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EXTRA CENSUS BULLETIN.

No. 10.

WASHINGTON, D. C.

September 30, 1891.

COAL PRODUCT OF THE UNITED STATES.

DEPARTMENT OF THE INTERIOR,
CENSUS OFFICE,

WASHINGTON, D. C., September 14, 1891.

SIR:

The following bulletin on the production of coal in the United States has been prepared by Mr. JOHN H. JONES, special agent, under the direction of Dr. DAVID T. DAY, special agent in charge of the Division of Mines and Mining. It shows that the coal product of the United States reached a total of 141,229,513 short tons in the census year, and was valued at the mines before any expenses for shipment at \$160,226,323. The product included 45,600,487 short tons of Pennsylvania and other anthracite, worth \$65,879,514, and 95,629,026 short tons of bituminous and lignite, valued at \$94,346,809. The average value for all salable grades of anthracite was \$1.58 per ton at the mines, and the average of bituminous coal was 99 cents per short ton at the mines. In 1880 the total product included 28,649,812 short tons of anthracite and 42,831,758 short tons of bituminous coal. The value of the entire product was \$95,640,396. The product increased 97.57 per cent during the decade, and the total value 67.53 per cent. The total number of persons engaged in the industry was 299,559, who received in the aggregate \$109,130,928 as wages.

In the accompanying maps, one shows the location of the coal fields and the other the production of coal per square mile in the United States for the census year 1890, the latter named map giving by gradations of shade the number of tons produced per square mile, ranging from 1-10 to over 5,000.

Very respectfully,

ROBERT P. PORTER.

Superintendent of Census.

The SECRETARY OF THE INTERIOR.



MAP
SHOWING THE
COAL FIELDS OF THE UNITED STATES
1890
Compiled by
JOHN H. JONES, SPECIAL AGENT



- I 1-10 tons per sq mile
- II 10-100
- III 100-1000
- IV 1000-5000
- V Over 5000

MAP
SHOWING THE
PRODUCTION OF COAL OF THE UNITED STATES
per square mile
for the Census year (1890).

Compiled by
JOHN H. JONES, SPECIAL AGENT

COAL PRODUCT OF THE UNITED STATES.

BY JOHN H. JONES.

During the census year coal was mined in 31 states and territories, including Alaska and Rhode Island, although the product of the latter is not adapted for fuel, and is, therefore, only mined to a limited extent for industrial purposes. Pennsylvania, containing the wonderful beds of anthracite as well as extensive deposits of bituminous coals, yielded 58 per cent of the entire output of the country. Illinois, with bituminous deposits only, ranks second as a coal producer, Ohio, West Virginia, Iowa, and Alabama following in the order named.

The coal deposits of the United States lying east of the one hundredth meridian are identified in four distinct and well-defined basins, viz, the great Appalachian or eastern, including the anthracite beds in Pennsylvania, the central or Illinois, the northern or Michigan, and the fourth or western, all of which belong to the carboniferous measures.

The anthracite coal fields of Pennsylvania are confined to the following counties in the northeastern part of the state: Carbon, Columbia, Dauphin, Lackawanna, Luzerne, Northumberland, Schuylkill, Sullivan, and Susquehanna. The area of the entire region is about 1,700 square miles. The area underlaid by workable coal beds is only about 470 square miles. The natural geological and topographical boundaries of this area are formed by the mountains and ridges made by the Pocono sandstone, No. X. No workable coal beds have been found stratigraphically below the Pottsville conglomerate, No. XII, the Lykens valley, or lowest anthracite beds, being found in the latter formation. The greatest length of the region, from the northeastern end of the northern field to the southwestern end of the southern field, is about 115 miles, while the greatest width of the belt, containing the first four fields, is about 40 miles, between Mauch Chunk and Shickshinny, near the western end of the northern field.

The Appalachian bituminous field lies immediately west of the eastern frontier of the Appalachian mountains, and extends from New York on the north to Alabama on the south. Its length is a little over 900 miles in a northeast and southwest direction, and its width varies from 30 to 180 miles. It covers western Pennsylvania, southeastern Ohio, the western part of Maryland, nearly all of West Virginia, the eastern part of Kentucky, a portion of eastern Tennessee, the extreme northwestern corner of Georgia, and the northern part of Alabama. All of the coals in this field are bituminous, and they are of great variety, both in chemical composition and physical structure. Although it is difficult to make any general comparisons, the best and most productive coal beds lie probably in the Pittsburg district and in West Virginia. Some of the best coals in the district are mined in basins detached from the main body of the field, such as Blossburg and Broad Top basins in Pennsylvania and the Cumberland in Maryland.

What is known as the eastern triassic area is composed principally of the Richmond basin in Virginia and the Deep river and Dan river fields in North Carolina. The first coal systematically mined in the United States was taken from the Richmond basin. In 1822 about 48,214 tons of coal were produced, which was twelve times the total amount of coal shipped during that year from the Pennsylvania anthracite region. The maximum production of the field was in 1833, when 142,587 tons of coal were shipped. This was nearly one-third the total amount of Pennsylvania anthracite shipped during the same year. Mining in this field has gradually declined during the past two or three years, and no extensive mining operations are now carried on. A number of workable beds have been found in North Carolina, which have been worked at different times, principally to supply local demands.

A deposit of graphitic coal, sometimes called anthracite, underlies portions of eastern Rhode Island and the counties of Bristol and Plymouth in Massachusetts. The product, however, has been limited.

The northern bituminous area is confined exclusively to Michigan, spreading over the central part of that state. Many coal beds are found within the area of this field, which has been computed to be 7,000 square miles. Mining has been carried on in this district principally for the supply of fuel to the local trade. The numerous transportation routes, both by water and rail, to the more distant fields containing better coal has militated against the development of the Michigan coal basin.

The Central field includes the coal areas of Indiana, Illinois, and western Kentucky. On account of Illinois containing the most important part of the field it is frequently called the Illinois field. The portion of the field in Illinois is over five times as great as that in Indiana and over nine times as great as that in western Kentucky.

The Western field embraces those coal fields west of the Mississippi river, south of the forty-third parallel and east of the Rocky mountains. It is embraced within Iowa, Missouri, Nebraska, Kansas, Arkansas, Texas, and the Indian territory. The most extensive mining operations in this field are carried on in Iowa and Missouri. The best coal which has so far been mined in the field is that from Indian territory. The area of this field is greater than any other one coal field in the United States. The coals are of great variety, and the region under which they lie is a rich agricultural country. The demand for local fuels must necessarily increase from year to year, so that even poor coal beds within this region will no doubt be extensively developed to supply local demands.

In the Rocky mountain region coal beds are found in a number of geological formations. In the fields above referred to, with the exception of those in Virginia and North Carolina, the coal beds belong to the carboniferous age. The Rocky mountain coal beds have been found in the geological formations from the carboniferous up to and including the cretaceous. No detailed information of the entire coal area of the Rocky mountain region, similar to that which has been determined by state geological surveys of the coal basins east of the Rocky mountains, is available, and no reliable estimates have been made of the areas underlain by workable coal beds. It has been surmised that the total area of the coal fields of this district is between 200,000 and 300,000 square miles, but this estimate is little more than a guess.

The anthracite coals of Colorado and New Mexico are of superior quality and apparently in ample supply for the rapidly increasing domestic and industrial demands of this section. There is no doubt that in the near future they will constitute a formidable competitor in the western markets to the Pennsylvania anthracites.

In the Pacific coast region coal has been mined in Washington, Oregon, and California. The area underlain by workable coal beds has not been definitely determined, although the geological survey of California and the recent work of Professor Raphael Pumpelly and his associates in Washington have given very reliable and detailed information in regard to the geology of the coal-bearing rocks.

The following table shows the number of square miles in each of these basins from the latest and most reliable authorities, the quantities of coal mined in each in the calendar year 1889, as reported to the Eleventh Census, and returns of the Tenth Census, for comparison :

AREA AND PRODUCT AT THE ELEVENTH CENSUS OF THE COAL FIELDS COMPARED WITH THE TENTH CENSUS.

STATES AND TERRITORIES.	ELEVENTH CENSUS.		TENTH CENSUS.		STATES AND TERRITORIES.	ELEVENTH CENSUS.		TENTH CENSUS.	
	Area in square miles.	Product.	Area in square miles.	Product.		Area in square miles.	Product.	Area in square miles.	Product.
Grand total.....		141,229,513		71,481,570					
ANTHRACITE.					BITUMINOUS--continued.				
New England basin (Rhode Island and Massachusetts).					Central:				
	500	2,000	500	6,176	Indiana.....	7,000	2,845,057	6,450	1,451,327
Pennsylvania.....	470	45,544,970	470	28,640,819	Western Kentucky.....	4,000	1,250,985	4,000	580,491
Virginia.....				2,817	Illinois.....	37,000	12,104,272	36,800	6,115,377
Colorado and New Mexico.....	15	53,517			Total.....	48,000	16,240,314	47,250	8,150,195
Total.....	983	45,600,487	970	28,649,812	Western:				
BITUMINOUS.					Iowa.....	18,000	4,095,358	18,000	1,461,116
Triassic:					Missouri.....	26,900	2,557,823	26,887	844,304
Virginia.....	185	49,411	180	40,520	Nebraska.....	3,200	2,222,443	3,000	771,642
North Carolina.....	2,700	222	2,700	350	Kansas.....	17,000		17,000	
Total.....	2,885	49,633	2,880	40,870	Arkansas.....	9,100	279,584	9,043	14,778
Appalachian:					Indian territory.....	20,000	752,832	20,000	120,947
Pennsylvania.....	9,000	36,174,089	9,000	18,425,163	Texas.....	4,500	128,216	4,500	
Ohio.....	10,000	9,976,787	10,000	6,008,595	Total.....	98,700	10,036,256	98,430	3,212,787
Maryland.....	550	2,930,715	550	2,228,917	Rocky mountain:				
Virginia.....	2,000	816,375	185	2,559	Dakota.....		28,907		224
West Virginia.....	16,000	6,231,880	16,000	1,829,844	Montana.....		363,301		
Eastern Kentucky.....	10,000	1,108,770	9,000	365,707	Wyoming.....		1,388,947		589,595
Tennessee.....	5,100	1,925,689	5,100	493,131	Utah.....		236,651		14,748
Georgia.....	200	225,934	200	154,644	Colorado.....		2,544,144		462,747
Alabama.....	8,660	3,372,983	8,660	323,972	New Mexico.....		486,463		
Total.....	61,510	62,972,222	58,695	29,834,622	Total.....		5,048,413		1,067,314
Northern:					Pacific coast:				
Michigan.....	7,000	67,431	6,700	100,800	Washington.....		1,030,578		145,015
					Oregon.....		64,859		43,205
					California.....		119,820		236,850
					Total.....		1,214,757		425,170

The following table shows the production, value, number of persons employed, wages, and capital invested in the coal operations of the country in 1889, as compared with the census year ended June 30, 1880:

COMPARATIVE COAL STATISTICS, TENTH AND ELEVENTH CENSUSES.

ITEMS.	Eleventh Census. (Calendar year 1889.)	Tenth Census. (Year ended June 30, 1880.)	Increase.	Per cent.
Total product (short tons).....	141,229,513	671,481,570	69,747,943	97.57
Value at mines.....	\$160,226,323	\$95,640,386	\$64,585,927	67.53
Number of persons employed.....	299,559	170,867	128,692	75.32
Total amount wages paid.....	\$109,130,928	\$56,276,055	\$53,854,873	97.43
Capital invested.....	\$342,757,929	\$261,166,970	\$81,590,959	31.24

^a Including Indian territory, not returned in the Tenth Census reports.

^b This amount includes estimated value of undeveloped coal lands. In the capital invested, reported for the Eleventh Census, only the lands actually under development are considered.

The total product of coal in the United States during the year 1889, as reported to the Eleventh Census, was 141,229,513 short tons, valued at \$160,226,323 at the mines. This product includes 45,600,487 tons of Pennsylvania and other anthracite, valued at \$65,879,514, or an average of \$1.58 per short ton at the mines, and 95,629,026 short tons of bituminous and lignite, valued at \$94,346,809, or an average of 99 cents per short ton at the mines. In determining the average value of the anthracite at the mines the product of the local mines is included, but no account has been taken of the coal consumed for steam and heat about the mines, because this fuel consists generally of culm and other unsalable qualities, and is not included in the accounts of operators, having been for the most part estimated for the purposes of this report. In establishing the average price received at the mines for bituminous and lignite, however, the entire product, including that from the local mines, as well as that used for steam and heat about the mines, was considered, as the coal used for mining purposes is of the same quality as that sold in the market. The total number of regular establishments reported in operation during the year was 2,583; the number of local mines and farmers' banks 9,969. The "regular establishments" include all collieries equipped for shipping coal regularly by rail or water, together with the more important collieries supplying local trade. The returns from "local mines and farmers' banks" were obtained by special agents resident in the respective districts, and are therefore complete.

The total quantity of coal produced at these small mines was 2,889,286 short tons, or 2 per cent of the total output. The average number of persons employed in the coal-mining operations of the country during 1889 was 299,559, which includes superintendents, mechanics, clerical force pertaining to collieries, miners, laborers, drivers, and slate pickers. The average number of days in the year when collieries were shipping coal was 193, based upon the average of each state, respectively. No attempt has been made to determine an average of days worked or wages paid at the small mines, because of the irregular methods prevailing and the entire absence of any records beyond the quantities sold and consumed and the customary price received, and this in many cases was approximated. The total amount paid in wages during 1889 (except at the local mines) was \$112,286,099, including amounts paid for "dead" work, such as driving tunnels and gangways, constructing buildings, and other work of a general character done by contract, not enumerated in the tables of "labor and wages", together with the annual or monthly salaries of the administrative and clerical force connected with the collieries.

The grand total of expenditures of every description, including labor, as above stated, materials of all kinds used in mining and preparing the coal, rents, royalties, interest, etc., was \$146,536,280. It must be borne in mind, however, that this amount includes "dead" work and supplies such as rails, props, mine cars, etc., paid for in 1889, which are available for the operations of the future.

The total invested capital as reported to the Eleventh Census was \$342,757,929. This amount includes the estimated value in 1889 of the land actually under development (omitting all acreage held in reserve for future operations), the estimated value of the buildings (except domiciles and storehouses), fixtures, machinery, animals, implements, and supplies on hand; also the amount of actual working capital necessary for the prosecution of the business.

COAL PRODUCT OF THE UNITED STATES.

The following table gives general statistics of the coal mining industry in the United States for the year 1889:

GENERAL STATISTICS OF COAL MINING IN THE UNITED STATES IN 1889, BY STATES AND TERRITORIES.

STATES AND TERRITORIES.	MINES.		Product.	Spot value.	Average price per ton.	Total number of employ'cs.	EXPENDITURES.		Capital invested.
	Regular.	Local.					Grand total of wages.	Grand total of all expenditures.	
Grand total.....	2,583	9,969	141,229,543	\$160,226,323	\$1.13	299,559	\$109,130,928	\$146,536,280	\$942,737,929
BITUMINOUS.									
Alabama.....	57	22	3,572,983	3,961,491	1.11	6,975	3,267,857	3,726,939	12,535,194
Arkansas.....	11	16	279,584	305,836	1.42	686	252,679	308,711	1,289,751
California and Oregon.....	9	1	184,179	434,382	2.36	419	248,449	364,942	526,750
Colorado.....	63	40	2,544,144	3,843,992	1.51	4,872	2,724,800	3,695,298	12,611,849
Illinois.....	358	714	12,104,272	11,755,203	0.97	24,323	8,694,347	10,366,069	17,630,351
Indiana.....	94	256	2,845,057	2,857,852	1.02	6,332	2,201,044	2,581,669	3,433,703
Indian territory.....	15		752,832	1,323,807	1.76	1,873	927,267	1,172,821	1,492,009
Iowa.....	166	226	4,095,358	5,426,509	1.33	9,384	3,956,788	4,732,950	6,279,179
Kansas and Nebraska.....	127	297	2,222,443	3,301,788	1.49	6,069	2,320,588	2,730,782	3,488,539
Kentucky.....	79	1,762	2,399,755	2,374,339	0.99	5,260	1,756,363	2,156,548	6,581,380
Maryland.....	31	50	2,939,715	2,517,474	0.86	3,741	1,730,687	2,061,058	18,025,367
Michigan.....	6	6	67,431	115,011	1.71	265	93,594	113,714	49,650
Missouri.....	122	356	2,357,823	3,479,057	1.36	6,730	2,538,273	2,846,137	3,992,293
Montana.....	8	22	363,301	880,773	2.42	857	587,538	649,674	1,153,076
New Mexico.....	17	11	486,463	870,468	1.79	1,028	604,543	776,896	965,717
North Carolina and Georgia.....	2	1	226,156	339,382	1.50	740	265,464	426,065	724,500
North Dakota.....	5	337	28,907	41,431	1.43	76	18,460	21,740	66,580
Ohio.....	323	1,745	9,976,787	9,355,400	0.94	19,591	6,892,604	8,232,183	14,018,236
Pennsylvania.....	525	2,949	36,174,089	27,953,315	0.77	53,712	20,738,647	25,977,106	53,322,330
Tennessee.....	39	43	1,925,689	2,338,309	1.21	4,108	1,609,310	2,113,232	4,362,711
Texas.....	4	6	128,216	340,620	2.66	549	256,834	324,157	307,335
Utah.....	4	7	236,651	377,456	1.59	565	268,570	342,796	844,500
Virginia.....	11	47	865,786	804,475	0.93	1,555	621,266	682,408	1,055,516
Washington.....	12		1,030,578	2,393,238	2.32	2,695	1,747,080	2,254,486	3,186,441
West Virginia.....	115	996	6,231,880	5,066,584	0.82	9,952	3,888,712	4,841,796	10,508,050
Wyoming.....	15	10	1,388,947	1,748,617	1.26	2,692	1,553,947	1,823,956	2,239,252
Total.....	2,218	9,920	95,629,026	94,346,809	0.99	175,249	69,765,711	85,324,193	180,722,319
ANTHRACITE.									
Pennsylvania.....	362	49	45,544,970	65,721,578	1.44	124,206	39,278,355	61,109,958	161,784,473
Colorado, New Mexico, and Rhode Island.....	3		55,517	157,936	2.84	107	86,862	102,129	251,137
Total.....	365	49	45,600,487	65,879,514	1.44	124,310	39,365,217	61,212,087	162,035,610

The following table gives, by states and territories, the total production of coal in the United States for the year 1889, together with the disposition of the same :

PRODUCT OF COAL IN THE UNITED STATES IN 1889, BY STATES AND TERRITORIES.

STATES AND TERRITORIES.	Total product of coal of all grades for year 1889.	DISPOSITION OF TOTAL PRODUCT.					MINES.		Total amount received for coal sold in 1889.	Average price of coal on cars at the mines.
		Loaded at mines for shipment on railroad cars and boats.	Sold to local trade at mines.	Used by employes.	Used for steam at mines.	Manufactured into coke.	Regular.	Local.		
Grand total.....	141,229,513	113,776,701	7,582,536	926,163	5,382,265	13,561,848	2,583	9,969	\$160,226,323	\$1.13
BITUMINOUS.										
Alabama.....	3,572,983	2,327,209	38,835	21,110	79,515	1,106,314	57	22	3,961,491	1.11
Arkansas.....	279,584	268,518	5,020	1,800	4,246	.....	11	16	395,836	1.42
California and Oregon.....	184,179	173,611	3,854	608	6,106	.....	9	1	434,382	2.36
Colorado.....	2,544,144	2,059,848	70,595	18,453	87,187	308,061	63	40	3,843,992	1.51
Georgia and North Carolina.....	226,156	46,321	31	158	15,001	164,645	2	1	339,382	1.50
Illinois.....	12,104,272	9,884,883	1,669,478	111,224	395,757	12,900	358	714	11,755,203	0.97
Indiana.....	2,845,057	2,527,112	217,041	20,894	67,210	12,800	94	256	2,887,852	1.02
Indian territory.....	752,832	699,122	1,173	5,922	33,997	12,618	15	.....	1,323,807	1.76
Iowa.....	4,095,358	3,539,373	420,596	44,139	100,213	37	166	226	5,426,909	1.33
Kansas and Nebraska.....	2,222,443	1,891,090	267,047	34,569	29,246	500	127	297	3,301,788	1.49
Kentucky.....	2,399,755	2,111,010	225,234	21,072	23,981	18,458	79	1,762	2,374,339	0.99
Maryland.....	2,939,715	2,883,336	37,067	6,550	10,162	.....	31	50	2,517,474	0.86
Michigan.....	67,431	53,104	8,289	821	5,217	.....	6	6	115,011	1.71
Missouri.....	2,557,823	2,246,845	259,587	16,412	34,979	.....	122	356	3,479,057	1.36
Montana.....	363,301	314,327	10,755	2,162	5,436	30,576	8	22	880,773	2.42
New Mexico.....	486,463	466,127	5,371	2,582	6,383	6,000	17	11	870,468	1.79
North Dakota.....	28,907	18,610	9,792	505	.....	.....	5	337	41,431	1.43
Ohio.....	9,976,737	8,566,223	1,196,872	59,271	93,952	69,469	323	1,745	9,355,400	0.94
Pennsylvania.....	26,174,089	24,059,913	1,432,361	158,290	332,937	10,100,588	525	2,949	27,953,315	0.77
Tennessee.....	1,925,689	1,334,424	13,212	15,889	23,034	539,130	39	43	2,338,309	1.21
Texas.....	128,216	120,692	6,348	204	1,062	.....	4	6	340,620	2.66
Utah.....	236,651	216,960	15,050	2,012	412	2,217	1	7	377,456	1.59
Virginia.....	865,736	732,881	7,546	5,633	7,516	112,210	11	47	804,475	0.93
Washington.....	1,030,578	956,046	11,036	4,538	19,958	39,000	12	.....	2,393,238	2.32
West Virginia.....	6,231,880	4,764,900	448,527	44,760	37,368	936,325	115	996	5,086,584	0.82
Wyoming.....	1,388,947	1,351,443	7,230	8,103	19,071	.....	15	10	1,748,617	1.26
Total.....	95,629,926	73,609,883	6,418,647	598,672	1,439,976	13,561,848	2,218	9,920	94,346,809	0.99
ANTHRACITE.										
Pennsylvania.....	45,544,970	49,114,901	1,163,539	325,591	3,940,939	.....	362	49	65,721,578	1.44
Colorado and New Mexico.....	53,517	49,917	350	1,900	1,350	.....	2	.....	151,936	2.84
Rhode Island.....	2,000	2,000	.....	.....	.....	.....	1	.....	6,000	3.00
Total.....	45,600,487	49,166,818	1,163,889	327,491	3,942,289	.....	365	49	65,879,514	1.44

COAL PRODUCT OF THE UNITED STATES.

The following table shows the labor employed about the mines, both above and below ground, average wages paid per day, and the total amount of wages paid in 1889, by states and territories:

LABOR AND WAGES AT COAL MINES OF THE UNITED STATES IN 1889, BY STATES AND TERRITORIES.

STATES AND TERRITORIES.	Total employes about mine.	ABOVE GROUND.												
		Total average number employed.	Foremen or overseers.			Mechanics.			Laborers.			Boys under 16.		
			Average number employed.	Average wages per day.	Average number of days worked.	Average number employed.	Average wages per day.	Average number of days worked.	Average number employed.	Average wages per day.	Average number of days worked.	Average number employed.	Average wages per day.	Average number of days worked.
Grand total.....	296,623	67,137	2,285		8,603			38,413				17,836		
BITUMINOUS.														
Alabama.....	6,864	1,018	57	\$2.52	276	123	\$2.12	231	797	\$1.25	218	41	\$0.62	212
Arkansas.....	677	116	5	2.69	248	21	2.22	208	79	1.49	210	11	0.70	159
California and Oregon.....	413	76	6	5.12	296	20	2.90	236	48	2.04	248	2	1.50	240
Colorado.....	4,904	807	53	3.50	278	161	2.98	229	571	2.21	234	22	1.25	221
Georgia and North Carolina.....	733	329	12	2.29	264	34	2.15	210	277	0.96	255	6	0.45	24
Illinois.....	23,934	2,584	217	2.34	262	625	3.03	266	1,678	1.52	201	64	0.89	200
Indiana.....	6,448	666	74	2.36	255	160	1.84	256	426	1.47	192	6	0.71	152
Indian territory.....	1,862	229	11	2.55	291	63	2.50	170	145	1.90	164	1	1.00	250
Iowa.....	9,247	1,075	147	2.29	228	202	2.23	253	709	1.57	209	17	0.78	169
Kansas and Nebraska.....	5,956	742	69	2.37	190	160	2.23	200	488	1.56	197	25	0.77	156
Kentucky.....	5,144	893	76	2.44	270	152	1.81	242	627	1.39	204	38	0.75	205
Maryland.....	3,792	321	15	3.04	266	65	2.03	264	225	1.59	196	16	0.90	187
Michigan.....	261	46	7	2.11	199	11	1.92	213	28	1.93	249			
Missouri.....	6,631	950	122	2.09	228	107	2.11	246	692	1.52	214	29	0.80	181
Montana.....	848	171	9	5.28	251	38	3.58	252	123	2.50	240	7	2.00	300
New Mexico.....	1,015	157	13	3.27	208	26	2.88	231	112	2.37	213	6	1.07	188
North Dakota.....	75	13	7	2.29	115	3	2.67	88	3	1.50	100			
Ohio.....	19,343	2,053	221	2.26	244	334	1.91	235	1,420	1.51	192	83	0.77	187
Pennsylvania.....	53,132	4,979	378	2.57	250	1,028	2.11	237	3,366	1.67	208	207	0.86	200
Tennessee.....	4,031	569	48	2.46	249	101	1.86	244	393	1.21	222	27	0.55	190
Texas.....	543	121	7	2.91	283	5	2.50	260	109	1.52	248			
Utah.....	551	84	3	3.63	246	18	2.84	238	59	2.35	198	4	0.97	252
Virginia.....	1,523	521	16	2.01	245	51	1.77	269	407	1.16	282	47	0.47	210
Washington.....	2,657	540	21	3.76	293	94	3.04	255	396	2.29	242	29	1.41	214
West Virginia.....	9,778	1,558	117	2.48	270	244	1.90	246	1,135	1.36	211	62	0.76	203
Wyoming.....	2,675	369	10	4.42	263	37	2.97	269	321	2.21	253	1	1.50	156
Total.....	172,947	20,983	1,721			3,883			14,634			745		
ANTHRACITE.														
Pennsylvania.....	123,676	46,154	564	2.71	291	4,720	1.92	257	23,779	1.29	198	17,091	0.62	185

COAL PRODUCT OF THE UNITED STATES.

9

LABOR AND WAGES AT COAL MINES OF THE UNITED STATES, ETC.—Continued.

STATES AND TERRITORIES.	BELOW GROUND.												Total amount of wages paid during 1889.				
	Total average number employed.	Foremen or overseers.			Miners.			Laborers.			Boys under 16.						
		Average number employed.	Average wages per day.	Average number of days worked.	Average number employed.	Average wages per day.	Average number of days worked.	Average number employed.	Average wages per day.	Average number of days worked.	Average number employed.	Average wages per day.		Average number of days worked.			
Grand total.....	229,486	2,859			158,060					58,771				9,796			\$106,937,058
BITUMINOUS.																	
Alabama.....	5,846	73	\$2.73	272	4,110	\$2.15	248	1,564	\$1.33	237	99	\$0.66	224				3,157,109
Arkansas.....	561	10	2.71	228	462	2.20	180	64	2.00	186	25	0.72	199				248,899
California and Oregon.....	337	9	3.17	271	285	2.58	224	85	2.32	268	8	1.47	239				241,249
Colorado.....	4,097	46	3.36	287	3,390	2.67	212	564	2.65	214	97	1.18	230				2,734,895
Georgia and North Carolina.....	404	13	1.64	210	271	1.46	291	120	0.98	288							258,016
Illinois.....	21,350	305	2.38	256	15,386	1.98	177	5,062	1.75	199	597	0.89	176				8,429,553
Indiana.....	5,782	135	2.36	170	4,738	1.89	175	820	1.70	182	89	0.71	184				2,144,566
Indian territory.....	1,642	10	3.10	252	1,200	3.25	166	393	2.41	177	39	0.88	198				915,567
Iowa.....	8,172	139	2.46	251	6,588	2.23	196	1,191	1.89	217	254	0.77	200				3,890,893
Kansas and Nebraska.....	5,214	103	2.46	230	4,447	1.89	207	456	1.75	222	208	0.88	219				2,258,485
Kentucky.....	4,251	59	2.33	235	3,406	1.75	193	674	1.56	219	112	0.70	213				1,669,524
Maryland.....	3,381	22	3.04	289	2,689	2.45	203	386	1.86	222	284	1.06	300				1,700,305
Michigan.....	215	4	2.31	218	191	1.74	184	10	1.67	216	10	0.87	300				90,124
Missouri.....	5,681	103	2.33	230	4,780	2.10	201	656	1.81	206	142	0.71	203				2,476,870
Montana.....	677	11	4.32	248	321	3.19	213	143	2.60	235	2	1.50	300				576,773
New Mexico.....	858	9	3.58	387	688	3.08	192	146	2.59	207	15	1.10	185				584,376
North Dakota.....	62	3	3.00	117	55	2.15	108	4	1.88	111							17,560
Ohio.....	17,285	221	2.32	245	14,733	1.95	181	1,955	1.63	185	376	0.73	181				6,730,778
Pennsylvania.....	48,153	606	2.56	256	40,100	1.93	210	5,303	1.85	220	2,114	0.78	217				20,327,805
Tennessee.....	3,462	55	2.13	245	2,538	1.98	227	696	1.26	228	173	0.71	239				1,548,392
Texas.....	422	6	2.65	248	340	2.00	264	56	1.77	236	20	0.75	40				252,470
Utah.....	467	5	3.47	260	332	3.21	163	101	2.51	169	29	1.00	168				258,601
Virginia.....	1,002	12	2.44	265	712	1.53	285	253	1.59	269	25	1.14	274				604,796
Washington.....	2,117	31	3.97	286	1,549	3.26	197	509	2.46	222	28	1.06	222				1,696,293
West Virginia.....	8,220	118	2.46	269	6,367	1.86	223	1,504	1.47	224	231	0.66	230				3,748,721
Wyoming.....	2,306	14	3.31	310	1,593	2.71	231	680	2.47	220	19	1.32	238				1,537,107
Total.....	151,964	2,122			121,421					23,395			5,026				68,069,727
ANTHRACITE.																	
Pennsylvania.....	77,522	737	3.05	291	36,639	2.40	179	35,376	1.63	184	4,770	0.89	180				38,867,331

COAL PRODUCT OF THE UNITED STATES.

The following table shows the office force employed and the amount expended in coal mining operations during the year 1889, by states and territories:

OFFICE FORCE AND EXPENDITURES AT COAL MINES IN THE UNITED STATES IN 1889, BY STATES AND TERRITORIES.

STATES AND TERRITORIES.	OFFICE FORCE.						Grand total employés.	Grand total wages.	Total of all other expenditures for the mines or works.	Total value of supplies and materials of all kinds during 1889.	Total mining expenditures.	Amount paid for contract work during 1889.	Grand total of all expenditures.
	Total.		Males.		Females.								
	Number.	Amount of wages.	Number.	Amount of wages.	Number.	Amount of wages.							
Grand total.....	2,936	\$2,193,870	2,846	\$2,163,775	90	\$90,095	299,559	\$109,130,928	\$15,421,591	\$18,828,590	\$143,381,109	\$3,155,171	\$146,536,280
BITUMINOUS.													
Alabama.....	111	110,748	110	110,388	1	360	6,975	3,267,857	161,046	261,512	3,690,415	36,524	3,726,939
Arkansas.....	9	3,780	9	3,780			686	252,679	16,874	39,158	308,711		308,711
California and Oregon.....	6	7,200	6	7,200			419	248,449	43,590	56,678	348,717	16,225	364,942
Colorado.....	63	75,022	65	73,847	3	1,175	4,872	2,724,800	388,657	490,152	3,603,609	91,689	3,695,298
Georgia and North Carolina.....	7	7,448	6	7,165	1	283	740	265,464	6,546	102,655	374,665	51,400	426,065
Illinois.....	389	264,791	374	260,104	15	4,690	24,323	8,694,347	678,133	966,927	10,339,407	26,662	10,366,069
Indiana.....	84	56,478	77	54,038	7	2,440	6,532	2,201,044	133,724	241,094	2,575,862	5,807	2,581,669
Indian territory.....	11	11,700	11	11,700			1,873	927,267	172,150	53,404	1,152,821	20,000	1,172,821
Iowa.....	137	95,895	130	93,131	7	2,764	9,384	3,956,788	353,935	357,093	4,667,756	65,194	4,732,950
Kansas and Nebraska.....	113	62,103	99	60,469	14	1,634	6,069	2,320,588	141,044	262,820	2,724,452	6,530	2,730,982
Kentucky.....	116	86,839	111	84,689	5	2,200	5,260	1,756,363	117,765	237,321	2,111,449	45,099	2,156,548
Maryland.....	39	30,382	39	30,382			3,741	1,730,687	121,453	203,155	2,055,255	5,763	2,061,058
Michigan.....	4	3,470	4	3,470			255	93,594	11,035	9,085	113,714		113,714
Missouri.....	99	61,403	97	60,964	2	439	6,730	2,538,273	107,867	181,218	2,827,358	18,779	2,846,137
Montana.....	9	10,765	9	10,765			857	587,538	7,038	52,098	646,674	3,000	649,674
New Mexico.....	19	20,892	19	20,892			1,028	604,543	62,593	102,600	769,736	7,160	776,896
North Dakota.....	1	900	1	900			76	18,400	380	2,900	21,740		21,740
Ohio.....	248	161,826	240	159,072	8	2,754	19,591	6,892,604	712,792	568,020	8,173,416	58,767	8,232,183
Pennsylvania.....	580	410,842	566	404,312	14	6,530	53,712	20,738,647	2,562,851	2,399,386	25,694,884	282,222	25,977,106
Tennessee.....	77	60,918	74	59,338	3	1,590	4,108	1,609,310	219,268	271,390	2,099,968	13,324	2,113,292
Texas.....	6	4,364	6	4,364			549	256,834	12,990	54,333	324,157		324,157
Utah.....	14	9,969	12	9,834	2	135	565	268,570	5,417	65,911	339,898	2,898	342,796
Virginia.....	32	16,470	27	14,370	5	2,100	1,555	621,266	13,456	46,754	681,476	932	682,408
Washington.....	38	50,787	37	50,487	1	300	2,695	1,747,080	210,899	287,211	2,245,190	9,296	2,254,486
West Virginia.....	174	139,991	173	139,540	1	451	9,952	3,888,712	443,394	462,591	4,794,697	47,099	4,841,796
Wyoming.....	17	16,840	17	16,840			2,692	1,533,947	37,324	224,304	1,816,075	7,881	1,823,956
Total.....	2,408	1,781,826	2,319	1,751,981	89	29,845	175,249	69,765,711	6,742,221	7,994,210	84,502,142	822,051	85,324,193
ANTHRACITE.													
Pennsylvania.....	527	411,024	526	410,774	1	250	124,203	39,278,355	8,676,320	10,822,363	58,777,038	2,332,920	61,109,958
Colorado, New Mexico, and Rhode Island.....	1	1,020	1	1,020			107	86,862	3,050	12,017	101,929	200	102,129
Total.....	528	412,044	527	411,794	1	250	124,310	39,365,217	8,679,370	10,834,380	58,878,967	2,333,120	61,212,087

COAL PRODUCT OF THE UNITED STATES.

The following table gives the value of mines and improvements and the number of animals employed therein, by states and territories:

VALUE AND POWER AT COAL MINES IN THE UNITED STATES IN 1889, BY STATES AND TERRITORIES.

STATES AND TERRITORIES.	VALUE OF MINES AND IMPROVEMENTS.								Number of animals employed.	
	In land owned.		In land leased.		In buildings and fixtures.	In tools, implements, live stock, machinery, and supplies.	Total value of land, buildings, tools, etc.	Cash capital not reported in the foregoing items.		Total capital.
	Aeres.	Value.	Aeres.	Value.						
Grand total.....	1,248,383	\$134,854,793	493,118	\$91,830,253	\$64,065,329	\$35,085,081	\$325,836,456	\$16,921,473	\$342,757,929	30,272
BITUMINOUS.										
Alabama.....	216,139	9,476,341	6,620	161,600	1,231,228	1,248,159	12,117,328	417,866	12,535,194	532
Arkansas.....	15,969	1,041,876	1,095	55,750	77,098	77,777	1,252,501	37,250	1,289,751	75
California and Oregon.....	4,012	238,400			157,500	94,400	490,300	36,450	526,750	57
Colorado.....	53,529	4,757,090	20,260	5,053,820	1,236,603	1,183,772	12,231,285	389,564	12,611,849	592
Georgia and North Carolina.....	20,733	348,300			58,000	283,000	689,300	35,200	724,500	49
Indiana.....	15,785	1,213,445	9,023	576,050	553,449	719,463	3,062,407	373,296	3,435,703	719
Indian territory.....			14,766	738,643	407,509	131,067	1,367,210	124,790	1,492,009	169
Illinois.....	161,468	8,071,020	30,272	1,816,644	3,923,747	2,325,547	16,139,958	1,400,393	17,630,351	2,230
Iowa.....	24,239	2,178,832	14,443	945,749	1,210,421	1,330,927	5,065,929	613,250	6,279,179	929
Kansas and Nebraska.....	36,077	1,588,974	3,939	285,760	629,438	652,416	3,156,588	331,951	3,488,539	605
Kentucky.....	106,622	2,827,755	21,478	1,050,240	1,364,523	1,007,951	6,250,469	330,911	6,581,380	723
Maryland.....	48,100	15,707,629	2,420	176,000	1,521,655	392,193	17,797,477	227,890	18,025,367	310
Michigan.....	142	7,899	480	9,600	7,800	12,750	37,950	11,700	49,650	22
Missouri.....	24,576	1,732,197	11,641	685,772	527,654	716,105	3,661,728	330,565	3,992,293	542
Montana.....	9,110	628,993	400	125,000	75,033	251,640	1,081,576	71,500	1,153,076	69
New Mexico.....	10,480	361,543	800	13,540	293,393	242,921	911,397	84,320	995,717	144
North Dakota.....	520	51,700			5,980	3,820	61,500	5,080	66,580	15
Ohio.....	66,607	6,329,766	38,201	2,697,874	2,270,971	1,730,656	13,029,267	988,969	14,018,236	2,127
Pennsylvania.....	132,811	21,817,269	98,025	16,281,741	7,118,900	5,020,101	50,238,011	3,084,319	53,322,330	5,383
Tennessee.....	78,289	1,363,500	55,623	1,064,350	1,046,454	638,095	4,142,399	220,312	4,362,711	611
Texas.....	1,000	10,000	3,780	105,000	68,199	90,136	273,335	34,000	307,335	51
Utah.....	5,910	509,926			171,637	107,397	788,960	55,000	844,560	57
Virginia.....	13,900	290,100	3,790	103,600	363,270	273,168	1,030,138	25,378	1,055,516	109
Washington.....	20,322	1,724,000	2,876	95,760	326,984	746,993	2,893,647	292,794	3,186,441	193
West Virginia.....	61,331	3,694,987	45,990	2,806,280	2,160,249	1,255,965	9,917,481	590,569	10,508,050	1,305
Wyoming.....	13,360	1,252,518			403,236	392,198	2,047,952	191,300	2,239,252	161
Total.....	1,141,021	87,226,871	385,922	34,878,773	27,301,931	20,928,527	170,336,102	10,386,217	180,722,319	17,779
ANTHRACITE.										
Pennsylvania.....	107,282	47,626,322	106,656	56,789,480	36,733,648	14,110,617	155,260,067	6,521,406	161,781,473	12,463
Colorado, New Mexico, and Rhode Island.....	80	1,600	540	162,000	29,750	46,937	240,287	10,850	251,137	30
Total.....	107,362	47,627,922	107,196	56,951,480	36,763,398	14,157,554	155,500,354	6,532,256	162,032,610	12,493

COAL PRODUCT OF THE UNITED STATES.

DISTRIBUTION.

The statistics of the distribution of coal in the United States, as shown in the tables following, have been collected with great difficulty. Details have been obtained mainly from transportation companies. Owing to the diverse methods of keeping station accounts of freights received and delivered, as well as accounts of interchange at junction points (many roads making no distinction between anthracite and bituminous coal), the data as to coal delivered for consumption at the different points have been in some cases necessarily approximated. Such estimates, however, have usually been made by some one familiar with the facts applying to his particular district, and are accepted as substantially correct. These tables are presented, therefore, not so much as exhibiting absolute accuracy as showing, by the best data obtainable, the practical facts upon the subject.

PRODUCTION AND DISTRIBUTION OF COAL FOR THE YEAR 1889.

STATES AND TERRITORIES.	Population 1890.	PRODUCTION.		DISTRIBUTION FOR CON- SUMPTION.	
		Bituminous.	Anthracite.	Bituminous.	Anthracite.
Grand total.....		95,629,026	45,600,487	95,831,215	45,618,663
Alabama.....	1,513,017	3,572,983		1,925,689	1,079
Arizona.....	59,620			41,686	
Arkansas.....	1,128,179	279,584		355,819	526
California.....	1,208,130	119,820		1,301,989	37,477
Colorado.....	412,198	2,544,144	53,517	1,876,291	52,060
Connecticut.....	746,258			935,533	964,967
Delaware.....	168,493			307,019	230,421
District of Columbia.....	230,392			45,050	481,088
Florida.....	391,422			19,652	12,145
Georgia.....	1,837,353			869,727	34,665
North Carolina.....	1,617,947	226,156		191,142	30,078
Idaho.....	84,385			273,211	
Illinois.....	3,826,351	12,104,272		11,004,980	1,980,180
Indiana.....	2,192,404	2,845,057		3,299,354	208,550
Indian territory.....		752,832		104,827	
Iowa.....	1,911,806	4,066,368		3,411,044	235,774
Kansas.....	1,427,096			2,250,337	115,597
Nebraska.....	1,058,910	2,222,443		1,757,662	110,892
Kentucky.....	1,858,635	2,399,755		2,196,330	4,692
Louisiana.....	1,118,587			619,294	12,107
Maine.....	661,086			318,754	580,232
Maryland.....	1,042,390	2,939,715		1,383,857	622,883
Massachusetts.....	2,238,943			3,121,927	3,274,133
Michigan.....	2,093,889	67,431		1,635,472	558,243
Minnesota.....	1,301,826			1,883,599	477,009
Mississippi.....	1,289,600			524,318	947
Missouri.....	2,679,184	2,557,823		3,122,283	56,245
Montana.....	132,159	363,301		776,266	7,263
Nevada.....	45,761			99,044	535
New Hampshire.....	376,530			352,244	334,569
New Jersey.....	1,444,933			1,498,200	3,959,195
New Mexico.....	153,593	486,463		164,912	
New York.....	5,997,853			5,665,432	10,985,498
North Dakota.....	182,719	28,907			
South Dakota.....	328,808			420,542	48,361
Ohio.....	3,672,316	9,976,787		9,601,216	596,162
Oregon.....	318,767	64,359		97,063	6,000
Pennsylvania.....	5,258,014	36,174,089	45,544,970	7,489,113	16,156,795
Rhode Island.....	345,506		2,000	505,017	533,498
South Carolina.....	1,151,149			130,319	47,261
Tennessee.....	1,767,518	1,925,689		1,561,366	1,542
Texas.....	2,235,523	128,216		1,653,847	11,979
Utah.....	207,905	236,651		403,466	5,125
Vermont.....	332,422			183,188	373,891
Virginia.....	1,655,980	865,786		1,070,370	252,457
Washington.....	349,390	1,030,578		556,037	4,000
West Virginia.....	762,794	6,231,880		952,388	7,043
Wisconsin.....	1,686,880			2,054,906	940,502
Wyoming.....	60,705	1,388,047		562,403	90
Total.....		95,629,026	45,600,487	80,576,505	44,353,146
Exported to Canada.....				1,319,898	1,226,104
Exported to other countries.....				373,464	39,413
Made into coke at mines.....				13,561,848	

COAL PRODUCT OF THE UNITED STATES.

COAL DELIVERED TO FOREIGN AND COASTWISE OCEAN STEAMSHIPS, FOR THEIR OWN FUEL, AT THE PORTS NAMED BELOW, INCLUDED IN FIGURES GIVEN IN THE PRECEDING TABLE.

PORTS.	DISTRIBUTION FOR CONSUMPTION.	
	Bituminous.	Anthracite.
New York.....	1,291,271	131,624
Philadelphia.....	297,609	
Baltimore.....	227,000	
Boston.....	70,267	17,119
Other Atlantic and Gulf ports.....	80,000	
Pacific coast ports.....	93,000	

AMOUNT OF COAL CONSUMED IN THE PRINCIPAL CITIES OF THE UNITED STATES FOR THE YEAR 1880.

CITIES.	Population 1880.	Anthracite.	Bituminous.
New York, New York.....	1,515,304	63,300,000	1,853,436
Chicago, Illinois.....	1,099,850	1,444,250	3,221,008
Philadelphia, Pennsylvania.....	1,046,964	3,188,094	919,187
Brooklyn, New York.....	806,343	61,800,000	200,000
Saint Louis, Missouri.....	451,770	85,638	2,125,391
Boston, Massachusetts.....	448,477	1,242,001	524,409
Baltimore, Maryland.....	434,439	414,928	693,685
San Francisco, California.....	298,997	29,800	375,012
Cincinnati, Ohio.....	296,908	30,904	1,030,948
Cleveland, Ohio.....	261,353	117,157	924,602
Buffalo, New York.....	255,664	333,653	1,032,791
New Orleans, Louisiana.....	242,039	12,107	435,299
Pittsburg, Pennsylvania.....	238,617	2,294	334,035
Washington, District of Columbia.....	230,392	481,088	45,050
Detroit, Michigan.....	205,876	111,397	478,993
Milwaukee, Wisconsin.....	204,468	402,774	162,089
Newark, New Jersey.....	181,830	410,918	133,158
Minneapolis, Minnesota.....	164,738	94,058	172,648
Jersey City, New Jersey.....	163,003	334,328	132,602
Louisville, Kentucky.....	161,129	1,981	380,326
Omaha, Nebraska.....	140,452	1,279	244,357
Rochester, New York.....	133,896	280,229	119,667
Saint Paul, Minnesota.....	133,156	83,675	171,367
Kansas City, Missouri.....	132,716	59,353	306,697
Providence, Rhode Island.....	132,146	349,641	155,985
Denver, Colorado.....	106,713	10,118	300,841
Indianapolis, Indiana.....	105,436	11,930	277,278
Allegheny, Pennsylvania.....	105,287	1,591	100,674
Albany, New York.....	94,923	104,012	135,031
Columbus, Ohio.....	88,150	4,229	258,727
Syracuse, New York.....	88,148	179,891	84,327
Worcester, Massachusetts.....	84,655	87,322	125,555
Toledo, Ohio.....	81,434	63,583	123,968
Richmond, Virginia.....	81,388	38,233	210,232
New Haven, Connecticut.....	81,298	98,943	170,359
Paterson, New Jersey.....	78,347	202,290	24,250
Lowell, Massachusetts.....	77,696	71,150	135,698
Nashville, Tennessee.....	76,168		331,300
Seranton, Pennsylvania.....	75,215	122,160	9,985
Fall River, Massachusetts.....	74,398	110,745	95,617
Atlanta, Georgia.....	65,533	1,269	208,554
Memphis, Tennessee.....	64,495	45	172,669
Wilmington, Delaware.....	61,431	158,614	128,515
Dayton, Ohio.....	61,220	4,802	178,314
Troy, New York.....	60,956	34,177	102,145
Grand Rapids, Michigan.....	60,278	34,717	104,558
Reading, Pennsylvania.....	58,661	331,944	59,902
Camden, New Jersey.....	58,313	108,838	67,308
Trenton, New Jersey.....	57,458	148,554	132,840
Charleston, South Carolina.....	54,955	37,259	31,589

a Figures approximate.

The above figures include all coal used by railroad companies and delivered to steam vessels, for their own fuel, at the points named.

E.F.L. Bindery,
DEC 18 1894

