |
| Firm <sup>2</sup> .....                 | 4                      | 12                      | 30,011             | 7,508           | 23.5                   | 1.2           | 1.6                |
| SANDSTONE.....                          | 15                     | 343                     | 885,588            | 59,039          | 100.0                  | 100.0         | 100.0              |
| Corporation.....                        | 10                     | 331                     | 870,360            | 87,036          | 66.7                   | 96.5          | 98.3               |
| Firm <sup>2</sup> .....                 | 5                      | 12                      | 15,228             | 3,016           | 33.3                   | 3.5           | 1.7                |

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

TABLE 4.—SIZE OF PRODUCING ENTERPRISES, BY AVERAGE NUMBER OF WAGE EARNERS, FOR ALL 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.....                       | 1,714        | 100.0                  | 100,812       | 100.0                  | LIMESTONE.....                            | 17           | 100.0                  | 1,003         | 100.0                  |
| No wage earners.....                      | 277          | 16.2                   | .....         | .....                  | No wage earners.....                      | 1            | 5.9                    | .....         | .....                  |
| 1 to 5.....                               | 449          | 26.2                   | 957           | 9.9                    | 1 to 5.....                               | 3            | 17.6                   | 8             | 0.8                    |
| 6 to 20.....                              | 232          | 13.6                   | 3,207         | 3.3                    | 6 to 20.....                              | 2            | 11.8                   | 15            | 1.5                    |
| 21 to 50.....                             | 254          | 14.8                   | 8,230         | 8.2                    | 21 to 50.....                             | 4            | 23.5                   | 118           | 11.8                   |
| 51 to 100.....                            | 180          | 10.9                   | 12,065        | 12.0                   | 51 to 100.....                            | 3            | 17.0                   | 223           | 22.2                   |
| 101 to 500.....                           | 243          | 14.2                   | 40,291        | 40.0                   | 101 to 500.....                           | 4            | 23.5                   | 639           | 63.7                   |
| 501 to 1,000.....                         | 15           | 0.9                    | 10,215        | 10.1                   |   |              |                        |               |                        |
| Over 1,000.....                           | 8            | 0.5                    | 16,848        | 16.7                   | SANDSTONE.....                            | 15           | 100.0                  | 343           | 100.0                  |
| COAL, BITUMINOUS.....                     | 920          | 100.0                  | 87,095        | 100.0                  | 1 to 5.....                               | 6            | 40.0                   | 17            | 5.0                    |
| 1 to 5.....                               | 85           | 9.2                    | 263           | 0.3                    | 6 to 20.....                              | 5            | 33.3                   | 60            | 17.5                   |
| 6 to 20.....                              | 192          | 20.7                   | 2,373         | 2.7                    | 21 to 50.....                             | 1            | 6.7                    | 22            | 6.4                    |
| 21 to 50.....                             | 231          | 24.9                   | 7,001         | 8.7                    | 51 to 100.....                            | 3            | 20.0                   | 244           | 71.1                   |
| 51 to 100.....                            | 170          | 18.4                   | 11,770        | 13.5                   |   |              |                        |               |                        |
| 101 to 500.....                           | 230          | 24.8                   | 40,884        | 46.8                   | CLAY.....                                 | 5            | 100.0                  | 69            | 100.0                  |
| 501 to 1,000.....                         | 13           | 1.4                    | 8,915         | 10.2                   | 6 to 20.....                              | 3            | 60.0                   | 22            | 31.9                   |
| Over 1,000.....                           | 5            | 0.5                    | 9,289         | 10.7                   | 21 to 50.....                             | 2            | 40.0                   | 47            | 68.1                   |
| PETROLEUM AND NATURAL GAS..               | 751          | 100.0                  | 12,302        | 100.0                  |   |              |                        |               |                        |
| No wage earners.....                      | 270          | 36.8                   | .....         | .....                  |   |              |                        |               |                        |
| 1 to 5.....                               | 355          | 47.3                   | 609           | 5.4                    |   |              |                        |               |                        |
| 6 to 20.....                              | 80           | 10.7                   | 827           | 6.7                    |   |              |                        |               |                        |
| 21 to 50.....                             | 16           | 2.1                    | 451           | 3.7                    |   |              |                        |               |                        |
| 51 to 100.....                            | 10           | 1.3                    | 728           | 5.9                    |   |              |                        |               |                        |
| 101 to 500.....                           | 9            | 1.2                    | 1,703         | 14.4                   |   |              |                        |               |                        |
| 501 to 1,000.....                         | 2            | 0.3                    | 1,300         | 10.6                   |   |              |                        |               |                        |
| Over 1,000.....                           | 3            | 0.4                    | 6,550         | 53.3                   |   |              |                        |               |                        |

TABLE 5.—NUMBER OF PRODUCING ENTERPRISES AND AVERAGE NUMBER OF WAGE EARNERS, BY PREVAILING HOURS OF LABOR PER WEEK, FOR ALL 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.....            | 1,437         | 100,812       | 87  | 2,102         | 59            | 3,187         | 947           | 77,292        | 287           | 16,666        | 40            | 1,431         | 17            | 134           |
| Coal, bituminous.....          | 920           | 87,095        | 30  | 2,028         | 42            | 3,170         | 801           | 74,125        | 47            | 7,702         | 2             | 70            | .....         | .....         |
| Petroleum and natural gas..... | 475           | 12,302        | 57  | 74            | 16            | 16            | 140           | 3,081         | 211           | 7,636         | 38            | 1,861         | 17            | 134           |
| Limestone.....                 | 16            | 1,003         | .....   | .....         | .....         | .....         | .....         | .....         | 16            | 1,003         | .....         | .....         | .....         | .....         |
| Sandstone.....                 | 15            | 343           | .....   | .....         | .....         | .....         | .....         | .....         | 12            | 317           | .....         | .....         | .....         | .....         |
| Clay.....                      | 5             | 69            | .....   | .....         | .....         | .....         | .....         | .....         | 1             | 8             | .....         | .....         | .....         | .....         |

1 Exclusive of 277 enterprises employing no wage earners in the following industries: Limestone, 1; petroleum and natural gas, 276.

TABLE 6.—WAGE EARNERS, BY MONTHS, ALL 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.....            | 100,830                              | 100,187   | 93,274        | <b>92,324</b> | 93,737 | 97,318 | 99,483 | 104,794 | 106,662 | 107,828    | 107,803  | 97,291    | 108,759   | 85.3                            |
| Producing enterprises.....     | 100,812                              | 100,187   | 93,274        | <b>92,324</b> | 93,737 | 97,313 | 99,454 | 104,774 | 106,637 | 107,801    | 107,778  | 97,245    | 108,720   | 85.4                            |
| Coal, bituminous.....          | 87,095                               | 87,044  | 80,378        | <b>79,740</b> | 80,329 | 83,660 | 85,670 | 90,496  | 92,194  | 93,614     | 93,759   | 83,379    | 94,837    | 84.0                            |
| Petroleum and natural gas..... | 12,302                               | 11,833  | <b>11,685</b> | 11,693        | 12,007 | 12,199 | 12,378 | 12,867  | 12,866  | 12,667     | 12,637   | 12,425    | 12,417    | 90.2                            |
| Limestone.....                 | 1,003                                | 907   | 912           | 1,014         | 1,039  | 1,054  | 994    | 1,022   | 1,095   | 1,035      | 960      | 922       | 984       | 82.8                            |
| Sandstone.....                 | 343                                  | 325   | <b>291</b>    | 304           | 294    | 343    | 351    | 330     | 395     | 389        | 387      | 379       | 358       | 73.7                            |
| Clay.....                      | 69                                   | 78  | 68            | 78            | 68     | 67     | 67     | 67      | 69      | 68         | 65       | 70        | 74        | 78.2                            |
| Nonproducing enterprises.....  | 18                                   | .....   | .....         | .....         | .....  | 5      | 29     | 20      | 25      | 27         | 25       | 46        | 39        | 10.9                            |
| Coal, bituminous.....          | 13                                   | .....   | .....         | .....         | .....  | .....  | 24     | 19      | 18      | 20         | 24       | 29        | 28        | 41.4                            |
| Petroleum and natural gas..... | 5                                    | .....   | .....         | .....         | .....  | 5      | 5      | 1       | 13      | 7          | 1        | 17        | 11        | 5.9                             |

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

|  | Aggregate.    | PRODUCING ENTERPRISES. |                   |                            |             |             | NONPRODUCING ENTERPRISES. |           |                   |                            |
|--|---------------|------------------------|-------------------|----------------------------|-------------|-------------|---------------------------|-----------|-------------------|----------------------------|
|  |               | Total.                 | Coal, bituminous. | Petroleum and natural gas. | Limestone.  | Sandstone.  | Clay.                     | Total.    | Coal, bituminous. | Petroleum and natural gas. |
| Number of enterprises.....                                       | 1,722         | 1,714                  | 926               | 751                        | 17          | 15          | 5                         | 8         | 3                 | 5                          |
| Number of mines and quarries.....                                | 1,328         | 1,325                  | 1,287             |                            | 17          | 10          | 5                         | 3         | 3                 |                            |
| Number of petroleum and natural-gas wells.....                   | 27,363        | 27,363                 |                   | 27,363                     |             |             |                           |           |                   |                            |
| Number of natural-gas-gasoline plants <sup>1</sup> .....         | 230           | 230                    |                   | 230                        |             |             |                           |           |                   |                            |
| Capital.....   | \$533,064,008 | \$533,138,835          | \$344,014,848     | \$180,275,406              | \$1,275,947 | \$1,220,500 | \$10,035                  | \$525,173 | \$303,410         | \$221,703                  |
| Principal expenses:  |               |                        |                   |                            |             |             |                           |           |                   |                            |
| Salaries and wages—  |               |                        |                   |                            |             |             |                           |           |                   |                            |
| Officers.....  | \$1,308,270   | \$1,393,170            | \$3,546,415       | \$793,008                  | \$20,159    | \$27,822    | \$1,800                   | \$5,100   | \$5,100           |                            |
| Superintendents and managers.....                                | \$5,298,219   | \$5,293,319            | \$4,470,144       | \$730,647                  | \$11,877    | \$20,011    | \$0,640                   | \$4,000   | \$3,900           | \$1,000                    |
| Technical employees.....   | \$1,154,808   | \$1,153,558            | \$1,058,405       | \$91,403                   | \$750       |             |                           | \$1,250   | \$1,250           |                            |
| Clerks, etc.....   | \$4,115,407   | \$4,114,232            | \$3,183,598       | \$389,067                  | \$30,243    | \$3,087     | \$2,307                   | \$1,205   | \$1,240           | \$905                      |
| Wage earners.....  | \$119,596,994 | \$119,577,949          | \$105,701,150     | \$12,410,434               | \$979,024   | \$338,150   | \$2,585                   | \$10,015  | \$14,251          | \$4,704                    |
| Supplies and materials.....                                      | \$40,804,021  | \$40,740,077           | \$25,983,284      | \$14,227,852               | \$19,472    | \$04,102    | \$15,277                  | \$64,514  | \$10,277          | \$64,207                   |
| Cost of natural gas purchased as material and for resale.....    | \$5,871,497   | \$5,871,497            |                   | \$5,871,497                |             |             |                           |           |                   |                            |
| Fuel.....  | \$3,021,553   | \$3,021,485            | \$2,725,087       | \$1,083,710                | \$69,933    | \$30,293    | \$3,402                   | \$08      |                   | \$68                       |
| Power.....   | \$2,987,311   | \$2,987,311            | \$2,853,341       | \$30,400                   | \$68,213    | \$15,327    |                           |           |                   |                            |
| Royalties and rents.....   | \$14,850,543  | \$14,845,553           | \$5,025,301       | \$3,902,007                | \$11,384    | \$1,354     | \$1,847                   | \$4,000   | \$3,520           | \$1,480                    |
| Taxes.....   | \$11,081,607  | \$11,078,927           | \$6,644,220       | \$4,371,110                | \$51,312    | \$8,085     | \$3,288                   | \$2,680   | \$1,648           | \$1,032                    |
| Contract work.....   | \$3,944,560   | \$3,989,691            | \$405,581         | \$3,484,110                |             |             |                           | \$54,809  |                   | \$54,809                   |
| Expenditures for development (included in the above items).....  | \$17,049,405  | \$17,510,298           | \$4,285,208       | \$13,270,683               | \$2,530     | \$7,877     |                           | \$133,107 | \$35,018          | \$98,089                   |
| Value of products.....   | \$205,006,020 | \$205,006,020          | \$193,108,543     | \$99,518,304               | \$1,027,490 | \$885,588   | \$106,805                 |           |                   |                            |
| Persons engaged in industry.....                                 | 110,304       | 110,327                | 93,767            | 15,032                     | 1,003       | 385         | 80                        | 37        | 20                | 17                         |
| Proprietors and firm members (total).....                        | 1,070         | 1,007                  | 273               | 1,375                      | 8           | 9           | 1                         | 9         |                   |                            |
| Number performing manual labor.....                              | 124           | 124                    | 63                | 87                         | 2           | 2           |                           |           |                   | 9                          |
| Salaried officers.....   | 1,395         | 1,303                  | 1,139             | 211                        | 0           | 8           | 2                         | 2         | 2                 |                            |
| Superintendents and managers.....                                | 2,177         | 2,173                  | 1,707             | 335                        | 21          | 10          | 4                         | 4         | 3                 | 1                          |
| Technical employees.....   | 737           | 736                    | 683               | 47                         | 1           |             |                           |           |                   |                            |
| Clerks, etc.....   | 3,579         | 3,578                  | 2,773             | 701                        | 24          | 9           | 4                         | 3         | 1                 | 2                          |
| Wage earners (average number).....                               | 100,830       | 100,812                | 87,095            | 12,802                     | 1,003       | 343         | 60                        | 18        | 18                | 5                          |
| Wage earners by occupation (Dec. 15):                            |               |                        |                   |                            |             |             |                           |           |                   |                            |
| Above ground (total).....  | 34,344        | 34,303                 | 20,400            | 12,430                     | 1,087       | 427         | 9                         | 41        | 20                | 15                         |
| Below ground (total).....  | 75,582        | 75,578                 | 75,513            |                            |             |             | 65                        | 4         | 4                 |                            |
| Foremen, shift bosses, etc.—                                     |               |                        |                   |                            |             |             |                           |           |                   |                            |
| Above ground.....  | 806           | 830                    | 835               |                            | 35          | 10          |                           | 1         |                   |                            |
| Below ground.....  | 2,114         | 2,114                  | 2,110             |                            |             |             | 4                         |           | 1                 |                            |
| Enginemen, hoistmen, electricians, mechanics, etc.—              |               |                        |                   |                            |             |             |                           |           |                   |                            |
| Above ground.....  | 13,410        | 13,395                 | 5,089             | 8,201                      | 72          | 31          | 2                         | 15        | 14                | 1                          |
| Below ground.....  | 4,971         | 4,971                  | 4,967             |                            |             |             | 4                         |           |                   |                            |
| Miners, quarrymen, and drillmen, including their helpers—        |               |                        |                   |                            |             |             |                           |           |                   |                            |
| Above ground.....  | 2,013         | 2,013                  | 1,410             |                            | 448         | 145         | 1                         |           |                   |                            |
| Below ground.....  | 37,906        | 37,962                 | 37,925            |                            |             |             | 37                        | 4         | 4                 |                            |
| Timbermen, trackmen, and men engaged in hauling, tramming, etc.— |               |                        |                   |                            |             |             |                           |           |                   |                            |
| Above ground.....  | 3,713         | 3,713                  | 3,046             |                            | 35          | 30          | 2                         |           |                   |                            |
| Below ground.....  | 10,853        | 10,853                 | 10,843            |                            |             |             | 10                        |           |                   |                            |
| Muckers, loaders, laborers, and others not classified.....       |               |                        |                   |                            |             |             |                           |           |                   |                            |
| Above ground.....  | 14,027        | 14,002                 | 0,192             | 4,220                      | 444         | 187         |                           | 25        | 11                | 14                         |
| Below ground.....  | 13,078        | 13,078                 | 13,008            |                            |             |             |                           |           |                   |                            |
| Wage earners employed in mills and beneficiating plants—         |               |                        |                   |                            |             |             |                           |           |                   |                            |
| Above ground.....  | 291           | 291                    | 210               |                            |             | 68          | 4                         |           |                   |                            |
| Mineral and oil land operated..... acres.....                    | 4,593,732     | 4,578,747              | 1,834,207         | 2,732,470                  | 2,555       | 8,878       | 607                       | 14,985    | 3,418             | 11,567                     |
| Land controlled, total..... acres.....                           | 4,792,419     | 4,687,434              | 1,940,557         | 2,732,470                  | 4,628       | 9,978       | 901                       | 14,985    | 3,418             | 11,567                     |
| Mineral and oil land owned.....                                  | 1,032,408     | 1,030,320              | 1,022,874         | 65,877                     | 4,890       | 738         | 402                       | 2,088     | 2,088             |                            |
| Mineral and oil land leased.....                                 | 3,527,781     | 3,514,584              | 838,084           | 2,066,793                  | 1,715       | 8,140       | 145                       | 12,897    | 1,330             | 11,567                     |
| Timber and other lands owned and leased.....                     | 82,230        | 82,230                 | 79,898            |                            | 1,048       | 100         | 294                       |           |                   |                            |
| Power used: Aggregate horsepower.....                            | 704,326       | 704,279                | 355,470           | 338,194                    | 6,373       | 3,480       | 747                       | 47        |                   | 47                         |
| Prime movers (horsepower, total).....                            | 485,946       | 485,899                | 144,240           | 336,819                    | 2,833       | 1,200       | 747                       | 47        |                   | 47                         |
| Steam engines—   |               |                        |                   |                            |             |             |                           |           |                   |                            |
| Number.....  | 4,280         | 4,280                  | 778               | 3,416                      | 56          | 27          | 3                         |           |                   |                            |
| Horsepower.....  | 210,152       | 210,152                | 123,212           | 88,102                     | 2,821       | 1,220       | 737                       |           |                   |                            |
| Steam turbines—  |               |                        |                   |                            |             |             |                           |           |                   |                            |
| Number.....  | 40            | 40                     | 40                |                            |             |             |                           |           |                   |                            |
| Horsepower.....  | 18,969        | 18,969                 | 18,909            |                            |             |             |                           |           |                   |                            |
| Internal-combustion engines—                                     |               |                        |                   |                            |             |             |                           |           |                   |                            |
| Number.....  | 10,525        | 10,523                 | 130               | 10,383                     | 1           | 2           | 1                         | 2         |                   | 2                          |
| Horsepower.....  | 250,825       | 250,778                | 2,059             | 248,087                    | 12          | 40          | 10                        | 47        |                   | 47                         |
| Purchased power (horsepower, total).....                         | 218,380       | 218,380                | 211,230           | 1,375                      | 3,540       | 2,220       |                           |           |                   |                            |
| Electric motors operated by purchased current—                   |               |                        |                   |                            |             |             |                           |           |                   |                            |
| Number.....  | 6,185         | 6,185                  | 6,008             | 61                         | 85          | 81          |                           |           |                   |                            |
| Horsepower.....  | 218,323       | 218,323                | 211,182           | 1,375                      | 3,540       | 2,220       |                           |           |                   |                            |
| Other equipment operated by purchased power—                     |               |                        |                   |                            |             |             |                           |           |                   |                            |
| Horsepower.....  | 57            | 57                     | 57                |                            |             |             |                           |           |                   |                            |
| Electric motors run by current generated by enterprise using:    |               |                        |                   |                            |             |             |                           |           |                   |                            |
| Number.....  | 2,865         | 2,865                  | 2,500             | 355                        | 4           |             | 6                         |           |                   |                            |
| Horsepower.....  | 95,084        | 95,084                 | 87,256            | 7,615                      | 120         |             | 93                        |           |                   |                            |
| Fuel used:   |               |                        |                   |                            |             |             |                           |           |                   |                            |
| Coal, bituminous..... tons, 2,000 pounds.....                    | 1,157,991     | 1,157,091              | 1,124,614         | 7,500                      | 13,007      | 10,383      | 1,497                     |           |                   |                            |
| Wood..... cords.....   | 50            | 50                     |                   |                            |             |             |                           |           |                   |                            |
| Fuel oils..... barrels.....                                      | 524           | 524                    | 339               | 185                        | 50          |             |                           |           |                   |                            |
| Gasoline and other volatile oils..... barrels.....               | 2,541         | 2,541                  | 2,424             | 108                        |             |             |                           |           |                   |                            |
| Natural gas..... 1,000 cubic feet.....                           | 12,180,899    | 12,140,540             | 287,042           | 11,800,629                 |             | 310         | 1,202                     | 1,350     |                   | 1,360                      |

<sup>1</sup> Exclusive of 1 enterprise, which operated a plant that produced also carbon black, included in the census of manufactures.  
<sup>2</sup> Includes 2 wage earners under 16 years of age.