MINERAL PRODUCTION IN IOWA IN 1925 AND IN 1926

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ROCK RESOURCES OF IOWA

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IOWA COAL AREAS AND CHARACTERISTICS OF IOWA COAL

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MINERAL PRODUCTION IN IOWA IN 1925

Products	Unit	Quantity	Value
1923			
Cement	Bbl. of 376 lb.	5,570,675	$10,351,971
Clay products	.....	.....	7,033,924
Coal	short tons	5,710,735	20,517,000
Gypsum	short tons	566,724	5,368,532
Mineral waters	gallons	258,831	8,907
Natural gas	M cubic feet	80	172
Sand and gravel	short tons	3,597,160	2,181,881
Stone and lime	short tons	611,866	775,134
			$46,237,521
1924			
Cement	Bbl. of 376 lb.	4,881,613	$ 8,811,587
Clay products	.....	.....	5,719,694
Coal	short ton	5,468,450	18,097,000
Gypsum	short ton	640,953	5,657,339
Mineral waters	*no census*		
Natural gas	M. cu. ft.	575	300
Sand and gravel	short ton	2,427,626	1,473,066
Stone and lime	short ton	610,408	739,632
			$40,470,971
1925			
Cement	Bbl. of 376 lb.	4,856,849	$ 8,674,563
Clay products	.....	.....	5,726,239
Coal	short tons	4,714,843	14,807,000
Gypsum	short tons	702,661	6,734,271
Natural gas	M cubic feet	200	100
Sand and gravel	short tons	3,297,785	1,546,900
Stone and lime	short tons	808,288	904,669
			$38,393,742

The suggestion made in the report for 1924 that indications pointed toward a continued downward trend in mineral production during the succeeding year was in part justified by events as the total value of the output during 1925 was less than that for 1924, as were the values and quantities of cement and coal sold. However, the other major mineral products showed an increase in both quantity and value of output. Because of this the decrease for 1925 was much less than that for 1924 be-

* Figures compiled by the Iowa Geological Survey in cooperation with the United States Bureau of Mines and the Bureau of the Census. Acknowledgment is made of the use of tables and other data published by these organizations.

low the output of 1923, as the latter diminution amounted to $5,766,550, while the drop in 1925 was $2,077,229.

Preliminary figures for mineral production in the United States show that, unlike Iowa, the country as a whole experienced a revival of favorable conditions, for while production in 1924 had fallen off 11 per cent as compared with 1923, the year 1925 saw a rise of 7 per cent over the preceding year, or stated in figures of value, a change from $5,305,800,000 in 1924 to $5,696,000,000 in 1925. The total value of metallic products in 1925 was $1,380,100,000. Nonmetallic mineral products other than fuels produced in 1925 were valued at $1,293,900,000 while the output of mineral fuels—coal, petroleum, natural gas and natural-gas gasoline, in 1925 had an aggregate value of $3,016,000,000. Final figures for 1925 were not available when this report was written, but the summary statement shows that in 1924 Iowa ranked as twenty-fourth state and produced 0.87 per cent of the total value of mineral production in that year.

CEMENT

Shipments of portland cement were somewhat less in 1925 than in the preceding year and the value was slightly lower also. Evidently the manufacturers cut their production sharply during 1925 to dispose of some of the large surplus remaining on hand at the close of 1924. Figures for the United States show that Iowa was the only state in which production was less in 1925 than in 1924. In Iowa the decrease was 17 per cent while in other states the increase ranged from 2 per cent in Illinois to 35 per cent in Washington. In the matter of shipments also Iowa dropped 1 per cent below the figures for 1924, while Illinois dropped 3 per cent. Other states increased their shipments from 4 per cent for Pennsylvania to 39 per cent for Washington. Twelve states have four or more factories each while seventeen others have two or less each. Wisconsin began producing and shipping in June, 1924, while South Dakota began producing in December, 1924, and shipping January, 1925. The commercial district which includes eastern Missouri, Iowa, Minnesota and South Dakota has eleven plants. In 1924 the production was 14,822,738 barrels and in 1925 it was 14,571,751 or 2 per cent less, while the shipments in 1924 were 13,984,167 barrels, valued at $24,757,538 and in 1925 they were 14,477,932 barrels, with a value

of $25,317,292, an increase in quantity of 4 per cent. The average factory value per barrel was $1.77 in 1924 and $1.75 in 1925.

The appended table shows the production of cement in Iowa during the past three years.

Production of Cement in Iowa, 1923 to 1925

	1923	1924	1925
Production, bbls.	5,732,470	5,624,466	4,648,145
Stock, Dec. 31, bbls.	952,242	1,695,093	1,479.670
Shipments, bbls.	5,570,675	4,881,613	4,856,849
Shipments, value	$10,351,971	$8,811,587	$8,674,563
Average factory price per bbl.	$1.86	$1.81	$1.79
Consumption, bbls.	3,624,857	3,144,001	2,704,872
Consumption per capita, bbl.	1.46	1.26	1:08
Surplus production	1,945,818	1,737,612	2,151,977
Annual finished cement capacity of plants, bbls.	6,875,000	6,685,000	6,935,000
Daily clinker capacity, bbls.	19,308	20,300	20,603
Number rotary kilns	28	28	28

The producing companies remained the same as in previous years except that the Gilmore factory was sold on October 7 to the Northwestern States Company. The list of producers in 1925 and 1926 was as follows:

Hawkeye Portland Cement Co., Des Moines; office 806 Hubbell Building, Des Moines
Lehigh Portland Cement Co., Mason City; office Young Bldg., Allentown, Pa.
Northwestern States Portland Cement Co., Gilmore City and Mason City; office First National Bank Bldg., Mason City
Pyramid Portland Cement Co., Valley Junction; office 508 Insurance Exchange, Des Moines.

CLAY WARES

The value of clay wares produced in 1925 was somewhat greater than the output of the preceding year, although it fell considerably short of the value for 1923. The increase in 1925 was due chiefly to the larger volume of brick and sewer pipe which was sold. The sales of most other classes of ware were somewhat below those for the preceding year. Hollow building tile of various kinds was the leading product and sewer pipe was second with drain tile a close third. Thirty-seven counties have clay wares plants and among these Cerro Gordo maintains the lead it has held for many years, Webster is second, Polk third, Dallas fourth and Woodbury fifth. The production of various wares in recent years was as follows:

Class	Plants			Quantity			Value		
	1923	1924	1925	1923	1924	1925	1923	1924	1925
				thous.	*thous.*	*thous.*			
Common brick	52	51	42	72,558	62,070	73,004	$ 921,853	$ 737,898	$ 855,305
Vitrified brick	4	4	1	31,523	6,507	d7,361	513,684	129,314	d184,939
Face brick	22	19	19	29,426	23,785	30,654	593,791	451,136	536,545
				tons	*tons*	*tons*			
Hollow bld. tile[a]	44	37	44	297,253	243,712	275,781	2,197,515	1,740,296	1,802,145
Hollow bld. tile[b]	8	16	8	26,073	53,412	43,227	195,006	446,246	316,116
Drain tile	54	54	48	173,678	147,499	119,993	1,508,836	1,266,586	925,958
Sewer pipe	5	5	15	54,828	52,998	67,035	865,676	793,840	929,294
Other products[c]							237,563	154,379	175,937
	64	69	67				7,033,924	5,719,694	5,726,239

a Includes partition, load-bearing, etc.
b Includes floor, arch, silo, etc.
c Includes flue lining, pottery, raw clay, miscellaneous wares.
d Includes wall coping and roofing tile.

Iowa ranks as the twenty-third state in value of common brick sold, fifteenth in value of face brick, fifth in value of hollow building ware, second in value of drain tile and eighth in value of sewer pipe. For many years Iowa led in the making of drain tile, but drain tile is distinctly an agricultural material, much of Iowa's farm land has been drained and agricultural conditions of late have not been conducive to the purchase of tile. Hence Ohio now stands first in making of this ware with an output valued at $1,344,847 compared with Iowa's output of $925,958. Indiana is third with a production valued at $827,518 and Illinois ranks fourth with an output of $707,859. The other states are all considerably behind these four.

The output of various classes of clay wares in the United States in 1925 was as follows:

Class	Quantity	Value
Common brick, M	7,565,819	$88,607,199
Vitrified brick for paving, M	448,492	10,350,093
other uses, M	90,609	1,525,604
Face brick, M	2,474,690	45,427,625
Fancy brick, M	1,701	50,279
Enameled brick, M	16,931	1,507,659
Terra cotta, tons	152,441	19,138,690
Hollow building tile, tons	4,228,286	29,274,545
Roofing tiles, squares	289,956	5,155,301
Other tile, square feet	74,656,401	21,968,508
Drain tile, tons	660,673	4,960,423
Sewer pipe, tons	2,138,672	30,420,828
Stove lining, tons	25,852	656,139
Flue lining, tons	182,267	2,480,327
Wall coping, tons	37,124	381,367
Fire brick, M	998,889	41,163,701
Clay sold, tons	656,918	3,482,236
Other clay products		8,426,249
Total except pottery		314,976,773
Pottery		112,018,500

The following list gives the output of different wares by counties or by groups of counties which have less than three producers each. Statistics are given in as much detail as possible without revealing the production of individual operators. Counties are grouped according to geographic proximity as much as possible.

Production of Clay Wares in Iowa in 1925

Counties	No. Producers	Face brick and Common brick(1)		Hollow ware		Drain tile		Other products(2)	
		thous.	*value*	*tons*	*value*	*tons*	*value*	*value*	*value*
Allamakee (1), Fayette (1), Floyd (1), Grundy (1)	4	6,759	$ 90,354	18,059	$132,152	(a)			$ 222,506
Appanoose (1), Marion (1), Wapello (2)	4	12,467	142,959	12,488	72,919	4,557	$ 25,593		241,471
Audubon (2), Guthrie (1)	3	198	2,807	1,212	9,703	1,544	9,578		22,088
Benton (1), Tama (3)	4	2,709	39,408	152	1,395	1,516	13,779		54,582
Boone (1), Hamilton (1), Hardin (1), Story (2), Wright (1)	6	5,301	70,647	1,786	11,000	2,727	26,834	$ 23,307(5) (10)	131,788
Cerro Gordo	3	4,975	72,833	160,124	1,011,398	42,839	341,999	(8)(b)	1,426,230
Dallas	3	4,272	74,138	51,762	378,790	10,956	73,940		526,868
Dubuque (1), Jackson (1), Johnson (2), Jones (1), Scott (1)	6	785	12,165		(c)	1,561	11,182	26,477(3)(8)(9)	49,824
Henry (1), Lee (1), Washington (2)	4	148	2,380	276	1,997	2,619	17,587		21,964
Jasper (2), Poweshiek (1)	3	110	1,614	1,741	13,042	1,312	13,261	(8)(d)	27,917
Jefferson (1), Keokuk (3), Mahaska (2)	6	3,168	49,921	5,232	31,874	9,334	74,757	198,618(5)(7)(8)	355,170
Polk	6	25,613	378,810	18,911	121,242	5,399	47,802	360,853(5)(6)	908,707
Sac (1), Union (1), Warren (1), Woodbury (2)	5	32,541	403,507	21,779	135,389	2,975	24,045		562,941
Webster	8	4,595	50,561	31,479	245,986	25,920	188,016	684,840(5)(7)(8)(10)	1,169,403
Totals	67	103,658	$1,391,850	319,011	$2,118,261	119,993	$925,958	$1,290,170	$5,726,239

(a) Included with hollow ware. (b) Included with brick. (c) Included with other products. (d) Included with drain tile. Amounts and values of these items are included with state totals for classes to which they belong.
(1) Includes: Common brick, 73,004,000, value, $855,305; Face brick, 30,654,000, value, $536,545.
(2) Includes: (5) Sewer pipe, 5 producers, 67,035 tons, value, $929,294; (6) Vitrified brick and (8) roofing tile and other, unspecified, products, 7 producers, $264,398; (7) Flue lining, 3 producers, 5,306 tons, value, $57,830; Wall coping, 3 producers, 1,087 tons, $15,946; (9 and 10) Earthenware and raw clay sold, 4 producers, value, $22,602.

The list given herewith shows the operators who reported production in 1925 to the Bureau of the Census, together with the kinds of clay ware which they produced, according to the following schedule: 1, common brick; 2, face brick; 3, fancy brick; 4, building tile; 5, vitrified brick; 6, drain tile; 7, sewerpipe; 8, other products; 9, pottery; 10, raw clay sold.

Allamakee County
Postville Mfg. Co., Postville, office Minneapolis, Minn.
Appanoose County
Centerville, Centerville Brick Co., 1
Audubon County
Audubon, Audubon Brick & Tile Works, 1, 4, 6
Kimballton, Crystal Springs Clay Works, 1, 3, 6
Benton County
*Atkins, Rinderknecht Bros.
Belle Plaine, Buckeye Clay Products Co., 4, 5
Garrison, Garrison Brick & Tile Works, 1, 4, 6
Black Hawk County
*Waterloo, Art Novelty Pottery (William Raab), 9
*Waterloo, Waterloo Granite Brick Co., 1
Boone County
Boone, Boone Brick, Tile & Paving Co., office Des Moines, 1, 2, 5
Buena Vista County
Linn Grove, Linn Grove Brick & Tile Co., 1, 4, 6
*Sioux Rapids, Sioux Rapids Drain Tile Works, 1, 4, 6
Cedar County
*Tipton, Tipton Brick & Tile Works, 1, 4, 6
Cerro Gordo County
Mason City, Mason City Brick & Tile Company, 1, 2, 4, 6
Mason City, National Clay Works, 1, 2, 4, 6
Mason City, North Iowa Brick & Tile Co., 4, 6
Clayton County
Clayton, Clayton Brick and Tile Co., 1, 4
Dallas County
Adel, Adel Clay Products Co., 1, 2, 4, 6
Redfield, Redfield Brick & Tile Company, 1, 4, 6
Van Meter, Platt Company, Inc., 1, 4, 6
Dubuque County
*Dubuque, Frank Beutin, 1
*Dubuque, Clayton Brick & Tile Co., 1, 4, 6
Dubuque, John L. Heim & Son, 1
Fayette County
Clermont, Clermont Brick & Sand Co., 1, 2, 4
Floyd County
Rockford, Rockford Brick & Tile Company, 1, 2, 4, 6
Franklin County
*Sheffield, Sheffield Brick & Tile Co., 1, 4, 6
*Sheffield, Smith Brick & Tile Co., 1, 4, 6
Grundy County
*Reinbeck, Gethmann Brick Co., office Gladbrook, 2
Guthrie County
Glendon, Glendon Brick & Tile Co. (Robert Goodwin, Jr.) office Menlo, 1, 4, 6
Hamilton County
Webster City, National Sewer Pipe Co., 6, 7, 8
Also has clay pit at Nevada, Story Co., 10
*Webster City, Therm-A-Jug Co., 9
Hardin County
Eldora, Eldora Sand Co., 10
*Eldora, Estate of Henry L. Huff, 10
Henry County
Winfield, Winfield Brick & Tile Works (J. E. Pierce), 1, 4, 6
Howard County
*Cresco, (Cresco Brick & Tile Works) C. A. Marshall, 1, 4, 6
Jackson County
Bellevue, Bellevue Clay Products Company, 1, 4, 6, 9
Jasper County
Lynnville, Lynnville Brick & Tile Works (C. H. Newby), 4, 6
Newton, Newton Clay Products Co., 1, 4, 6
Jefferson County
*Batavia, Batavia Brick and Tile Co., 1, 4, 6
Packwood, S. F. Steigleder & Son, 6
Johnson County
Iowa City, Ferd. Goss Brick Yard, 1
Tiffin, Tiffin Tile Company, 1, 6
Jones County
Monticello, Monticello Clay Works (Frank D'Autremont), 6

Keokuk County
Hedrick, Hedrick Tile Works, 1, 4, 6
Keota, Iowa Clay Products Co., office Washington, 1, 4, 6
*Richland, Iowa Clay Products Co., office Washington, 1, 4, 6
*What Cheer, Nelson Bros. & Sundberg, 1, 9
What Cheer, What Cheer Clay Products Co., 4, 6, 7, 8
Lee County
Fort Madison, Julius Reichelt, 1
Mahaska County
New Sharon, Peter Meyer, 1, 6, 8
*New Sharon, Cecil Bros., 1, 4, 6
Oskaloosa, Standard Clay Products Co., 1, 2
Marion County
Harvey, Standard Clay Products Co., office Oskaloosa, 4, 6
Knoxville, Knox Clay Products Co., Inc., 1, 4, 6
Muscatine County
*Muscatine, Charles Stark, clay pipes
Palo Alto County
*Graettinger, Graettinger Tile Works, 6
Polk County
Des Moines, The Capital Clay Company, 1, 2
Des Moines, Des Moines Clay Company, (2 plants), 1, 2, 4
Des Moines, Des Moines Brick & Tile Co., 4, 6, 10
Des Moines, Flint Brick Company, 1, 5
Des Moines, Goodwin Tile & Brick Co., 4, 6
Des Moines, Iowa Pipe & Tile Co., 6, 7, 8
Poweshiek County
Grinnell, Grinnell Clay Products Co., 1, 4, 6
Sac County
Auburn, Auburn Brick & Tile Company, 4, 6
Scott County
LeClaire, W. E. Martin & Sons, Inc., 1, 4, 6
*Pleasant Valley, Martin & Sons, 1, 4, 6
Story County
Maxwell, Maxwell Brick and Tile Co., 1, 2, 4, 6
Nevada, Nevada Brick & Tile Works, 1, 4, 6
Nevada, National Sewer Pipe Co. (T. J. Lyman), 10
Tama County
Dysart, Dysart Brick & Tile Company, 1, 6
Gladbrook, The Gethmann Brick Co., 2
Also has plant at Reinbeck, Grundy Co., 2
Gladbrook, Gladbrook Press Brick & Tile Co., 1, 2, 6
*Tama, Tama Brick & Tile Co., 1, 4, 6
Union County
Creston, Creston Brick & Tile Works, 1, 2, 4, 6
Wapello County
Eldon, Iowa Clay Products Co., office Washington, 1, 4, 6
Ottumwa, Morey Clay Products Co., 1, 2, 4, 6
*Ottumwa, Ostdeik Brick Works, 1, 4, 6
Warren County
Carlisle, Carlisle Clay Products Co., Inc., 4, 6
Washington County
Kalona, Kalona Clay Co., Inc., 1, 4, 6
Washington, Washington Brick & Tile Works, 1, 4, 6
Webster County
Clayworks, Johnson Clay Works, Inc., 1, 2, 4
Fort Dodge, Bradshaw & Company, 1, 2, 4, 6
*Fort Dodge, Coats Mfg. Co., 4
Fort Dodge, Fort Dodge Brick & Tile Co., 1, 4
Fort Dodge, Plymouth Clay Products Co., 6, 7, 8
Fort Dodge, Vincent Clay Products Co., 4, 6
Lehigh, Lehigh Sewer Pipe & Tile Co., office Fort Dodge, 6, 7, 8
Lehigh, George F. Drain, 10
Otho, Kalo Brick & Tile Company, office Ft. Dodge, 1, 2, 4, 5, 6
Woodbury County
*Correctionville, Woodbury County Tile Plant, 6
Sergeant Bluff, Ballou Brick Company, office Kansas City, Mo., 1, 2
*Sioux City, Lehigh Sewer Pipe & Tile Co., 6, 7
Sioux City, Sioux City Brick & Tile Co., 1, 2, 8
*Sioux City, Sioux City Crockery Co., 9
Wright County
Goldfield, Goldfield Brick & Tile Works, 1, 4, 6

COAL

Coal production in Iowa continued the downward trend which was noticeable in the industry in the two preceding years. While

* Added from Bulletin 16 of the Iowa Bureau of Labor, 1925.

the tonnage raised in 1925 was larger than that of 1921 or of 1922, still it was smaller than that of 1923 or of 1924. The value at the mines of the 1925 output was smaller than that of any year since 1916. One reason for the prevailing condition seems to be the increasing use of the higher priced but cleaner coals from states farther east, some of which are operating on a non-union basis.

Conditions somewhat similar to those affecting Iowa in recent years seem to have been prevalent over the country as a whole, if one may judge from the figures given below.

Production of Coal in Iowa and the United States

Iowa			United States*		
Year	tons	value	Year	tons	value
1916	7,260,800	$13,530,383	1916	502,519,682	$ 665,116,077
1917	8,965,830	21,096,408	1917	551,790,563	1,249,272,837
1918	8,192,195	24,703,237	1918	579,385,820	1,491,809,940
1919	5,624,692	17,352,620	1919	465,860,058	1,160,616,013
1920	7,813,916	30,793,847	1920	568,666,683	2,129,933,000
1921	4,531,392	17,256,800	1921	415,921,950	1,199,938,000
1922	4,335,161	16,119,000	1922	422,268,099	1,274,820,000
1923	5,710,735	20,517,000	1923	564,564,662	1,514,621,000
1924	5,468,450	18,097,000	1924	483,686,538	1,062,626,000
1925	4,714,843.	14,807,000	1925	522,967,000	1,046,000,000

As an indication of the methods used in recovering Iowa coal the following tables will be of interest.

Coal mined in Iowa in 1925 was produced as follows:

	tons	*per cent*
Mined by hand	901,839	19.1
Shot off solid	2,780,633	59.0
Machine cut	922,405	19.6
Strip pits	229	
Not specified	109,737	2.3
	4,714,843	

An article in the August, 1927, Coal Age by H. O. Rogers of the U. S. Bureau of Mines gave the results of a study of underground haulage as practiced over the United States in 1924. During that year 7,361 soft coal deep mines used 36,352 animals and 14,723 locomotives in addition to 649 rope haulage units. These latter included only haulage on the bottom and not hoists. A total of 3,585 mines reported the use of some type of underground locomotive and these mines produced 88 per cent of the

* Bituminous coal only. Figures for 1925 are estimates.

coal mined. The other 3,776 mines produced 12 per cent of the total output. The following data refer to Iowa.

Mines using animals only	228
Animals used	614
Rope haulage units	31
Tons produced	2,715,190
Per cent total production	49.7
Mines using locomotives and animals	26
Animals used	365
Locomotives used	62
Tons produced	2,647,418
Per cent total production	48.4
Mines using locomotives only	2
Locomotives used	4
Tons produced	105,842
Per cent total production	1.9
Total mines	256
Animals used	979
Rope haulage units	31
Locomotives used	66
Tons produced	5,468,450

The 66 locomotives are classified as follows:

Storage battery, with trolley	4	Electric trolley	58
Storage battery without trolley	2	Gasoline	2

Production methods are shown also by the following table:

Mines using electric locomotives	28	Mines using no electric locomotives	228
Locomotives used	64	Tons produced	2,637,538
Tons produced	2,830,912	Per cent of production	48.2
Per cent of production	51.8		

The accompanying table giving detailed figures of production in the different counties shows that twenty-three counties produced coal in 1925 and that among these Marion was the leader, Monroe was second, losing the position held for so many years, Polk was third, Appanoose fourth and Lucas fifth. The number of mines reporting was 208, although it may be noted that the State Mine Inspectors' report, which may be somewhat more complete, as the inspectors are on the ground, lists 354 mines as being active in 1925. The same document reports 4,833,631 tons as being the production during this year, or 118,788 tons more than the figures compiled by the Bureau of Mines. The state inspectors also report a total of 11,241 men employed as against the number 10,167 reported to the federal bureau.

Statistics of coal production in Iowa in 1925

Counties	No. producers	Loaded at mines for shipment	Sold to local trade	Used at mine	Total production		Average value per ton at mine	Number of employees			Average number of days worked
		tons	*tons*	*tons*	*tons*	*value*		Underground	Surface	Total	
Adams	4		4,881		4,881	$ 19,000	$3.89	21	4	25	155
Appanoose	54	466,491	74,022	4,507	545,020	1,860,000	3.41	2,491	198	2,689	96
Boone	7	325,836	43,097	5,023	373,956	1,481,000	3.96	785	63	848	171
Dallas	5	363,810	9,826	1,527	375,163	1,178,000	3.14	758	65	823	154
Davis (1), Lucas (2)	3	503,289	10,953	(a)	514,242	1,545,500	4.15,3.00	547	60	607	70, 216
Greene (1), Story (1), Webster (1)	3		12,122	(b)	12,122	36,000	1.89, 3.21, 3.65	43	4	47	120, 150, 192
Guthrie	4		4,053		4,053	16,000	3.95	22	4	26	131
Jasper	8	(b)	37,795	3,539	41,334	140,000	3.39	203	34	237	70(c)
Jefferson (1), Van Buren (2)	3	(b)	6,743	(b)	6,743	16,000	2.84,2.21	19	2	21	179, 123
Keokuk	5		6,882		6,882	21,000	3.05	21	2	23	145
Mahaska	22	(b)	43,430	513	43,943	131,000	2.98	106	12	118	152
Marion	15	898,191	30,126	19,632	947,949	2,811,000	2.97	914	86	1,000	233
Monroe	11	765,105	24,393	24,869	814,367	2,393,000	2.94	1,293	100	1,393	188
Page (2), Taylor (3)	5	(b)	33,611	(b)	33,611	146,000	4.26, 4.57	99	11	110	245, 160
Polk	19	322,586	336,266	12,020	670,872	2,179,000	3.25	1,511	120	1,631	139
Wapello	18	(b)	60,580	(b)	60,580	193,000	3.19	123	21	144	146
Warren	3	64,540	159,656	5,728	229,924	566,000	2.46	279	34	313	204
Wayne	4	(b)	29,201	(b)	29,201	75,000	2.57	100	10	110	128
Totals	193	3,711,654	905,840	97,349	4,714,843	$14,807,000		9,337	830	10,167	153

(a) Included in Loaded at mines; (b) Included in Local trade; (c) This low figure was due to the very short time of operation of the Colfax Consolidated mines. Other mines operated from 150 to 225 days.

The list of operators was as given below.

Adams County
Joe Aukeny, Villisca
John G. Henton, Carbon, R.F.D. 1
Jones Coal Co., Carbon
Lockwood Coal Co., Corning
Pleasant Valley Coal Co., Nodaway
Smith & Robinson, Carbon

Appanoose County
Acken Coal Co., Mystic
Anchor Coal Mining Co., Ridgeway
Appanoose Coal & Fuel Co., Mystic
Appanoose County Coal Co., Centerville
Armstrong Coal Co., Commerce Bldg., Kansas City, Mo.
Barrett Coal Co., Mystic
Beggs Coal Co., Mystic
Bradshaw Coal Co., Dean
Brand Coal Co., Plano
Brazil Coal Co., Brazil
Caldwell Coal Co., Exline
Frank Casale, Centerville
Center Coal Co., Centerville
Centerville Block Coal Co., Centerville
Citizens Coal Co., Centerville
Clarke Coal Co., Centerville
Diamond Block Coal Co., Mystic
Domestic Coal Co., Cincinnati
Duff Coal Co., Mystic
Egypt Coal Co., Mystic
Empire Coal Co., Centerville
Fairlawn Coal Co., Centerville
Fenton Coal Co., Plano, R.R. 1
Fowler & Wilson Coal Co., Centerville
Friendship Coal Co., Cincinnati
Garfield Coal Co., Mystic
Helman Bros. Coal Co., Plano
High Test Coal Co., Centerville
C. P. Houser, Seymour
Hunt Bros. Coal Co., Mystic
Iowa Block Coal Co., Exline
Johnson Kelly, Centerville
O. A. Koontz, Centerville
Liberty Coal Co., Mystic
Little Walnut Coal Co., Mystic
Allen Long Coal Co., Centerville
W. W. Lowe, Brazil
Maddalozzi Coal Co., Mystic
McConville Coal Co., Centerville
Monitor Coal Co., Centerville
Mystic Coal Co., Mystic
New Oriental Coal & Mining Co., Centerville
New Phoenix Coal Co., Brazil
North Hill Coal Co., Centerville
Numa Coal Co., Numa
Peacock Coal Co., Brazil
Prospect Coal Co., Exline
Raney Coal Co., R.R. 2, Centerville
Rathbun Coal Co., Rathbun
Rock Valley Coal Co., Centerville
Rosebrook Coal Co., Centerville
Ryals-Yagzy Coal Co., Des Moines
E. Scritchfield, Cincinnati
Service Coal Co., Mystic
Sleeth Coal Co., Coal City
South Side Coal Co., Centerville
Sunshine Coal Co., Mystic
Star Coal Co., Centerville
Swanson Coal Co., Centerville, R.R. 2
Thistle Coal Co., Centerville
J. A. Truby, Mystic
Wakefield Coal Co., Brazil
White Oak Coal Co., Exline
Winifred Coal Co., Mystic

Boone County
Boone Coal Co., Boone
S. O. Currier Coal Co., Pilot Mound
W. D. Johnson Coal Co., Boone
Madrid Coal Co., Equitable Bldg., Des Moines
Richard May Coal Co., Lehigh
Ogden Coal Co., Boone
Chas. Otis Coal Co., Boone
Scandia Coal Co., 606 Grand Ave., Des Moines

Dallas County
Dallas Coal Co., Liberty Bldg., Des Moines
Dallas Products Co., Madrid
Norwood-White Coal Co., 408 6th Ave., Des Moines
Radiant Coal Mining Co., 907 So. Surety Bldg., Des Moines
Scandia Coal Co., 606 Grand Ave., Des Moines
Shuler Coal Co., 802 So. Surety Bldg., Des Moines

Davis County
Henderson and Goodwin Coal Co., Floris
Lunsford Bros. Coal Co., Bloomfield

Greene County
Buckeye Coal Co., Rippey
Keystone Coal Co., Rippey
Riverside Coal Co., Rippey

Guthrie County
J. E. Lewis Coal Co., Yale
Love Coal Co., Panora
Mallon Coal Co., Guthrie Center
John Mansell Coal Co., Guthrie Center
W. H. Scott, Guthrie Center, R. R. 5
H. M. Sipe Coal Co., Guthrie Center

Jasper County
Colfax Consolidated Coal Co., Colfax
Jeffreys & Binder Coal Co., Newton
McKeevers Coal Co., Colfax
T. J. Morris Coal Co., Colfax
D. E. Norris Coal Co., Prairie City
Prairie City Coal Co., Prairie City
Howard Sheeter Coal Co., Monroe

Sunny Brook Coal Co., Colfax
William White Coal Co., Prairie City

Jefferson County
R. B. Cross, Birmingham, R.R. 2
C. S. Henness, Fairfield

Keokuk County
Big Four Coal Co., What Cheer
Carson Bros., What Cheer
Newcomb Bros. Coal Co., What Cheer
O. W. Olive Coal Co., Delta

Lucas County
Central Iowa Fuel Co., 1219 So. Surety Bldg., Des Moines
Lucas Coal Co., Lucas

Mahaska County
Adams Coal Co., Oskaloosa
Adey & Leibris, Givin
Chas. Ahrweiler, Oskaloosa
Rosser Davis Coal Co., Beacon
Dixon Coal Co., Oskaloosa
Edwards Bros. Coal Co., Beacon
A. M. Ellis Coal Co., Givin
Evans & Hasselman Coal Co., Eddyville
Equality Coal Co., Albia
Frehn and Cons Coal Co., Oskaloosa
R. H. Furnald Coal Co., Oskaloosa
Steve Gasper & Steve Gergley, Lakonta
Givin Coal Co., Givin
Hynick Coal Co., Givin, R.R. 1
Jones & Mathis Coal Co., Givin
Lanning Coal Co., Oskaloosa
Lee Coal Co., What Cheer
Thomas Lewis, Givin
Matrison & Morris, Oskaloosa
Nelson Bros., Oskaloosa
O'Brien & Allen, Beacon
Roberts Bros. Coal Co., Oskaloosa
Snook & Sons Coal Co., Oskaloosa
Swanson & Hohn Coal Co., Oskaloosa
Sweitzer Coal Co., Eddyville
O. R. Thompson Coal Co., Givin, R.F.D.
White Bros., Rose Hill
Williams Coal Co., New Sharon
Woodward & Boggs Coal Co., Oskaloosa

Marion County
Perry Brown Coal Co., Knoxville
Geo. L. Burt Coal Co., Knoxville
Consolidated Ind. Coal Co., 139 West Van Buren St., Chicago, Illinois
Dunreath Coal Co., Des Moines
Chas. Fortner Coal Co., Flagler
Gold Goose Coal & Mining Co., Albia
Hayes Bros. Coal Co., Knoxville
Holland Coal Co., Des Moines
Horse Shoe Coal Co., Bussey
C. C. Kendall Coal Co., Marysville
Knox Coal Co., Knoxville
Walter McElrea, Dallas
McKenzie Bros. & Cook Coal Co., Harvey
Miller Coal Co., Knoxville
Mulkey & Thomas, Knoxville
Pershing Coal Co., 6th Fl. Ins. Exch. Bldg., Des Moines
Red Rock Coal Co., Des Moines
Success Coal Co., Otley
Vanceunebrak Bros. Coal Co., Knoxville
Vernon Coal Co., Dallas

Monroe County
Air Line Coal Co., Albia
Albia Coal Co., Ottumwa
Central Coal Co., Oskaloosa
Lockman Coal & Mining Co., Lockman
DeRoss Coal & Mining Co., Albia
Graham Coal Co., Avery
Hocking Coal Co., Hocking
Lovilia Coal Co., Lovilia
Maple Coal Co., 803 So. Surety Bldg., Des Moines
Smoky Hollow Coal Co., Albia
Superior Coal Co., Gillespie, Ill.

Page County
Evans Coal Co., Clarinda
Pearson Coal Co., Clarinda

Polk County
Acme Coal Mining Co., Des Moines
Adelphi Coal & Mining Co., 2300 East 24th St., Des Moines, Iowa
Beck Coal & Mining Co., 507 6th Ave., Des Moines
Bennett Bros. Coal Co., 427 Grand Ave., Des Moines
Bloomfield Coal & Mining Co., 513 E. Grand Ave., Des Moines
Clover Leaf Coal Co., Des Moines
Commerce Coal Co., Commerce
Des Moines Coal Co., 910 Grand Ave., Des Moines
Des Moines Ice & Fuel Co., 100 Maple St., Des Moines
Diamond Joe Coal Co., Runnells
Eagle Fuel Co., 716 Grand Ave., Des Moines
Economy Coal Co., 418 Hubbell Bldg., Des Moines
Flint Brick & Coal Co., 411 8th St., Des Moines
Independent Coal Co., Des Moines
Moore Coal Co., Des Moines
Norwood-White Coal Co., 408 6th Ave., Des Moines
Saylor Coal Co., 606 Grand Ave., Des Moines, Iowa
Urbandale Coal Co., 804 11th St., Des Moines

Story County
Summit Coal Co., Ames, Iowa

Taylor County
Bean Coal Co., New Market
New Market Coal Co., New Market
Richardson Coal Co., Gravity

Van Buren County
J. Daniels & Sons, Douds
Hugh Findlay Coal Co., Douds

James Tweedy Coal Co., Mount Zion
J. H. Logan, Mount Zion

Wapello County

Charles Akers Coal Co., Ottumwa
Best Coal Co., Ottumwa, R.F.D.
Brooke Coal Co., Ottumwa, R.F.D.
R. E. Cooper, Ottumwa
J. W. Dawson Coal Co., Kirksville
W. O. Donaldson Coal Co., Ottumwa
Arthur Gardner Coal Co., Ottumwa
Genochio & Peterson Coal Co., Ottumwa
Gibbs Bros. Coal Co., R.F.D., Ottumwa
Glendale Coal Co., 1317 Castle St., Ottumwa
Glenn Bros. Coal Co., R.F.D., Ottumwa
Hartwig Bros. Coal Co., Eldon
Haseltine Coal Co., Ottumwa
Jones & Rowley, Blakesburg, R.R. 3.
Louis Kellar Coal Co., Eldon
Lone Star Coal Co., Eldon
Mat Mier Coal Co., 914 E. 4th St., Ottumwa
Mier Coal Co., R.R. 8, Ottumwa
Mohohan Coal Co., Ottumwa
Richard Reese Coal Co., Ottumwa
Rutledge Coal Co., R.R. 3, Ottumwa
George Simmer Coal Co., Ottumwa
Simpson Bros. & Howard, Ottumwa
Union Coal Co., Ottumwa

Warren County

Des Moines Ice & Fuel Co., 100 Maple St., Des Moines
Great Western Coal Co., 201 Equitable Bldg., Des Moines
Indian Valley Gloss Coal Co., 606 Observatory Bldg., Des Moines

Wayne County

L. E. Bennett, R.R. 2, Promise City
Peter Ripper, Harvard
Rissler & Yocum, Promise City
Seymour Coal Co., Seymour
Violet Valley Coal Co., Seymour

Webster County

Geo. Marcy Coal Co., Lehigh

GYPSUM

The gypsum industry in Iowa showed a gratifying advance during 1925 and maintained the record it has held for several years—of increasing its production over that of each preceding year. This increased production was shared by all but one of the operating concerns and it was spread over practically every phase of the industry, from the quantity mined to the quantities and values of the various finished products. The following table gives data for the past two years and shows the growing output from Iowa mills.

Production of Gypsum in 1924 and 1925

	1924		1925	
	tons	*value*	*tons*	*value*
Crude gypsum mined	727,385		800,167	
Sold crude—to cement mills	149,972	$ 371,331	134,200	$ 330,001
For agricultural and other uses	1,236	8,098	6,251	51,585
Total sold crude	151,208	379,429	140,451	381,584
Sold calcined—as stucco	68.280	459,044	21,329	137,903
as neat plaster	313,521	2,451,273	380,124	2,918,414
as sanded plaster, etc.	1,230	11,031	25,837	185,313
as plaster of Paris	5,503	55,626	3,192	37,503
as dental plaster, Keene's cement, plate glass works	3,660	31,770	4,031	33,221
as plaster board, wall board	55,486	1,719,322	71,754	2,332,141
as partition and other tile	42,065	549,844	50,835	529,581
for insulating, fire proofing, other purposes			5,108	178,611
Total sold calcined	489,745	5,277,910	562,210	6,352,687
Total sold	640,953	$5,657,339	702,661	6,734,271

The table shows that there was an increase of 72,782 tons in the crude gypsum raised and that while the amount sold as cement retarder was less in 1925 the amount used as land plaster was larger as was that used raw for other purposes, so that the value of the raw material sold was $2,155 more in 1925 than in 1924. The total amount of wall plaster sold in 1925 was 427,280 tons, valued at $3,241,630. This exceeded the sales of the previous year by 44,249 tons and $320,288. The total output in 1925 was larger than that of 1924 by 61,608 tons and the increased value amounted to $1,076,932.

One item of interest in the industry was the sale by the Centerville Gypsum Company of anhydrite, the form of gypsum which has no water of crystallization, for poultry grits. Some parts of the Centerville deposit contain a good deal of anhydrite and as this can not be used in making plasters its use as grits and for similar purposes represents a distinct saving.

Iowa continued to hold second rank in the gypsum industry in 1925, New York having a long lead and Ohio coming in a close third. In 1924 Michigan's total output exceeded that of Iowa by $293,483, but in the next year Iowa outstripped Michigan by $1,286,977. The following table shows the production of the leading states.

Production of Gypsum in the United States in 1925

	Plants	Mined	Sold crude		Sold calcined		Total value
		Tons	*Tons*	*Value*	*Tons*	*Value*	
Iowa	7	800,167	140,451	$381,584	562,210	$6,352,687	$6,734,271
Kansas	3	166,952	52,869	126,886	87,656	882,624	1,009,510
Michigan	5	649,053	155,961	391,093	477,076	5,056,201	5,447,294
Nevada	6	350,130	31,471	57,073	259,693	1,664,736	1,721,809
New York	10	1,730,254	354,394	1,017,403	1,193,520	15,518,836	16,536,239
Ohio	3	551,479	11,423	32,818	540,504	6,361,314	6,394,132
Oklahoma	4	320,931	*	*	*	*	2,599,463
Texas	6	558,132	*	*	*	*	3,721,954
Others(1)	18	551,204	267,566	816,372	984,076	9,233,946	3,728,901
	62	5,678,302	1,014,135	2,823,229	4,104,735	45,070,344	47,893,573

The Hawkeye Gypsum Products Company of Fort Dodge began mining and shipping crude gypsum during 1925. Otherwise the list of producers remained as it has been for some years.

* Included with others.

(1) Includes also Arizona, California, Colorado, Montana, New Mexico, Oregon, South Dakota, Utah, Virginia, Washington and Wyoming.

Centerville Gypsum Co., Centerville
Beaver Products Co., Fort Dodge; office Buffalo, N. Y.
Universal Gypsum Co., Fort Dodge, two plants; office 1153 Conway Bldg., Chicago
Hawkeye Gypsum Products Co., Fort Dodge
Wasem Plaster Co., Warden Apts., Fort Dodge
Cardiff Gypsum Plaster Co., 903 Central Ave., Fort Dodge
United States Gypsum Co., Fort Dodge; office 205 West Monroe St., Chicago

LIMESTONE AND LIME

The limestone industry not only recovered from the decline of the past few years but exceeded in its output that of any year since 1912. The output of stone and lime for that year had the highest value of that for any year of which the Survey has any record, $998,236. The amount and value of production during the past ten years are shown in the following table.

Stone and lime production in Iowa, 1916 to 1925

Year	*tons*	*value*	Year	*tons*	*value*
1916		$610,534	1921	423,279	$563,427
1917	709,956	580,750	1922	627,443	719,203
1918	451,840	444,800	1923	611,876	775,134
1919	519,030	567,356	1924	610,408	739,632
1920	620,665	840,544	1925	808,288	904,669

The lime burning industry shared in the growth shown by the quarrying trade, as its output was larger in both tonnage and value than that of the year before.

The table given below shows the production of the various counties during 1925 and a comparison of the totals for 1924. Scott county was well in the lead, Marshall was second, Dubuque held third place and Black Hawk ranked fourth. As the table shows much the greater part of the output was crushed for road and concrete work.

Limestone and lime production in 1925

Counties	Producers	Building, Rubble, riprap[a]		Concrete, road metal		Other uses[b]		Total	
		tons	*value*	*tons*	*value*	*tons*	*value*	*tons*	*value*
Allamakee (1), Clayton (1), Mitchell (1)	3	17,180	$26,100	with "Building, etc."		with "Building, etc."		17,015	$26,100
Black Hawk (2), Cerro Gordo (1)	3	.....		73,891	$87,552	with "Concrete, etc."		73,891	87,552
Dubuque	5	37,710	41,222	41,625	86,259	with "Concrete, etc."		79,335	127,481
Hardin (1), Marshall (2)	3	with "Concrete, etc."		182,279	194,177	36,669	$23,367	218,948	217,544
Clinton (1), Jackson (1), Johnson (1), Linn (1)	4	with "Concrete, etc."		40,789	58,168	14,012	21,218	54,801	79,386
Jones	3	8,789	9,838	4,042	3,944	1,925	1,472	14,756	15,254
Lee	3	with "Concrete, etc."		35,559	47,191	with "Concrete, etc."		35,559	47,191
Scott	3	4,193	5,028	265,190	254,619	44,601	44,512	313,984	304,161
Totals	27	57,923	68,176	547,674	674,903	152,692	161,590	808,288	904,669
Production in 1924	33	49,820	63,938	434,460	533,500	126,128	142,194	610,408	739,632

a Includes: building, etc., 5,933 tons, value $7,983; rubble, 2,862 tons, value $4,166; riprap, 49,128 tons, value $56,027.
b Includes: railroad ballast and other uses, 38,020 tons, value $30,094; flux, 12,517 tons, value $16,335; sugar factories and lime, 9,148 tons, value $43,439; agriculture, 93,007 tons, value $71,722.

Figures for the United States show that the quantity of limestone sold or used by producers in 1925 was 13 per cent more than in 1924. The amount used for liming land was 44 per cent greater than the year before. Sales of lime were 12 per cent greater in quantity and 8 per cent greater in value in 1925 over 1924. Iowa ranked nineteenth in production of limestone. The following table shows the production for 1924 and 1925.

Use	1924		1925	
	tons	*value*	*tons*	*value*
Building	1,097,530	$15,805,680	1,204,550	$16,092,079
Curbing, etc.	5,560	78,264	11,730	98,587
Rubble	392,180	623,844	324,630	513,387
Riprap	1,695,280	1,513,443	1,847,330	1,406,714
Crushed	46,446,680	47,594,437	51,337,840	52,446,110
Flux	19,683,150	15,827,464	22,840,500	17,318,366
Sugar factories	618,230	1,055,505	471,580	796,974
Glass factories	177,260	286,164	324,160	412,832
Paper mills	138,280	236,834	109,730	198,691
Agriculture	1,352,600	2,046,860	1,954,480	2,880,589
Other	4,287,680	4,800,461	5,222,910	5,843,699
	75,895,430	89,868,956	85,649,440	98,008,028
Portland cement	37,727,000		40,720,100	
Natural cement	236,000		292,000	
Lime	8,144,000		9,100,000	
	122,001,430		135,761,440	

The following list gives the Iowa operators of limestone quarries. Lime producers are indicated in the list.

Allamakee County
- John Sampson, Postville
- Wilkes Williams, R.F.D. No. 1, Postville

Black Hawk County
- Hawkeye Quarries Co., La Porte City; office at Cedar Rapids
- A. Bartlett, 1165 E. Fourth St., Waterloo

Bremer County
- Waverly Stone & Gravel Co., office at Fowler Bldg., Waterloo

Cerro Gordo County
- Henry Kuppinger, Mason City
- Ideal Sand & Gravel Co., Mason City
- Quinby Stone Co., 24 13th St. N. E., Mason City

Clayton County
- Marquette Stone Products Co., McGregor

Clinton County
- Alden Lime Co., Clinton
- C. T. Hanrahan, Charlotte
- Carl Jensen, Charlotte

Dubuque County
- Wm. Becker, 1333 Kaufman Ave., Dubuque
- H. L. Dehner, Cascade
- Fred W. Faldorf, 1155 Grand View Ave., Dubuque
- Dubuque Stone Products Co., Dubuque, also lime
- Grassel & Sons, Dubuque
- Mulgrew & Sons Co., Dubuque
- Ulrich-Paley Co., Dubuque
- Thos. R. Welsh, 202 W. Locust St., Dubuque
- B. N. Arquitt, Farley

Hardin County
- Iowa Limestone Co., Alden; office 907 Bankers Trust Bldg., Des Moines

Howard County
Cresco Stone & Concrete Co., Cresco
Jackson County
A. A. Hurst, Hurstville; office at Maquoketa; also lime
Johnson County
River Products Co., Coralville; office at 218 Johnson County Bank Bldg., Iowa City
Jones County
The Reformatory, Anamosa
Geo. B. Shaler, Stone City
H. Dearborn's Sons, Stone City
Keokuk County
Russell B. Royce, Sigourney
Lee County
McManus Quarries Co., Inc., Ballinger Sta.; office at Box 93, Keokuk
Keokuk Quarry & Construction Co., 1325 Main St., Keokuk
Burlington Quarry Co., Montrose; office at 17 S. Seventh St., Keokuk
Linn County
Ellis Park Stone Co., Cedar Rapids
J. E. Colton, Mount Vernon
Madison County
Peru Stone & Cement Co., Peru; office at 308 West 5th Street, Des Moines
Marshall County
Le Grand Stone Co., Le Grand
County Engineer, Marshalltown
Mitchell County
Belzer & Brenden, Osage
Osage Stone Co. (H. L. Wilson), Osage
Pocahontas County
Gilmore Portland Cement Corp., Gilmore City. Sold to N. W. States Portland Cement Co., Mason City
Scott County
Otto Thompson, Bettendorf Stone Co., Bettendorf; office at 820 Kirkwood Blvd., Davenport
Dolese Bros. Co., Buffalo; office at 337 W. Madison St., Chicago, Ill.
Linwood Cement Co., 713 Kahl Bldg., Davenport

SAND AND GRAVEL

The sand and gravel trade improved somewhat from the conditions prevailing in 1924 although it was not up to the state of the industry in 1923. The output for that year was 3,597,100 tons with value of $2,181,881, probably the largest, in both tonnage and value, in the history of the state. The following table shows the various purposes for which sand and gravel were used in 1924 and 1925.

Summary of sand and gravel production

Kind of material	1924		1925	
	tons	*value*	*tons*	*value*
Sand:				
Molding	22,397	$ 24,209	33,418	$ 36,134
Building	653,031	317,068	636,534	321,190
Paving	575,835	234,966	882,368	245,900
Grinding and polishing	with	filter sand	19,324	28,223
Engine	47,607	24,661	40,350	24,715
Filter	15,681	32,922	6,249	7,127
Other	10,879	3,954	51,255	24,970
Total sand	1,325,430	637,780	1,669,498	688,259
Gravel:				
Building	311,558	289,584	381,496	342,653
Paving	563,776	483,003	939,102	426,781
Railroad	226,862	62,699	307,689	89,207
Total gravel	1,102,196	835,286	1,628,287	858,641
Total production	2,427,626	1,473,066	3,297,785	1,546,900

An inspection of data of past production shows that there has not been a great change in the amount of sand and gravel sold during each year of the past decade although previous to that time the output was much less than at present. The sales during 1916 were greater than during any other year except 1923, but the amount received was less than that of any year since except 1918. Current prices at the pits seem to have fluctuated more than tonnages. The following table gives the output of each year since 1916.

Output of sand and gravel 1916 to 1925

Year	tons	value	Year	tons	value
1916	3,321,691	$980,272	1921	2,641,982	$1,726,958
1917	2,909,441	1,060,586	1922	2,690,798	1,752,233
1918	2,004,444	904,307	1923	3,597,160	2,181,881
1919	2,093,471	1,383,764	1924	2,427,626	1,473,066
1920	2,467,644	1,993,441	1925	3,297,785	1,546,900

Polk county was the leader in production, as regards both tonnage and value, Muscatine ranked second and Cerro Gordo, Cherokee, Linn, Sac, Clayton, Wapello, Hardin and Clinton followed in order. Each of these produced material worth more than $35,000 and their combined output was 1,565,269 tons with a value of $971,658. Clayton county had the unique distinction of getting over a dollar a ton for her product as it was all sold for the finer uses—molding, polishing, etc. The other extreme was held by Palo Alto county, whose product was valued at only eighteen cents a ton. It was all railroad ballast, produced by the railway company for its own use.

The following table gives, so far as may be shown, the production of the different counties. When studied with the list of producers it will show the various kinds of material derived from each county.

Counties	No. Producers	Building sand		Paving sand		Other sand		Gravel		Total	
		tons	*value*	*tons*	*value*	*tons*	*value*	*tons*	*value*	*tons*	*value*
Black Hawk	3	32,515	$20,930			*a*		*a*		32,515	$20,930
Boone (1), Story (2)	3	*b*				*b*		51,484	$14,166	51,484	14,166
Butler (2), Cerro Gordo (2)	4	105,100	37,850	*a*		*a*		88,700	71,895	193,800	109,745
Cherokee	3		*b*					209,799	82,465	209,799	82,465
Clay (2), Dickinson (1), Palo Alto (1)	4	6,117	2,441			*a*		64,747	12,178	70,864	14,619
Clayton (2), Dubuque (2), Fayette (1)	5	35,255	11,916	*c*		63,707	$49,429	39,050	21,403	138,012	37,053
Clinton	5	12,250	10,265					28,978	26,788	41,228	82,748
Dallas (2), Fremont (1)	3	20,990	12,280	*a*		*a*		*a*		20,990	12,280
Des Moines (1), Lee (2)	3	15,563	8,041	*b*		*b*		21,000	20,300	36,563	28,341
Floyd (1), Franklin (1), Tama (1)	3	14,469	12,925					*a*		14,469	12,925
Hardin (2), Marshall (2)	4	*d*		76,912	$33,139	*d*		66,773	35,757	143,685	68,896
Humboldt (1), Kossuth (1), Webster (1), Wright (2)	5	28,309	12,644			*a*		53,508	25,770	81,817	38,384
Ida (1), Sac (3)	4	20,713	10,469	*a*				86,863	51,403	107,576	61,872
Jackson (1), Scott (2)	3	23,348	15,530	*b*				53,813	32,066	77,161	47,596
Johnson	3	23,510	14,120					*a*		23,510	14,120
Linn	4	125,553	74,312					*a*		125,553	74,312
Lyon (1), Plymouth (2)	3	40,078	17,235	*a*				27,727	16,651	67,805	33,886
Mahaska (1), Marion (1), Wapello (1)	3	*d*		68,129	38,383	*d*		27,591	25,485	95,720	63,868
Muscatine	5	43,421	31,533	52,386	11,046	34,606	46,514	104,265	86,179	234,678	175,272
Polk	9	142,082	55,769	105,930	36,653	8,195	3,638	208,399	201,670	464,606	307,730
Sioux	6	15,703	4,508					14,030	9,154	29,733	13,662
Winneshiek	3	*d*		6,143	3,666			*d*		6,143	3,666
Pits operated by Hwy. Comm.				500,000	100,000			500,000	100,000	1,000,000	200,000
Totals	88	636,534	321,190	882,368	245,900	150,596	101,169	1,628,287	858,641	3,297,785	1,546,900

a Included with Building sand. *b* Included with Gravel. *c* Included with Other sand. *d* Included with Paving sand.

The list given below shows the active producers of sand and gravel in the state and the kinds of material each produced in 1925 according to the following schedule: 1, molding; 2, building; 3, grinding and polishing; 4, fire or furnace; 5, engine; 6, paving; 7, filter; 8, other sands; 9, building gravel; 10, paving gravel; 11, railroad ballast.

Black Hawk County
Iowa Sand & Gravel Corp., 908 L. & J. Bldg., Waterloo. 2, 3, 5, 9
Iowa Foundry Sand Co., Waterloo. 1
Waterloo Dredging Co., Waterloo. 2
Boone County
McHose Sand & Tile Co., Frazer; office at Boone. 2, 5, 9
Northwestern Gravel Co., office at Des Moines
Bremer County
H. S. Bunth, Waverly
Buena Vista County
Chicago & North Western Ry. Co., Sioux Rapids
Butler County
Aplington Cement Tile & Block Works, Chas. Willeke, Aplington. 2
Waverly Gravel & Tile Co., Shellrock; office at Waverly. 2, 6, 9, 10
Carroll County
Chicago Great Western R. R. Co., Lanesboro
Cerro Gordo County
Clear Lake Sand & Gravel Co., Clear Lake. 2, 9
Ideal Sand & Gravel Co., Mason City. 2, 5, 6, 8, 9, 10, 11
Chicago, Milwaukee & St. Paul Ry. Co., Plymouth; office at Chicago, Ill.
Cherokee County
M. J. Gillease Co., Cherokee
E. L. Halford & Son, Cherokee. 9
Illinois Central Ry. Co., Cherokee. 11
Northwestern Gravel Co., Quimby, office Royal Union Life Bldg., Des Moines. 2, 9
Clay County
John Stolley, Spencer. 2, 9, 10
Spencer Washed Sand & Gravel Co., Spencer. 2, 7, 9
Clayton County
Clayton White Sand Co., Clayton. 4
Langworthy Silica Co., Clayton; office at 902 Federal Bank Bldg., Dubuque. 1, 3, 4, 5
Clinton County
Clinton Sand & Gravel Co., 604 Wilson Bldg., Clinton. 2, 9
Schneider Sand & Gravel Co., Clinton. 2, 9
Jenner Bros., DeWitt; office at 320 First Nat. Bank Bldg., Davenport. 10
A. F. Barber, R. D. No. 2, Grand Mound. 9, 10
Hopkins & Chaffee, Clinton. 2
Dallas County
Portland Cement Sand & Gravel Co., Booneville, office at 513 Youngerman Bldg., Des Moines. 2, 5, 6, 7, 9, 10
Coon River Sand Co., office at 501 Hubbell Bldg., Des Moines. 8, 10
Des Moines County
Kelley Sand & Fuel Co., Burlington (R. J. Dietlein). 2, 6, 9, 10
Dickinson County
Chicago, Milwaukee & St. Paul Ry. Co., Milford. 8
Dubuque County
Frank Beutin, Garfield-Kniest Sts., Dubuque. 2, 5, 6, 9, 10
Chicago, Milwaukee & St. Paul Ry. Co., Dubuque
Molo Sand & Gravel Co., Dubuque. 2, 6, 9, 10
Fayette County
Clermont Brick & Sand Co., Clermont. 2, 10
Floyd County
Iowa Foundry Sand Co., Floyd. 1
Chicago, Rock Island & Pacific Ry. Co., Marble Rock
Franklin County
W. C. Nolte, Sheffield. 2
Fremont County
Nebraska-Iowa Sand & Gravel Co., Crosby; office at Nebraska City, Nebr. 2
Hardin County
Chicago & North Western Ry. Co., Gifford
Northwestern Gravel Co., Gifford, office at Des Moines. 2, 6, 9, 10
Eldora Sand Co., Steamboat Rock; office at Eldora. 8
Humboldt County
Humboldt Gravel & Tile Co., Humboldt. 2, 7, 8, 9, 11
Ida County
Smith Bros., Ida Grove. 2
Jackson County
F. H. C. Habich, Bellevue; office at Galena, Ill.

Bellevue Sand & Gravel Co., Bellevue; office at Koss Construction Co., 5th & I. U. Ry. Tracks, Des Moines. 2, 6, 9, 10
Chicago, Milwaukee & St. Paul Ry. Co., Smiths

Johnson County
Hills Sand & Gravel Co., Hills. 2, 9
City Sand Co., N. Madison St., Iowa City. 2, 9
E. D. Porter, River Junction. 2

Jones County
Chicago, Milwaukee & St. Paul Ry. Co., Monticello

Kossuth County
C. J. Lenander, Bancroft, office at 918 Andrews Bldg., Minneapolis. 10

Lee County
Jos. Jaeger, Fort Madison; office at Montrose. 2, 5
Keokuk Sand Co., foot of Bank St., Keokuk. 2

Linn County
Kings Crown Plaster Co., 98 First Ave. W., Cedar Rapids. 2
Larimer & Shaffer, 931 North 1st St. W., Cedar Rapids. 2
John Hoge, Springville. 2, 10
Mrs. Rozella Corbett, Viola. 10

Lyon County
Miller Sand & Gravel Co., Box 101, Doon. 2, 9
Chicago, Rock Island & Pacific Ry. Co., Granite

Mahaska County
Iowa Sand & Gravel Co., Tracey; office at Oskaloosa. 2, 6, 9, 10

Marion County
Harvey Sand & Gravel Co., Harvey. 9, 10

Marshall County
Empire Sand & Material Co., Marietta; office at Lock Box 467, Marshalltown. 2, 6, 9
Hawkins Sand Co., 1110 N. 3rd Ave., Marshalltown. 6, 10

Muscatine County
Chicago, Rock Island & Pacific Ry. Co., Fruitland
Automatic Gravel Products Co., Box 34, Muscatine. 2, 3, 5, 6, 7, 8, 9, 10, 11
The Hahn Muscatine Co., 301-302 Amer. Bank Bldg., Muscatine. 2, 6, 9, 10
Sand & Gravel Products Co., Muscatine. 2, 9
Northern Gravel Co., Muscatine. 2, 3, 5, 7, 8, 9
Pearl City Gravel Co., Ed. L. Hahn, Muscatine. 2, 6, 9, 10

Palo Alto County
Chicago, Rock Island & Pacific Ry. Co., Graettinger. 11

Plymouth County
Big Sioux Gravel Co., Akron. 2, 6, 9, 10
Albert A. Wenzel, Pierson; office at Kingsley. 9
J. J. Kemp, Oyens

Polk County
Chicago, Rock Island & Pacific Ry. Co., Avon and Commerce
Commerce Sand & Gravel Co., G. N. Doty, Pres., Commerce. 2, 9
Capital City Sand Co., Lovington; office at 308 W. Fifth St., Des Moines. 2, 5, 6
Consumers Ice Co., 8th & N. Y. Ave., Des Moines. 6, 8
Coon River Sand Co., 308 9th St., Des Moines. 2, 9
The Des Moines Sand & Fuel Co., 510 Grand Ave., Des Moines. 2, 5, 6, 9, 10
Independent Sand & Gravel Co., S. W. 7th & Tuttle Sts., Des Moines. 2, 6, 9, 10
Flint Crushed Gravel Co., Herrold; office at Des Moines. 6, 10, 11
Commercial Sand Co., 513 Youngerman Bldg., Des Moines. 2, 5, 6, 7, 9, 10
Hawkeye Sand & Gravel Co., 906 Walnut St., Des Moines. 2

Sac County
Chicago & North Western Ry. Co., Lake View
Northwestern Gravel Co., Lake View. 2, 6, 9, 10
Sac County, Office of Engr., Sac City. 10

Scott County
W. G. Block Co., Box 528, Davenport. 2
Builders Sand & Gravel Co., Nahant. 2, 6

Sioux County
D. A. Sorgdrager, R. D. No. 1, Alton. 2.
Alton Cement Works, Alton. 9
French & Briggs, Hawarden. 9
C. A. Oehlerking, Hawarden. 10
Schemmer Sand & Gravel Co., Rock Valley. 2, 10
Rock Valley Sand & Gravel Co., Rock Valley. 2, 9

Story County
Ames Sand & Gravel Co., Ames. 9, 10
Bates & Sarsfield, Nevada. 10

Tama County
Tama Sand Co., Tama. 10

Wapello County
Ottumwa Sand Co., Ottumwa. 1, 2, 5, 6, 9, 10
Webster County
Johnston Bros., Clay Works. 2, 9
Winneshiek County
Bernatz Bros., Decorah
Decorah Stone Products Co., R. Bucknell, Secy., Decorah. 6
Geo. Wm. Higgins, Decorah. 2
Wm. McNamara, Decorah. 2, 9
John T. Nolan, Decorah
J. H. Rosenthal, Decorah
Wright County
Belmond Cement Mfg. Co., Belmond
Luick Gravel Co., Belmond. 10
Chicago, Rock Island & Pacific Ry. Co., Belmond. 11
Chicago Great Western R. R. Co., Belmond

NATURAL GAS

Natural gas was recovered from a number of small shallow wells, most of which are in the northcentral part of the state. No accurate census of these wells has ever been made as all of them have been drilled by private persons and are used to supply individual families. The amount for which reports were made was 200,000 cubic feet with a value of $100, although doubtless several times this amount was actually consumed.