THIRTEENTH CENSUS OF THE UNITED STATES
TAKEN IN THE YEAR 1910

VOLUME XI

MINES AND QUARRIES
1909

GENERAL REPORT AND ANALYSIS

PREPARED UNDER THE SUPERVISION OF ISAAC A. HOURWICH
EXPERT SPECIAL AGENT IN CHARGE OF MINING

BUREAU OF THE CENSUS
LIBRARY
WASHINGTON
GOVERNMENT PRINTING OFFICE
1913
ANNOUNCEMENT CONCERNING THIRTEENTH CENSUS REPORTS.

December 3, 1913.

Of the final census reports listed on page 3, all have been issued with the exception of Volume IV, Occupation Statistics, which will be completed at an early date.

The volumes numbered I to XI, constituting the complete reports of the census, are being issued in a very limited edition, intended chiefly for libraries, institutions, and special students of statistics.

A condensed report, entitled Abstract of the Census, has been printed in a much larger edition, intended for more general distribution, and prepared in such a way as to meet the need of most persons desiring information concerning the results of the census. It contains in tabular form all important census statistics for the United States as a whole and for each state and principal city, together with a brief text explaining the figures and their meaning. The Abstract therefore is a condensation of the complete census reports, both tables and text, and not merely a compilation of tables.

The Abstract is issued in special editions for each of the several states, each edition containing a supplement giving the detailed statistics for counties, cities, and other civil divisions of the state to which it relates, designed to meet the needs of persons resident in that state or especially interested in it. The supplement contains also both tables and text.

As a compact reference work of general and local interest the Abstract is more convenient for most persons than the voluminous final reports.
CONTENTS.

SUMMARY OF CHAPTERS.

I.—INTRODUCTION AND GENERAL EXPLANATIONS........................................ 13
II.—SUMMARY AND ANALYSIS OF RESULTS................................................... 21
III.—STATISTICS OF MINES AND QUARRIES, BY STATES............................... 41
IV.—COAL........................................................................................................ 181
V.—IRON........................................................................................................ 235
VI.—PETROLEUM AND NATURAL GAS.......................................................... 261

CONTENTS OF CHAPTERS.

Chapter I.—INTRODUCTION AND GENERAL EXPLANATIONS. Pages
Provisions of law.............................................................................................. 13
Cooperation with the United States Geological Survey............................ 13
Method of collecting statistics...................................................................... 14
Territory covered............................................................................................ 15
Industries and establishments canvassed....................................................... 15
Relation between statistics of mines and quarries and statistics of manufactures ................................................................................................................. 15
Period covered................................................................................................. 17
Number of operators....................................................................................... 17
Number of mines, quarries, and wells............................................................. 18
Capital .............................................................................................................. 18
Land tenure.................................................................................................... 18
Expenses of operation and development....................................................... 18
Supplies and materials................................................................................... 18
Miscellaneous expenses.................................................................................. 19
Value of products............................................................................................ 19

Chapter II.—SUMMARY AND ANALYSIS OF RESULTS.
Continental United States and noncontiguous territory: 1909............................. 21
Producing and nonproducing mines................................................................. 21
Geographic distribution of producing enterprises.......................................... 22
Principal mining industries............................................................................ 24
General comparison for the United States: 1902-1909................................... 24
Geographic distribution of the principal industries: 1909............................... 26
Persons engaged in mining industries.............................................................. 26
Distribution by sex and age............................................................................ 28
Distribution by industrial status..................................................................... 29
Proprietors performing manual labor............................................................... 29
Wage earners by occupations......................................................................... 29
Contract work.................................................................................................. 30
Number of persons employed, by months....................................................... 30
Prevailing hours of labor............................................................................... 31
Land tenure..................................................................................................... 32
Form of organization....................................................................................... 32
Number of stockholders.................................................................................. 33
Scale of production........................................................................................ 34
Classification according to number of wage earners..................................... 34
Expenses.......................................................................................................... 36
Power............................................................................................................... 37
Enterprises operated by governmental and ecclesiastical institutions........... 37

Chapter III.—STATISTICS OF MINES AND QUARRIES BY STATES.
Alabama......................................................................................................... 41
Alaska.............................................................................................................. 44
Arizona.......................................................................................................... 47
Arkansas........................................................................................................ 50
California...................................................................................................... 53
Colorado....................................................................................................... 58
Connecticut.................................................................................................... 62
Delaware....................................................................................................... 65
Florida........................................................................................................... 66
Georgia........................................................................................................ 68
Idaho............................................................................................................ 71
Illinois.......................................................................................................... 74
Indiana......................................................................................................... 77
Iowa.............................................................................................................. 80
Kansas.......................................................................................................... 83
Kentucky..................................................................................................... 86
Louisiana...................................................................................................... 89
Maine.......................................................................................................... 91
Maryland...................................................................................................... 93
Massachusetts............................................................................................... 95
Michigan..................................................................................................... 99
Minnesota.................................................................................................... 102
Missouri....................................................................................................... 106
Montana...................................................................................................... 109
Nebraska.................................................................................................... 112
Nevada........................................................................................................ 113
New Hampshire........................................................................................... 116
New Jersey.................................................................................................. 118
New Mexico................................................................................................. 121
New York.................................................................................................... 124
North Carolina.............................................................................................. 128
North Dakota............................................................................................... 131
Ohio.............................................................................................................. 132
Oklahoma..................................................................................................... 135
Oregon......................................................................................................... 138
Pennsylvania............................................................................................... 141
Rhode Island............................................................................................... 149
South Carolina............................................................................................. 147
South Dakota............................................................................................... 149
Tennessee..................................................................................................... 152
Texas............................................................................................................ 155
Utah.............................................................................................................. 158
Vermont....................................................................................................... 162
Virginia........................................................................................................ 165
Washington.................................................................................................. 168
West Virginia............................................................................................... 171
Wisconsin..................................................................................................... 174
Wyoming..................................................................................................... 177

Chapter IV.—COAL.
Introduction.................................................................................................. 181
Definitions and explanations........................................................................ 181
Scope of census............................................................................................. 181
Period covered............................................................................................... 181
Coal mining and coke manufacture at the mines.......................................... 181
Number of operations................................................................................... 181
Coal land controlled..................................................................................... 181
Capital.......................................................................................................... 181
Expenses....................................................................................................... 181
Salaries......................................................................................................... 182
Administrative expenses of general offices................................................. 182
Wages.......................................................................................................... 182
Supplies....................................................................................................... 182
Miscellaneous expenses.............................................................................. 182
Use of long and short tons.......................................................................... 182
Value of products......................................................................................... 182
Persons engaged in the industry................................................................. 182
Primary horsepower..................................................................................... 182

Part I.—THE INDUSTRY AS A WHOLE.
General summary for the United States....................................................... 183
Geographical distribution of coal mining...................................................... 194
Producing fields of the United States.......................................................... 194
Production by geographic divisions and leading states............................. 194
Statistics of coal mining by geologic regions................................................. 194
## CONTENTS

### GENERAL TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 1</td>
<td>Producing mines, quarries, and wells—Comparative summary for the United States, by industries: 1909 and 1902</td>
<td>317</td>
</tr>
<tr>
<td>Table 2</td>
<td>Producing mines, quarries, and wells—Comparative summary for the United States, by states: 1909 and 1902</td>
<td>318</td>
</tr>
<tr>
<td>Table 3</td>
<td>All mines, quarries, and wells—Land controlled, capital, expenses, number of persons engaged in industries, and power for the United States, by industries: 1909</td>
<td>320</td>
</tr>
<tr>
<td>Table 4</td>
<td>All mines, quarries, and wells—Land controlled, capital, expenses, number of persons engaged in mining industries, and power for the United States, by states: 1909</td>
<td>326</td>
</tr>
<tr>
<td>Table 5</td>
<td>Number of wage earners employed each month in producing and nonproducing enterprises, by industries: 1909</td>
<td>331</td>
</tr>
<tr>
<td>Table 6</td>
<td>Number of wage earners employed each month in producing and nonproducing enterprises, by states: 1909</td>
<td>332</td>
</tr>
<tr>
<td>Table 7</td>
<td>Producing mines, quarries, and wells—Land controlled, capital, expenses, value of products, number of persons engaged in mining industries, and power, for the United States, by industries: 1909</td>
<td>334</td>
</tr>
<tr>
<td>Table 8</td>
<td>Producing mines, quarries, and wells—Capital, expenses, value of products, number of persons engaged in mining industries, land controlled, and power, for United States, by states: 1909</td>
<td>336</td>
</tr>
<tr>
<td>Table 9</td>
<td>Nonproducing mines, quarries, and wells—Number of persons engaged in mining industries, land controlled, power, capital, and expenses: 1909</td>
<td>338</td>
</tr>
<tr>
<td>Table 10</td>
<td>Nonproducing mines, quarries, and wells—Capital, expenses, number of persons engaged in mining industries, land controlled, and power, by states: 1909</td>
<td>340</td>
</tr>
<tr>
<td>Table 11</td>
<td>Number of enterprises in each state, by industries: 1909</td>
<td>342</td>
</tr>
</tbody>
</table>

### APPENDICES

<table>
<thead>
<tr>
<th>Appendix</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appendix A</td>
<td>Schedules</td>
<td>351</td>
</tr>
<tr>
<td>Appendix B</td>
<td>Instructions to special agents</td>
<td>355</td>
</tr>
<tr>
<td>Appendix C</td>
<td>Instructions for editing and revising the schedules for mines, quarries, and wells</td>
<td>366</td>
</tr>
</tbody>
</table>
LETTER OF TRANSMITTAL.

DEPARTMENT OF COMMERCE,
BUREAU OF THE CENSUS,
Washington, D. C., December 3, 1913.

Sir:

I have the honor to transmit herewith Volume XI of the Reports of the Thirteenth Decennial Census, relating to mines and quarries.

The statistics relate to the year ended December 31, 1909. The field work was done for the most part by clerks detailed from the permanent force of the bureau and by special agents appointed expressly for the purpose. The compilation of the statistics and the preparation of the text for this report have been under the supervision of Isaac A. Hourwich, expert special agent for mining, in accordance with plans prepared by my predecessor, Hon. E. Dana Durand. The textual discussion for the special report on coal was prepared by John D. A. Morrow, special agent. When I assumed charge of the office I found that it was contemplated to include in the report on Mines and Quarries separate monographs on 15 of the leading industries. It, however, was impossible to carry out this scheme of presentation and publish the report at a reasonably early date, therefore these special monographs were abandoned, with the exception of those relating to anthracite and bituminous coal, iron ore, petroleum and natural gas. The volume, however, summarizes the statistics in considerable detail for all of the minerals in the United States and for the minerals in each state and territory.

Respectfully,

[Signature]

Director.

Hon. William C. Redfield,
Secretary of Commerce.