MINERAL PRODUCTION IN IOWA
IN 1904

BY

S. W. BEYER.

VALUE OF MINERAL PRODUCTION.

1902.

Coal	\$ 8,660,287
Clay	2,843,336
Stone	665,045
Gypsum.....	337,735
Lead.....	11,178
Total	<u>\$12,517,501</u>

1903.

Coal	\$10,439,139
Clay	3,033,583
Stone	597,965
Gypsum.....	523,008
Lead.....	3,013
Total	<u>\$14,596,708</u>

1904.

Coal	\$10,439,496
Clay	3,507,576
Stone.....	542,170
Gypsum.....	469,432
Lead.....	2,619
Sand-lime brick.....	13,907
Total	<u>\$14,975,200</u>

MINERAL PRODUCTION IN IOWA FOR 1904.

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The selling value of the mineral products of Iowa for the year 1904 shows a slight gain over that for 1903. The value of the output of clay goods in 1904 was nearly half a million dollars greater than that for the preceding year; coal shows but a

slight increase, while the value of the stone, gypsum and lead production falls a little below that for the year 1903. No zinc or iron was marketed during the year.

The number of producers for the various mineral industries of the state is shown below in parallel columns for the years 1901 to 1904 inclusive.

	1900	1901	1902	1903	1904
Coal.....	231	242	274	271	269
Clay.....	381	349	329	296	331
Stone.....	170	229	273	197	258
Gypsum.....	7	7	7	8	8
Lead and zinc.....	6	10	8	8	5
Iron.....	1	1			
Sand-lime brick.....					2
Total.....	796	838	891	780	873

The value of the total mineral production is shown in table No. I.

TABLE No. I.

VALUE OF TOTAL MINERAL PRODUCTION BY COUNTIES FOR 1904.

COUNTIES.	Number of producers.	Total coal.	Total clay.	Total stone.	Miscel- laneous.	Total.
Adair.....	3		\$ 13,335			\$ 13,335
Adams.....	16	\$ 29,793	14,378			44,171
Allamakee.....	3			\$ 324		324
Appanoose.....	57	1,643,684	16,477	520		1,660,681
Audubon.....	1					
Benton.....	13		24,425	3,291		27,716
Black Hawk.....	11		14,753	12,493		27,246
Boone.....	19	558,999	78,995			637,994
Bremer.....	1					
Buchanan.....	1					
Buena Vista.....	3		17,143			17,143
Butler.....	1					
Calhoun.....	6		26,936			26,936
Carroll.....	1					
Cass.....	4		116,925			116,925
Cedar.....	2		14,192	15,824		30,016
Cerro Gordo.....	6		274,219	50,309		324,528
Cherokee.....	1					
Chickasaw.....	1					
Clarke.....	8			3,186		3,186
Clay.....	2		43,600			43,600
Clayton.....	11		13,294	5,875		19,169
Clinton.....	10		20,325	8,544		28,869
Crawford.....	2		12,560			12,560
Dallas.....	16	28,149	131,047	320		159,516
Davis.....	2	1,332				1,332
Decatur.....	7		6,625	671		7,296
Delaware.....	7		12,000	2,809		14,809
Des Moines.....	12		35,300	18,538		53,838
Dubuque.....	16		43,700	33,372	\$ 2,619	79,691
Emmet.....	1					
Fayette.....	11		15,589	10,503		26,092
Floyd.....	9			4,840		4,840
Fremont.....	6		14,700			14,700
Greene.....	8	58,027				58,027
Grundy.....	2					
Guthrie.....	8	26,123	22,176			48,299
Hamilton.....	4		47,350	1,325		48,675
Hancock.....	1					
Hardin.....	13		60,234	11,438		71,672
Harrison.....	6		16,260			16,260
Henry.....	10		20,619	2,511		23,130
Howard.....	4			1,267		1,267
Humboldt.....	3			1,138		1,138

TABLE No. I.—CONTINUED.

VALUE OF TOTAL MINERAL PRODUCTION BY COUNTIES FOR 1904.

COUNTIES.	Number of producers.	Total coal.	Total clay.	Total stone.	Miscellaneous.	Total.
Ida.....	1					
Iowa.....	5		35,730			35,730
Jackson.....	8			70,475		70,475
Jasper.....	16	374,984	21,050			396,034
Jefferson.....	6	20,232	35,017			55,249
Johnson.....	10		45,710	2,400		48,110
Jones.....	15		8,950	82,341		91,291
Kossuth.....	1					
Keokuk.....	29	67,093	37,682	1,913		106,688
Lee.....	20		7,880	31,544		39,424
Linn.....	14		39,229	14,377		53,606
Louisa.....	12	278,890	8,381	2,241		289,512
Lucas.....	4					
Madison.....	7			43,874		43,874
Mahaska.....	38	954,963	65,080			1,020,043
Marion.....	24	431,722	20,875	12,075		464,672
Marshall.....	11		59,802			59,802
Mills.....	4		11,600			11,600
Mitchell.....	4			1,394		1,394
Monona.....	1					
Monroe.....	12	3,023,883				3,023,883
Montgomery.....	12		47,827	1,410		49,237
Muscatine.....	10		32,856			32,856
Page.....	9	50,178	43,900			94,078
Plymouth.....	2		7,900			7,900
Pocahontas.....	3		77,800			77,800
Polk.....	47	1,886,389	648,853			2,535,242
Pottawattamie.....	7		74,452			74,452
Poweshiek.....	3		15,738			15,738
Ringgold.....	2		6,750			6,750
Sac.....	2		1,180			1,180
Scott.....	25	21,448	31,660	40,288		93,396
Shelby.....	1					
Sioux.....	3		13,023			13,023
Story.....	3		22,306			22,306
Tama.....	8		98,242			98,242
Taylor.....	7	37,838	7,350			45,188
Union.....	2		21,755			21,755
Van Buren.....	11	16,301	3,460	816		20,577
Wapello.....	19	448,474	62,222	30,290		540,986
Warren.....	5	25,182				25,182
Washington.....	15		26,033	5,606		31,639
Wayne.....	12	180,087	11,970			192,057
Webster.....	22	275,725	254,930		469,432	1,000,087
Winneshie.....	2		8,000			8,000
Woodbury.....	6		298,362			298,362
Wright.....	5		74,665			74,665
Single producers.....			92,199	3,453		95,652
Sandstone.....	26			8,575		8,575
Totals.....		\$10,439,496	\$ 3,507,576	\$ 542,170	\$ 472,051	\$ 14,975,200

Coal.

The coal production shows a two per cent increase in tonnage and almost no change in total value owing to a corresponding falling off in average price per ton. Of the twenty-three coal producing counties eight only show increased outputs, Monroe county heading the list with a total production exceeding two millions of tons. Keokuk and Lucas counties show the greatest relative shrinkage. Greene, Guthrie, Jefferson, Page, Polk, Wayne and Webster are the remaining counties which increased their production over 1903. Extensive development work was carried on during the year in Lucas, Monroe and Polk counties. The increased production in Monroe county was due largely to the extension of the Consolidation Coal Company.

Table No. II, gives the number of companies producing, distribution of coal, total tons produced, 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 1904.

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	11	.....	12,640	10	12,650	\$ 29,798	\$2.35	131	107
Appanoose	53	824,814	95,167	12,759	872,720	1,643,684	1.86	187	2,769
Boone	13	259,017	20,370	5,770	285,157	558,999	1.96	195	1,029
Dallas	3	6,100	6,400	536	13,036	28,149	2.15	148	44
Davis	1	.....	543	.....	543	1,332	2.45	150	2
Greene	7	180	26,673	1,360	28,213	53,027	2.05	183	77
Guthrie	5	.....	9,149	.....	9,149	24,123	2.85	155	40
Jasper	9	236,894	10,394	10,060	257,348	374,884	1.45	217	571
Jefferson	3	1,200	8,360	250	9,810	20,232	2.06	174	28
Keokuk	12	23,289	18,327	2,916	44,512	67,063	1.57	239	113
Lucas	3	163,519	12,117	14,259	189,895	278,890	1.46	184	476
Mahaska	31	607,114	39,043	17,786	663,943	954,963	1.44	197	1,505
Marion	17	296,855	24,695	6,468	327,518	431,722	1.32	225	745
Monroe	12	1,969,217	46,548	46,112	2,061,877	3,023,883	1.46	242	4,118
Page	3	.....	17,303	999	18,302	50,178	2.74	235	103
Polk	25	849,540	238,702	42,426	1,130,668	1,886,399	1.67	222	2,136
Scott	7	.....	10,594	130	10,724	21,448	1.97	164	51
Taylor	4	8,952	7,286	35	16,278	37,858	2.32	200	68
Van Buren	4	4,721	3,284	.....	8,005	16,301	2.03	207	29
Wapello	11	198,375	99,094	4,896	302,355	448,474	1.48	219	585
Warren	5	6,429	5,061	.....	11,490	25,182	2.19	149	49
Wayne	7	86,743	12,006	180	98,929	180,087	1.82	203	383
Webster	13	117,863	13,470	3,705	134,538	275,725	2.04	226	845
Total	269	5,659,802	677,226	170,627	6,507,655	\$10,489,496	\$1.60	213	15,373

The price per ton varies greatly when the different counties are compared, ranging from \$1.32 for Marion to \$2.85 per ton for Guthrie county. A casual inspection of the above table will show that the average price per ton depends very largely upon the disposition of the product. Other things being equal those counties showing the largest local trade report the highest average price per ton. There was a falling off in average number of days work with a more than compensating increase in the number of men employed.

According to the authority of the United States Geological Survey, Iowa ranked ninth in total tonnage, and seventh in total value of coal produced in 1903. The ten leading producers of bituminous coal for 1903 were as follows:

STATE.	TONNAGE.	VALUE.
1. Pennsylvania.....	\$103,117,178	\$121,752,759
2. Illinois.....	36,957,104	43,196,809
3. West Virginia.....	29,337,241	34,297,019
4. Ohio.....	24,853,103	31,932,327
5. Alabama.....	11,654,324	14,246,796
6. Indiana.....	10,794,692	13,244,817
7. Kentucky.....	7,538,032	7,979,342
8. Colorado.....	7,423,602	9,150,943
9. Iowa.....	6,419,811	10,563,910
10. Kansas.....	5,839,976	8,871,953

The average price per ton for Iowa during 1903 was \$1.65, while for the whole United States it was \$1.24.

The production for the state during the past six years was as follows:

YEAR.	TOTAL TONS.	VALUE.	AVERAGE PRICE.	AVERAGE NUMBER 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

Clay.

Idle yards were, perhaps, no fewer in 1904 than during the preceding year; the increased number reported to be in operation during the latter year was due rather to the opening of new factories. The most notable growth was in the manufacture of drain tile which shows an increase of thirty per cent. The counties showing the greatest gains in this direction are those in or contributory to the area covered by the Wisconsin drift. The growth in the production of tile affected the manufacture of common brick locally but the output of brick for the state does not show a material change. Next to drain tile, the growth in the manufacture of hollow block shows the greatest increase, amounting to about twenty-five per cent. The manufacture of burnt clay ballast fluctuates greatly from year to year and no average figure can be assigned. The total production of clay products shows an increase of about sixteen per cent. The production was distributed as follows:

	1903.		1904.	
	Thousand.	Value.	Thousand.	Value.
Common brick.....	194,872	\$ 1,396,088	207,750	\$ 1,430,581
Front brick.....	7,381	83,306	8,330	101,358
Paving brick.....	20,688	221,481	15,925	199,528
Ornamental brick.....		1,200		972
Fire brick.....		975	20	300
Drain tile.....		1,009,933		1,321,745
Sewer pipe.....		88,000		94,800
Hollow block.....		131,191		164,658
Railway ballast.....		12,000		100,000
Pottery.....		55,762		66,050
Miscellaneous.....		33,651		7,184
Total		\$ 3,033,583		\$ 3,507,576

The price of common brick shows a slight falling off while pavers and front brick show a marked increase. The average prices for the principal grades of brick are given below for the two years:

	Iowa.		Whole United States.
	1903.	1904.	1903.
Common brick.....	\$ 7 08	\$ 6.89	\$ 5.97
Front brick.....	10.60	12.17	12.45
Paving brick.....	10.62	12.53	9.86

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 1904.

COUNTIES.	Number of producers.	COMMON BRICK.		TOTAL BRICK.		DRAIN TILE.	TOTAL VALUE.
		Quantity in Thousands	Value.	Quantity in Thousands	Value.	Value.	
Adair.....	3	1,100	\$ 9,000	1,100	\$ 9,000	\$ 4,185	\$ 13,395
Adams.....	5	1,680	12,680	1,680	12,680	1,718	14,378
Appanoose.....	2	2,147	16,477	2,147	16,477		16,477
Audubon.....	1						
Benton.....	6	1,365	10,450	1,365	10,450	18,975	24,425
Black Hawk.....	2	2,340	14,753	2,340	14,753		14,753
Boone.....	6	3,390	23,521	6,983	55,879	20,931	78,995
Bremer.....	1						
Buena Vista.....	3	165	1,220	165	1,220	15,928	17,143
Butler.....	1						
Calhoun.....	6	871	6,900	871	6,900	19,256	26,936
Carroll.....	1						
Cass.....	4	2,020	16,100	2,020	16,100	825	116,925
Cerro Gordo.....	3	2,333	15,184	2,333	15,184	236,235	274,219
Cherokee.....	1						
Clark.....	1						
Clay.....	2	450	3,300	450	3,300	40,000	43,600
Clayton.....	5	2,093	11,312	2,243	12,512	782	13,294
Clinton.....	4	2,600	16,175	2,600	16,175	4,150	20,325
Crawford.....	2	1,750	12,560	1,750	12,560		12,560
Dallas.....	11	2,627	20,064	3,043	24,207	104,765	131,047
Davis.....	1						
Cedar.....	2	453	3,788	453	3,788	10,424	14,192
Decatur.....	4	900	6,900	900	6,900	325	16,625
Des Moines.....	3	2,821	22,435	3,668	30,200	5,100	35,300
Delaware.....	3	800	5,600	800	5,600	1,400	12,000
Dubuque.....	4	6,350	43,700	6,350	43,700		43,700
Emmet.....	1						
Fayette.....	4	1,751	11,829	1,851	12,529	1,560	15,589
Floyd.....	1						
Fremont.....	6	2,050	13,600	2,175	14,600		14,700
Greene.....	1						
Grundy.....	1						
Guthrie.....	8	503	3,693	503	3,693	18,273	22,176
Hamilton.....	2	1,135	8,950	1,135	8,950	33,200	47,350
Hancock.....	1						
Hardin.....	5	1,123	9,780	1,257	12,076	43,018	60,234
Harrison.....	6	2,280	16,260	2,280	16,260		16,260
Henry.....	6	829	6,305	829	6,305	14,814	20,619
Howard.....	1						
Humboldt.....	1						
Ida.....	1						
Iowa.....	5	2,990	19,530	2,990	19,530	16,200	35,730

CLAY PRODUCTION.

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TABLE No. III.—CONTINUED.
CLAY PRODUCTION BY COUNTIES FOR 1904.

COUNTIES.	Number of producers.	COMMON BRICK.		TOTAL BRICK.		DRAIN TILE.	TOTAL VALUE.
		Quantity in Thousands	Value.	Quantity in Thousands	Value.	Value.	
Jackson	1						
Jasper	7	1,550	\$ 11,530	1,550	\$ 11,550	\$ 9,500	\$ 21,050
Jefferson	3	887	7,099	897	7,099	27,918	35,017
Johnson	8	5,105	34,860	5,105	34,860	11,050	45,710
Jones	2	550	4,150	550	4,150	4,800	8,950
Kossuth	1						
Keokuk	8	956	7,688	956	7,688	29,994	37,682
Lee	4	1,365	7,880	1,365	7,880		7,880
Linn	8	3,963	28,104	3,963	28,104	11,125	39,229
Louisa	3	554	8,881	554	8,881	4,500	8,381
Lucas	1						
Madison	1						
Mahaska	6	3,408	24,051	5,495	47,030	15,050	65,080
Marion	4	1,000	7,175	1,000	7,175	13,300	20,875
Marshall	10	3,946	24,400	4,196	26,650	23,052	59,802
Mills	4	1,500	11,600	1,500	11,600		11,600
Monona	1						
Montgomery	8	4,938	39,048	4,938	39,348	3,079	47,827
Muscatine	10	4,235	26,272	4,235	26,272		32,356
Page	6	4,129	29,900	4,129	29,900	14,000	43,900
Plymouth	2	1,150	7,900	1,150	7,900		7,900
Pocahontas	2	550	3,950	550	3,950	73,850	77,800
Polk	22	26,110	194,194	40,803	359,116	131,367	648,853
Pottawattamie	7	10,979	73,492	10,979	73,492	980	74,452
Poweshiek	3	730	6,015	730	6,015	9,539	15,738
Ringgold	2	675	5,250	675	5,250	1,500	6,750
Sac	2	160	1,180	160	1,180		1,180
Scott	5	3,116	21,660	3,616	21,660	3,500	31,660
Shelby	1						
Sioux	3	1,830	13,023	1,830	13,023		13,023
Story	3	275	2,200	550	4,900	17,406	22,306
Tama	7	5,893	41,284	8,621	68,237	29,975	98,242
Taylor	3	740	5,550	740	5,550	1,800	7,350
Union	2	2,195	16,885	2,195	16,885	3,975	21,755
Van Buren	3	550	3,460	550	3,460		3,460
Wapello	3	6,502	41,819	6,502	41,819	17,888	63,222
Washington	6	1,597	11,230	1,597	11,230	14,803	26,033
Wayne	5	1,695	11,970	1,695	11,970		11,970
Webster	9	10,184	64,770	11,236	78,930	112,374	254,930
Winneshiek	2	1,200	8,000	1,200	8,000		8,000
Woodbury	6	35,365	229,812	36,831	244,094	15,450	298,362
Wright	5	955	8,765	935	8,765	65,900	74,665
Single producers	21	6,847	49,828	6,847	49,828	41,311	92,199
Totals	331	207,750	\$ 1,450,591	292,005	\$ 1,732,639	\$ 1,921,745	\$3,507,576

According to the United States Geological Survey, Iowa ranked eighth in production of clay products for 1903, producing 2.88 per cent of the entire output of the country; she ranked eighth in the manufacture of paving brick, third in building block, being exceeded by Ohio and Indiana, and second in drain tile, surpassed by Ohio alone. For the year 1904 Iowa probably heads the list of drain tile producers. The ten leading clay producers for 1903 were as follows.

MINERAL PRODUCTION IN IOWA.

RANK	STATE.	NUMBER OF PRODUCING FIRMS RE- PORTING.	COMMON BRICK	PAVING BRICK	DRAIN TILE	TOTAL CLAY
1	Ohio	815	\$ 3,002,506	\$ 1,860,071	\$ 1,149,990	\$ 25,208,124
2	Pennsylvania	523	6,174,437	685,274	11,451	18,847,324
3	New Jersey..	159	1,500,295	22,195	20,825	13,416,939
4	Illinois	502	5,388,589	1,015,710	892,807	11,190,797
5	New York...	242	5,305,522	220,296	140,181	9,208,252
6	Indiana	490	1,697,190	482,967	1,014,706	5,694,625
7	Missouri.....	242	1,725,253	307,237	45,363	5,661,607
8	Iowa	304	1,355,129	232,510	1,028,383	3,093,403
9	California...	105	1,600,882	....	17,994	2,831,543
10	West Virginia	56	576,404	576,258	1,499	2,558,560

The production of clay products shows a satisfactory growth during the past five years. The leading products showing such growth are given in the table herewith.

YEAR.	COMMON BRICK.	TOTAL BRICK	DRAIN TILE.	POTTERY.	TOTAL.
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	3,507,576

Up to 1904 the substitutes for brick, sand-lime brick and cement block, do not appear to have seriously affected the demand for common building brick.

Stone.

The stone industry for 1904 shows a decline as compared with the preceding year. The greatest shrinkages appear in the production of building stone and lime. The amount of crushed stone produced shows a satisfactory increase. Up-to-date crushing plants were established during the year at a number of points, and an increased production in this line may be expected for 1905. The production for 1904 was distributed as follows:

LIMESTONE USED FOR:	VALUE 1904.	VALUE 1903.
Building purposes.....	\$162,577	\$204,769
Flagging and curbing.....	8,970	13,793
Lime.....	91,008	113,195
Crushed stone		
Road making.....	53,082	63,637
Railway ballast.....	5,549	12,243
Concrete.....	97,274	68,763
Rubble and riprap.....	113,568	102,403
Miscellaneous.....	1,565	2,158
Sandstone	8,575	17,008
Total stone.....	\$542,168	\$597,965

Imported limes and greatly cheapened Portland cement are the chief contributory causes for the falling off 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 1904.

COUNTIES.	Number of producers.	Building.	Flagging and curbing.	Lime.	Road mak- ing.	Railway ballast and concrete.	Rubble and riprap.	Miscellane- ous.	Total.
Allamakee	3	\$ 260	\$ 64						\$ 324
Appanoose	2	60	10				\$ 450		520
Benton	7	1,169		\$ 1,920			187	\$ 15	3,291
Black Hawk	9	8,416	180		\$ 2,873	\$ 250	774		12,493
Buchanan	1								
Cedar	2	400			4,887		10,537		15,824
Cerro Gordo	4	13,700	100	2,600		33,684	225		50,309
Chickasaw	1								
Clarke	7	2,368	193				540	80	3,186
Clayton	7	2,658	2,383	150	380	170	134		5,875
Clinton	6	3,870	70		3,330	900	374		8,544
Dallas	2	320							320
Decatur	3	321	10		340				671
Delaware	4	2,235	399				175		2,809
Des Moines	9	6,406	60		2,480	1,711	7,879		18,538
Dubuque	12	16,160	79	8,438	380	6,968	1,347		33,372
Fayette	7	8,358	550	350			845		10,503
Floyd	8	3,665	600		100	225		250	4,840
Grundy	1								
Hamilton	2						1,325		1,325
Hardin	8	4,965			1,859	2,964	1,650		11,438
Henry	4	1,110			100	1,301			2,511
Howard	3	675			582	10			1,267
Humboldt	2	1,078					60		1,138
Jackson	7	265		69,550	660				70,475
Johnson	2	800			1,040		560		2,400
Jones	13	33,740	219		885	9,842	37,655		82,341
Keokuk	8	1,897	10				6		1,913
Lee	16	6,391	3,195		7,966	5,699	7,293	1,000	31,544

TABLE No. IV—CONTINUED.

COUNTIES.	Number of producers.	Building.	Flagging and curbing.	Lime	Road mak- ing.	Railway ballast and concrete.	Rubble and riprap.	Miscellane- ous.	Total.
Linn	6	\$ 1,235	.....	\$ 8,000	.....	\$ 2,379	\$ 2,763	.....	\$ 14,377
Louisa	9	2,141	\$ 47	.....	\$ 48	.....	5	.....	2,241
Madison	7	13,794	10	.....	17,862	12,065	123	\$ 20	43,874
Mahaska	1	.....	.....	.....	.....	.....	.....	.....	.....
Marion	3	2,850	25	.....	.....	.....	9,000	200	12,075
Marshall	1	.....	.....	.....	.....	.....	.....	.....	.....
Mitchell	5	1,394	.....	.....	.....	.....	.....	.....	1,394
Montgomery	5	1,260	.....	.....	.....	.....	150	.....	1,410
Pocahontas	3	.....	.....	.....	.....	.....	.....	.....	.....
Scott	13	10,691	75	.....	4,075	19,492	5,955	.....	40,288
Tama	1	.....	.....	.....	.....	.....	.....	.....	.....
Van Buren	4	780	36	.....	.....	.....	.....	.....	816
Wapello	5	1,687	.....	.....	3,225	8,138	20,240	.....	30,290
Washington	9	4,613	130	.....	.....	25	838	.....	5,606
Single producers .....	.....	845	120	.....	10	.....	2,478	.....	3,453
Total	232	\$ 162,577	\$ 8,970	\$ 91,008	\$ 53,082	\$ 102,823	\$ 113,568	\$ 1,565	\$ 533,593

PRODUCTION OF LIMESTONE.

Fourteen counties with twenty-six producers report sandstone but the total production was insignificant, amounting to \$8,575, and used mainly for building purposes and as rubble. Jones county still leads in the production of stone while Jackson is the ranking producer for lime. The table below shows the status of the stone industry for Iowa during the past six years:

YEAR.	LIMESTONE.				SAND- STONE.	TOTAL STONE.
	BUILDING.	LIME.	CRUSHED STONE.	RUBBLE AND RIPRAP.		
1899.....	\$312,595	\$102,611	\$ 158,917	\$ 139,064	\$ 24,348	\$ 809,924
1900.....	248,833	110,589	153,920	58,493	19,063	605,473
1901.....	272,501	221,760	183,902	85,342	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	597,965
1904.....	162,577	91,008	153,372	113,568	8,575	542,165

Gypsum.

The gypsum production for 1904 shows a considerable shrinkage in gross tonnage and total value. The gross output of crude gypsum for the year was reported to be 145,359; was valued at \$92,033, or a falling off of about 15 per cent. In the table below is given the distribution of the product as compared with 1903:

	1903.		1904.	
	TONS.	VALUE.	TONS.	VALUE.
Wall or cement plaster.....	87,397	\$411,503	94,811	\$ 399,281
Plaster of Paris.....	30,306	100,744	19,540	64,112
Land plaster.....	2,098	9,227	933	1,816
Crude gypsum.....	703	1,534	2,013	4,223
Total.....	120,504	\$523,008	117,297	\$ 469,432

Lead and Zinc.

As during the preceding year, no zinc ore produced in Iowa was marketed. A small quantity of "dry bone" was produced, incidental to development work, but was not put upon the market.

The production of lead for 1904 shows a decline notwithstanding the earlier reports to the contrary. The local smelter purchased the entire output of the state which was confined to Dubuque county. The production for the year was about 97,000 pounds valued at \$2,619.

Sand-Lime Brick.

The sand-lime brick industry is of recent growth in this country. The first plant was built at Michigan City, Indiana, early in 1901 and put in operation during that year. In 1902 there were twenty plants in existence and according to the United States Geological Survey 6,000,000 brick were actually sold during that year. In 1903 it is estimated that seventy plants were in operation in twenty-nine states, with an output of 20,000,000 brick. One plant only was credited to Iowa, the Iowa Granite Brick Company at Clinton. A second plant was installed and put in operation at Cedar Rapids during 1904. The total sales for 1904 were as follows:

Brick, 1,962,000, amounting to \$13,907.

Iron.

No iron produced in Iowa was marketed during 1904. The mine in the vicinity of Waukon, in Allamakee county, is still without transportation which would warrant its operation.

Cement Block Industry.

The manufacture of cement block, as in the case of the manufacture of sand-lime brick, is a new industry for the state. The statistics obtained are very imperfect owing to the newness of the industry and the difficulty of securing complete returns. Thirty-eight factories reported sales for 1904. Many additional factories were installed during the year but opened too late in the season to put their product upon the market. It is believed that the report for 1905 will show the number of producing plants to more than double, and the output quadruple. The returns received for 1904 are given below.

Cement block, square feet in wall.....	442,343	\$83,701
Caps and sills, linear feet.....	9,223	3,068
Flue linings, linear feet.....	865	174
Cement posts.....	762	188
Sand-cement brick	42,000	400
Porch piers.....	400	100
Total.....		\$87,631