
MINERAL PRODUCTION OF IOWA.

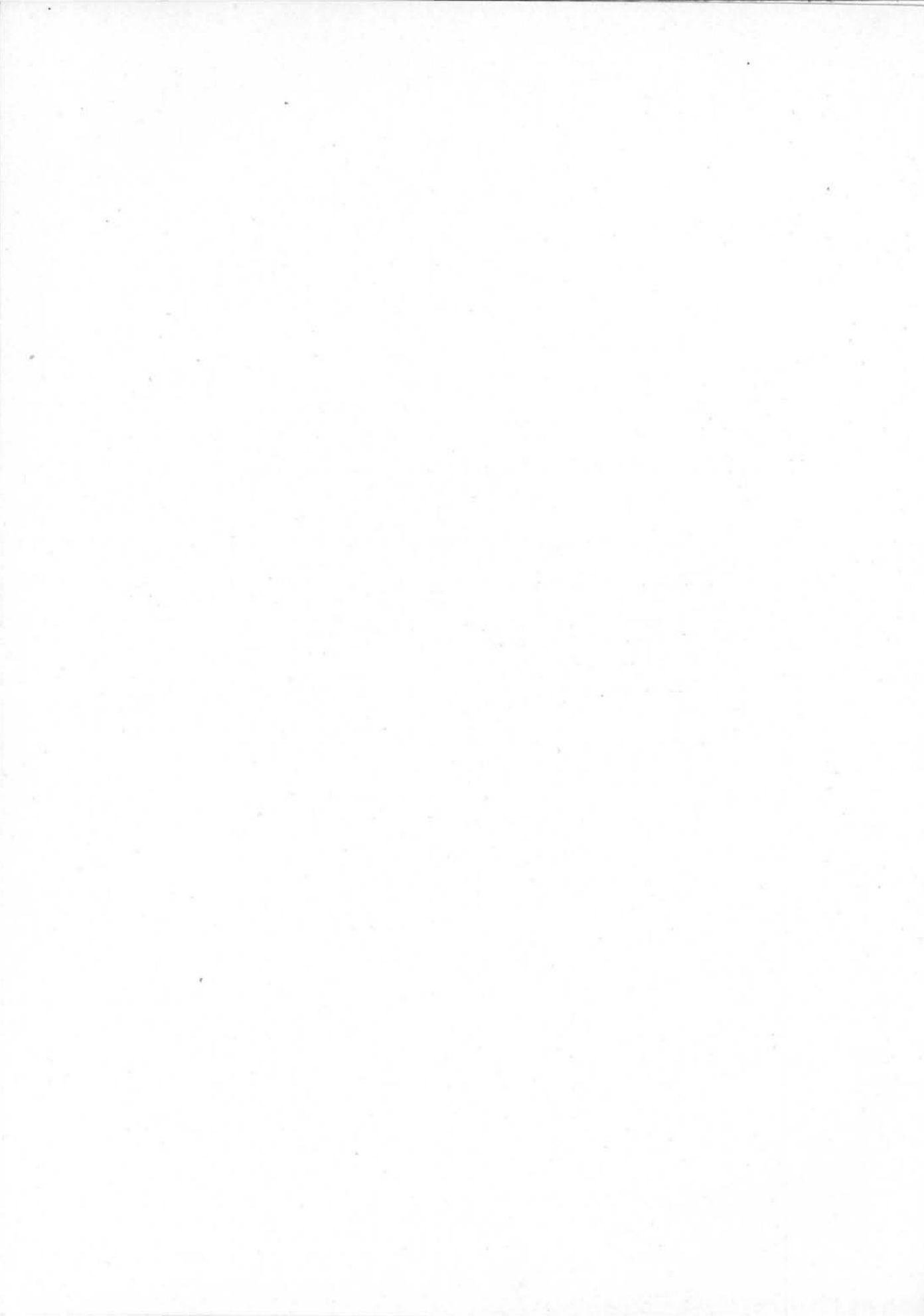
IN 1899

BY

S. W. BEYER.

VALUE OF MINERAL PRODUCTION.

Coal.....	\$ 6,137,576
Clay (estimated)....	2,500,000
Stone.....	809,924
Gypsum (estimated).....	600,000
Lead and zinc.....	50,542
Iron ore.....	3,465
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Total value.....	\$10,101,507



MINERAL PRODUCTION OF IOWA IN 1899.

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The year was characterized by great activity in all of the industries; the greatest, perhaps, the country has ever known. This was especially true of the so-called extractive industries of which mining is one. The output for the year shows great gains in every department, not only in quantity but more especially in price. The output of coal increased nearly 10 per cent, while the average price per ton shows a net gain of 11 cents per ton. The production of stone increased almost a quarter of a million dollars, or more than 43 per cent. The statistics for clay are not in hand, but a conservative estimate would place the total output at least 25 per cent greater than for the preceding year. The lead and zinc industry shows a healthy growth and, for the first time, Iowa must now be listed as one of the states producing iron ore in commercial quantity. The gypsum industry enjoyed a most flourishing year and the value of the output exceeded a half million dollars.

As in 1898, the work of gathering statistics has been carried on jointly by the State and Federal Surveys, save in the case of clays. The work of compiling the clay production has been undertaken by the Federal Census Bureau and the figures are not yet available.

TOTAL PRODUCTION.

The value of the mineral production in 1899 was \$10,101,507, distributed as follows:

	Value.	No. of producers.
Coal.....	\$6,137,576	203
Clay (estimated).....	2,500,000	360
Stone.....	809,924	175
Gypsum (estimated).....	600,000	6
Lead and zinc.....	50,542	9
Iron ore.....	3,465	1
Total.....	\$10,101,507	754

The United States Geological Survey placed the value of the mineral output of the state for 1898 as follows:

Coal.....	\$5,260,716
Clay.....	2,150,822
Stone.....	531,648
Lead and zinc*.....	43,784
Total.....	\$7,986,970

The production is shown by counties for all, save clay, in Table I.

*Iowa Geological Survey.

TABLE I—TOTAL MINERAL PRODUCTION BY COUNTIES, SAVE FOR CLAY.

COUNTIES.	Total coal.	Total stone.	Miscellaneous.	Total.
Adams	\$ 34,920	.....	.....	\$ 34,920
Allamakee.....	.....	\$ 53	\$ 3,465	3,518
Appanoose	885,358	.....	.....	885,358
Benton.....	.....	3,857	.....	3,857
Black Hawk.....	.....	5,289	.....	5,289
Boone.....	424,018	.....	.....	424,018
Cedar .....	.....	114,455	.....	114,455
Cerro Gordo.....	.....	11,784	.....	11,784
Clayton .....	.....	7,867	.....	7,867
Clinton.....	.....	1,136	.....	1,136
Dallas	16,992	.....	.....	16,992
Decatur .....	.....	1,188	.....	1,188
Delaware .....	.....	1,446	.....	1,446
Des Moines.....	.....	162,188	.....	162,188
Dubuque .....	.....	36,386	50,542	87,928
Fayette.....	.....	12,135	.....	12,135
Floyd.....	.....	4,025	.....	4,025
Greene.....	21,430	.....	.....	21,430
Hardin .....	.....	11,831	.....	11,831
Howard .....	.....	1,256	.....	1,256
Humboldt.....	.....	4,900	.....	4,900
Jackson.....	.....	67,659	.....	67,659
Jasper	273,354	.....	.....	273,354
Johnson.....	.....	26,348	.....	26,348
Jones.....	.....	76,596	.....	76,596
Keokuk	396,671	3,194	.....	399,865
Lee.....	.....	27,184	.....	27,184
Linn .....	.....	50,800	.....	50,800
Louisa .....	.....	2,320	.....	2,320
Lucas.....	5,925	.....	.....	5,925
Madison	1,428,201	2,991	.....	1,428,201
Mahaska .....	.....	9,196	.....	9,196
Marion	248,046	7,497	.....	255,543
Marshall.....	.....	57,751	.....	57,751
Mitchell.....	.....	3,472	.....	3,472
Monroe.....	714,062	.....	.....	714,062
Montgomery .....	.....	2,178	.....	2,178
Page.....	9,000	.....	.....	9,000
Polk	947,650	.....	.....	947,650
Scott	12,193	31,466	.....	43,659
Story	16,164	.....	.....	16,164
Tama .....	.....	440	.....	440
Taylor	22,110	.....	.....	22,110
Van Buren....	11,077	2,893	.....	13,970
Wapello	361,027	15,020	.....	376,047
Warren	21,629	.....	.....	21,627
Washington.....	.....	4,718	.....	4,718
Wayne	84,610	.....	.....	84,610
Webster	193,139	.....	600,000	793,139
Single producers.....	.....	23,388	.....	23,388
Total clay output estimated .....	.....	.....	.....	2,500,000
Total	\$6,137,576	\$809,924	\$654,007	\$10,101,507

COAL.

The output of coal for 1899 shows a marked increase over that of the preceding year, both in tonnage and price. In fact the output was greater than for any year in the history of the industry in the state. The average price per ton was greater than for any year since 1894. The actual selling price was, in many instances, far below the real market price, on account of contracts made early in the season. Of the total output less than 10 per cent was sold locally or consumed at the mine. The average number of days worked was notably greater than for the preceding year. Table II gives the total tonnage, average price per ton, total value, number of mines producing, average number of days worked and number of men employed, arranged by counties.

TABLE II—COAL OUTPUT BY COUNTIES.

COUNTIES.	Minns produc- ing.	TONS.	per ton. Average price	VALUE.	Average No. days worked.	Men employed.
Adams.....	6	19,821	\$ 1.60	\$ 34,920	170	50
Appanoose.....	42	633,899	1.40	885,358	215	2,091
Boone.....	13	262,632	1.61	424,018	205	896
Dallas.....	3	10,813	1.57	16,992	255	37
Greene.....	5	13,289	1.61	21,430	225	61
Jasper.....	8	214,677	1.27	273,354	197	320
Keokuk.....	11	336,065	1.18	396,671	220	536
Lucas.....	1	3,700	1.60	5,925	150	25
Mahaska.....	16	1,277,248	1.12	1,428,201	270	2,223
Marion.....	15	232,351	1.06	248,046	235	487
Monroe.....	9	684,004	1.04	714,062	215	1,201
Page.....	3	4,000	2.25	9,000	150	26
Polk.....	18	691,989	1.37	947,650	230	1,087
Scott.....	2	7,348	1.75	12,193	264	34
Story.....	2	6,788	2.38	16,164	200	29
Taylor.....	2	12,165	1.82	22,110	220	36
Van Buren.....	2	7,385	1.50	11,077	240	15
Wapello.....	13	316,460	1.14	361,027	270	568
Warren.....	4	14,655	1.48	21,629	220	32
Wayne.....	3	60,418	1.40	84,610	158	224
Webster.....	15	118,770	1.64	193,139	220	310
Total.....	203	4,928,477	\$1.25	\$6,137,576	229	10,268

In gathering the statistics for coal it is not always possible to secure separate reports for the various sizes of coal put upon the market. In the above table no attempt has been made to make such a separation. Mine run, nut and slack are included in the total, hence the average price for lump coal would be materially higher than the figures given in the table.

The average number of days worked was greater than for any year on record, save 1892, while the number of men employed was about the same as for 1898. The average number of days worked and the number of men employed during the past eight years, according to the best information available, was as follows:

YEARS	Average number of days worked.	Number of men employed.
1892.....	236	8,170
1893.....	204	8,863
1894.....	170	9,995
1895.....	189	10,066
1896.....	178	9,672
1897.....	201	10,703
1898.....	218	10,256
1899.....	229	10,268

In 1898 according to the authority of U. S. Geological Survey, Iowa ranked eighth in tonnage and fifth according to the value of output.

She still maintains her rank in first place of the coal producing states west of the Mississippi. The ten leading coal producers ranked as follows for 1899:

RANK.	STATE.	TONS.	VALUE.	Av. price per ton.
1.....	Pennsylvania..	65,165,133	\$43,352,588	\$.67
2.....	Illinois.....	18,599,299	14,567,598	.78
3.....	West Virginia.	16,700,999	10,131,264	.61
4.....	Ohio.....	14,516,867	12,027,336	.83
5.....	Alabama.....	6,535,283	4,932,776	.75
6.....	Indiana.....	4,920,743	3,994,918	.81
7.....	Maryland.....	4,674,884	3,532,257	.75
8.....	Iowa.....	4,618,842	5,260,716	1.14
9.....	Colorado.....	4,076,347	4,686,081	1.15
10.....	Kentucky.....	3,887,908	3,084,551	.79

In some respects the statistics given in the report of the state mine inspectors gives a better idea of the remarkable increase in the amount of coal produced during the winter of

Table III compares the output for 1899 with the output for the five preceding years:

TABLE III.

YEARS.	Short tons.	Price.	Value.	AUTHORITY.
1894.....	3,967,253	\$1.26	\$4,999,939	U. S. Geol. Survey
1895.....	4,156,074	1.20	4,982,102	U. S. Geol. Survey
1896.....	3,954,028	1.17	4,628,022	U. S. Geol. Survey
1897.....	4,611,865	1.13	5,219,503	U. S. Geol. Survey
1898.....	4,618,842	1.14	5,260,716	U. S. Geol. Survey
1899.....	4,928,477	1.25	6,137,576	Iowa Geol. Survey

1898 and 1899. According to the ninth biennial report of the state mine inspectors, the output of coal for the year ending June 30, 1899, was as follows by counties:

TABLE IV—COAL OUTPUT FOR YEAR ENDING JUNE 30, 1899.

COUNTIES.	Coal produced.	Number of men.	Av. selling price lump coal at mine.
Adair.....	4,000	24	\$2.00
Adams.....	22,800	143	2.00
Appanoose.....	444,282	1,854	1.25
Boone.....	371,410	995	1.51
Dallas.....	13,600	61	1.65
Davis.....	3,300	23	1.25
Greene.....	22,500	106	1.43
Guthrie.....	16,400	100	2.00
Jasper.....	188,800	358	1.25
Jefferson.....	4,500	29	1.75
Keokuk.....	281,395	609	1.25
Lucas.....	12,800	74	1.50
Mahaska.....	1,374,798	2,343	1.25
Marion.....	141,780	284	1.24
Monroe.....	662,500	1,137	1.18
Page.....	6,085	52	2.00
Polk.....	790,410	1,326	1.37
Scott.....	11,800	57	1.60
Story.....	9,600	45	1.65
Taylor.....	14,100	49	1.75
Van Buren.....	12,500	38	1.35
Wapello.....	291,300	500	1.18
Warren.....	15,000	72	1.50
Wayne.....	48,300	204	1.30
Webster.....	185,350	510	1.43
Total.....	4,949,307	11,029	.....

CLAY.

As has been mentioned the collection of the statistics on clay products is in the hands of the Federal Census Bureau and is not available for this report. The demand for all sorts of clay goods has been strong, and in building brick the demand exceeded the supply. In several of the leading clay-working centers the orders were several months ahead of the manufacturers throughout the season. Prices were sharply advanced and goods were generally sold at a good price. Here as in the case of coal a few suffered by making contracts early in the season. A moderate estimate would place the output 25 per cent greater than for 1898, or \$2,500,000 worth of clay goods were manufactured and marketed during the year.

In 1898 Iowa ranked eighth in the value of clay products, producing 3 per cent of the total output of the country. The following table shows the rank of the ten leading states according to the United States Geological Survey.

TABLE V.

RANK.	STATE.	Number of operating firms reporting.	VALUE.	Per cent of total product.
1.....	Ohio.....	866	\$12,412,437	17.34
2.....	Pennsylvania..	473	9,642,098	13.47
3.....	New Jersey...	133	8,599,367	12.01
4.....	Illinois.....	616	6,705,393	9.37
5.....	New York....	265	6,448,989	9.01
6.....	Indiana.....	592	3,211,512	4.49
7.....	Missouri.....	228	3,055,206	4.27
8.....	Iowa.....	357	2,150,822	3.00
9.....	Massachusetts	104	1,776,770	2.48
10.....	Maryland.....	69	1,253,425	1.75

During the same year she ranked fourth in the production of vitrified paving brick, thus bettering her grade by one both in total clay output and in paving brick. The leading states in the production of paving brick for 1898 are listed below:

TABLE VI—PAVING BRICK IN 1898.

RANK.	STATE.	Thousands.	Value.	Price per thousand.
1.....	Ohio.....	115,104	\$796,935	\$ 6.92
2.....	Illinois.....	71,999	639,153	8.88
3.....	Pennsylvania..	59,014	513,391	8.70
4.....	Iowa.....	35,357	289,963	8.20
5.....	Indiana.....	28,216	264,796	9.38
6.....	Missouri.....	28,036	264,092	9.42
7.....	Kansas.....	27,632	200,022	7.24
8.....	New York.....	27,532	302,680	10.99

STONE.

The stone trade continued strong through 1899. The government improvements being made along the Mississippi river created a great demand for stone suitable for riprap and rubble work. This improvement is responsible for the large increase in the output of Des Moines county over the preceding year. The production of lime shows a slight decrease and more than a corresponding decrease in demand, owing to the extension of the use of rock and Portland cements to lines of work formerly occupied exclusively by lime. The stone quarried includes limestone, dolomite and a small quantity of sandstone. Most of the quarries are small, and but few are equipped with improved machinery. The returns show an output of \$809,924 for the year, or a net gain of \$246,338. The production was distributed as follows:

LIMESTONE—USED FOR.

Building purposes.....	\$330,268
Paving or road making.....	162,068
Riprap.....	126,583
Lime.....	102,686
Other purposes.....	71,080
Sandstone.....	17,239
Total	<u>\$809,924</u>

The production by counties is given in Table VII:

TABLE VII—VALUE OF STONE PRODUCED IN IOWA FOR 1899.—LIMESTONE.

COUNTIES.	Building purposes.	Paving or road-making.	Riprap.	Lime.	Sold to lime burners.	Other purposes.	Total value.
Allamakee.....	\$ 3			\$ 50			\$ 53
Benton.....	840		\$ 17	3,000			3,857
Black Hawk.....	4,563	\$ 20	15				4,598
Cedar.....	8,754	94,325	\$76	10,500			114,455
Cerro Gordo.....	4,615	3,559	250	3,360			11,784
Clayton.....	5,917		75	1,875			7,867
Clinton.....	986	150					1,136
Decatur.....	911	187	90				1,188
Delaware.....	1,389	50	7				1,446
Des Moines.....	35,165	21,042	72,981			\$33,000	162,188
Dubuque.....	26,976	1,660	4,500	3,250			36,386
Fayette.....	11,135			1,000			12,135
Floyd.....	3,725	200	100				4,025
Hardin.....	10,981	100	500	250			11,831
Howard.....	1,191	40	25				1,256
Humboldt.....	4,900						4,900
Jackson.....	375	625	100	66,559			67,659
Johnson.....	2,415	1,405	22,528				26,348
Jones.....	67,569	3,618	5,159	200		50	76,596
Keokuk.....	2,718	300	100			76	3,194
Lee.....	19,134	4,940	2,976		\$ 5	129	27,184
Louisa.....	1,950	350	20				2,320
Linn.....	16,710	4,540	2,400	10,150		17,000	50,800
Madison.....	2,958		33				2,991
Mahaska.....	7,629	507				1,060	9,196
Marion.....	6,120	820	448			109	7,497
Marshall.....	21,475	16,100	4,176			16,000	57,751
Mitchell.....	922		63	987	1,500		3,472
Montgomery.....	953	200	25			1,000	2,178
Scott.....	17,487	4,999	6,550			2,430	31,466
Tama.....	400	17	23				440
Van Buren.....	2,363	50	480				2,893
Wapello.....	13,240	530	1,250				15,020
Washington.....	3,497	729	311			181	4,718
Single producers...	20,302	1,005	505			45	21,857
Total.....	\$330,268	\$162,068	\$126,583	\$101,181	\$1,505	\$71,080	\$792,685

SANDSTONE.

COUNTIES.	Sold in rough.	Building purposes.	Curbing and flagstone.	Total values.
Black Hawk.....	.....	\$ 691	.....	\$ 691
Single producers.....	\$2,019	13,179	\$1,350	16,548
Total..	\$2,019	\$13,870	\$1,350	\$17,239

In 1898 the state ranked nineteenth among the stone producers and eighth in the value of its limestone. The ten states leading in the production of limestone for 1898, according to the United States Geological Survey, were as follows:

TABLE VIII.

RANK.	STATE.	VALUE.
1.....	Pennsylvania..	\$2,746,256
2.....	Indiana.....	1,686,572
3.....	Ohio.....	1,673,160
4.....	New York.....	1,533,936
5.....	Illinois.....	1,421,072
6.....	Missouri.....	735,275
7.....	Wisconsin.....	698,454
8.....	Iowa*.....	557,024
9.....	Maryland.....	433,653
10.....	Minnesota.....	345,685

The value of the stone produced in Iowa during 1899 and the seven years preceding, was as follows:

TABLE IX.

YEAR.	Sandstone.	Limestone.	Total.
1892	\$25,000	\$705,000	\$730,000
1893	18,347	547,000	565,347
1894	11,639	616,630	628,269
1895	5,575	449,501	455,076
1896	12,351	410,037	422,388
1897	14,771	480,572	495,343
1898 (Iowa Geological Survey).....	6,562	557,024	563,586
1899	17,239	792,685	809,924

* Iowa Geological Survey.

GYPSUM.

The output of gypsum for 1899 was the greatest since the establishment of the industry. The building revival, coupled with new uses to which the product is put, greatly stimulated its production. Two new mills were put in operation during the year and those already established were run to their full capacity and overtime for a portion of the year. R. W. Crawford & Co. began operations early in the year while the Mineral City began the sinking of a shaft in November but did not produce until 1900. The first is equipped with two kettles and the latter three, making a total of nineteen kettles for the district. The capacity is about 600 tons of plaster for a nine-hour shift.

The output for 1899 exceeded 120,000 tons of plaster, valued at \$600,000, at the mills.

LEAD AND ZINC.

The activity which marked the rejuvenated lead and zinc mines in and about Dubuque during the latter part of 1898, continued unabated throughout 1899. Facilities for handling the ore have improved greatly. Formerly the ore was hand-picked and sent out of the state for concentration. Early in 1899 a modern mill, fully equipped, was established by the Dubuque Ore Concentrating company. The installation of this much needed plant has greatly stimulated local production. The Allamakee and Clayton county mines were not producing during 1899 and all of the ore came from the Dubuque region.

The lead output shows a considerable falling of in quantity but a higher price. About 1,000,000 pounds were sold, valued at \$30,000.

The zinc production shows a marked increase over 1898. The product marketed consists chiefly of dry bone, which averaged \$10 per ton. Some blende was sold at an average price of \$25 per ton. Summarizing, the output was as follows:

MINERAL PRODUCTION OF IOWA.

Lead	1,000,000 pounds	\$30,000
Zinc	2,174 tons	20,542
Total....		<u>\$50,542</u>

IRON.

For the first time in the history of the mineral production in Iowa, the state has entered the list as an iron producer. The product is a brown hematite and the entire output was sold to the Illinois Steel company. The occurrence and composition of the ore is fully treated in the administrative report of the director in this volume.

In 1899, 1,260 tons of ore were produced and sold for \$3,465.