
MINERAL PRODUCTION IN IOWA

IN 1905

BY

S. W. BEYER.

VALUE OF MINERAL PRODUCTION.

1903.

Coal.....	\$10,439,139
Clay.....	3,033,586
Stone.....	636,735
Gypsum.....	523,010
Lead.....	3,013
Total.....	\$14,637,480

1904.

Coal.....	\$10,439,496
Clay.....	3,487,376
Stone.....	542,170
Gypsum.....	469,432
Lead.....	2,619
Sand-lime brick.....	13,907
Total.....	\$14,955,000

1905.

Coal.....	\$10,495,593
Clay.....	3,408,547
Stone.....	533,509
Gypsum.....	589,055
Lead.....	1,500
Sand-lime brick.....	38,642
Mineral water*.....	36,200
Total.....	\$15,103,046

Mineral paint is combined with mineral water.

MINERAL PRODUCTION IN IOWA FOR 1905.

BY S. W. BEYER.

The value of the mineral products produced and marketed in Iowa during the year 1905 exceeded fifteen millions of dollars. This was an increase of less than one per cent over the preceding year, but was the greatest in the history of the state. There was a slight falling off in the total sales of clay and stone products but these deficiencies were more than made good by

increased production of coal, gypsum and sand-lime brick. No zinc or iron ore was sold during the year and the amount of lead ore produced was almost a negligible quantity.

The number of producers shows a marked decrease in nearly every department. The number of producers for the various mineral industries of the state is shown below in parallel columns for the years 1900 to 1905 inclusive.

	1900	1901	1902	1903	1904	1905
Coal	231	242	274	271	269	229
Clay	381	349	329	296	331	311
Stone	170	229	273	197	258	213
Gypsum	7	7		8	8	5
Sand-lime Brick					2	3
Mineral Water						3
Lead and Zinc	6	10	8	8	5	3
Iron	1	1				
Mineral Paint				1	1	1
Total	796	838	891	781	874	768

The value of the total mineral production and the number of producers is shown in table number I.

MINERAL PRODUCTION BY COUNTIES.

TABLE NO. I.

VALUE OF TOTAL MINERAL PRODUCTION BY COUNTIES FOR 1905.

COUNTIES.	Number of producers.	Total coal.	Total clay.	Total stone.	Miscellaneous.	Total.
Adair	3		\$ 16,800			\$ 16,800
Adams	15	\$ 28,885	21,137			50,022
Allamakee	5			\$ 4,567		4,567
Appanoose	53	1,569,291	17,800			1,587,091
Audubon	1					
Benton	12		25,624	431		26,055
Black Hawk	9			11,114		11,114
Boone	16	536,115	72,141			608,256
Bremer	1					
Buchanan	1					
Buena Vista	2		26,654			26,654
Butler	1					
Calhoun	3		30,000			30,000
Carroll	1					
Cass	4		13,389			13,389
Cedar	2					
Cerro Gordo	8		318,884	17,610		336,494
Clarke	6			2,400		2,400
Clay	1					
Clayton	11		7,500	12,747		20,247
Clinton	12		20,260	2,251		22,511
Crawford	2		13,300			13,300
Dallas	13	19,786	157,663			177,449
Davis	1					
Decatur	8		3,750	9,611		13,361
Delaware	7		9,343	1,473		10,816
Des Moines	16		24,237	34,500		58,732
Dubuque	16		31,828	28,029		59,857
Emmet	1					
Fayette	7		8,946	1,358		10,304
Floyd	6			1,375		1,375
Franklin	1					
Fremont	5		7,097			7,097
Greene	8	39,228	57,102			96,330
Grundy	1					
Guthrie	11	32,055	9,451			41,506
Hamilton	3		46,270			46,270
Hancock	1					
Hardin	16		61,600	21,246		82,846
Harrison	6		13,870			13,870
Henry	5		17,935			17,935
Howard	4			571		571
Humboldt	3			384		384
Ida	1					
Iowa	6		37,040			37,040
Jackson	8			64,339		64,339
Jasper	17	480,629	24,700			505,329
Jefferson	5	7,558	54,000			61,558
Johnson	7		34,450	648		35,098
Jones	15		14,157	92,919		107,076
Kossuth	1					
Keokuk	22	25,885	55,003	1,071		81,959

TABLE NO. 1—CONTINUED.
 VALUE OF TOTAL MINERAL PRODUCTION BY COUNTIES FOR 1905.

COUNTIES.	Number of producers.	Total coal.	Total clay.	Total stone.	Miscellaneous.	Total.
Lee	17		\$ 12,705	\$ 25,184		\$ 37,889
Linn	13		34,173	17,200		51,373
Louisa	7		6,600	1,788		8,388
Lucas	4	\$ 207,572				207,572
Madison	7			32,524		32,524
Mahaska	28	1,009,140	66,546			1,075,686
Marion	23	431,899	48,895	1,144		481,938
Marshall	10		35,560	23,674		59,234
Mills	4		12,290			12,290
Mitchell	3			1,195		1,195
Monroe	11	3,076,009				3,076,009
Montgomery	10		38,739	550		39,289
Muscatine	12		30,715			30,715
Page	10	38,536	61,500			100,036
Plymouth	1					
Pocahontas	3		113,950			113,950
Polk	44	2,025,723	544,368			2,570,091
Pottawattamie	8		74,616			74,616
Poweshiek	3		21,295			21,295
Ringgold	3		6,398			6,398
Scott	20	13,444	50,622	58,805		122,871
Shelby	1					
Sioux	3		8,440			8,440
Story	4		20,550			20,550
Tama	9		72,746	160		72,906
Taylor	8	50,512	7,397			57,909
Union	2		23,954			23,954
Van Buren	13	12,947	2,788	1,159		16,894
Wapello	17	443,637	74,839	24,651		543,187
Warren	3	13,252				13,252
Washington	14		43,003	3,057		46,060
Wayne	12	212,752	7,183			219,935
Webster	33	220,738	272,070	875	\$594,855	1,088,538
Winneshiek	2					
Woodbury	6		309,658			309,658
Worth	1					
Wright	4		46,460			46,460
Single Producers			108,501	32,899		141,400
Sand-Lime Brick	3				38,642	38,642
Mineral Water	3				30,400	30,400
Totals	768	\$10,495,593	\$3,408,547*	\$533,509	\$663,887	\$15,103,046†

*Includes \$877 raw clay sold.

†Includes \$1,500 lead produced.

Coal.

The coal production shows a three and a half per cent increase in total tonnage and but a slight increase in total value owing to a slight falling off in average price per ton. Again

Monroe county heads the list in total tonnage, producing upwards of a million tons more than Polk, her nearest competitor. Monroe also shows the greatest total gain although Jasper county shows a greater percentage of increase, amounting to nearly twenty per cent as compared to about thirteen per cent for Monroe. Keokuk, Lucas, Marion, Wapello and Webster of the important coal producers show a falling off in production. Keokuk has really dropped from the list of important producers. Extensive development continues in Lucas, Monroe, Jasper and Polk counties. The Consolidation Coal Company contributed most to the increased production in Monroe county and are still extending their facilities for handling a large output.

Table No. II gives the number of companies producing coal, distribution of coal, total value, average price per ton, average number of days worked and number of men employed, arranged by counties.

TABLE No. II.
COAL OUTPUT BY COUNTIES FOR 1905.

COUNTIES.	Number of mines.	Tons loaded at mines for shipment.	Sold to local trade or used by employes.	Used at mine for steam and heat.	Total tons produced.	Total selling value at mine.	Average price per ton.	Average number of days worked.	Average number of employes during the year.
Adams	10		12,726	33	12,759	\$ 28,885	\$ 2 26	142	98
Appanoose	50	833,950	31,818	9,480	875,248	1,569,291	1 79	163	2,770
Boone	11	264,269	18,975	9,415	292,659	536,115	1 83	196	821
Dallas	2	1,538	8,562	350	10,450	19,786	1 89	180	29
Greene	6	2,500	15,902	1,656	20,058	39,228	1 96	168	64
Guthrie	8	2,184	13,229		15,413	432,055	2 08	155	72
Jasper	10	277,577	20,334	12,320	310,231	80,629	1 55	242	706
Jefferson	2		3,779		3,779	7,558	2 00	97	18
Keokuk	6	700	14,320	1,440	16,460	25,885	1 57	198	28
Lucas	3	128,065	9,913	9,115	147,093	207,572	1 41	144	456
Mahaska	21	664,513	34,601	19,827	718,941	1,009,140	1 41	232	1,292
Marion	16	289,575	18,259	8,732	315,866	431,899	1 36	229	627
Monroe	11	1,994,567	183,382	49,228	2,227,177	3,076,009	1 38	236	3,871
Page	3		14,007	6	14,013	38,536	2 75	192	64
Scott	4		6,222		6,722	13,444	2 25	138	31
Taylor	5	11,547	10,783	15	22,345	50,512	2 26	225	84
Van Buren	5	4,180	2,007	5	6,192	12,947	2 09	98	33
Polk	25	959,094	211,305	34,918	1,205,317	2,025,723	1 67	238	2,453
Wapello	8	223,251	61,014	4,095	288,360	443,637	1 75	204	662
Warren	2	852	5,024		5,876	13,252	2 09	199	27
Wayne	8	93,004	19,100	445	112,549	212,752	1 89	213	389
Webster	13	90,782	19,284	3,327	113,393	220,738	1 95	206	364
Total	229	5,842,148	735,046	164,407	6,740,901	\$ 10,495,593	\$ 1 557	212	14 959

The wage scale adopted by the joint committee of operators and miners in 1904 continued two years and undoubtedly operated to keep up the price of coal during 1905. In the smaller producing counties the price remained about the same while in most of the large producers the average price per ton fell off from three to five per cent, although in Polk the price remained constant. The average price per ton is essentially on a mine run basis, and is dependent upon the system of mining practiced. This fact must be kept in mind when comparing prices for the different counties. In Appanoose and Boone the prevailing system of mining is "long wall" and very little powder is used, while in Monroe, Jasper and Polk counties "room and pillar" is the rule and "shooting from the solid" is the universal practice. As a consequence there is a minimum percentage of small coal produced in the former and a maximum percentage in the latter. The price of lump coal is much more uniform for the entire state than that of mine run coal. Sufficient data are not at hand to definitely fix the average price per ton on that basis.

According to the authority of the United States Geological Survey, Iowa ranks ninth in total tonnage and seventh in total value of coal produced in 1904, as in the preceding year. The ten leading producers of bituminous coal for 1904 were as follows:

STATE.	TONNAGE.	VALUE.
1 Pennsylvania.....	97,952,267	\$ 94,434,219
2 Illinois.....	36,475,060	39,941,993
3 West Virginia.....	32,602,819	28,807,420
4 Ohio.....	24,334,812	26,588,476
5 Alabama.....	11,262,046	13,480,111
6 Indiana.....	10,934,379	12,105,709
7 Kentucky.....	7,566,482	7,857,691
8 Colorado.....	6,658,355	* 8,751,821
9 Iowa.....	6,519,933	10,504,406
10 Kansas.....	6,333,307	9,640,771

*Includes 48,245 tons of anthracite mined.

The production, value, average price, average number of days worked and number of men employed, in Iowa, during the past seven years were as follows:

YEAR.	TOTAL TONS.	VALUE.	AVERAGE PRICE.	AVERAGE NUMBER OF DAYS WORKED.	AVERAGE NUMBER MEN EMPLOYED.
1899	5,177,479	\$ 6,397,338	\$ 1.24	229	10,971
1900	5,202,939	7,155,341	1.38	228	11,608
1901	5,617,499	7,822,805	1.39	218	12,653
1902	5,904,766	8,660,287	1.47	227	12,434
1903	6,365,233	10,439,139	1.64	232	13,583
1904	6,507,655	10,439,496	1.60	213	15,373
1905	6,740,901	10,495,893	1.557	212	14,959

The scale adopted by the joint committee of operators and miners in April, 1906, which is to be operative two years, is practically the same as the 1904 scale and it may be confidently predicted that there will be no great reduction in price of coal during 1906 and 1907.

Clay.

There was a slight falling off in total production of clay products for 1905 as compared with the preceding year. The shrinkage was due to a falling off in the sales of structural brick and burnt clay ballast. The production of the latter product has always been very variable and none was manufactured during 1905. The rapid growth in the manufacture of lime and cement brick and cement block has been responsible, doubtless, for the decreased production both of structural brick and building stone. In the manufacture of drain tile there was an increase of more than fifteen per cent over 1904. Outside of drain tile and burnt clay ballast there are no important changes to record. The production was distributed as follows:

	1904.		1905.	
	THOUSANDS.	VALUE.	THOUSANDS.	VALUE.
Common brick.....	207,750	\$ 1,430 581	170,067	\$ 1,367,742
Front brick.....	8,330	101,558	5,937	63,137
Paving brick.....	15,925	199,528	12,963	130,003
Ornamental.....		972		
Fire brick.....	20	300	50	869
Drain tile.....		1,321,745		1,531,376
Sewer pipe.....		94,800		90,000
Hollow block.....		164,658		134,418
Railway ballast.....		100,000		
Pottery.....		66,050		68,659
Miscellaneous.....		7 184		21,466
Total.....		\$ 3,487,376		\$ 3,408,547*

* Includes \$877 raw clay sold.

While the production of common brick declined, the price shows a marked increase. Pavers and front brick declined in price. The average prices for the principal grades of brick manufactured in Iowa are given below for 1905 and the two preceding years.

	IOWA			WHOLE UNITED STATES
	1903	1904	1905	1904
Common brick...	\$ 7.08	\$ 6.89	\$ 8.03	\$ 5.97
Front brick.....	10.63	12.17	10.63	12.80
Paving brick....	10.62	12.53	10.03	10.24

The distribution of clay products by counties, showing the common brick and total brick in thousands, the value of common brick and of total brick, value of drain tile and total value of clay products are shown in table No. III.

TABLE No. III.

CLAY PRODUCTION BY COUNTIES FOR 1905.

COUNTIES.	Number of producers.	COMMON BRICK.		TOTAL BRICK.		DRAIN TILE.	TOTAL VALUE.
		Quantity in Thousands.	Value.	Quantity in Thousands.	Value.	Value.	
Adair.....	3	1,050	\$ 9,800	1,050	\$ 9,800	\$ 7,000	\$ 16,800
Adams.....	5	1,285	9,737	1,285	9,737	11,400	21,137
Appanoose....	2	2,420	17,360	2,424	17,400	400	17,800
Audubon.....	1						
Benton.....	6	1,245	8,960	1,245	8,960	16,364	25,624
Black Hawk..	1						
Boone.....	5	3,411	24,279	5,568	44,902	25,438	72,141
Buena Vista..	2	250	2,000	250	2,000	24,654	26,654
Butler.....	1						
Calhoun.....	3	100	800	100	800	29,000	30,000
Carroll.....	1						
Cass.....	4	1,593	11,420	1,593	11,420	1,969	13,389
Cedar.....	1						
Cerro Gordo..	4	3,761	23,619	3,761	23,619	264,200	318,884
Clark.....	1						
Clay.....	1						
Clayton.....	3	1,135	6,900	1,135	6,900	600	7,500
Clinton.....	4	2,730	16,760	2,740	16,760	3,500	20,260
Crawford.....	2	1,400	10,000	1,700	3,300		13,300
Dallas.....	10	3,067	22,243	3,113	22,793	131,870	157,663
Davis.....	1						
Decatur.....	2	450	3,300	450	3,300	450	3,750
Des Moines..	4	2,059	15,525	2,420	19,132	4,500	24,232
Delaware.....	3	511	3,643	511	3,643	2,700	9,343
Dubuque.....	4	4,965	31,828	4,965	31,828		31,828
Emmet.....	1						
Fayette.....	3	1,071	6,446	1,071	6,446	2,000	8,946
Floyd.....	1						
Franklin.....	1						
Fremont.....	5	1,025	7,097	1,025	7,097		7,097
Greene.....	2	55	495	55	495	54,807	57,102
Grundy.....	1						
Guthrie.....	3	507	3,941	507	3,941	4,791	9,451
Hamilton.....	2	1,165	9,195	1,165	9,195	34,450	46,270
Hancock.....	1						
Hardin.....	5	275	2,550	331	3,250	57,550	61,600
Harrison.....	6	2,055	13,870	2,055	13,870		13,870
Henry.....	5	330	2,469	330	2,469	15,466	17,935
Howard.....	1						
Humboldt....	1						
Ida.....	1						
Iowa.....	6	2,870	18,440	2,870	18,440	18,600	37,040
Jackson.....	1						
Jasper.....	6	2,075	14,400	2,125	14,900	9,800	24,700
Jefferson....	3	900	7,200	900	7,200	46,800	54,000
Johnson....	5	4,150	28,450	4,150	28,450	6,000	34,450
Jones.....	4	555	4,245	555	4,245	9,902	14,157
Kossuth.....	1						
Keokuk.....	8	1,472	11,167	1,472	11,167	43,836	55,003
Lee.....	4	1,647	11,180	1,747	12,080	625	12,705

TABLE No. III—CONTINUED.

CLAY PRODUCTION BY COUNTIES FOR 1905.

COUNTIES.	Number of producers.	COMMON BRICK.		TOTAL BRICK.		DRAIN TILE.	TOTAL VALUE.
		Quantity in Thousands.	Value.	Quantity in Thousands.	Value.	Value.	
Linn.....	7	3,510	\$ 24,520	3,510	\$ 24,520	\$ 9,653	34,173
Louisa.....	2	175	1,200	175	1,200	5,400	6,600
Lucas.....	1						
Mahaska.....	6	2,839	21,834	4,839	41,834	24,012	66,546
Marion.....	5	2,570	18,295	2,570	18,295	30,600	48,895
Marshall.....	8	2,006	13,295	2,006	13,295	15,065	35,560
Mills.....	4	1,570	12,290	1,570	12,290		12,290
Montgomery..	8	3,274	25,337	3,334	26,118	7,505	38,739
Muscatine....	12	3,721	21,154	3,721	21,154	2,000	30,715
Page.....	7	5,680	40,750	5,680	40,750	20,750	61,500
Plymouth.....	1						
Pocahontas...	2	465	4,120	465	4,120	109,830	113,950
Polk.....	19	29,062	222,157	38,775	324,718	78,050	544,368
Pottawattamie	8	10,358	74,506	10,358	74,506	110	74,616
Poweshiek....	3	610	4,900	610	4,900	16,145	21,295
Ringgold.....	3	810	6,218	810	6,218	180	6,398
Scott.....	5	3,599	22,870	3,639	23,370	3,000	50,622
Shelby.....	1						
Sioux.....	3	1,180	8,440	1,180	8,440		8,440
Story.....	4	475	3,425	725	5,575	14,975	20,550
Tama.....	6	4,226	27,076	5,614	40,576	32,170	72,746
Taylor.....	3	773	5,702	773	5,702	1,695	7,397
Union.....	2	2,222	17,554	2,222	17,554	6,400	23,954
Van Buren....	2	384	2,788	384	2,788		2,788
Wapello.....	4	6,157	41,758	6,575	45,448	25,215	74,899
Warren.....	1						
Washington..	6	1,232	8,204	1,232	8,204	34,799	43,003
Wayne.....	4	990	7,183	990	7,183		7,183
Webster.....	11	4,623	32,701	5,794	45,066	149,964	272,070
Winneshiek...	1						
Woodbury.....	6	18,707	287,487	19,522	295,729	13,904	309,658
Worth.....	1						
Wright.....	4	245	1,960	245	1,960	44,500	46,460
Single Producers.....	7,017	50,699	7,017	50,696	56,7	108,501
Total.....	311	170,064	1,367,742	*189,017	\$ 1,561,748	\$1,531,376	†\$3,408,547

*Includes 24,000 paving brick produced.

†Includes \$877 raw clay sold.

According to the United States Geological Survey, Iowa ranks ninth in the production of clay products for 1904, producing 2.64 per cent of the total production of the United States. According to advance sheets from the United States Geological Survey, Iowa has not changed her rank for 1905 but produced

252887

2.73 per cent of the output of the entire country. For 1904 she ranked eighth in the manufacture of paving brick, fourth in hollow building block and first in the manufacture of drain tile. In the last named product she bids fair to hold her supremacy for some time to come. The ten leading clay producers for 1904 were as follows:

RANK.	STATE.	NUMBER OF PRO- DUCING FIRMS REPORTING.	TOTAL CLAY.
1	Ohio.....	819	\$ 25,647,783
2	Pennsylvania.....	529	16,821,863
3	New Jersey.....	161	13,304,047
4	Illinois.....	492	10,777,447
5	New York.....	240	10,543,070
6	Indiana.....	465	5,902,589
7	Missouri.....	232	5,481,504
8	California.....	121	3,624,734
9	Iowa.....	327	3,487,376
10	Kentucky.....	120	2,087,277

The center of production of clay wares is moving slowly toward the northwestern portion of the state. New factories are being built in the north and west while a considerable number of old plants are idle in the south and east portions of the state. This shifting is due largely to the great demand for drain tile in the Wisconsin drift portion of the state. The leading products are tabulated showing the changes in the industries during the past six years.

YEAR	COMMON BRICK.	TOTAL BRICK.	DRAIN TILE.	POTTERY	TOTAL CLAY.
1900	\$ 1,386,641	\$ 1,621,604	\$ 377,586	\$ 31,339	\$ 2,291,251
1901	1,611,040	1,944,351	534,935	26,200	2,737,825
1902	1,575,959	1,891,366	672,212	43,387	2,843,336
1903	1,396,088	1,703,050	1,009,933	55,762	3,033,583
1904	1,430,581	1,732,719	1,321,745	66,050	3,487,076
1905	1,367,742	1,561,742	1,531,376	68,659	3,408,547

The outlook for 1906 is favorable for drain tile and probably for the entire clay output. The Barber Asphalt Company are installing an up-to-date equipment in their Des Moines plant and promise to materially increase the output of paving brick in the near future. The Mason City Brick and Tile Company have added a third section to their plant, thus increasing their capacity fifty per cent. Both improvements will affect the output for the current year.

Stone.

The stone industry appears to be still on the decline although the falling off amounted to less than two per cent when compared with the production for 1904. The greatest falling off was in the manufacture of lime and the sale of rough stone. Both building stone and crushed stone show good increases. Many of the smaller quarries were idle during the year or were operated only intermittently.

The production for 1905 was distributed as follows:

LIMESTONE USED FOR:	VALUE 1903.	VALUE 1904.	VALUE 1905.
Building purposes.....	\$ 204,769	\$ 162,577	\$ 171,041
Flagging & curbing.....	13,793	8,970	17,161
Lime.....	113,195	91,008	76,704
Crushed stone.....			
Road making.....	102,403	53,082	70,411
Railway ballast.....	12,243	5,549	13,025
Concrete.....	68,763	97,274	90,634
Rubble & riprap.....	102,403	113,568	80,747
Miscellaneous.....	2,158	1,565	6,043
Sandstone.....	17,008	8,575	7,743
Total.....	\$ 636,735	\$ 542,168	\$ 543,509

The completion of the Historical Building in Des Moines contributed to the increase in the output of building stone. Another encouraging symptom was the use of Iowa stone for bridge purposes. Nearly \$5,000 worth of stone was reported sold for bridge work. Portland cement and imported limes are largely responsible for the decline in the production of domestic limes. Table No. IV gives the production of limestone by counties and specifies the various grades of stone put upon the market.

TABLE No IV.
PRODUCTION OF LIMESTONE BY COUNTIES FOR 1905.

COUNTIES.	Number of producers.	Building.	Flagging and curbing.	Lime.	Crushed Stone.			Rubble and riprap.	Miscellaneous.	Total Value.
					Road-making.	Railway ballast.	Concrete.			
Allamakee.....	5	\$ 4,123	\$ 24	\$	\$	\$	\$	\$ 420	\$	\$ 4,567
Appanoose.....	1									
Benton.....	6	334						97		431
Black Hawk.....	7	9,962	296		391		40	425		11,114
Bremer.....	1									
Buchanan.....	1									
Cerro Gordo.....	4	6,214	120	6,500	1,400			301		17,610
Clark.....	5	1,450	900		10			40		
Cedar.....	1									2,400
Clayton.....	8	6,445	3,427	1,350	1,000					12,222
Clinton.....	7	1,103			1,079			39	10	2,231
Dallas.....	1									
Decatur.....	6	1,444	13		1,500			165		9,604
Delaware.....	4	602	251					20	100	1,473
Des Moines.....	12	10,343	600		1,175			20,097		32,215
Dubuque.....	12	13,384	2,350	5,360	2,701	475	1,125	2,634		28,029
Fayette.....	4	1,300		30				28		1,358
Floyd.....	5	605	20					750		1,375
Hamilton.....	1									
Hardin.....	11	1,809	7		4,800			625		20,241
Howard.....	3	471			100					571
Humboldt.....	2	384								384
Jackson.....	7	467		63,464	108			300		64,339
Jasper.....	1									

Johnson	2	448			200					648
Jones	11	36 788	8,808		953	2,410	16,528	21,696	4,656	91,839
Keokuk	8	975					40	24		1,039
Lee	13	9,166	121		3,011		7,567	2,675	1,256	23,796
Linn	5	1 830			340		15,030			17,200
L u sa	5	1 700	25		50			13		1,788
Madison	7	8,520			13,018	3,30	7,100	470	16	32,524
Mahaska	1									
Marion	2	309			75			760		1,144
Marshall	2									
Mitchell	3	1,195								1,195
Montgomery	2	550								550
Pocahontas	1									
Scott	11	16,192			21,038	6 600	9,097	5 860		58,787
Tama	3	77								77
Van Buren	6	1,083						76		1,159
Wapello	5	13,491					5,240	5,9 0		24,651
Washington	7	1,955	50				15	875		2,895
Webster	3									
Winneshiek	1									
Single Producers		16 322	149		17 462	240	6,175	15,957	5	56,310
Total	213	\$171,041	\$ 17,161	\$ 76,704	\$ 70,411	\$ 13,025	\$ 90,634	\$ 80,747	\$ 6,043	\$ 525,766

STONE PRODUCTION.

Fourteen counties with twenty-five producers reported sandstone. The production for 1905 amounted to \$7,743 and was used almost wholly for building purposes. Small amounts were used for curbing and flagging and for road work. Jones and Scott are the only counties showing an increased production of limestone and rank first and second respectively in total productions. Jackson remains at the head of the list of lime producers. The table below gives the condition of the stone industry during the past seven years.

YEAR.	LIMESTONE.				SANDSTONE.	TOTAL STONE.
	BUILDING.	LIME.	CRUSHED STONE	RUBBLE AND RIPRAP.		
1899	\$ 312,595	\$ 102,611	\$ 158,917	\$ 139,064	\$ 24,348	\$ 809,928
1900	248,833	110,589	153,920	58,493	19,063	605,473
1901	272,501	221,760	183,902	85,343	14,341	791,827
1902	195,009	114,051	153,372	176,927	15,061	665,048
1903	204,769	113,195	144,643	102,403	17,008	636,735
1904	162,577	91,008	153,372	113,568	8,575	542,168
1905	171,041	76,704	174,070	80,747	7,743	533,509

The fluctuations in production of rubble and riprap seem to be dependent on the Mississippi river improvements. The Government quarries near Burlington were idle during 1905 and were operated vigorously during 1902.

Gypsum.

The gypsum production for 1905 shows a splendid increase in both tonnage and value. The gross output of crude gypsum for the year was reported to be 179,016 tons valued at \$108,833, an increase in production of more than twenty per cent. The selling price of the manufactured product shows a slight increase over the preceding year. In the table below is given the distribution of the product for 1905 as compared with the two preceding years.

	1903		1904		1905	
	TONS	VALUE	TONS	VALUE	TONS	VALUE.
Wall or cement plaster..	87,397	\$411,503	94,811	\$399,281	119,252	\$558,992
Plaster of Paris.....	30,306	100,744	19,540	64,112	4,566	17,983
Land plaster.....	2,098	9,229	933	1,816	2,723	2,723
Sold crude.....	703	1,534	2,013	4,223	4,867	9,357
Total.....	120,504	\$523,010	117,297	\$469,432	131,408	\$589,055

One and possibly three new companies are about to organize and plants may be built during the present year.

Lead and Zinc.

The lead and zinc industry in Iowa is practically a negligible quantity at the present time. But little zinc ore has been produced and none marketed in the state during the past two years. Good zinc ore in commercial quantity will undoubtedly be found in Iowa in the deeper levels but these levels are not being exploited at the present time.

The report for lead is but little more encouraging. The Water's Smelter was in operation and turned out its usual amount of business but nearly all of the ore treated was purchased from the Wisconsin and Illinois producers. Iowa contributed scarcely a hundred tons of lead ore for the entire year 1905. Dubuque county was the only producer. The price of ore remained about the same as for the preceding year; about \$27.00 per thousand pounds.

Sand-Lime Brick.

The sand-lime brick industry shows a substantial growth in the state for the year 1905 but not the mushroom growth some of the enthusiastic manufacturers of sand-lime brick machinery predicted. Three plants were in operation during the year and a fourth was installed and will contribute to the total for 1906. The plants in operation at the present time are located at Clinton, Cedar Rapids, Waterloo and Sioux City.

The production for 1905 was distributed as follows:

	THOUSANDS.	VALUE.
Common brick	3,974	\$ 28,783
Front brick.....	625	7,675
Fancy brick.....	40	800
Block		1,384
Total.....		\$ 38,642

The output for 1904 was: brick 1,962,000 valued at \$13,907.

Mineral Water.

Iowa is fast becoming an important producer of mineral water. While by far the larger number of wells and springs producing mineralized waters produce for home consumption only, three localities, of which Colfax is the most important, bottle and ship the water. The gross sales for 1905 amounted to 303,500 gallons valued at \$30,400.

Iron.

The steady demand for iron and iron products has brought the iron knobs in Allamakee county again into prominence. Iron Hill and two other hills near Waukon, known to be capped with bodies of iron ore, have been thoroughly prospected during the past year. The test pits and drill holes bear out fully the previous reports of the Iowa Geological Survey as to the extent and richness of these ore bodies. It is the intention of the company holding the options to explore thoroughly all of the known ore bodies of the district. No ore was marketed during the year.

Portland Cement.

Ever since the organization of the present survey, raw materials suitable for the manufacture of Portland cement have received attention from the various members in their county and special reports. That the state contained suitable materials was established beyond a doubt but only recently has any substantial progress been made toward their utilization.

During the early part of the present year options were taken on extensive tracts of the limestone and shale in the vicinity of Mason City in Cerro Gordo county and the Northwestern States Portland Cement Company was organized with headquarters in Minneapolis. This company has optioned and purchased sufficient raw materials to last them several generations and at this time is erecting a modern Portland cement plant, with a daily capacity of 4,000 barrels. The completed plant is assured in the shortest time possible to build a plant of that magnitude. Conservative business men are backing the enterprise and the suitability of the materials has been thoroughly demonstrated by the Survey, both chemically and by actual burning tests. Several other Portland cement companies are searching diligently for suitable locations in Iowa; and one at least has already secured options preliminary to location. Iowa promises to contribute her share toward the cement industry in the near future.