

**THE MINERAL INDUSTRY IN KANSAS
IN 1958**

**By
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ABSTRACT

In 1958, for the third consecutive year, the value of Kansas mineral production exceeded \$500,000,000. Minerals produced in the state were valued at \$514,234,445, or approximately \$19,859,000 less than in 1957, a decrease of 3.7 percent. Of this total, \$440,976,227 or 85.7 percent was derived from sale of mineral fuels and associated products, \$72,052,368 or 14 percent was contributed by the nonmetals excluding mineral fuels, and \$1,205,850 or 0.3 percent by the metals. Salt brine, cement, both natural and portland, coal, diatomaceous marl, LP gases, propane, sand and gravel, and stone were produced in greater quantity in 1958 than in the previous year, and the values of brine, carbon black, cement, coal, gypsum, marl, sand and gravel, stone, and vermiculite produced in 1958 were greater than those of the same minerals produced in 1957.

Only 3 of the 105 counties in Kansas reported no mineral production in 1958. Oil, gas, or both were produced in 78 counties, sand and gravel in at least 66 counties, and stone in 46 counties. In 1958, each of 54 counties produced minerals worth \$1,000,000 or more. As in 1957, Barton County, with a production value of \$35,293,535, continued to lead all others. Ellis County, with \$34,177,827, was second, and Russell County, with \$27,228,855 was third. Only seven of the counties producing \$1,000,000 or more in mineral wealth in 1958 produced mainly nonfuel minerals, and six of these are in eastern Kansas. The counties that produced the greatest dollar value of minerals are those in which oil is found, mainly western Kansas counties. Counties that exploited the most different minerals were Barber, Bourbon, Cherokee, Cowley, Reno, Sedgwick, and Wilson. Most important minerals produced per dollar value were oil, natural gas, cement, stone, clay and clay products, salt, sand and gravel, natural gasoline, carbon black, coal, propane, and butane. This report gives the production and value of all minerals produced in the state in 1958 and compares them with 1957, and it also includes directories of mineral producers on record as of December 31, 1958.

INTRODUCTION

For the third consecutive year, mineral production in Kansas in 1958 exceeded \$500,000,000. Total value of all minerals produced in the state in 1958 was \$514,234,445 or \$19,858,640 less than in 1957, a decrease of 3.7 percent. Since 1932 Kansas has ranked among the first 10 states in the value of mineral commodities produced annually. Within the state 22 minerals are produced commercially; 5 others are available but currently are not exploited, at least 6 others are known to occur but have not been studied sufficiently to determine their commercial possibilities; at least 2 minerals are processed into useful mineral commodities from raw materials shipped into the state from outside sources. Table 1 presents data on mineral production in Kansas for 1957 and 1958, together with the rank of each mineral with respect to the other minerals produced in the state.

TABLE 1.—Quantity and value of Kansas mineral production, by commodities, 1957 and 1958

Commodity	Unit	1957		1958		1958 Rank
		Quantity	Value	Quantity	Value	
Carbon black	Pound	76,419,500	\$ 5,131,589	75,443,750	\$ 5,261,142	9
Cement (masonry)	376-lb. bbl.	313,706	1,221,292	320,270	1,204,594	13
Cement (natural)	do	*	*	*	*	20
Cement (portland)	do	7,863,624	23,593,482	9,298,427	28,843,139	3
Clay (raw)	Short ton	908,693	1,239,789	875,441	1,144,983	14
Clay and clay products	do	754,439	10,000,000	830,329	10,500,000	5
Coal	do	754,439	3,470,419	830,329	3,818,042	10
Diatomaceous marl	do	*	*	*	*	24
Gypsum (crude)	do	*	*	*	*	17
Helium—shipments	Cu. ft.	36,743,000	569,517	27,888,000	432,264	19
Lead (recoverable content of ores)	Short ton	4,257	1,217,502	1,299	303,966	21
Natural gas	M cu. ft.	580,698,954	63,876,885	535,937,434	58,953,118	2
Natural gas liquids	do	1,004,614	2,461,304	993,269	1,539,567	12
Butane	42-gal. bbl.	2,820,738	7,108,260	2,690,607	6,007,402	8
Natural gasoline	do	296,131	728,428	404,027	626,242	18
LPG	do	1,202,764	2,958,799	1,363,436	2,113,326	11
Propane	do	*	*	*	*	23
Perlite ^a	Short ton	124,054,043	380,845,912	119,942,094	362,225,124	1
Petroleum (crude)	42-gal. bbl.	*	*	*	*	25
Pumicite (volcanic ash)	Short ton	*	*	*	*	16
Salt (brine)	do	1,018,027	10,353,119	887,924	9,827,759	6
Salt (common)	do	9,334,908	6,174,757	10,578,668	7,044,966	7
Sand and gravel	do	*	*	*	*	25
Sandstone (dimension)	do	10,411,500 ^c	11,926,238 ^c	12,505,060	15,039,385	4
Stone (limestone, sandstone, chat)	do	*	*	*	*	22
Vermiculite ^a	do	15,859	3,679,288	4,421	901,884	15
Zinc (recoverable content of ores, etc.)	do	15,859	1,300,691	4,421	2,056,660	15
* Undistributed	do	15,859	1,300,691	4,421	2,056,660	15
Total value			\$536,093,085 ^b		\$514,234,445 ^b	

^a Minerals processed but not mined in Kansas.^b Totals adjusted to eliminate duplication in the value of clays and stone.^c Excludes sandstone, value of which is included under "Undistributed."

* Quantity and value of individual commodities cannot be revealed.

Minerals are widely distributed in the state; oil, gas, or both were produced in 78 counties, two fewer than in the previous year; sand and gravel were produced in at least 66 counties instead of 70 as in 1957, and stone in 46 counties instead of 43 as in 1957. Coal is currently being mined in 7 eastern counties, Labette County having produced no coal in 1958. Salt and gypsum known to underlie at least 40 central and southwestern counties are currently being produced in only 6 counties. Another salt producing county, Barton, will be added to the list in 1959.

Of the 105 counties in Kansas, all but 3 (Greeley, Lane, and Mitchell) reported mineral production in 1958—the same as in 1957. In 1958, each of 54 counties, the same as in 1957, produced minerals worth \$1,000,000 or more. Barton County, which produced minerals valued at \$35,293,535 continued to lead. Ellis County (\$34,177,827) was second, as in the previous year. Russell County (\$27,228,855) again was third, and was followed by Butler County (\$23,599,473) and Graham County (\$20,698,863) in the \$20,000,000 to \$30,000,000 category. Counties each of which produced in 1958 mineral wealth valued between \$10,000,000 and \$20,000,000 were Greenwood, Rooks, Rice, Stafford, Grant, Cowley, Sedgwick, Barber, McPherson, Allen, Morton, Pratt, and Reno. Table 2 summarizes the range of value of the 1957 and 1958 mineral production per county.

The counties that produced the greatest dollar value of minerals (\$10,000,000 or more) are those in which oil is found. Most of these are western counties, but Allen, Butler, Cowley, and Greenwood, all eastern counties, are included. Seven of the 54 counties producing \$1,000,000 or more in mineral wealth in 1958 produced mainly nonfuel minerals, and 6 of these are eastern counties, Allen, Cherokee, Montgomery, Neosho, Wilson, and Wyandotte; Reno is the only western county. Elk County's min-

TABLE 2.—*Range of value of 1957 and 1958 mineral production per county*

Value of annual production, millions of dollars	Number of counties producing minerals valued in this range	
	1957	1958
40-50	1	0
30-40	1	2
20-30	4	3
10-20	12	13
1-10	36	36
0-1	48	48
no production	3	3

CHEYENNE	RAWLINS	DECATUR	NORTON	PHILLIPS	SMITH	JEWELL	REPUBLIC	WASHINGTON	MARSHALL	NEBRASKA	BROWN	
SG	O	O, SG	O, P	O, SG	SG	St, SG	SG	SG	Gp, SG, St	O, St, SG	SG	
SHERMAN	THOMAS	SHERIDAN	GRAHAM	ROOKS	OSBORNE	MITCHELL	CLOUD	CLAY	RILEY	POTTAWATOMIE	JACKSON	ATCHISON
SG, O	SG, O	O, SG	O, St, SG	O	O, SG, St	LINCOLN	OTTAWA	DICKINSON	GEARY	WABAUNSEE	SHAWNEE	JEFFERSON
						St, P, SG	SG	St, O, SG	SG	St, SG	St, SG	St, SG, Pe, Cl
WALLACE	LOGAN	GOVE	TREGO	ELLIS	RUSSELL	ELLSWORTH	SALINE	OSAGE	FRANKLIN	DOUGLAS	JOHNSON	SEYDOW
Dm, SG	SG	O, SG	O, SG	O, SG, St	O, SG	O, S, Cl, SG	O, SG	SG	O, St, G	St, Co	O, St, G	O, G, St, SG
GREELEY	WICHITA	SCOTT	NESS	RUSH	BARTON	RICE	MCPHERSON	MARION	CHASE	COFFEY	ANDERSON	LINN
	O	O	O	O, H, G, NG, LP	O, SG, Cl, G	O, S, St, O, G, SG	O, SG	O, St, G	O, St, SG	St, Co, O, St	O, St, Co, G	O, St, Co, G
HAMILTON	KEARNY	FINNEY	HODGEMAN	EDWARDS	STAFFORD	RENO	HARVEY	BUTLER	GREENWOOD	WOODSON	ALLEN	BOYD
G, O, SG	G, NG, O, SG, LP	G, O, NG, SG	O	O, G, SG	O, G, SG	S, O, G, SG, NG	O, SG, G	O, St	O, St	O, St, G, Cl, SG	O, St, G, Cl, SG	O, St, G, Cl, SG
STANTON	GRANT	HASKELL	GRAY	KIOWA	PRATT	KINGMAN	SEDGWICK	OWAY	ELK	WILSON	NEEDHAM	CRAWFORD
G, O	CB, NG, G, O, LP, SG, NG, SG	G, O, SG	SG, G, O	O, G	O, G, SG	O, G, NG, LP, SG	SG, B, V, LP, St	O, St, SG	St, O, G, SG	O, St, O, St, G, Cl, SG	O, St, O, St, G, Cl, SG	O, St, O, St, G, Cl, SG
MORTON	STEVENS	SEWARD	CLARK	COMANCHE	BARBER	HARPER	SUMNER	COWLEY	OWACHO	MONTGOMERY	LABETTE	CHEROKEE
G, O	G	G, NG, LP, O	O, G, SG	O, G, SG	G, Gp, NG, LP, SG	O, G, SG	O, SG	O, St, SG, G, NG, LP, O, St, SG, G	O, St, SG	O, St, O, St, G, Co, St, Zn, Pb, Cl, G	O, St, O, St, G, Co, St, Zn, Pb, Cl, G	O, St, O, St, G, Co, St, Zn, Pb, Cl, G

FIG. 1.—Map of Kansas showing mineral commodities produced in each county in 1958. Minerals are listed in order of value within counties. B—brine. C—cement. CB—carbon black. CL—clay. Co—coal. Dm—diatomaceous marl. G—natural gas. Gp—gypsum. H—helium. LP—liquefied petroleum gases. NC—natural cement. NG—natural gasoline. O—oil. P—pumicite or volcanic ash. Pb—lead. Pe—perlite. S—Salt. SG—sand and gravel. St—stone. V—vermiculite. Zn—zinc.

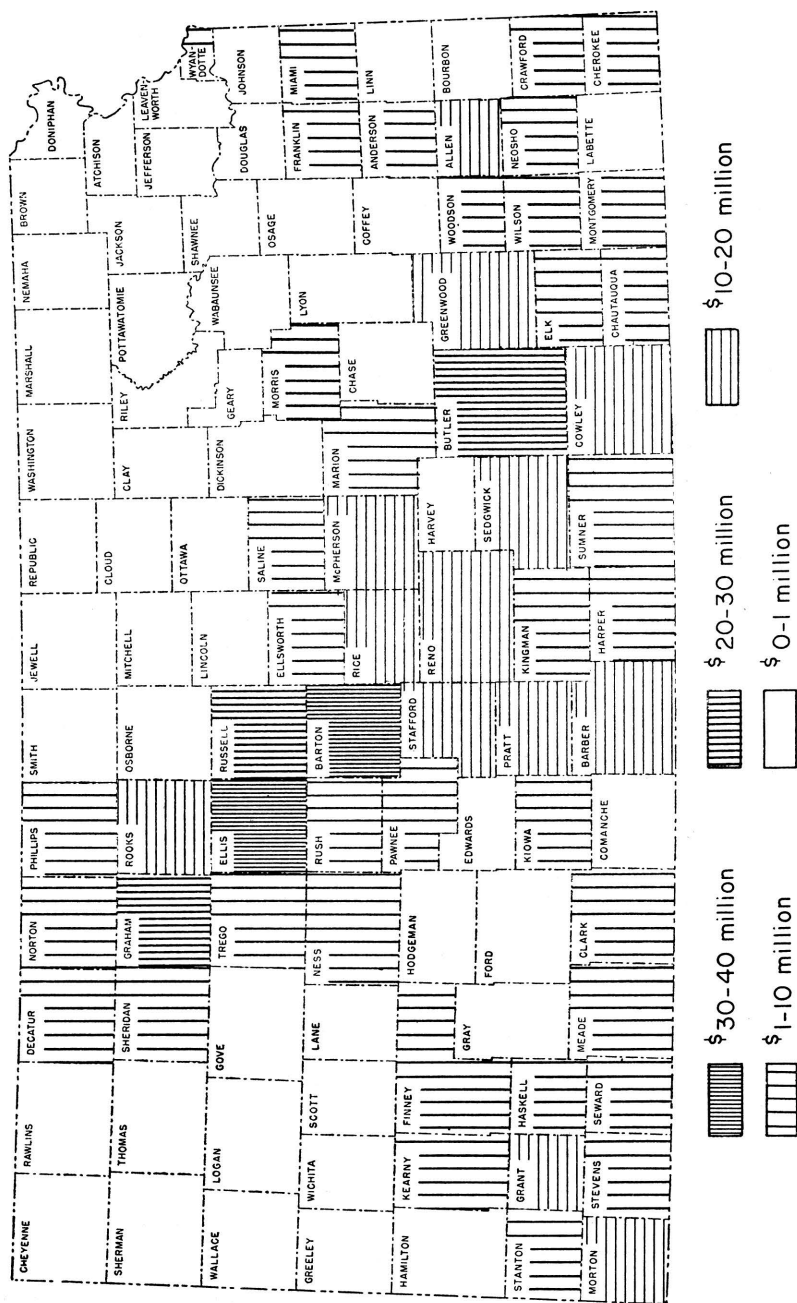


FIG. 2—Map of Kansas showing range of value of 1958 mineral production per county.

eral wealth is about equally divided between fuel and nonfuel minerals. Counties that exploited the most different minerals were Sedgwick (seven minerals) and Barber, Bourbon, Cherokee, Cowley, Reno, and Wilson (six each); of these only Cherokee produced no oil (Figure 1). A summary evaluation of mineral fuels and nonfuel minerals for Kansas counties in 1958 is presented in Table 3 and Figure 2.

TABLE 3.—*Value of mineral production in Kansas by counties in 1958*

County	Value of mineral production			Commodities ^b in order of decreasing value
	Fuels ^a	Nonfuels	Total	
Allen	\$ 2,922,076	\$ 9,163,134	\$ 12,085,210	C, O, St, Cl, G
Anderson	1,675,031	*	*	O, St
Atchison	....	428,196	428,196	St
Barber	11,823,636	*	*	O, G, Gp, NG, LP, SG
Barton	34,911,188	407,147	35,318,335	O, SG, Cl, G
Bourbon	106,648	800,893	907,541	St, NC, C, O, Co, G
Brown	....	2,000	2,000	SG
Butler	23,297,953	301,520	23,599,473	O, St
Chase	268,792	36,439	305,231	O, St, SG, G
Chautauqua	2,857,360	188,400	3,045,760	O, St, SG, G
Cherokee	2,434,512	1,623,725	4,058,237	Co, St, Zn, Pb, Cl, G
Cheyenne	....	53,238	53,238	SG
Clark	1,481,507	25,909	1,507,416	O, G, SG
Clay	67,005	125,274	192,279	St, O, SG
Cloud	....	413,768	413,768	SG, Cl
Coffey	384,458	63,182	447,640	O, St, Co, SG, G
Comanche	73,273	5,511	78,784	O, G, SG
Cowley	12,753,692	789,346	13,542,938	O, St, SG, G, NG, LP
Crawford	1,439,056	203,598	1,642,654	Co, St, Cl, O, G
Decatur	1,219,615	5,342	1,224,957	O, SG
Dickinson	299,243	498,970	798,213	St, O, SG
Doniphan	....	414,958	414,958	St
Douglas	24,870	*	*	SG, O
Edwards	942,388	*	*	O, G, SG
Elk	837,327	1,049,817	1,887,144	St, O, G, SG
Ellis	34,171,203	8,873	34,180,076	O, SG, St
Ellsworth	6,403,904	942,838	7,346,742	O, S, Cl, SG
Finney	5,541,257	90,648	5,631,905	G, O, NG, SG
Ford	38,294	234,437	272,731	SG, G, O
Franklin	850,260	214,678	1,064,938	O, Cl, St, Co
Geary	....	435,574	435,574	St, SG
Gove	57,084	28,298	85,382	O, SG
Graham	20,537,063	161,800	20,698,863	O, St, SG
Grant	17,824,280	5,900	17,830,180	G, CB, NG, LP, SG
Gray	....	*	*	SG
Greeley	....	....	....	....
Greenwood	19,529,491	80,280	19,609,771	O, St
Hamilton	485,164	21,975	507,139	G, O, SG
Harper	3,321,786	*	*	O, G, SG
Harvey	883,110	*	*	O, SG, G
Haskell	3,996,433	27,258	4,023,681	G, O, NG, SG
Hodgeman	796,413	....	796,413	O
Jackson	....	139,918	139,918	St, SG
Jefferson	....	593,587	593,587	St
Jewell	....	*	*	St, SG

TABLE 3.—Value of mineral production in Kansas by counties in 1958
(continued)

County	Value of mineral production			Commodities ^b in order of decreasing value
	Fuels ^a	Nonfuels	Total	
Johnson	17,027	308,099	325,126	St, O, G
Kearny	7,690,461	33,073	7,723,534	G, NG, O, SG, LP
Kingman	9,582,250	*	*	O, G, NG, LP, SG
Kiowa	2,566,754	11,813	2,578,567	O, G
Labette	304,552	*	*	O, St, G
Lane	....	....	....	....
Leavenworth	13,466	532,899	546,365	St, SG, O, G
Lincoln	....	*	*	St, P
Linn	231,186	172,527	403,713	O, St, Co, G
Logan	....	281	281	SG
Lyon	686,552	185,480	872,032	O, SG, St
Marion	7,850,664	*	*	O, St, G
Marshall	....	607,798	607,798	Gp, SG, St
McPherson	12,194,885	3,238	12,198,123	O, G, SG
Meade	3,910,191	....	3,910,191	O, G
Miami	1,567,410	201,773	1,769,183	O, St, G
Mitchell	....	....	....	....
Montgomery	1,660,318	4,876,822	6,537,140	C, O, St, G, Cl
Morris	1,100,841	95,000	1,195,841	O, St, G
Morton	11,835,623	....	11,835,623	G, O
Nemaha	41,450	31,270	72,720	O, St, SG
Neosho	1,707,043	6,162,884	7,869,927	C, O, St, G
Ness	1,701,015	....	1,701,015	O
Norton	2,691,194	*	*	O, P
Osage	30,420	164,400	194,820	St, Co
Osborne	212,995	30,600	243,595	O, SG, St
Ottawa	....	18,842	18,842	SG
Pawnee	7,372,576	84,597	7,457,173	O, G, SG
Phillips	5,781,781	135,755	5,917,536	O, SG
Pottawatomie	....	164,510	164,510	St, SG
Pratt	11,530,154	37,570	11,567,724	O, G, SG
Rawlins	23,194	....	23,194	O
Reno	3,512,258	7,969,837	11,482,095	S, O, G, SG, NG, LP
Republic	....	*	*	SG
Rice	16,163,507	2,199,135	18,362,642	O, S, St, SG, G
Riley	....	*	*	SG, St
Rooks	19,296,112	....	19,296,112	O
Rush	2,435,123	....	2,435,123	O, H, G, NG, LP
Russell	27,198,075	30,780	27,228,855	O, SG
Saline	1,737,406	291,920	2,029,326	O, SG
Scott	117,961	....	117,961	O
Sedgwick	10,804,077	1,909,563	12,713,640	O, NG, SG, B, V, LP, St
Seward	4,552,804	....	4,552,804	G, NG, LP, O
Shawnee	....	942,477	942,477	St, SG
Sheridan	1,294,994	6,660	1,301,654	O, SG
Sherman	34,186	34,496	68,682	SG, O
Smith	....	*	*	SG
Stafford	17,886,222	54,016	17,940,238	O, G, SG
Stanton	2,223,987	....	2,223,987	G, O
Stevens	9,925,465	....	9,925,465	G
Sumner	8,938,783	*	*	O, SG
Thomas	8,305	42,410	50,715	SG, O
Trego	5,668,452	4,679	5,673,131	O, SG
Wabaunsee	802,861	2,868	806,729	O, SG
Wallace	....	*	*	Dm, SG

TABLE 3.—*Value of mineral production in Kansas by counties in 1958 (concluded)*

County	Value of mineral production			Commodities ^b in order of decreasing value
	Fuels ^a	Nonfuels	Total	
Washington	....	218,150	218,150	SG
Wichita	2,422	....	2,422	O
Wilson	615,817	5,814,445	6,430,262	C, O, St, Cl, G, SG
Woodson	2,511,793	112,349	2,624,142	O, St, G
Wyandotte	....	7,829,997	7,829,997	C, St, SG, Pe, Cl
Unassigned	....	10,428,276	10,428,276	Cl prod.
Undistributed	....	2,667,529	50,655,873	
Kansas total	440,976,227 ^c	73,258,218	514,234,445 ^c	

* Undistributed values may not be revealed.

^a The value of oil (fuels column) was computed on the average price of \$3.02 per barrel (Table 1), even though it is realized that the price of oil varies with the gravity and that therefore the actual value of oil in any county may be greater or less than that computed. Likewise, the minimum price of 11 cents per 1000 cubic feet of natural gas measured at 14.65 psia (pounds per square inch absolute) established by the Kansas Corporation Commission for the Hugoton Gas Area effective January 1, 1954, but rescinded in 1958, has been applied to all Kansas gas production, including minor amounts of unprorated production, much of which probably brought a higher price.

^b Commodities: B, brine; C, cement; CB, carbon black; Cl, clay; Co, coal; DM, diatomaceous marl; G, natural gas; Gp, gypsum; H, helium; LP, liquefied petroleum gases; NC, natural cement; NG, natural gasoline; O, oil; P, pumicite (volcanic ash); Pb, lead; Pe, perlite; S, salt; SG, sand and gravel; St, stone; V, vermiculite; Zn, zinc.

^c Adjusted to eliminate duplication in value of oil.

Sources of information.—Much of the information compiled in this report was obtained from the tabulation sheets provided by the United States Bureau of Mines, with which the State Geological Survey of Kansas has been cooperating for many years in collecting mineral statistics for the state. Coal statistics were derived from the reports of Mr. John Delplace, Chief Mine Inspector of the Mine Inspection Section and Mine Rescue Station of the Kansas Labor Department at Pittsburg, Kansas. Data pertaining to petroleum and related products and natural gas were summarized from reports by Goebel and others on oil and gas developments in Kansas published as State Geological Survey Bulletins 133 and 138. Many of the data on oil and gas production in these bulletins were supplied by the Kansas Corporation Commission, Conservation Division. Other data (regarding expansion, modernization, and organization of new mineral producing companies) were obtained from *Midwest Industry Magazine* and *Kansas!*, the latter a publication of the Kansas Industrial Development Commission, Topeka.

THE MINERAL FUELS AND RELATED PRODUCTS

The mineral fuels—coal, oil, natural gas, the natural gas liquids, and related products (helium and carbon black)—contrib-

uted, as in former years, the greatest share to the mineral wealth produced in Kansas. In 1958 they accounted for 85.7 percent of the total value (\$440,976,227) as compared to 87.5 percent (\$467,151,147) in 1957 (Table 4, Fig. 3).

COAL

Coal production in Kansas in 1958 was 830,009 tons valued at \$3,818,042, an increase of 10.2 percent in tonnage and 10 percent in value compared to production and value in 1957. The estimated average price per ton in 1958 was \$4.60, the same as in the previous year. Of the total quantity of coal mined in the state, 820,329 tons (98.8 percent) was mined by stripping and only 9,680 tons (1.2 percent) from shaft mines. In 1958, 31 mining companies operated a total of 29 mines in the state, of which 26 were strip mines and 3 shaft mines, whereas in 1957, 32 mining companies operated a total of 34 mines in the state, of which 30 were strip mines and 4 were shaft mines. In 1958 Labette County produced no coal, reducing to seven the number of counties in the state where coal was mined. Of the seven, Cherokee County produced the most coal, followed by Crawford, Osage, Bourbon, Coffey, Linn, and Franklin. Cherokee County, from 5 strip mines, produced 529,185 tons or 63.7 percent of the total 830,009 tons mined in the state; Crawford County, from 10 strip and 2 shaft mines, accounted for 285,911 tons or 34.4 percent of the total. These two counties, therefore, produced 98.1 percent of all coal mined in Kansas.

Three companies, the Pittsburg-Midway, Clemens, and Apex-

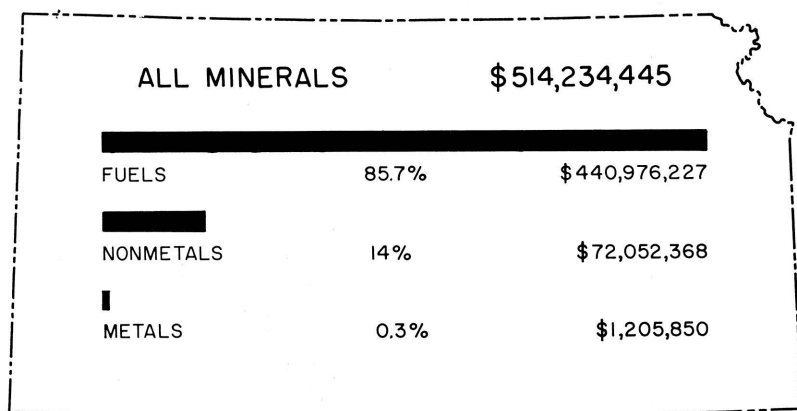


FIG. 3—Percent and value of mineral production in Kansas, 1958.

TABLE 4.—*Value of minerals produced in Kansas in 1957 and 1958*

Year	Mineral fuels and associated products	Percent of total	Nonmetals (excluding mineral fuels)	Percent of total	Metals	Percent of total	All minerals
1957	\$467,151,147	87.5	\$62,045,148	11.6	\$4,896,790	0.9	\$534,093,085
1958	440,976,227	85.7	72,052,368	14.0	1,205,850	0.3	514,234,445

TABLE 5.—*Kansas coal production by type of mine and by county, value of coal, rank of counties, and number of mines, 1957 and 1958*

County	1957				1958				Rank			Number 1958	
	Production, short tons				Production, short tons				1957			Strip	Deep
	Strip	Deep	Total	Value	Strip	Deep	Total	Value	1957	1958	Strip	Strip	Deep
Bourbon	5,642	....	5,642	\$ 25,953	4,810	....	4,810	\$ 22,226	4	4	4	4	....
Cherokee	530,731	....	530,731	2,441,363	529,185	....	529,185	2,434,251	1	1	1	5	....
Coffey	2,445	....	2,445	11,427	2,138	....	2,138	9,935	5	5	1	....	....
Crawford	201,750	6,558	208,308	958,217	279,756	6,155	285,911	1,315,191	2	2	10	2	....
Franklin	536	....	536	2,466	195	....	195	897	6	7	1	....	....
Labette	111	....	111	511	....	....	....	....	8	....	....	....	....
Linn	304	....	304	1,398	1,157	....	1,157	5,322	7	6	2	....	....
Osage	2,197	4,065	6,262	28,805	3,088	3,525	6,613	30,420	3	3	3	1	....
All counties	743,816	10,623	754,439	3,470,419	820,329	9,680	830,009	3,818,042	....	....	26	3	3
Percent	98.5	1.5	100	....	98.8	1.2	100	....	....	....	....	....	....
Percent change from 1957 .....	....	....	....	....	+10.2	-8.9	+10.1	+10	....	....	....	....	....

Compton, produced a total of 751,367 tons of coal or 90.5 percent of the state total. The Pittsburg-Midway Company produced more than half of all the coal mined in Kansas.

Table 5 gives data on Kansas coal production by type of mine and by county, value of coal, rank of counties, and number of mines in 1957 and 1958.

Measured and indicated coal reserves in Kansas at the end of 1958 are estimated at 1,116,200,000 tons, of which approximately 837,000,000 tons is believed to be recoverable coal.

The Pittsburg and Midway Coal Mining Company at Pittsburg, Crawford County, has moved into its new spacious headquarters at N. Fifth and N. Walnut Streets. The Davis Coal Company leased its strip mine to the Wilson Excavating Company. The Gerold McGrath Coal Company ceased operating its strip mine in Franklin County in the second quarter of the year, but this mine was put into operation again in the fourth quarter by Gilby & O'Dea Coal Company.

TABLE 6.—*Directory of Kansas coal mining companies on record as of December 13, 1958*

County	Coal company	Office address
Bourbon	Percy Deer	Fulton
do	Garrett	Route 2, Garland
do	McNeil	Route 2, Fort Scott
do	Pellett	Route 5, Fort Scott
Cherokee	Black Diamond	Weir
do	Markley	Route 2, McCune
do	Pittsburg-Midway	N. Fifth and N. Walnut Sts., Pittsburg
do	S & M	Route 1, Scammon
do	Wilkinson	Weir
Coffey	Rogers	Lebo
Crawford	Apex-Compton	P. O. Box 45, Monmouth
do	Blue Ribbon	Girard
do	Carr	Route 1, Mulberry
do	Clemens	P.O. Box 299, Pittsburg
do	Davis	Cherokee
do	Gobl	Route 1, Mulberry
do	Jones	Arcadia
do	Lucky Star	2024 S. Broadway, Pittsburg
do	Mark	Route 1, Mulberry
do	Palmer & Son	Mulberry
do	Julia Weir	Croweburg
do	Wisdom Excavating Co.	805 N. Rouse St., Pittsburg
do	Zibert	Route 3, Box 120, Girard
Franklin	McGrath-O'Dea	Homewood
Linn	Fyock	Prescott
do	Wood	Route 1, Pleasanton
Osage	Bell	Burlingame
do	Graham	Reading
do	Johnson	Scranton

Coal companies operating in Kansas on record December 31, 1958, are listed in Table 6.

OIL

In 1958 Kansas produced 119,942,094 barrels of crude oil valued at \$362,225,124, a decrease of 3.3 percent in production and of 4.9 percent in value compared to 1957 (Table 7). As in former years, Kansas maintained fifth rank among the oil producing states, and oil ranked first among the mineral commodities produced in the state.

TABLE 7.—*Petroleum or crude oil production in Kansas, 1957 and 1958*

Year	Production, bbl.	Value	Price per bbl.
1957	124,054,043	\$380,845,912	\$3.07
1958	119,942,094	362,225,124	3.02
Percent change	—3.3	—4.9	

The number of counties actually reporting production was 76, one more than in 1957. Among the ten leading oil producing counties, Barton, Ellis, Russell, and Butler Counties maintained the first four places respectively, as in 1957; Graham County, which in 1957 ranked seventh, rose to fifth position, exchanging places with Rooks County (Table 8). Of the ten leading oil producing counties, Graham and Stafford showed slight increases in 1958 compared to 1957.

TABLE 8.—*Ten leading oil producing counties in Kansas, 1957 and 1958*

County	Production, bbl.		Rank	
	1957	1958	1957	1958
Barton	13,318,331	11,546,500	1	1
Ellis	11,783,161	11,314,968	2	2
Russell	9,300,056	9,005,985	3	3
Butler	8,059,156	7,714,554	4	4
Graham	6,728,517	6,800,352	7	5
Greenwood	6,977,957	6,466,719	6	6
Rooks	7,212,001	6,389,441	5	7
Stafford	5,855,899	5,887,005	8	8
Rice	5,359,253	5,314,385	9	9
Cowley	4,182,037	4,171,897	10	10

Fifteen counties (one more than in 1957, Table 9) have each produced a cumulative quantity of 50 million barrels or more since production first started. Of these counties, Butler, an eastern Kansas county, ranks first, having produced 429,587,001 barrels,

TABLE 9.—Leading oil producing counties in Kansas based upon recorded and estimated cumulative production (50 million barrels or more) to the end of 1958

County	Cumulative production, bbl.		Rank	
	1957	1958	1957	1958
Butler	421,872,447	429,587,001	1	1
Barton	309,234,420	320,785,515	2	2
Russell	288,526,106	297,532,091	3	3
Greenwood	216,575,650	223,042,369	4	4
Rice	215,874,697	221,189,082	5	5
Ellis	204,360,463	215,675,431	6	6
McPherson	140,584,533	144,568,785	7	7
Stafford	126,765,181	132,617,382	8	8
Cowley	92,316,235	96,488,132	9	9
Ellsworth	89,654,208	91,774,706	10	10
Rooks	74,281,841	80,471,282	11	11
Sumner	67,069,889	70,001,482	12	12
Sedgwick	64,496,251	67,726,683	13	13
Reno	61,930,531	62,893,875	14	14
Graham .....	....	50,555,688	....	15

108,801,486 barrels more than second-place Barton County and 132,054,910 barrels more than Russell County, third in rank. Graham County (cumulative production of 50,555,688 barrels) was added to the list in 1958.

Since records of oil production in the state have been kept, Kansas has produced, to the end of 1958, a recorded cumulative total of 3,010,881,094 barrels of crude oil valued at approximately \$5,995,225,124.

Most of the larger oil fields are in western Kansas (Table 10). Of the six major oil fields, only the El Dorado field in Butler County lies east of the Sixth Principal Meridian, which is the division line between eastern and western Kansas insofar as oil and gas are concerned. Rating of the six leading oil fields remained the same in 1958 as in 1957 (Table 10).

In 1958, Kansas consumed 105,107,743 barrels of oil or 87.6 percent of its production. In 1957, consumption of oil in Kansas

TABLE 10.—Leading oil fields in Kansas, 1957 and 1958

Field	Rank		County	Annual production, bbl.	
	1957	1958		1957	1958
Bemis-Shutts	1	1	Ellis-Rooks	5,922,087	5,062,516
El Dorado	2	2	Butler	4,619,047	4,370,959
Trapp	4	3	Russell-Barton	3,727,771	3,365,762
Hall-Gurney	5	4	Russell-Barton	3,542,500	3,295,576
Chase-Silica	3	5	Rice, Barton, Stafford	4,271,122	3,259,898
Kraft-Prusa	6	6	Barton-Ellsworth	3,436,752	3,092,206

TABLE 11.—*Production, consumption, imports, and exports of crude oil in Kansas, 1957 and 1958**

Year	Production, bbl.	Consumption		Imports, bbl.	Exports, bbl.	Total quantity, production plus imports, bbl.
		Quantity, bbl.	Percent of production			
1957	124,054,043	105,104,885	84.7	38,120,109	57,069,267	162,174,152
1958	119,942,094	105,107,743	87.6	37,895,812	52,730,163	157,837,906

* From Conservation Division, State Corporation Commission.

amounted to 84.7 percent of its production or 2.9 percent less than in 1958. Imports of oil in 1958 declined by 224,297 barrels (0.6 percent) whereas exports declined 4,339,104 barrels (7.6 percent). Total quantity of oil accounted for in 1958 was 157,837,906 barrels compared to 162,174,152 barrels in 1957. Data on production, consumption, imports, and exports, and total quantity of oil accounted for in 1957 and 1958 are listed in Table 11.

Crude oil reserves in 1958 are estimated at 922.4 million barrels or 25.1 million barrels (2.6 percent) less than in 1957 (Table 12). In 1958, 141 new oil fields were discovered, 5 of which produced both oil and gas. In addition, 8 abandoned oil fields were revived. Counties in which new oil fields were discovered in 1958 are listed in Table 13.

TABLE 12.—*Total crude oil reserves and oil fields discovered and revived in Kansas, 1957 and 1958*
(American Petroleum Institute, 1957 and 1958)

Year	Million bbl.	Percent change from 1957	Oil fields		Total
			Discovered	Revived	
1957	947.5		154 ^a	4	158
1958	922.4	—2.6	141 ^a	8	149

^a Five fields produced both oil and gas.

During 1958 the Jayhawk Pipeline Corporation, owned by the Colorado Oil and Gas Corporation and the National Cooperative Refinery Association, completed 197 miles of 12-inch pipeline for crude oil from Meade, Meade County, to McPherson, McPherson County, and 42 miles of 10-inch pipe from McPherson to Valley Center, Sedgwick County. The line transmits crude oil to the Derby Refining Company of Valley Center and to the National Cooperative Refinery Association at McPherson. The El Dorado Refining Company, El Dorado, Butler County, was purchased by the American Petrofina Company of Texas who

TABLE 13.—Number of oil and gas fields discovered and number of fields revived, by county, in 1958

County	New				Revived		Total
	Oil	Gas	Oil and gas	Dry and abandoned	Oil	Gas	
Barber	2	1	....	....	....	1	4
Barton	7	1	....	....	2	....	10
Butler	8	....	....	1	....	....	9
Cheyenne	1	....	....	....	....	....	1
Comanche .....	....	1	....	....	....	....	1
Cowley	7	1	....	1	....	....	9
Edwards	5	....	1	....	....	....	6
Ellis	9	....	....	....	1	....	10
Graham	20	....	....	....	1	....	21
Grant .....	....	1	....	....	....	....	1
Greenwood	2	....	....	....	....	....	2
Hamilton .....	....	1	....	....	....	....	1
Harper	2	....	1	1	....	....	4
Harvey	3	....	....	....	....	....	3
Haskell	3	....	....	....	....	....	3
Hodgeman	1	....	....	....	....	....	1
Kingman	1	....	....	1	....	....	2
Kiowa	1	....	....	2	....	....	3
McPherson	3	1	....	1	....	....	5
Marion	2	....	....	....	1	....	3
Meade .....	....	....	1	....	....	....	1
Montgomery .....	....	....	....	....	1	....	1
Morton .....	....	1	....	....	....	....	1
Ness	3	....	....	....	....	....	3
Norton	2	....	....	....	....	....	2
Pawnee	3	1	....	2	....	....	6
Pratt	1	2	....	....	....	....	3
Rawlins	2	....	....	....	....	....	2
Reno	1	....	....	....	....	....	1
Rice	2	....	....	....	....	....	2
Rooks	7	....	....	....	....	....	7
Rush .....	....	....	....	1	....	....	1
Russell	3	....	....	....	1	....	4
Saline	1	....	....	....	....	....	1
Sedgwick	2	....	....	....	....	....	2
Seward .....	....	2	1	....	....	....	3
Sheridan	1	....	....	....	....	....	1
Sherman	1	....	....	....	....	....	1
Stafford	5	....	1	1	....	1	8
Stanton .....	....	1	....	....	....	....	1
Stevens .....	....	1	....	....	....	....	1
Sumner	10	1	....	....	....	....	11
Trego	3	....	....	....	1	....	4
Wabaunsee	1	....	....	....	....	....	1
Total	125	16	5	11	8	2	167

added a new platformer later in the year. Alkylation units were either planned or under construction at several refineries including Skelly Oil Company's refinery at El Dorado, Derby Refinery at Wichita, Cooperative Refining Association's refinery at Coffey-

ville, and Anderson-Prichard Oil Corporation's refinery at Arkansas City. Standard Oil Company constructed a new ultraforming unit at its Neodesha refinery, where 6,000 barrels of naphtha per day will be processed.

A new propane and de-asphalting unit was put into operation at the Anderson-Prichard Oil Corporation's refinery at Arkansas City. This unit has a capacity of 1,200 barrels daily. At Potwin, Vickers Petroleum Company, Inc., built the first petrochemical plant to produce aromatics in the Midcontinent area. In addition to benzene, the plant will produce toluene, xylene, and solvent V-100, a Vickers aromatic solvent. The Mid-America Refining Company, Inc., added 15,000 barrels per day to crude capacity and 400 barrels per day to asphalt capacity at its refinery at Chanute. The Consumers Cooperative Association refinery at Phillipsburg, Phillips County, added a new unifier and platformer and compressor and control buildings to its plant, which now has a capacity of 12,000 barrels per day of crude oil. The Kansas exploration and production offices of the Pan American Petroleum Corporation currently located at Wichita will be moved to Liberal.

TABLE 14.—*Directory of petroleum refineries in Kansas as of December 31, 1958*

Refinery	Office address	County
American Petrofina Co. of Texas	El Dorado	Butler
Anderson-Prichard Oil Corp	Arkansas City	Cowley
Century Refining Co., Inc. ^a	114 W. Pine, Garden City	Finney
Chanute Refining Co.	P. O. Box 431, Chanute	Neosho
Cooperative Refinery Assn.	Coffeyville	Montgomery
Cooperative Refinery Assn.	P. O. Box 570, Phillipsburg	Phillips
Derby Refining Co.	420 W. Douglas, Wichita	Sedgwick
Mid-America Refining Co., Inc.	Chanute	Neosho
Mobil Oil Co.	Augusta	Butler
National Cooperative Refinery Assn.	P. O. Box 770, McPherson	McPherson
Phillips Petroleum Co.	2029 Fairfax Trafficway, Kansas City	Wyandotte
Skelly Oil Co.	1401 S. Douglas Road, El Dorado	Butler
Standard Oil Co. (Indiana)	1101 Illinois, Neodesha	Wilson
Vickers Petroleum Co., Inc.	Wichita ^b	Sedgwick

^a Successor to Shallow Water Refining Company, refinery at Shallow Water, Scott County.

^b Refinery at Potwin, Butler County.

Many major oil companies operate in Kansas, as do numerous independent oil companies and operators whose number changes from year to year. For this reason no directory of oil companies is included in this report.*

A directory of refineries is given in Table 14, because the number of oil refineries is less variable than the number of oil companies.

NATURAL GAS

Nationwide, Kansas ranks fifth as a producer of natural gas, second most valuable mineral produced in the state. In 1958, Kansas produced 535,937,434 thousand cubic feet of gas, 44,761,520 thousand cubic feet (7.7 percent) less than in 1957. Natural gas produced in the state in 1958 was valued at \$58,953,118 as compared to \$63,876,885 in 1957, a decrease of 7.7 percent (Table 15). Cumulative natural gas production in Kansas from the first recorded production to the end of 1958 is estimated at 5,532,603,292 thousand cubic feet.

TABLE 15.—*Natural gas production in Kansas, 1957 and 1958*

Year	Production, M cu. ft. (14.65 psia)	Value	Price, cents per M cu. ft.
1957	580,698,954	\$63,876,885	11
1958	535,937,434	58,953,118	11
Percent change from 1957	—7.7	—7.7	

Of the total amount of gas produced in 1958 in the state, 349,263,723 thousand cubic feet (65 percent) came from the Hugoton Gas Area comprising all or part of Finney, Grant, Hamilton, Haskell, Kearny, Morton, Seward, Stanton, and Stevens Counties, in southwestern Kansas (Table 16). Natural gas was produced in 49 counties in 1958, one fewer than in 1957. Nineteen

TABLE 16.—*Production of natural gas in Hugoton Gas Area, Kansas, 1957 and 1958*

Year	Production, M cu. ft. (14.65 psia)	Value	Percent of state total production	Cumulative production, M cu. ft.
1957	396,889,199	\$43,657,812	68.3	4,260,453,506
1958	349,263,723	38,419,009	65.0	4,609,717,289
Percent change from 1957	—12	—12		

* For the names of oil companies, independent operators, and consulting geologists, see the Kansas Geological Society Directory published by the Society at 508 East Murdock Street, Wichita 5, Kansas, and Morrison Petroleum Directory of Kansas published annually by John H. Morrison, Box 191, Wichita, Kansas.

TABLE 17.—*Production of natural gas in Kansas counties producing 2 billion cubic feet or more annually, 1957 and 1958*

County	Production, M cu. ft. (14.65 psia)		Rank	
	1957	1958	1957	1958
Stevens ^a	105,873,672	90,231,496	1	1
Morton ^{a, b}	97,495,814	84,762,672	2	2
Grant ^a	78,728,061	76,951,008	3	3
Kearny ^a	62,972,766	62,477,345	4	4
Barber	53,465,524	51,428,484	5	5
Finney ^a	43,897,674	36,885,767	6	6
Haskell ^a	32,302,065	23,456,900	7	7
Seward ^{a, b}	29,880,750	24,421,166	8	8
Stanton ^a	20,143,455	19,944,619	9	9
Meade	11,058,197	10,295,596	10	10
Kingman	10,081,383	11,686,453	11	11
Clark	3,147,851	6,536,692	15	12
Hamilton ^a	4,023,123	4,228,915	12	13
Reno .....	.....	3,578,905	.....	14
Harper	2,030,168	2,977,950	18	15
Rush	2,823,194	2,632,657	16	16
Pawnee	3,352,053	2,607,146	13	17
Kiowa	3,249,342	2,090,043	14	18
Edwards .....	.....	2,038,145	.....	19
Cowley	2,630,410	.....	17	.....

^a Hugoton Gas Area counties.^b Not all gas produced in Morton and Seward Counties is from the Hugoton Gas Area.

counties, one more than in 1957 (Table 17), produced 2 billion cubic feet of gas or more in 1958. Counties added to this category in 1958 include Reno, 14th in rank, and Edwards, 19th. Cowley County, which was added in 1957 when it produced 2,630,410 thousand cubic feet of gas and ranked 17th, produced less than 2 billion cubic feet of gas in 1958. Among the 19 leading gas producing counties, the first 11 on the list in 1957 maintained their position in 1958. Clark County, 15th in 1957, rose to 12th position in 1958, replacing Hamilton County, which dropped to 13th place. Reno County, added in 1958, replaced Kiowa County in 14th position, Kiowa County becoming 18th in rank. Pawnee County, 13th in 1957, dropped to 17th position in 1958, and Harper County, 18th in 1957, rose to 15th in rank.

On the basis of cumulative production of natural gas of 10 billion cubic feet or more to the end of 1958, one more county, Clark, 17th in rank, was added to the list of the previous year (Table 18). Several changes in rank are to be noted. Meade County, 12th in rank in 1957, advanced to 10th, replacing Pawnee County, which dropped to 11th place; Kingman County rose from 14th in 1957 to 12th in 1958; Rice County, 11th in 1957, was 13th

TABLE 18.—Leading gas producing counties in Kansas based on estimated and recorded cumulative production of 10 billion cu. ft. of gas or more to end of 1958*

County	Cumulative production, M cu. ft. (14.65 psia)	Rank	
		1957	1958
Stevens ^a	1,674,871,788	1	1
Grant ^a	930,072,169	2	2
Kearny ^a	656,482,839	3	3
Morton ^{a, b}	524,050,653	4	4
Barber	396,903,995	5	5
Haskell ^a	338,298,624	6	6
Finney ^a	332,788,894	7	7
Seward ^{a, b}	267,438,410	8	8
Stanton ^a	147,313,588	9	9
Meade	38,806,058	12	10
Pawnee	37,801,822	10	11
Kingman	35,424,181	14	12
Rice	34,963,624	11	13
Hamilton ^a	30,531,419	13	14
Barton	23,299,947	15	15
Pratt	20,572,575	16	16
Clark	12,875,849	....	17
Stafford	12,788,788	17	18
Edwards	12,383,990	18	19

^a Hugoton Gas Area counties.^b Not all gas produced in Morton and Seward Counties is from the Hugoton Gas Area.

* Several eastern Kansas counties, although no longer important gas producers, formerly yielded great quantities of gas. Published cumulative production data on gas production for eastern counties are not available. It is reasonably certain, however, from data that are extant, that Allen, Cowley, Montgomery, and Wilson Counties have each produced 10 billion cubic feet of gas or more.

in 1958; Hamilton County dropped from 13th place to 14th; Stafford, 17th in 1957, was replaced by Clark; and Edwards County became 19th among the leading gas producing counties based on cumulative production of 10 billion cubic feet of gas or more to the end of 1958. Although complete production records are not available or are nonexistent, it is certain from the records that are extant that four eastern counties, Allen, Cowley, Montgomery, and Wilson, have each produced 10 billion cubic feet of gas or more since production started. Table 18 shows the cumulative gas production and rank of the leading Kansas counties.

The reserves of natural gas in 1958, estimated at 20,233,847 million cubic feet, exceeded those of 1957 by 937,869 million cubic feet or 4.9 percent (Table 19). Twenty-one new gas fields (16 gas and 5 gas and oil fields) were discovered in 1958, 4 fewer than in the previous year. Two gas fields were revived (Table 13).

Cities Service Gas Company is planning to build and operate 105 miles of natural gas pipeline in Montgomery, Allen, Anderson, Franklin, Miami, Johnson, and Wilson Counties in Kansas.

TABLE 19.—*Natural gas reserves and gas fields discovered and revived in Kansas, 1957 and 1958*

Year	Reserves, million cu. ft.	Percent change from previous year	Gas fields discovered	Gas fields revived	Total
1957	19,295,978		26 ^a	1	27
1958	20,233,847	+4.9	21 ^a	2	23

^a Five fields produced both gas and oil.

Plans also call for development of the Elk City storage field in Montgomery County. Cost of the project is estimated at \$10,000,000.

NATURAL GAS LIQUIDS

Production of natural gas liquids, consisting of natural gasoline, propane, butane, and other miscellaneous liquefied gases, increased by 0.7 percent but value declined by 22.6 percent in 1958. In 1957 the total quantity of natural gas liquids amounted to 5,324,247 bbl. worth \$13,256,845, whereas in 1958 production was 5,361,339 bbl. worth \$10,286,537 (Table 20). In 1958 natural gasoline and butane production was less than in 1957 whereas propane and other LP gases showed increased production. The estimated average price per barrel of natural gasoline in 1958 was \$2.31, which is 21 cents less than in 1957. All other natural gas liquids were computed at an average of \$1.55 in 1958, which is 90 cents less than in the previous year.

Proved reserves of natural gas liquids, 199,552,000 bbl., were 5.5 percent greater than in 1957, when the estimated reserves were 189,155,000 bbl.

Tuloma Gas Products Company, nationwide marketer of LP fuels, is planning construction of an underground saltbed storage

TABLE 20.—*Production and value of liquefied petroleum gas (LPG) in Kansas, 1957 and 1958*

	1957		1958	
	Quantity, bbl.	Value ^a	Quantity, bbl.	Value ^b
Natural gasoline	2,820,738	\$ 7,108,260	2,600,607	\$ 6,007,402
Propane	1,202,764	2,958,799	1,363,436	2,113,326
Butane	1,004,614	2,461,304	993,269	1,539,567
Other LPG	296,131	728,482	404,027	626,242
All liquid petroleum gases	5,324,247	\$13,256,845	5,361,339	\$10,286,537
Percent change from 1957			+0.7	-22.6

^a Estimated average price \$2.52 per barrel for natural gasoline, all others \$2.45.

^b Estimated average price \$2.31 per barrel for natural gasoline, all others \$1.55.

facility for liquefied petroleum gas products about 5 miles south of Hutchinson, Reno County. According to plans, two caverns will be created in the salt beds at a depth of 550 to 800 feet below the surface. Potential capacity is estimated at nearly 35,000,000 gallons.

Natural gasoline and liquefied petroleum gas were produced by 12 companies in 16 plants located in 11 counties. Plants on record as of December 31, 1958, are listed in Table 21.

TABLE 21.—*Directory of Kansas plants producing natural gasoline and liquefied petroleum gas on record as of December 31, 1958*

Plant location		
County	Town	Company
Barber	Medicine Lodge	Skelly Oil Company
Cowley	Atlanta	The Texas Company
Finney	Holcomb	Northern Natural Gas Company
Grant	Ulysses	Hugoton Production Company
do	do	Magnolia Petroleum Company
do	do	Pan American Petroleum Corp.
Haskell	Sublette	Northern Natural Gas Company
Kearny	Deerfield	Kansas-Nebraska Natural Gas Company
do	Lakin	Colorado Interstate Gas Company
Kingman	Cunningham*	Skelly Oil Company
do	Spivey	Magnolia Petroleum Company
Reno	Burrton	Cities Service Oil Company
Rush	Otis	Dunn-Mar Oil & Gas Company
Sedgwick	Cheney	Plateau Natural Gas Company
do	Wichita	Cities Service Oil Company
Seward	Liberal	Panhandle Eastern Pipe Line Company

* Gasoline plant discontinued May 1, 1958.

HELIUM

For the third consecutive year, Kansas helium production, shipments, and value have declined. Production of helium in 1958 was 25,858,000 cubic feet whereas in 1957 it was 37,249,000 cubic feet. Shipments of helium in 1958 amounted to 27,888,000 cubic feet valued at \$432,264, a decrease in quantity and value of 24.1 percent compared to 1957. Production and price are controlled by the Federal Government. Federal agencies pay \$15.50 per 1000 cu. ft. at the production plants. Other users pay \$19.00 at the plant and an additional \$2.00 per thousand cu. ft. for helium supplied in standard cylinders. The Kansas helium was produced at the United States Bureau of Mines plant at Otis, Rush County. The gas is extracted from helium-bearing natural gas from about 80 wells distributed in Barton, Pawnee, and Rush Counties. Helium-

contributing gas fields include the Otis-Albert field in Rush and Barton Counties, the Ryan field in Rush and Pawnee Counties, the Pawnee Rock and Ash Creek fields in Pawnee County, and the Behrens, Unruh, Dundee, and Bergtal fields in Barton County.

CARBON BLACK

In 1958 Kansas produced 75,443,750 pounds of carbon black, 975,750 pounds (1.3 percent) less than in 1957. The 1958 product was worth \$5,261,142 whereas 1957 production was valued at \$5,131,569, an increase of 2.5 percent (Table 22). Carbon black ranked ninth in value among the mineral commodities produced in the state.

TABLE 22.—*Quantity and value of carbon black produced in Kansas in 1957 and 1958*

Year	Quantity, lb.	Value	Estimated gas consumed, billion cu. ft. (at 14.65 psia)
1957	76,419,500	\$5,131,569	5.67
1958	75,443,750	5,261,142	3.26
Percent change from 1957	-1.3	+2.5	

NONMETALLIC MINERALS

The value of the 1958 production of nonmetallic minerals exclusive of mineral fuels and associated products (cement, clay, diatomaceous marl, gypsum, pumicite or volcanic ash, salt, sand and gravel, stone, and perlite and vermiculite products) was \$72,052,368 or 14 percent of the total value of all minerals produced in the state (Table 4, Fig. 3).

CEMENT (PORTLAND AND MASONRY)

Cement production, shipments, and value in 1958 exceeded those of 1957. Total production and total shipments of cement, excluding natural cement, in Kansas in 1958 were 9,537,119 bbl. and 9,600,637 bbl. respectively, whereas in 1957 total cement production amounted to 8,423,003 bbl. and total shipments to 8,177,330 bbl. The increases in total production and shipments in 1958 were 13.2 and 17.4 percent respectively. The value of shipments in 1958 was \$30,047,733 or \$5,232,959 (21 percent) more than in the previous year when it amounted to \$24,814,774. Pro-

TABLE 23.—*Production and shipments of portland and masonry cement in Kansas in 1957 and 1958, 376-lb. bbl.*

Commodity	Shipments			
	Production, bbl.		1957	
	1957	1958	Bbl.	Value
Portland	8,117,799	9,244,184	7,863,624	\$23,593,482
Ave. price/bbl.				3.00
Percent change from 1957		+13.8		+18.2
Masonry	305,204	292,935	313,706	1,221,292
Ave. price/bbl.				3.89
Percent change from 1957		-4		-3.7
Total	8,423,003	9,537,119	8,177,330	24,814,774
Percent change from 1957		+13.2		+17.4
				30,047,733
				+21

TABLE 24.—*Directory of cement producers in Kansas, 1958*

County	Company	Office address	Quarry	Type
Allen	Lehigh Portland Cement Co.	Young Bldg., 718 Hamilton St., Allentown, Pennsylvania	Iola	Portland and masonry
Allen	Monarch Cement Co.	Humboldt	Humboldt	do
Bourbon	Fort Scott Hydraulic Cement Co.	P. O. Box 267, Fort Scott	Fort Scott	Natural and masonry
Montgomery	Universal Atlas Cement Co.	100 Park Ave., New York 17, New York	Independence	Portland and masonry
Neosho	Ash Grove Lime & Portland Cement Co.	101 W. 11th, Kansas City 6, Mo.	Chanute	do
Wilson	Consolidated Cement Corp.	Fredonia	Fredonia	do
Wyandotte	Lone Star Cement Corp.	1006 Grand Ave., Kansas City 6, Missouri	Bonner Springs	do

duction of portland cement in 1958 exceeded production in 1957 by more than 1,000,000 bbl. or by 13.8 percent. Shipments of portland cement in 1958 exceeded 1957 shipments by 18.2 percent in quantity and 22.2 percent in value. Quantity and value of portland cement shipped in 1958 were respectively 9,298,427 bbl. and \$28,843,139, whereas in 1957 the amount shipped was 7,863,624 bbl. worth \$23,593,482. The average price of portland cement in 1958 was \$3.10 compared to \$3.00 in the previous year, an increase of 3.3 percent. Kansas produced 292,935 bbl. of masonry cement in 1958 or 4 percent less than in 1957. Shipments and value of masonry cement were less than in 1957 by 3.7 and 7.8 percent respectively. The average price of masonry cement in 1958 was \$3.99 as compared to \$3.89 in the previous year, a gain of 2.5 percent. Data on production, shipments, and value of portland, masonry, and total cement are presented in Table 23.

Allen County, which includes two of the seven cement plants in the state, led in production and shipments again. Neosho County was second, followed by Wilson, Montgomery, Wyandotte, and Bourbon Counties. Stocks on hand at yearend were 924,708 bbl. or 309 percent more than in 1957. One company, the Fort Scott Hydraulic Cement Company, Fort Scott, Bourbon County, produced natural cement. Its production is included under "Undistributed" minerals in Table 1. Natural cement is discussed on page 283.

Kansas cement is exported to Arkansas, Illinois, Iowa, Minnesota, Missouri, Nebraska, Oklahoma, South Dakota, Texas, Wyoming, and several foreign countries. Cement is third in importance among the minerals produced in the state.

The seven cement producers on record as of December 31, 1958, are listed in Table 24.

CLAY AND SHALE

Clay and shale production in Kansas in 1958 continued the decline indicated in 1957. Total quantity of clay and shale produced was 875,441 tons compared to 908,693 tons in 1957, a decrease of 3.7 percent. The value of the 1958 production was \$1,144,983 or 7.7 percent less than in the previous year, when it was \$1,239,789 (Table 25). Kansas clay and shale produced consists of fire clay and miscellaneous clay (including shale used for cement), the former being produced in Barton, Cloud, Craw-

TABLE 25.—Clay and shale sold or used by producers in Kansas, 1957 and 1958

Year	Brick, tile, lightweight aggregate		Cement		Total		Clay and clay products
	Tons	Value	Tons	Value	Tons	Value	
1957	595,536	\$926,632	313,157	\$313,157	908,693	\$1,239,789	\$10,000,000
1958	510,853	780,395	364,588	364,588	875,441	1,144,983	10,500,000
Percent change from 1957 ..	-14.3	-15.8	+16.4	+16.4	-3.7	-7.7	

TABLE 26.—Directory of clay and shale producers in Kansas in 1958

County	Company	Office address	Pit location	Type plant*
Allen	Humboldt Shale Mining Co.	P. O. Drawer 97, Humboldt	Humboldt	B
Allen	Lehigh Portland Cement Co.	Young Bldg., 718 Hamilton St., Allentown, Pa.	Iola	C
Allen	Monarch Cement Co.	Humboldt	Humboldt	C
Allen	United Brick & Tile Co.	207 Pickwick Bldg., Kansas City 42, Mo.	Iola	B
Barton	Acme Brick Co.	P. O. Box 425, Fort Worth, Texas	Great Bend	B
Barton	Kansas Brick & Tile Co.	Hoisington	Hoisington	B
Cherokee	United Brick & Tile Co.	207 Pickwick Bldg., Kansas City 42, Mo.	Weir	B
Cloud	Cloud Ceramics	Concordia	Concordia	B
Crawford	W. S. Dickey Clay Mfg. Co.	607-617 Commerce Trust Bldg., Kansas City 6, Mo.	Pittsburg	B
Ellsworth	Acme Brick Company	P. O. Box 425, Fort Worth, Texas	Kanopolis	B
Franklin	Buildex, Inc.	P. O. Box 299, Pittsburg	Ottawa	A
Jewell	Ideal Cement Co.	507 Denver Nat'l Bank Bldg., Denver, Colo.		C
Montgomery	United Brick & Tile Co.	207 Pickwick Bldg., Kansas City 42, Mo.	Coffeyville	B
Montgomery	Universal Atlas Cement Co.	100 Park Ave., New York 17, N.Y.	Independence	C
Neosho	Ash Grove Lime & Portland Cement Co.	101 W. 11th St., Kansas City 6, Mo.	Chanute	C
Wilson	Acme Brick Co.	P. O. Box 425, Fort Worth, Texas	Buffalo	B
Wilson	Consolidated Cement Corp.	Fredonia	Fredonia	B
Wilson	Excelsior Brick Co.	P. O. Box 32, Fredonia	Fredonia	B
Wyandotte	Kansas Industries, Inc.	4001 Kaw Drive, Kansas City	Kansas City	A

* A. aggregate; B. brick; C. cement.

ford, Franklin, Jewell, Montgomery, Wilson, and Wyandotte Counties. Fire clay production in 1958 declined 20.8 percent in quantity and 20.2 percent in value from 1957 whereas production and value of miscellaneous clay exceeded the 1957 production and value by 7 percent.

Clay used for cement in 1958 amounted to 364,588 tons, or 51,431 tons (16.4 percent) more than in 1957. In 1958, nine companies operating in 10 counties produced clay or shale. Disregarding clay used for cement, Barton, Crawford, and Cloud Counties led in 1958. Kansas clay and shale is used primarily for the manufacture of brick (of which 110,910,000 were produced in 1958 or 10,271,000 more than in 1957), tile, cement, and light-weight aggregate. Raw clay and shale ranked 14th among mineral commodities produced in 1958 and 5th if clay products are included.

The Ludowici-Celadon Company near Coffeyville, Montgomery County, has sold its property and ceased production. The Kansas Brick and Tile Company has announced a \$10,000 expansion program at its Hoisington plant in Barton County. New machinery is to be installed in order to increase production. The Acme Brick Company, successor to the Great Bend Brick and Tile Company, has announced that its newly acquired Great Bend-Kanopolis plant will be expanded to manufacture tile and other products as well as bricks.

Reserves of clay and shale are almost without limit. In central and north-central Kansas, where the most valuable clays in the state are found, reserves of strippable highgrade clays are estimated to be at least 125 billion tons.

A directory of clay and shale producers in Kansas in 1958 is given in Table 26.

SALT

Salt production in Kansas in 1958 amounted to 867,924 tons valued at \$9,827,759, a decrease of 1.3 percent in tonnage but an increase of 7.2 percent in value compared to production and value in 1957 (Table 27). Kansas produces both rock and evaporated salt. Of the total salt produced in 1958 in the state, 56.4 percent was rock salt and 43.6 percent evaporated salt. The value of the evaporated salt, however, was 75.5 percent of the total. Rock salt production in 1958 was 483,562 tons or 1.9 percent less than in

TABLE 27.—Salt sold or used by producers in Kansas in 1957 and 1958, short tons

Year	Evaporated salt		Rock salt		Total	
	Tons	Value	Tons	Value	Tons	Value
1957*	371,752	\$7,259,628	496,172	\$2,568,131	867,924	\$ 9,827,759
1958	373,263	7,962,669	483,562	2,575,700	856,825	10,538,369
Percent change from 1957	+0.4	+9.6	-1.9	+0.2	-1.3	+7.2

* Revised figures.

1957. The 1958 value of rock salt, \$2,575,700, however, was \$7,569 more than that of 1957, an increase of 0.2 percent. Salt produced by the evaporating process in 1958 showed an increase of 0.4 percent in tonnage and 9.6 percent in value compared to that of the previous year. In 1958, production of evaporated salt amounted to 373,263 tons, valued at \$7,962,669, whereas in 1957 the tonnage and value were respectively 371,752 tons and \$7,259,628. Salt was produced by five companies operating in three counties, Ellsworth, Reno, and Rice, the Reno County production being more than half of the total. In addition to the regular commercial salt producing companies, the Frontier Chemical Company of Kansas, Inc., Wichita, produces its own salt from wells in Sedgwick County near Wichita for use in the manufacture of industrial inorganic chemicals.

Salt ranked 6th in value among minerals produced in the state in 1958. Kansas salt in 1958 was shipped to 31 states and to Canada and Mexico. Since salt production first started, Kansas has produced less than 5,000,000 tons of salt, an insignificant amount when compared to the reserves of more than 5,000,000,000,000 tons estimated to underlie much of the state.

A new salt company, the Pawnee Salt Corp. of Pawnee Rock in Barton County, was organized in 1958. This company will produce salt by the brine process and will employ 20 persons. The new plant is designed to produce 100 tons of evaporated salt daily. The Frontier Chemical Company, which produces salt for use in manufacturing inorganic chemicals, is now a division of Vulcan Materials Company of Birmingham, Alabama. The company is in the process of a \$5,000,000 expansion program and expects to employ 20 additional persons. The Carey Salt Company of Hutchinson, Reno County, has moved from its old quarters to its modern new general office building.

The five salt companies that operated in the state in 1958 are listed in Table 28.

TABLE 28.—*Directory of salt producing companies in Kansas in 1958*

County	Company	Office address	Location of mine or well	Type of plant
Ellsworth	Independent Salt Co.	4115 Packers Ave., Chicago 9, Ill.	Kanopolis	Rock
Reno do	The Barton Salt Co. The Carey Salt Co.	Hutchinson do	Hutchinson do	Evaporated Rock and evaporated
do	Morton Salt Co.	120 S. LaSalle, Chicago 3, Ill.	do	Evaporated
Rice	American Salt	630 New York Life Bldg., Kansas City 6, Mo.	Lyons	Evaporated and rock
Sedgwick	Frontier Chemical Co. of Kansas, Inc.	P. O. Box 545, Wichita	Wichita	Brine

SAND AND GRAVEL

Sand and gravel production in Kansas in 1958 increased by 13.2 percent in quantity and 14.1 percent in value compared to 1957 (Table 29). Total sand and gravel production in 1958 was 10,578,668 tons, 1,233,760 tons more than in 1957. The 1958 quantity sold for \$7,044,966, or \$870,209 more than the 1957 tonnage. Sand and gravel were produced in 66 counties by 95 commercial operators and at least 47 noncommercial producers, a total of 142 agencies. In 1958, sand and gravel ranked seventh in value among the minerals produced in the state. Of the total sand and gravel produced in 1958, commercial operators produced 8,529,691 tons and noncommercial agencies 2,048,977 tons. Sedgwick and Wyandotte Counties accounted for 3,395,438 tons of sand and gravel, or 32.1 percent of the total. Most of the sand and gravel was used for paving and structural purposes. Other uses of Kan-

TABLE 29.—*Sand and gravel sold or used by commercial and noncommercial producers in Kansas, 1957 and 1958*

Year	Commercial		Noncommercial		Total sand and gravel		Ave. price per ton
	Short tons	Value	Short tons	Value	Short tons	Value	
1957	7,679,555	\$5,424,703	1,665,353	\$750,054	9,344,908	\$6,174,757	.66
1958	8,529,691	6,073,020	2,048,977	971,946	10,578,668	7,044,966	.65
Percent change from 1957	+11.1	+11.9	+23	+29.5	+13.2	+14.1	—1.5

TABLE 30.—*Production of sand in Kansas, 1957 and 1958, by uses*

Use		Production and value	
		1957	1958
Paving	Tons	3,034,700	4,248,870
	Value	\$1,967,245	\$2,623,238
Structural	Tons	2,897,144	2,831,575
	Value	\$2,073,006	\$2,081,423
Engine	Tons	33,615	37,536
	Value	\$ 25,218	\$ 55,548
Railroad ballast	Tons .....	*	.....
	Value .....	*	.....
Filter	Tons	16,092	10,405
	Value	\$ 17,320	\$ 17,056
Molding	Tons	*	*
	Value	*	*
Glass	Tons .....	.....	*
	Value .....	.....	*
Blast	Tons	*	*
	Value	*	*
Other	Tons	466,561	841,609
	Value	\$ 211,782	\$ 465,975

* Undistributed, value included with "Other"

TABLE 31.—*Production of gravel in Kansas, 1957 and 1958, by uses*

Use		Production and value	
		1957	1958
Paving	Tons	2,540,302	2,135,897
	Value	\$1,522,630	\$1,391,198
Structural	Tons	300,327	385,566
	Value	\$ 234,080	\$ 310,779
Other	Tons	66,167	64,677
	Value	\$ 113,476	\$ 102,659

sas sand included blast, engine, filter, glass, and molding sands (Table 30, 31).

Sand and gravel reserves are regarded as inexhaustible because the demand for sand and gravel is insignificant compared to the quantity available. Furthermore, sand especially is continually being replaced by new deposits brought in by streams as the river sand is used.

The Clay Center Concrete and Sand Company, Clay Center, Clay County, has announced installing new equipment costing approximately \$50,000 at its plant.

Sand and gravel producers that operated in 1958 are listed in Table 32.

TABLE 32.—*Directory of sand and gravel producers on record as of December 31 1958*

County	Company or operator	Address
Barber	Barber Co. Highway Dept. M. W. Watson	Medicine Lodge 1004 Nat'l Bank of Topeka Bldg., Topeka
Barton	Barton Co. Highway Dept. Arkansas Sand Co. Gruber Sand Plant Klepper Sand Co. Moos Bros. Sand Co. Du Bois Sand Co. San Ore Construction Co.	P.O. Box 747, Great Bend 1619 Stone St., Great Bend 918 Stone St., Great Bend Clafflin P.O. Box 406, Great Bend P.O. Box 172, Great Bend McPherson
Brown	Ralph Mitchell	Route 1, Hiawatha
Chase	Chase Co. Highway Dept.	Cottonwood Falls
Chautauqua	Chautauqua Co. Highway Dept.	Sedan
Clark	Clark Co. Highway Dept.	Ashland
Clay	Alsop Sand Co. Clay Center Concrete & Sand Co.	Wakefield Clay Center
Cloud	Cloud Co. Highway Dept. Earl Beaver Co., Inc. Ross Sand Co., Inc. Walker Sand Co.	Concordia Glasco P.O. Box 461, Concordia 1611 Cedar St., Concordia
Coffey	Coffey Co. Highway Dept.	Burlington
Comanche	Comanche Co. Road Dept.	Coldwater
Cowley	Cowley Co. Highway Dept. Arkansas City Sand & Gravel Co. McFarland Gravel Co. Oxford Sand & Gravel Co. Warren R. Phillips Wilson Bros. Myers Materials, Inc.	Winfield P.O. Box 166, Arkansas City 720 No. D St., Arkansas City P.O. Box 266, Oxford P.O. Box 50, Winfield P.O. Box 59, Route 1, Arkansas City P.O. Box 911, El Dorado
Decatur	Decatur Co. Highway Dept.	Oberlin
Dickinson	Shoffner Sand & Gravel Co.	134 E. Jewell St., Salina
Douglas	Bowersock Mills & Power Co.	546 Massachusetts St., Lawrence
Edwards	Mekch Sand & Gravel Co. Showalter Sand & Gravel Co.	c/o Miss Cecil Matthews Courthouse, Kinsley Garfield
Elk	Elk Co. Highway Dept.	Howard
Ellis	Ellis Co. Highway Dept. Lewis C. Schmidtberger	Hays P.O. Box 93, Victoria
Ellsworth	Ellsworth Co. Highway Dept. Henry Milberger Stoppel Construction Co.	Ellsworth Wilson Ellsworth

TABLE 32.—*Directory of sand and gravel producers on record as of December 31, 1958 (continued)*

County	Company or operator	Address
Finney	Finney Co. Highway Dept. Sam Alsop Construction Co.	Garden City 1207 Pinecrest, Garden City
Ford	Davis & Sons Sand Sales Dodge City Sand Co. Miller Sand & Gravel Co. Seacot Sand & Excavating Co.	Route 1, Dodge City P.O. Box 430, Dodge City Dodge City Greensburg
Geary	Junction City Sand & Gravel Co.	Route 3, Junction City
Gove	Gove Co. Highway Dept. Harry Henery, Inc.	Gove P.O. Box 15, Ottawa
Graham	San Ore Construction Co.	McPherson
Grant	Grant Co. Highway Dept. Harry Henery, Inc.	Ulysses P.O. Box 15, Ottawa
Gray	Gray Co. Road Dept. Kerr Sand Co.	Cimarron Cimarron
Hamilton	Hamilton Co. Highway Dept. Syracuse Construction Co.	Syracuse Syracuse
Harper	Harper Co. Highway Dept. San Ore Construction Co.	Anthony McPherson
Harvey	Thach Sand & Gravel Co.	Route 1, Barton
Haskell	Haskell Co. Highway Dept. Howard Mitchell M. W. Watson	Sublette Hugoton 1004 Nat'l Bank of Topeka Bldg., Topeka
Jackson	Jackson Co. Highway Dept.	Holton
Jewell	Jewell Co. Highway Dept.	Mankato
Kearny	Kearny Co. Highway Dept. Popejoy Sand & Gravel Co.	Lakin Ulysses
Kingman	Ray Wells	Route 1, Kingman
Kiowa	Kiowa Co. Highway Dept.	Greensburg
Leavenworth	Leavenworth Co. Highway Dept. Missouri Valley Sand, Inc.	Leavenworth P.O. Box 822, Leavenworth
Logan	Logan Co. Highway Dept.	Russell Springs
Lyon	Wesley Parks	648 Oak St., Emporia
Marshall	Marshall Co. Highway Dept. Blue River Sand & Gravel Co. C. V. Garrett Heinzelman Construction Co.	Marysville Blue Rapids Blue Rapids Marysville
McPherson	McPherson Co. Road Dept.	McPherson
Nemaha	Anderson-Oxandale	P.O. Box 425, Herington
Osborne	Osborne Co. Highway Dept.	Osborne
Ottawa	Ottawa Co. Highway Dept.	Minneapolis
Pawnee	Pawnee Co. Highway Dept. Johnson Sand & Gravel Co. Larned Sand & Gravel Co.	Larned P.O. Box 545, Larned P.O. Box 227, Larned
Phillips	Phillips Co. Highway Dept. D. G. Hansen	Phillipsburg Logan
Pottawatomie	Pottawatomie Co. Highway Dept. Wamego Sand Co.	Westmoreland Wamego

TABLE 32.—*Directory of sand and gravel producers on record as of December 31, 1958 (continued)*

County	Company or operator	Address
Pratt	Pratt Co. Highway Dept. Mrs. C. D. Hogard Miller Sand & Gravel Co.	Pratt 507 So. Mound St., Pratt Route 2, Pratt
Reno	City of Hutchinson Road Dept. Haven Sand Co. J. N. Shears Sons, Inc. J. E. Steele Sand & Gravel Co. J. A. Mummey Sand & Gravel Co. Fountain Sand Pit	Hutchinson Haven P.O. Box 277, Hutchinson Route 4, Hutchinson Nickerson Arlington
Republic	Republic Co. Highway Dept. Alsop Sand Co.	Belleville Wakefield
Rice	Arensman Sand & Gravel Co. Rock Hill Stone & Gravel Co. A. L. Stapleton Sterling Sand & Gravel Co., Inc. Tobias, Wright & Birchenough, Inc.	Chase P.O. Box 412, Sterling 121 N. Logan St., Lyons P.O. Box 281, Sterling Lyons
Riley	Walters Sand Co., Inc.	P.O. Box 30, Manhattan
Russell	Russell Co. Highway Dept.	Russell
Saline	Salina Sand Co., Inc.	Mentor
Sedgwick	City Engineer, Wichita Bentley Sand Co. Big Three Sand & Gravel Co. Dolese Brothers Co. L. C. House Sand Co. Walt Keeler Co., Inc. Miles Sand Service Provence Sand Co. Southwest Sand & Gravel Co. Superior Sand Co., Inc. Vic's Sand & Gravel Co. J & H Sand Co. York Sand Co. Consumers Sand Co. Kansas Sand Co., Inc. River Sand Co. Shoffner Sand, Inc.	Wichita Bentley 3020 W. 21st St., Wichita 12 13 N.W. 13th St., Oklahoma City, Oklahoma Route 2, Sedgwick P.O. Box 1972, Wichita 1 3925 W. 53rd St., Wichita 6600 W. 13th St., Wichita 4505 Southwest Blvd., Wichita 15 1717 W. 21st St., Wichita 3 Sedgwick 4226 Midland St., Wichita P.O. Box 306, Sedgwick 1101 W. Railroad, Topeka 531 N. Tyler St., Topeka P.O. Box 233, Topeka 1939 McAllister St., Topeka P.O. Box 15, Ottawa
Shawnee	Harry Henery, Inc.	Hoxie
Sheridan	Sheridan Co. Highway Dept. Carl Kaiser	Grainfield
Sherman	Sherman Co. Highway Dept. Harry Henery, Inc. M. W. Watson	P.O. Box 22, Goodland P.O. Box 15, Ottawa 1004 Nat'l Bank of Topeka Bldg., Topeka
Smith	Smith Co. Highway Dept.	Smith Center

TABLE 32.—Directory of sand and gravel producers on record as of December 31, 1958 (concluded)

County	Company or operator	Address
Stafford	Stafford Co. Highway Dept. Partin Sand & Gravel Co. San Ore Construction Co.	St. John P.O. Box 274, Stafford McPherson
Sumner	Sumner Co. Engineering Dept. Mulvane Sand Co., Inc.	Wellington 503 E. Mulvane St., Mulvane
Thomas	Thomas Co. Road Dept. Purma Dray Line Co. Joe Hubbard	Colby 975 2nd St., Colby Colby
Trego	Trego Co. Highway Dept.	WaKeeney
Wabaunsee	Wabaunsee Co. Highway Dept.	Alma
Wallace	Wallace Co. Highway Dept.	Sharon Springs
Washington	Washington Co. Highway Dept. Finlayson Gravel Mueller Sand & Gravel Co.	Washington Barnes Hanover
Wilson	Wilson Co. Highway Dept.	Fredonia
Wyandotte	American Sand & Gravel Co. Builders Sand Co. Dreyer Sand Co. Happe Sand Co. Holliday Sand & Gravel Co. Peck-Woolf Sand & Materials Co. Ralph Rees Stewart Sand & Materials Co.	5731 Kansas Ave., Turner P.O. Box 658, Argentine Sta., Kansas City 6 Turner 5411 Birch St., Mission 2 West 40th St., Kansas City 11, Mo. 1920 Paseo Blvd., Kansas City 8, Mo. Route 1, Bonner Springs 4049 Penn. Ave., Kansas City 11, Mo.

STONE

Stone, fourth most important mineral commodity in Kansas in 1958, showed a gain of 20.2 percent in quantity and 26.4 percent in value compared to 1957. Production in 1958 amounted to 12,505,060 tons, an increase of 2,104,852 tons. In value the 1958 production was worth \$15,039,385 or \$3,149,846 more than the previous year's production (Table 33). Stone produced in Kansas consists of limestone, sandstone, and chat (chert); the last is associated with the metal mining industry of the Tri-State Lead and Zinc District in southern Cherokee County. In the tables, chat is included under "miscellaneous" stone.

Most of the stone produced in the state in 1958 was crushed and used for concrete and road metal—7,975,066 tons valued at \$10,001,850, of which 7,619,141 tons, valued at \$9,824,504, was limestone. Quantitatively, next in importance was stone used for

TABLE 33.—*Quantity and value of stone produced in Kansas, 1957 and 1958, by kinds*

Year	Limestone		Sandstone		Miscellaneous		Total stone	
	Tons	Value	Tons	Value	Tons	Value	Tons	Value
1957	8,860,134*	\$11,241,664*	**	**	1,540,074	\$647,875	10,400,208*	\$11,889,539*
1958	11,549,276	14,617,410	26,190**	\$38,800**	928,874	383,175	12,505,060	15,039,385
Percent change from 1957	+33	+30			-39.7	-40.9	+20.2	+26.4

* Revised figures

** Excludes all commercial sandstone, value for which is included under "Undistributed" in Table 1.

TABLE 34.—*Summary of stone production in Kansas, 1957 and 1958, by uses*

Use	1957 ^a		1958 ^c		Percent change from 1957	
Concrete	Tons	5,924,724	Tons	7,975,066	Tons	+34.6
	Value	\$ 7,403,101	Value	\$10,001,850	Value	+33.7
Cement	Tons	2,211,274	Tons	2,464,135	Tons	+11.4
	Value	\$ 2,211,274	Value	\$ 2,464,135	Value	+11.4
Riprap	Tons	344,465	Tons	614,627	Tons	+78.4
	Value	\$ 313,634	Value	\$ 510,682	Value	+62.8
Dimension stone ^a	Tons	20,477	Tons	51,019	Tons	+149.1
	Value	\$ 448,457	Value	\$ 530,345	Value	+18.2
Railroad ballast	Tons	1,366,856	Tons	604,749	Tons	-55.8
	Value	\$ 659,664	Value	\$ 237,810	Value	-64.0
Agricultural	Tons	196,606	Tons	288,213	Tons	+46.5
	Value	\$ 256,034	Value	\$ 430,584	Value	+68.1
Other	Tons	335,806 ^b	Tons	506,531	Tons	+50.8
	Value	\$ 597,375 ^b	Value	\$ 863,949	Value	+44.0
Total	Tons	10,400,208 ^b	Tons	12,505,060	Tons	+20.2
	Value	\$11,889,539 ^b	Value	\$15,039,385	Value	+26.4

^a Excludes dimension sandstone^b Revised figures^c All commercial sandstone excluded

making portland and masonry cement, followed by riprap material, railroad ballast, and agricultural limestone. On the basis of value, stone for concrete and road metal was first (\$9,824,504), then cement (\$2,464,135), dimension stone (\$530,345), riprap material (\$510,682), agricultural limestone (\$430,584), and railroad ballast (\$237,810). With the exception of railroad ballast, all uses of stone showed large gains in 1958 compared to 1957. A summary of Kansas stone production and value by kinds for 1957 and 1958 is presented in Table 34. Table 35 shows Kansas stone production and value by kinds of rock and uses for 1957 and 1958.

The stone reserves of Kansas are extremely large and for practical purposes may be regarded as inexhaustible.

Stone was produced in Kansas in 1958 by 75 commercial companies operating 93 quarries in 45 counties and by 24 noncommercial operators, principally county highway departments, producing stone in 25 counties at 30 sites. Greatest activity in the stone industry centered in Elk and Wyandotte Counties, which accounted for 2,520,628 tons of stone (20.1 percent of all stone produced) valued at \$3,170,665 (21 percent of the total value). Wyandotte, Wilson, Elk, Allen, and Neosho Counties produced

TABLE 35.—*Kansas stone production and value by kinds of rock and uses, 1957 and 1958*

	1957		1958	
	Tons	Value	Tons	Value
Limestone				
Concrete and road metal ..	5,658,525	\$ 7,297,115	7,619,141	\$ 9,824,504
Cement	2,211,274	2,211,274	2,464,135	2,464,135
Riprap	344,465	311,634	588,437	471,882
Dimension stone	20,477	448,457	51,019	530,345
Agricultural	196,606	256,034	288,213	430,584
Railroad ballast	92,981	117,775	31,800	31,981
Other or miscellaneous** ..	335,806	597,275	506,531	863,949
Sandstone				
Railroad ballast	*	*	*	*
Concrete and road metal ..	*	*	*	*
Riprap	*	*	26,190	38,800
Other (including dimension stone)	*	*	*	*
Miscellaneous				
Railroad ballast	1,273,875	541,889	572,949	205,829
Concrete and road metal ..	266,199	105,986	355,925	177,346
Total all stone**	10,400,208	\$11,889,539	12,505,060	\$15,039,385

* Included under "Undistributed" in Table 1

** Revised figures

42.4 percent of the limestone, Bourbon, Lincoln, and Graham all of the sandstone, and Cherokee County was the sole producer of chat. Dimension limestone production was confined to Cowley, Geary, Neosho, and Pottawatomie Counties and dimension sandstone to Bourbon County.

A directory of stone producers operating in Kansas in 1958 is given in Table 36.

TABLE 36.—*Directory of stone producers on record as of December 31, 1958*

County	Company or operator	Address
Allen	Allen Co. Highway Dept.	Iola
	Lehigh Portland Cement Co.	Iola
	Monarch Cement Co.	Humboldt
Anderson	Hunt Rock Co.	Garnett
	Murray Limestone Products Co.	Centerville
Atchison	U.S. Corps of Engineers	1800 Federal Office Building, Kansas City 6, Missouri
	Ralph Bromley	Atchison
Bourbon	Geo. W. Kerford Quarry Co.	Atchison
	Bandera Stone Quarry	Redfield
	Bourbon Co. Highway Dept.	Fort Scott
	Cullor Limestone Co.	R.F.D. 5, Fort Scott
	Fort Scott Hydraulic Cement Co.	P.O. Box 267, Fort Scott
Butler	Butler Co. County Engineer	El Dorado
	Myers Material, Inc.	P.O. Box 911, El Dorado
Chase	Riddle Quarries, Inc.	Nat'l Bank of America Bldg., Salina
Chautauqua	Sedan Limestone Co.	Sedan
Cherokee	Baxter Chat Co.	Baxter Springs
	Diplomat Gravel Co.	2932 E. 17th, Joplin, Missouri
	Eagle-Picher	Miami, Oklahoma
	Freeto Construction Co.	Pittsburg
	C. Y. Semple	P.O. Box 390, Baxter Springs
	Southwest Chat Co., Inc.	Baxter Springs
	Southwest Rock & Chat Co.	Baxter Springs
	John J. Stark	P.O. Box 7, Girard
	Lee R. Thomas, Agt.	Baxter Springs
	A. J. Wright	Baxter Springs
Clay	Riddle Quarries, Inc.	Nat'l Bank of America Bldg., Salina
	Everett Quarries, Inc.	Plattsburg, Missouri
Coffey	Coffey Co. Highway Dept.	Burlington
	Jones Rock Co.	P.O. Box 128, Emporia
	Neosho Valley Rock Co.	Burlington
Cowley	John V. Elam	Winfield
	C. L. Daniels Stone Co.	P.O. Box 134, Winfield
	Silverdale Cut Stone Co.	Silverdale
	Silverdale Limestone Co.	Route 3, Box 180, Arkansas City
Crawford	John J. Stark	Box 7, Girard

TABLE 36.—*Directory of stone producers on record as of December 31, 1958*
(continued)

County	Company or operator	Address
Dickinson	Anderson-Oxandale Riddle Quarries, Inc.	Box 425, Herington Nat'l Bank of America Bldg., Salina
Doniphan	U.S. Corps of Engineers	1800 Federal Office Building, Kansas City 6, Missouri
	Everett Quarries, Inc.	Plattsburg, Missouri
	Geo. W. Kerford Co., Inc.	Atchison
	Wolf River Limestone, Inc.	Troy
Douglas	Perry Jones	Carbondale
Elk	Concrete Materials Const. Co.	Moline
	Elk Co. Highway Dept.	Howard
Ellis	City of Ellis Highway Dept.	Ellis
Franklin	Franklin Co. Highway Dept.	Ottawa
	Dan Fogle	Ottawa
Geary	Grosshans-Peterson, Inc.	Marysville
	Walker Cut Stone Co.	P.O. Box 269, Junction City
Graham	U.S. Bur. Reclamation	P.O. Box 841, Stockton
	E. C. Schroeder Co.	Hill City
Greenwood	Greenwood Co. Highway Dept.	Eureka
	Myers Material, Inc.	P.O. Box 911, El Dorado
Jackson	Anderson-Oxandale	Box 425, Herington
	G. W. Baker	Holton
	Reno Construction Co.	P.O. Box 61, Overland Park
Jefferson	Roy Baker	Valley Falls
	N. R. Hamm Quarry, Inc.	Perry
Jewell	Ideal Cement Co.	Superior, Nebraska
Johnson	Johnson Co. Highway Dept.	Olathe
	Deitz Hill Development Co.	28 SW Blvd., Kansas City 10, Missouri
	Reno Construction Co.	P.O. Box 61, Overland Park
Labette	Labette Co. Highway Dept.	Oswego
	John J. Stark	Box 7, Girard
Leavenworth	Kansas State Penitentiary	Lansing
	U.S. Corps of Engineers	1800 Federal Office Bldg., Kansas City 6, Missouri
	J. C. Haigwood	Tonganoxie
	Loring Quarries, Inc.	P.O. Box 174, Bonner Springs
Lincoln	Quartzite Stone Co.	Lincoln
Linn	Lee Giles	Greeley
	Linn Co. Highway Dept.	Mound City
	Murray Limestone Products	Centerville
Lyon	City of Emporia Highway Dept.	Emporia
Marion	Walt Keeler Co., Inc.	P.O. Box 1972, Wichita 1
	Riddle Quarries, Inc.	Nat'l Bank of America Bldg., Salina

TABLE 36.—*Directory of stone producers on record as of December 31, 1958
(concluded)*

County	Company or operator	Address
Marshall	Marshall Co. Highway Dept. R. Hopper Brothers Quarry	Marysville Pawnee, Nebraska
Miami	Miami Co. Highway Dept. A. J. Forster L. W. Hayes, Inc.	Paola Paola 4550 Main St., Kansas City 2, Mo.
Montgomery	City of Coffeyville Montgomery Co. Highway Dept. H. & S. Rock Co. Universal Atlas Cement Co.	Coffeyville Independence R.F.D. 1, Elk City 100 Park Ave., New York 17, N.Y.
Morris	Anderson-Oxandale	Box 425, Herington
Nemaha	Anderson-Oxandale	Box 425, Herington
Neosho	Neosho Co. Highway Dept. Ash Grove Lime-Portland Cement Co. Harry Byers & Sons, Inc.	Erie 101 W. 11th St., Kansas City, Mo. 500 N. Plummer, Chanute
	Joe O'Brian Rock Crusher	St. Paul
Osage	Clark Rock Quarry K. E. Dusenbury, Inc.	Baldwin Box 224, Lyndon
Osborne	Osborne Co. Highway Dept.	Osborne
Pottawatomie	Anderson-Oxandale Bayer Stone Co., Inc.	Box 425, Herington 509 Yuma St., Manhattan
	Manhattan Cut Stone Co.	P.O. Box 388, Manhattan
Rice	Riddle Quarries, Inc.	Nat'l Bank of America Bldg., Salina
Riley	Bayer Construction Co.	509 Yuma St., Manhattan
Sedgwick	Wichita Highway Dept.	City Bldg., Wichita
Shawnee	Anderson-Oxandale Perry Jones Henry C. Luttjohann Netherland Stone Co.	Box 425, Herington Carbondale 2001 James St., Topeka Route 2, Topeka
Wilson	Anderson-Oxandale Benedict Rock & Lime Co. Carr Rock Products Co. Consolidated Cement Corp.	Box 425, Herington Benedict 315 N. 8th St., Neodesha Fredonia
Woodson	Woodson Co. Corp. Engineers Nelson Brothers Quarries	Yates Center La Harpe
Wyandotte	City of Kansas City, Dept. of Streets American Rock Crusher Co. Lone Star Cement Corp. Peerless Quarries, Inc. Thompson-Strauss Quarries, Inc.	Kansas City 3700 Rainbow Blvd., Rosedale 1650 Dierks Bldg., Kansas City 6, Mo. Turner 700 Holliday Drive, Kansas City

METALS

Lead and zinc are the only metals mined in Kansas; 25 mines operated by 11 producers and 6 gougers in the southeast corner of Cherokee County, in the extreme southeast part of the state, produced lead and zinc. In 1958 the value of metals produced was \$1,205,850, which is \$3,690,940 less than in 1957. The metals contributed 0.3 percent of the value of all minerals produced in the state (Table 4, Fig. 3).

LEAD

For the second consecutive year lead production in Kansas showed a marked decline. In 1958 only 1,299 tons of recoverable lead was produced, 69.5 percent less than in 1957 when production was 4,257 tons. In value recoverable lead was worth \$303,966 as compared to \$1,217,502 in 1957, a decrease of 75.1 percent. The number of lead mines operated by the 11 lead mining companies and 6 gougers dwindled from 42 in 1957 to 25 in 1958.

The Eagle-Picher Mining and Smelting Company of Miami, Oklahoma, was the principal lead producer in 1958, replacing the National Lead Company of St. Louis, which in 1958, was third, having been surpassed also by the Searcy--Henderson Mining Company of Picher, Oklahoma. The only lead smelter operated in Kansas was the Eagle-Picher Mining and Smelting Company smelter at Galena, Cherokee County. This smelter treated ores not only from Kansas but also from the entire Tri-State District and some from Illinois. A lead pigment plant operated by the Ozark Smelting and Mining Company, Montgomery County, was active during 1958.

Data on lead production in Kansas in 1957 and 1958 and a directory of lead producers on record as of December 31, 1958, are presented in Tables 37 and 38 respectively.

TABLE 37.—Quantity and value of lead produced in Kansas, 1957 and 1958

	Concentrates (galena)		Recoverable metal (lead)	
	Tons	Value	Tons	Value
1957	5,703	\$1,026,116	4,257	\$1,217,502
1958	1,828	242,142	1,299	303,966
Percent change			-69.5	-75.1

TABLE 38.—*Directory of lead and zinc producers in Kansas on record as of December 31, 1958*

Company	Address	Mine*
B. & I. Mining Co.	Picher, Oklahoma	Florence Hartley
Ora Black	Cardin, Oklahoma	Lindsey Bldrs.
Carey-McCoy Mining Co.	Picher, Oklahoma	Sonny Boy
Collins & Thomas	Commerce, Oklahoma	Chubb
The Eagle-Picher Mining & Smelting Co.	Miami, Oklahoma	Bilhartz, Grace "B", Galena Midlings, Lucky Jew, Mid- Continent, Westside
National Lead Co., St. Louis, Smelting & Refg. Div.	Fredericktown, Mo.	Bailey, Ballard, Harley #1, Thomas Land
F. R. Pyle	Baxter Springs	Webber Bldrs.
C. H. Rea	Baxter Springs	Robinson
Searcy-Henderson Mining Co.	Picher, Oklahoma	Stoskopf
Jim Stone	Miami, Oklahoma	Bendelari
Stone & Thomas	Commerce, Oklahoma	Cherokee
6 miscellaneous gougers	.....	various

* All lead and zinc mines are in Cherokee County.

ZINC

Zinc, like lead, in 1958 slumped to a new low. In 1958, Kansas produced 8,210 tons of concentrated sphalerite or 4,421 tons of recoverable zinc as compared to 29,189 tons of sphalerite or 15,859 tons of recoverable zinc in 1957. Value of the recoverable zinc in 1958 was \$901,884 compared to \$3,679,288 in 1957, a decrease of 78 percent. The same companies that produced lead produced zinc in 1958.

The Cherryvale Zinc Company of Cherryvale, Montgomery County, added a unique smelting unit to its plant, a unit designed and built to complete metallurgical reduction and refining of lead-tin materials. This unit is housed in one of the two new buildings completed during the year.

Data on zinc production in Kansas in 1957 and 1958 and a directory of zinc producers on record as of December 31, 1958, are presented in Tables 39 and 38 respectively.

TABLE 39.—*Quantity and value of zinc produced in Kansas, 1957 and 1958*

Year	Concentrates (sphalerite)		Recoverable metal (zinc)	
	Tons	Value	Tons	Value
1957	29,189	\$2,311,401	15,859	\$3,679,288
1958	8,210	499,074	4,421	901,884
Percent change from 1957			-72.2	-78.3

UNDISTRIBUTED MINERALS

Kansas produced several minerals that are classified as "undistributed". Undistributed mineral commodities are those whose total quantity and value cannot be revealed, because they are produced almost exclusively by one company. Such minerals in 1958 include diatomaceous marl, gypsum, natural cement, salt brine, volcanic ash or pumicite, and dimension sandstone. In addition, expanded perlite and expanded vermiculite were processed within recent years from material shipped into Kansas from outside sources. The total value of undistributed minerals in Kansas in 1958 amounted to \$2,056,660.

CEMENT (NATURAL)

Natural cement production, shipments, and value in 1958 greatly exceeded those of 1957. Production and shipments were more than 165 percent greater than in the previous year and value more than 157 percent. The value of 1958 shipments of natural cement is included in the value listed under "Undistributed" in Table 1. The raw materials for the making of the cement are obtained from "cement" rock, or Blackjack Creek Limestone, the basal unit of the Fort Scott Limestone formation, Marmaton Group. Reserves of natural cement rock are practically unlimited.

DIATOMACEOUS MARL

Production and value of diatomaceous marl in Kansas in 1958 was slightly greater (1.5 percent) than in 1957. Value of diatomaceous marl is included in the total listed under "Undistributed" in Table 1, inasmuch as the DeLore Division of the National Lead Company of St. Louis, Missouri, is the sole producer in Kansas.

The known deposits, mainly in Wallace County, are estimated to exceed 1,000,000 tons.

GYP SUM

Gypsum production in Kansas in 1958 declined approximately 11 percent in quantity of crude and 14 percent of calcined gypsum; value of crude gypsum increased 11.9 percent whereas calcined gypsum declined 6.6 percent compared to 1957. The value of the crude gypsum produced is included under the value assigned to the "Undistributed" minerals (Table 1). Gypsum was produced in Barber and Marshall Counties. Producers on record

TABLE 40.—*Directory of Kansas producers of gypsum in 1958*

County	Company	Office address	Mine or plant
Barber	National Gypsum	325 Delaware Ave., Buffalo, N.Y.	Medicine Lodge
Marshall	Bestwall Gypsum	120 E. Lancaster Ave., Ardmore, Penn.	Blue Rapids

at the end of 1958 are those listed in Table 40. The reserves of gypsum are known to be extensive; they are sufficient to maintain production at the present rate for many years.

PERLITE AND VERMICULITE

Expanded perlite and expanded vermiculite were processed in Kansas from raw materials imported from other states. The quantity and value of expanded perlite sold in the state in 1958 was about 22 percent less than in 1957. Although the quantity of expanded vermiculite sold in Kansas in 1958 was approximately 25 percent less than it was in 1957, its value showed a gain of about 14 percent. Expanded perlite was processed by Panocalite Perlite, Inc., of Kansas City, Wyandotte County, and expanded vermiculite by the Dodson Manufacturing Company of Wichita, Sedgewick County. Values of perlite and vermiculite are included in the total listed under "Undistributed" in Table 1.

PUMICITE OR VOLCANIC ASH

For the fourth consecutive year pumicite or volcanic ash production and value in Kansas decreased. In 1958, production and value of pumicite were respectively 24.4 and 13.6 percent less than in 1957. As there were only two producers in Kansas in 1958, value is included in the total listed under "Undistributed" in Table 1. Kansas volcanic ash is extracted primarily for use in hand soap and cleaning and scouring compounds. Producers on record for 1958 are listed in Table 41.

Estimated reserves of pumicite or volcanic ash in Kansas are approximately 9,700,000 tons.

TABLE 41.—*Directory of Kansas producers of pumicite, or volcanic ash, in 1958*

County	Company	Office address	Pit location (nearest town)
Lincoln Norton	Ernest Hauzlicek Wyandotte Chemical Corp.	Wilson 1609 Biddle Ave., Wyandotte, Mich.	Wilson Calvert

SALT BRINE

Salt brine for industrial purposes is produced by only one company in Kansas, the Frontier Chemical Company of Kansas, Inc., of Wichita. The salt obtained from brine pumped from the company's wells in Sedgwick County near Wichita is used in the manufacture of industrial chemicals. The quantity and value of the salt produced by this company in 1958 increased approximately 44 and 54 percent respectively from 1957. Value of the salt produced is included in the total listed under "Undistributed" in Table 1. During 1958 the Frontier Chemical Company of Kansas, Inc., formerly subsidiary of Union Chemical and Materials Company of Chicago, Illinois, became a division of the Vulcan Materials Company of Birmingham, Alabama.

SANDSTONE (DIMENSION)

Dimension sandstone was produced by the Bandera Stone Quarry Company of 222 West 72nd Street, Kansas City, Missouri. The quarry is located near Redfield in Bourbon County, Kansas. Production in 1958 is estimated to have been about the same as in 1957. The Bandera sandstone is used for building stone, including rough construction stone, sawed stone, and flagging stone. Value of dimension sandstone is included in the total listed under "Undistributed" in Table 1.

UNEVALUATED MINERAL RESOURCES

WATER AND SOIL

Two of the most important mineral resources of Kansas are water, both surface and underground, and soil. Water and soil are truly mineral commodities, but because of their nature and universal usage are difficult to evaluate as to quantity and value. Water, to a considerable extent, is a replenishable resource in that water supplies may be completely replenished in some geologic situations and only partly replenished in others. Soil lost by erosion is replaced only by slow soil-building processes. No data are at hand at present in regard to the actual quantity of soil that exists in Kansas. Without the soil that covers the 82,113 square miles of land surface (total area including water surface is 82,276 square miles), Kansas could not have produced \$1 billion to \$1.5 billion worth of agricultural products including

livestock each year since 1950. The amount of available water and the quantity used or consumed in the state in 1953 were estimated by the Kansas Water Resources Fact-Finding and Research Committee in 1954. According to the survey, a total of 1,898 mgd (million gallons a day) was withdrawn from the available water resources, but the amount consumed and removed from the supply for all purposes amounted to 652 mgd, or 237,980 million gallons per year. The actual value of the 237,980 million gallons consumed per year is not known. It is estimated (Foley, Smrha, and Metzler, 1955, p. 1) that city dwellers pay an average of only about \$5 a year each for water, and rural residents somewhat less. On the assumption that 51 percent of the population is urban and 49 percent rural, the minimum value of water consumed is computed to be about \$9,000,000 a year. This sum, however, does not include the value of water consumed by industry, which is estimated to pay an additional \$27,000,000 a year, or about three-fourths of the state's water bill. The figures cited are not intended to be exact, but they do suggest the magnitude of the value of water consumed in Kansas each year.

UNEXPLOITED MINERALS

In addition to the minerals produced, there are other mineral commodities in Kansas that either have never been exploited or are not at present being produced on a commercial scale. Such minerals include aluminum from clays (Kinney, 1943, 1952), bentonite (Kinney, 1942), chalk (Runnels and Dubins, 1949), of which the state has virtually unlimited supplies, iron (Jewett and Schoewe, 1942, p. 103), magnesium (Schoewe, 1943; Jeffords, 1948), mineral water (Schoewe, 1953, p. 133), oil shale (Runnels and others, 1952), phosphate nodules (Runnels, 1949; Runnels and others, 1953), pyrite (Jewett and Schoewe, 1942, p. 168), rock asphalt (Jewett, 1940), and tripoli (Jewett and Schoewe, 1942, p. 168). Still other minerals are known to occur in Kansas, such as germanium (Schleicher and Hambleton, 1954; Schleicher, 1959), and uranium (Runnels, Schleicher, and Van Nortwick, 1953), but these have not been investigated sufficiently to show whether they exist in commercial quantities. Further study of these unexploited minerals in Kansas coupled with favorable economic conditions may eventually result in the production of some, if not all, of these mineral commodities.

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- PART 1. QUATERNARY GEOLOGY AND GROUND-WATER RESOURCES OF KANSAS RIVER VALLEY BETWEEN BONNER SPRINGS AND LAWRENCE, KANSAS, by Alvin E. Dufford, p. 1-96, fig. 1-10, pl. 1-8, April 15, 1958.
- PART 2. PETROLOGY OF THE PLIOCENE PISOLITIC LIMESTONE IN THE GREAT PLAINS, by Ada Swineford, A. Byron Leonard, and John C. Frye, p. 97-116, fig. 1, pl. 1-5, May 15, 1958.
- PART 3. ENVIRONMENT OF DEPOSITION OF THE GRENOLA LIMESTONE (LOWER PERMIAN) IN SOUTHERN KANSAS, by N. Gary Lane, p. 117-164, fig. 1-5, pl. 1-6, June 30, 1958.
- PART 4. FLOWAGE IN ROCK SALT AT LYONS, KANSAS, by Louis F. Dellwig, p. 165-175, fig. 1-3, pl. 1-2, September 15, 1958.
- PART 5. HISTORY OF CRETACEOUS STRUCTURAL STUDIES IN KANSAS, by Daniel F. Merriam, p. 177-191, fig. 1-6, November 15, 1958.
- PART 6. THE MINERAL INDUSTRY IN KANSAS IN 1957, by Walter H. Schoewe, p. 193-242, fig. 1-3, December 31, 1958.

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- PART 1. DESCRIPTION OF A DAKOTA (CRETACEOUS) CORE FROM CHEYENNE COUNTY, KANSAS, by D. F. Merriam, W. R. Atkinson, Paul C. Franks, Norman Plummer, and F. W. Preston, p. 1-104, fig. 1-13, pl. 1-4, April 15, 1959.
- PART 2. CEMENT RAW MATERIALS IN KANSAS, by Russell T. Runnels, p. 105-124, fig. 1-5, May 1, 1959.
- PART 3. SANDSTONES OF THE DOUGLAS AND PEDEE GROUPS IN NORTHEASTERN KANSAS, by Donald T. Sanders, p. 125-159, fig. 1-5, pl. 1-2, May 15, 1959.
- PART 4. GERMANIUM IN KANSAS COALS, by John A. Schleicher, p. 161-179, fig. 1-2, May 15, 1959.
- PART 5. COAL RESOURCES OF THE CHEROKEE GROUP IN EASTERN KANSAS. I. Mulky Coal, by Walter H. Schoewe, p. 181-222, fig. 1-6, pl. 1-6, June 1, 1959.
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- PART 7. THE MINERAL INDUSTRY IN KANSAS IN 1958, by Walter H. Schoewe, p. 239-287, fig. 1-3, October 15, 1959.