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URBANA

REPORT OF INVESTIGATIONS — No. 101

ILLINOIS MINERAL INDUSTRY IN 1943

BY

WALTER H. VOSKUIL and DOUGLAS F. STEVENS

PRINTED BY AUTHORITY OF THE STATE OF ILLINOIS

URBANA, ILLINOIS
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Topographic Mapping in Cooperation with the United States Geological Survey.
This report is a Contribution of the Mineral Economics Section.

November 15, 1944.

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ILLINOIS MINERAL INDUSTRY IN 1943

BY

WALTER H. VOSKUIL AND DOUGLAS F. STEVENS

INTRODUCTION

ILLINOIS MINERAL INDUSTRY in 1943 continued at a high rate of production. The total value of minerals produced in Illinois during the year amounted to $332,186,000 mined and sold or used by producers within the State. The additional value of $205,428,000 for mineral materials processed, but not mined, in Illinois, brought the total value of all minerals produced and processed during 1943, for which data are available, to $537,614,000. This was an increase of $2,050,000, or 0.4 percent, above the all-time high record established in 1942, despite a large decrease in the production of oil. The 1943 record is the highest ever attained.

For the past two years the resources of our State and the energies of her people have been devoted to the prosecution of the second World War. The need for men and materials by the industries producing military equipment and supplies became increasingly large, and these needs necessarily caused curtailment of some of the mineral industries whereas others were stimulated to greater activity to meet these military needs.

The changes in amount (or value, where amounts are not available) of 1943 production from 1942, for the principal mineral materials mined or produced in Illinois, as shown in table 1, were as follows:

	Percent change from 1942
Fuller's earth	+110
Liquefied petroleum gases	+ 56
Fluorspar	+ 23
Lime	+ 20
Coal	+ 12
Silica sand	+ 9
Natural gasoline	+ 8
Ground silica	+ 5
Clays	+ 3
White wares and pottery	— 0.3
Refractories	— 6
Limestone, dolomite, marl	— 19
Tripoli (amorphous silica)	— 19
Metals—zinc, lead, silver	— 21
Crude oil	— 23
Structural clay products	— 27
Sand and gravel	— 31
Natural gas (sold and used as such)	— 32
Cement	— 35

For mineral materials processed, but not mined in Illinois, the changes of 1943 production from 1942 were as follows:

	Percent change from 1942
Slab zinc, from out-of-state ore	+ 30
Coke and byproducts	+ 6
Pig iron	+ 1
Packaged fuel	— 38

Comparing the values of various minerals produced in Illinois during 1943, coal ranked first with a value of $152,827,000 (the highest record since 1923); petroleum ranked second with a value of $119,282,000; stone, cement, lime, and mineral wool ranked third with a value of $22,488,000; clays and clay products ranked fourth with a value of $18,294,000; sand and gravel, silica sand, ground silica, and tripoli ranked fifth with a value of $11,246,000; fluorspar ranked sixth with a value of $6,293,000 (an all-time high record, which surpassed the previous all-time high record of 1942 by 23 percent); and metals—zinc, lead, and silver—ranked seventh with a value of $1,632,000.

Considering mineral materials processed, but not mined, in Illinois during 1943, the total value reported, $205,428,000, established a new all-time high record for the second consecutive year. Of these mate-

rials pig iron ranked first with a value of $126,910,000 (the third year in succession in which an all-time high record of output was reached); coke and byproducts ranked second with a value of $38,795,000; slab zinc, from out-of-state ore, ranked third with a value of $36,811,000. Other processed mineral materials are produced in Illinois in large amounts, but data for them are not available.

Compared with other states, Illinois in 1943 ranked first in amount and value of production of fluorspar, ground silica, and tripoli (amorphous silica); third in amount and value of stone and of sand and gravel; third in amount and fourth in value of coal and of fuller's earth; fourth in amount and value of pig iron, and of liquefied petroleum gases; fifth in amount and value of natural gasoline; fifth in value and sixth in amount of lime; sixth in amount and value of crude oil, and of coke and byproducts; sixth in amount and seventh in value of clays sold.

Illinois ranked fifth among all the states in total value of mineral production in 1943, being exceeded by Texas, Pennsylvania, California, and West Virginia. In cumulative value of output of minerals for the period 1911-1941 inclusive, Illinois ranked sixth in the nation.

Acknowledgments

This report is made possible through the cooperation of the Bureau of Mines and the Bituminous Coal Division of the United States Department of the Interior, the Illinois State Department of Mines and Minerals, and the cooperation of mineral producers throughout Illinois in furnishing information regarding their operations.

Each of the sections of this report was prepared in close collaboration with the heads of the several mineral research divisions of the Illinois State Geological Survey. Special assistance and advice were contributed by J. E. Lamar, Geologist and Head of the Industrial Minerals Division; G. H. Cady, Senior Geologist and Head of the Coal Division; A. H. Bell, Geologist and Head of the Oil and Gas Division; and Ralph E. Grim, Petrographer.

SUMMARY OF PRODUCTION AND VALUE OF ILLINOIS MINERALS IN 1943

A summary of the production and value of Illinois minerals in 1943 is presented in table 1, with comparative data for 1941 and 1942. Detailed figures for each mineral are given in the various sections of this report, to which reference is made in table 1.

The unit of quantity measurement used for each mineral product is that commonly used in the commercial handling of that material. Wherever possible the net or short ton of 2,000 pounds is used, but some products are sold by the gallon, barrel, cubic foot, or by the number of pieces. In some materials, diversity of products makes it impossible to give any measure of quantity.

The value of each mineral product, in its first marketable form, is given as its net selling price at point of origin, without including any transportation expense other than that necessary in bringing it from the mine to the place where it is made into a marketable product. Wherever possible, average or unit rates of value are given. The quantity and value of metals are given, not as those of the ores, but in terms of the recovered metals.

Mineral production is considered as those minerals or mineral materials which are mined and sold or used by producers in Illinois. Mineral materials which were processed, but not mined, in Illinois are shown separately. Every effort has been made to avoid duplication.

Illinois has attained a position of importance among the various states in the production of several mineral materials. Its rank both in quantity and value of these materials is given in table 1.

In order to permit comparison of recent mineral production with that in previous years, figure 1 and table 2 are presented, which show the value of annual mineral production of Illinois from 1914 to 1943, inclusive. These indicate the effect on the State's mineral industry of the first World War and the period of great industrial

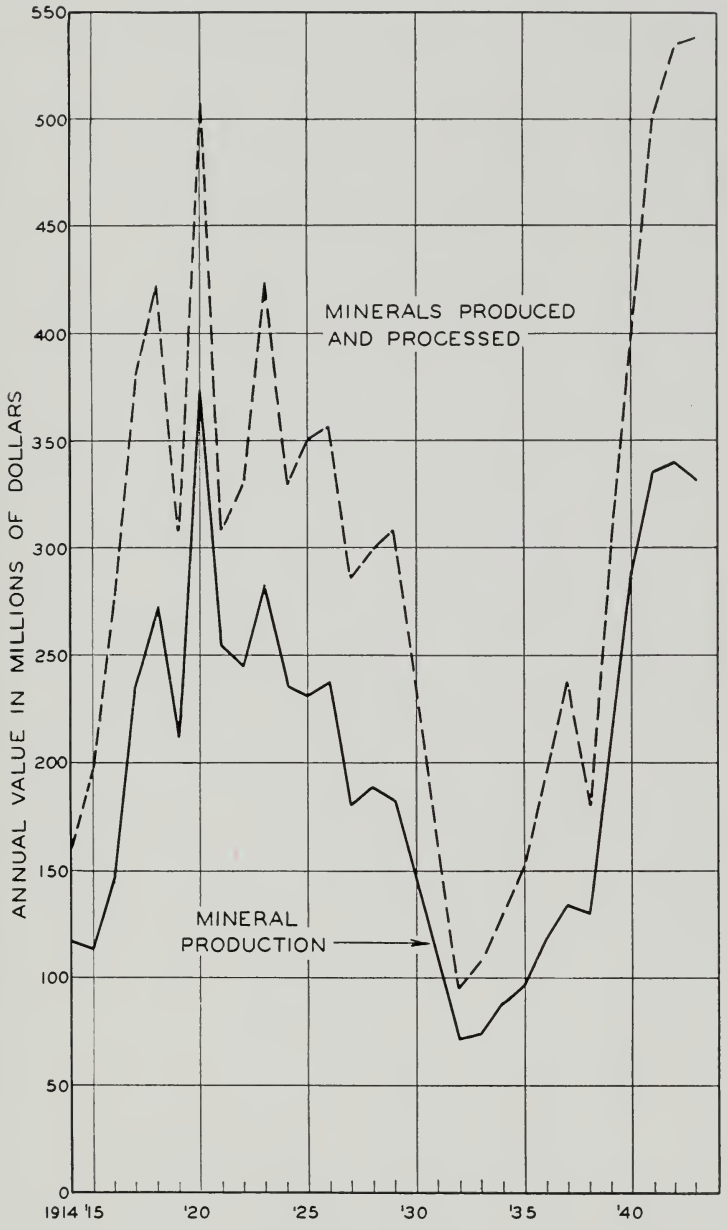

FIG. 1.—Value of annual mineral production in Illinois, 1914–1943.

activity which followed through 1923, then a period of gradual reduction through 1929, followed by extreme reduction through the depression years, and then gradual increases through 1937. A temporary decline in 1938 preceded the period of great activity caused by the second World War beginning in 1939. During 1943 a new all-time high record was attained for total value of minerals produced and processed in Illinois.

TABLE 1.—SUMMARY OF MINERAL PRODUCTION OF

Line No.	Material	Unit	Detail table	1941				
				Quantity	Value at plants		Rank among states	
					Total	Av.	Amt.	Value
1	*Coal—bituminous*	Tons	9, 11	55,365,835	$100,212,000	$1.81	3	4
	Petroleum—							
2	Crude oil	Bbls.	32	132,393,000	172,100,000	1.30	4	4
3	Natural gas	M. cu. ft.	"	* 19,052,256	* 459,017	* .024	*16	*17
4	Natural gasoline	Gals.	"	54,872,000	2,693,000	.049	8	6
5	Liquefied petroleum gases	"	"	38,293,000	1,054,000	.028	4	6
6				—	* 176,306,017	—		
	Stone, Rock Products—							
7	Limestone, dolomite, marl	Tons	42, 43	12,206,136	11,104,104	.91	4	* 4
8	Cement	Bbls.	48	6,033,440	8,799,667	1.46	9	9
9	Lime	Tons	49	246,278	1,723,850	6.99	6	* 6
10	Mineral wool	—	50	—	—	—		
11				—	21,627,621	—		
	Clays, Clay Products							
12	Clays (except fuller's earth)	Tons	51	* 197,259	* 455,386	*2.31	6	7
13	Fuller's earth	"	"	26,676	209,577	7.87	4	4
14	Clay products—refractories	"	52	244,352	4,791,299	19.61		
15	Structural	Equiv. tons	"	1,556,420	8,248,514	5.32		* 5
16	White wares and pottery	—	"	—	* 6,553,512	—		
17				—	* 20,258,288	—		
	Sand and Gravel—							
18	Silica sand	Tons	54	2,092,700	2,872,961	1.37		
19	Ground silica	"	55	139,116	849,609	6.10	1	1
20	Other sand	"	57	5,038,032	2,249,091	.45		
21	Gravel	"	"	* 8,336,247	* 3,832,278	.46		
22	Tripoli (amorphous silica)	"	56	13,833	200,700	14.45	1	1
23				* 15,619,928	* 10,004,639	* .64	4	5
24	*Fluorspar*	Tons	60	133,333	3,047,247	22.85	2	1
	Metals—							
25	Zinc	Tons	62	9,198	1,379,700	150.00		
26	Lead	"	"	2,376	270,864	114.00		
27	Silver	Fine ozs.	"	20,340	14,464	.71		
28				—	1,665,028	—		
29	*Other minerals*	Tons	63	* 31,053	* 103,843	*3.34		
30	*Annual mineral production*			—	*$333,224,683	—		5
	Minerals processed, but not mined, in Illinois [c]							
31	Coke and byproducts	—	30, 44	—	* 35,961,000	—	6	5
32	Packaged fuel	Tons	29, 64	8,924	95,431	10.60	7	7
33	Pig iron	"	64	5,461,459	113,558,606	20.79	4	4
34	Sulfuric acid	"	"	213,749	1,814,729	8.49	2	2
35	Slab zinc (out-of-state ore)	"	"	112,723	16,908,450	150.00	3	3
36	Miscellaneous minerals	"	"	—	—	—		
37				—	168,338,216	—		
38	*Total minerals produced and processed*			—	*$501,562,899	—		

* Revised figures.
[a] Compiled from various sources, as stated in each detailed table. See footnotes for each table.
[b] Percent change in value from 1942.

ILLINOIS, SOLD OR USED BY PRODUCERS, 1941–1943[a]

1942					1943						
Quantity	Value at plants		Rank among states		Quantity	Value at plants		Percent change in amount from 1942	Rank among states		Line No.
	Total	Av.	Amt.	Val.		Total	Av.		Amt.	Value	
65,746,204	$123,602,864	$ 1.88	3	4	73,344,761	$152,827,000	$ 2.08	+ 11.6	3	4	1
106,391,000	144,800,000	1.36	5	5	82,260,000	111,900,000	1.36	— 22.7	6	6	2
* 26,129,000	* 948,000	* .036			17,812,300	708,400	.04	— 31.8			3
* 66,389,000	* 3,252,000	* .049	8		71,615,000	3,847,000	.054	+ 7.9	5	5	4
* 72,934,000	* 2,000,000	* .027			113,750,000	2,827,000	.025	+ 56.0	4	4	5
—	*151,000,000	—			—	119,282,400	—	— 21.0[b]			6
14,006,556	13,014,429	.93	4	* 3	11,384,167	10,609,062	.93	— 18.7	3	3	7
7,087,400	10,284,111	1.45	10	10	4,595,474	7,094,207	1.54	— 35.2	11	11	8
314,077	2,266,152	7.21	6	5	375,664	2,370,944	6.31	+ 19.6	6	5	9
—	—	—			—	2,413,834	—	—			10
—	25,564,692	—			—	22,488,047	—	— 12.1[b]			11
* 177,663	* 439,872	* 2.48	6	7	182,620	463,986	2.54	+ 2.7	6	7	12
30,421	264,611	8.70	4	4	63,909	575,805	9.01	+110.0	3	4	13
275,456	5,918,118	21.48			260,362	5,379,492	20.66	— 5.5			14
1,135,167	6,326,510	5.57			830,100	4,515,300	5.44	— 26.7			15
—	* 7,379,387	—			—	7,359,559	—	— 0.3[b]			16
—	* 20,328,498	—			—	18,294,142	—	— 10.0[b]			17
3,103,897	4,055,602	1.31			3,375,744	4,798,982	1.42	+ 8.7			18
166,303	1,122,756	6.79	1	1	173,854	1,218,769	7.01	+ 4.5	1	1	19
* 5,469,306	* 2,627,665	.48			3,552,391	1,763,612	.50	— 34.9			20
* 9,350,636	* 4,831,864	* .52			6,680,465	3,295,771	.49	— 28.6			21
12,575	203,390	16.17	1	1	10,203	168,758	16.54	— 18.9	1	1	22
* 18,102,717	* 12,841,277	* .71	2	4	13,792,657	11,245,892	.82	— 23.3	3	3	23
161,949	4,306,750	26.59	1	1	198,789	6,292,789	31.66	+ 22.7	1	1	24
9,389	1,746,354	182.00			5,830	1,317,580	226.00	— 37.9			25
2,344	314,096	134.00			2,114	312,872	148.00	— 9.8			26
104	74	.71			2,250	1,600	.71	—			27
—	2,060,524	—			—	1,632,052	—	— 20.8[b]			28
* 36,555	* 134,037	* 3.67			29,236	124,142	4.25	— 20.0			29
—	*$339,838,642	—		5	—	$332,186,464	—	— 2.3[b]		5	30
—	* 36,576,009	—	6	5	—	38,795,067	—	+ 6.1[b]	6	6	31
4,980	60,001	12.05	7	7	3,081	38,445	12.48	— 38.1			32
5,871,858	125,662,134	21.30	4	4	5,920,894	126,910,295	21.30	+ 0.8	4	4	33
215,494	2,036,418	9.45			[d]	[d]	—	—			34
* 166,066	* 28,954,646	*174.00			215,850	36,811,380	171.00	+ 30.0			35
* 42,849	* 2,436,135	* 56.85			35,855	2,872,624	80.12	— 16.3			36
—	* 195,725,343	—			—	205,427,811	—	+ 5.0[b]			37
—	*$535,563,985	—			—	$537,614,275	—	+ 0.4			38

[c] Other processed minerals produced in Illinois include pig lead, expanded vermiculite, alumina, phosphates, etc., but data for them are not available.
[d] Figures not available.

TABLE 2.—VALUE OF ILLINOIS MINERAL PRODUCTION
SUMMARY OF ANNUAL VALUES, 1914–1943[a]
(In thousands of dollars)

Year	Mineral production of Illinois (thousands)	Minerals processed, but not mined, in Illinois (thousands)	Total minerals produced and processed (thousands)
1914	$117,166	$ 44,843	$162,009
15	114,446	82,871	197,317
16	146,360	130,082	276,442
17	234,736	144,754	379,490
18	271,244	149,740	420,984
19	213,701	95,077	308,778
1920	373,926	137,228	511,154
21	254,019	54,136	308,155
22	244,618	85,820	330,438
23	282,761	142,131	424,892
24	235,796	95,506	331,302
1925	231,658	118,702	350,360
26	237,242	119,642	356,884
27	180,394	105,099	285,493
28	188,099	110,622	298,721
29	182,791	125,516	308,307
1930	148,311	89,303	237,614
31	108,066	52,014	160,080
32	71,693	24,385	96,078
33	74,837	34,786	109,623
34	89,212	41,405	130,617
1935	96,484	57,038	153,522
36	117,916	78,693	196,609
37	133,437	104,359	237,796
38	130,155	50,482	180,637
39	*215,157	86,324	*301,481
1940	*287,327	114,814	*402,141
41	*333,225	*168,338	*501,563
42	*339,839	*195,725	*535,564
43	332,186	205,428	537,614

* Revised figures.

[a] Compiled from following sources:
For years 1914-1922, Incl.—U. S. Geological Survey, Mineral Resources of U. S.
1923-1931, " —U. S. Bureau of Mines, Mineral Resources of U. S.
1932-1938, " —U. S. Bureau of Mines, Minerals Yearbooks.
1939-1943, " —Joint canvasses made by Illinois Geological Survey and U. S. Bureau of Mines, and Minerals Yearbooks.

COAL

Coal in 1943—The National Picture

The national coal production in 1943 continued its upward trend although it showed signs of approaching a maximum. Tonnage outputs and rates of increase since 1938 are shown in table 3.

Table 3.—National Coal Output Since 1938[a]

	Tonnage output in thousands	Percent increase by years
1938	348,545	
1939	394,855	+13.3
1940	460,772	+16.7
1941	514,149	+11.6
1942	580,000	+12.8
1943	589,000	+ 1.6

[a] Compiled from sources stated in footnote [a], table 8.

The rapid increase in 1939 and 1940, following the depression year of 1938, merged into the war industry years of 1941 to 1943.

The activity of 1941, based partly upon the beginnings of our own re-armament program and the overseas trade in war materials, increased into determined haste in 1942 with our entry into the war. By 1943, much of the plant expansion program was completed, production schedules in army lines were attaining the predetermined goal, and a period of relative stability of production was approaching. This was reflected in the moderate increase of coal production in 1943 over 1942.

Changes in production have varied, however, among production districts. War needs imposed heavier demands upon some districts than it did upon others. Transportation difficulties caused some changes in customary coal movements with their effects upon individual producing districts. Illinois enjoyed a considerable increase in production and also an increase in the percentage of the national output. A detailed description and analysis of the characteristics of the twelve production districts east of the Mississippi River are given below.

Eastern Production Districts.—Production districts east of the Mississippi River account for nearly 90 percent of the national output and are the principal source of coking coal, industrial fuel, and domestic coal. Competition for markets in the lake territory and in the Mississippi Valley is vigorous among the domestic, industrial, and railroad fuel markets. The market for coking coal is held almost exclusively by the Pennsylvania and southern West Virginia fields.

Description of the Districts.—These districts, as outlined and organized by the Bituminous Coal Division, are shown in figure 2. In the Appalachian coal region, the several districts were outlined and delimited primarily on a basis of the nature of the market served by the district. For example, District No. 1 in central Pennsylvania serves mainly eastern Pennsylvania, New York, New Jersey and western New England markets; District No. 2 serves the Pittsburgh and Mahoning Valley steel centers; District No. 3 is primarily a supplier of railroad fuel; Districts Nos. 7 and 8 (West Virginia, Virginia, and eastern Kentucky) are sources of coking coal mainly for the Chicago district and for domestic fuel in the Upper Mississippi Valley states. District 4 (Ohio) serves local markets; Districts 9 (western Kentucky), 10 (Illinois), and 11 (Indiana) supply industrial and domestic fuel to the Mississippi Valley. District 13 is the source of local coking coal supply for the steel industry in Alabama.

In the Eastern Interior basin, producing districts are delineated by state lines. In these districts, differentiation of quality and use is not as pronounced as in the Appalachian fields, and state boundaries serve as convenient means of setting up administrative districts. District No. 5 (Michigan) serves local markets.

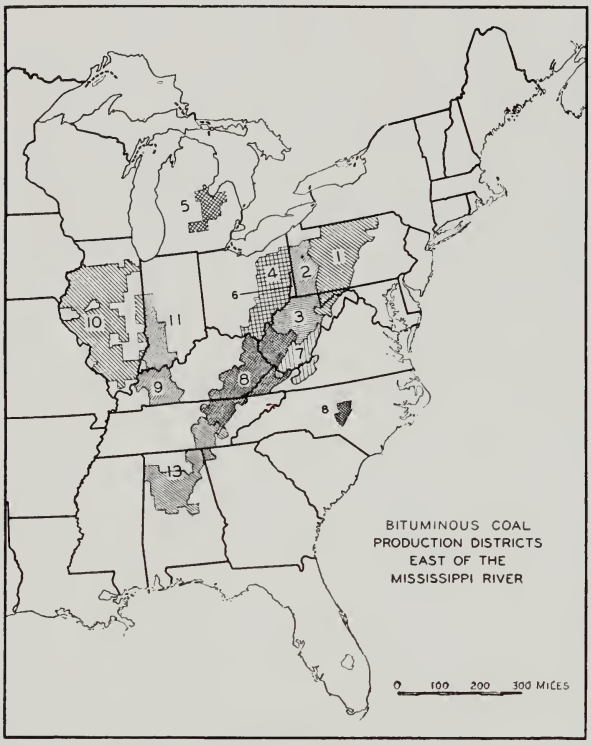

FIG. 2.—Bituminous coal production districts east of the Mississippi River.

Relative Importance of Each Producing District.—The relative importance of each of the producing districts is shown in table 4. This gives tonnage output and percentage of the national production for the years 1941 to 1943 inclusive. It is interesting in that it indicates the effect of the war upon output of the several producing districts.

Eastern Pennsylvania increases reflected expanding activity among war production industries in the Pennsylvania-New Jersey industrial district. A relative decline in western Pennsylvania reflects a diversion of steel output to war materials and away from civilian goods.

Districts Nos. 7 and 8, the source of coal for metallurgical coke, showed a relative percentage decline. This can be explained only with reference to the peacetime production conditions in this district and the relation to the Illinois-Indiana-Kentucky producing districts. Districts 7 and 8 (West Virginia, Virginia, eastern Kentucky) normally operated at a high level throughout the year. The slack in the coal market did not affect the group of southern Appalachian producers since this normal summer decline in demand is filled by the demand occasioned by lake movements. There is no comparable summer market for the mines of Illinois, Indiana, and western Kentucky.

The increased tempo of industrial activity occasioned by armaments manufacture also stimulated demands for the coking and steam coals of the southern Appalachian districts. These mines, normally near capacity operation, did not increase output substantially, but met the added load in the eastern industrial districts by curtailing somewhat their shipments to the Middle West. This latter market was absorbed by producers in Illinois, Indiana, and Kentucky. This is borne out by production history in 1941-1943, see table 5.

The largest increase over 1941 is by the mines in the State of Illinois.

An examination of the seasonal output of coal in Illinois in the years 1940 to 1943 shows that a portion, at least, of the increased output in Illinois was provided by greater productivity in the summer season. This is borne out by an examination of table 6.

TABLE 4.—BITUMINOUS COAL AND LIGNITE, PRODUCTION BY DISTRICTS, 1941–1943[a]
(In thousands of tons)

	1941		1942		1943	
	Amount	Percent of total	Amount	Percent of total	Amount	Percent of total
Price Area 1						
Dist. 1. Eastern Pennsylvania	50,469	9.81	58,877	9.98	59,510	10.11
Dist. 2. Western Pennsylvania	79,595	15.48	88,144	15.20	84,832	14.40
Dist. 3. Northern West Virginia	32,494	6.31	38,991	6.72	41,302	7.01
Dist. 4. Ohio	29,655	5.77	34,600	5.97	31,935	5.42
Dist. 5. Michigan	364	.07	320	.05	180	.03
Dist. 6. Panhandle	4,860	.94	5,324	.92	5,164	.88
Dist. 7. Southern Numbered 1	61,750	12.01	64,427	11.11	63,838	10.84
Dist. 8. Southern Numbered 2	107,398	20.89	119,852	20.66	119,873	20.35
Total—Price Area 1	366,593	71.28	409,535	70.61	406,634	69.04
Price Area 2						
Dist. 9. West Kentucky	11,747	2.28	13,240	2.28	15,410	2.62
Dist. 10. Illinois	54,703	10.63	63,750	10.99	72,430	12.30
Dist. 11. Indiana	22,484	4.37	25,470	4.39	25,175	4.27
Dist. 12. Iowa	2,939	.57	2,990	.52	2,760	.47
Total—Price Area 2	91,873	17.87	105,450	18.18	115,775	19.66
Price Area 3						
Dist. 13. Southeastern	16,228	3.15	20,173	3.48	19,460	3.30
Total—All Eastern Districts	474,694		535,158		541,869	
Percent of U. S. total		92.33		92.27		92.00
Total—United States	514,149		580,000		589,000	

[a] Compiled from Weekly Coal Reports, U. S. Dept. Interior, Bituminous Coal Div. and Solid Fuels Adm. for War. Does not include mines with annual production less than 1,000 tons each.

TABLE 5.—PRODUCTION IN DISTRICTS WITH LARGE ALL-RAIL SHIPMENTS TO THE UPPER MISSISSIPPI VALLEY, 1941–1943[a]
(In thousands of tons)

	Districts 7 and 8 West Virginia, Kentucky, Virginia		Districts 9, 10, 11 Illinois, Indiana, Western Kentucky		Illinois	
	Amount	Index	Amount	Index	Amount	Index
1941	169,148	100	88,934	100	54,703	100
1942	184,279	109	102,460	116	63,750	117
1943	183,711	109	113,015	127	72,430	133

[a] Compiled from sources stated in footnote [a], table 4.

TABLE 6.—ILLINOIS COAL PRODUCTION, BY QUARTERS, FOR THE YEARS 1940–1943[a]
(In thousands of tons)

	1940		1941		1942		1943	
	Amount	Percent of total	Amount	Percent of total	Amount	Percent of total	Amount	Percent of total
January–March	15,768	31.23	16,480	30.12	16,442	25.79	18,780	25.93
April–June	9,225	18.21	8,637	15.79	15,032	23.57	15,888	21.94
July–September	11,174	22.05	13,965	25.53	15,125	23.72	19,295	26.64
October–December	14,443	28.51	15,621	28.56	17,151	26.92	18,467	25.49
Total	50,610	100.00	54,703	100.00	63,750	100.00	72,430	100.00

[a] Compiled from sources stated in footnote [a], table 4.

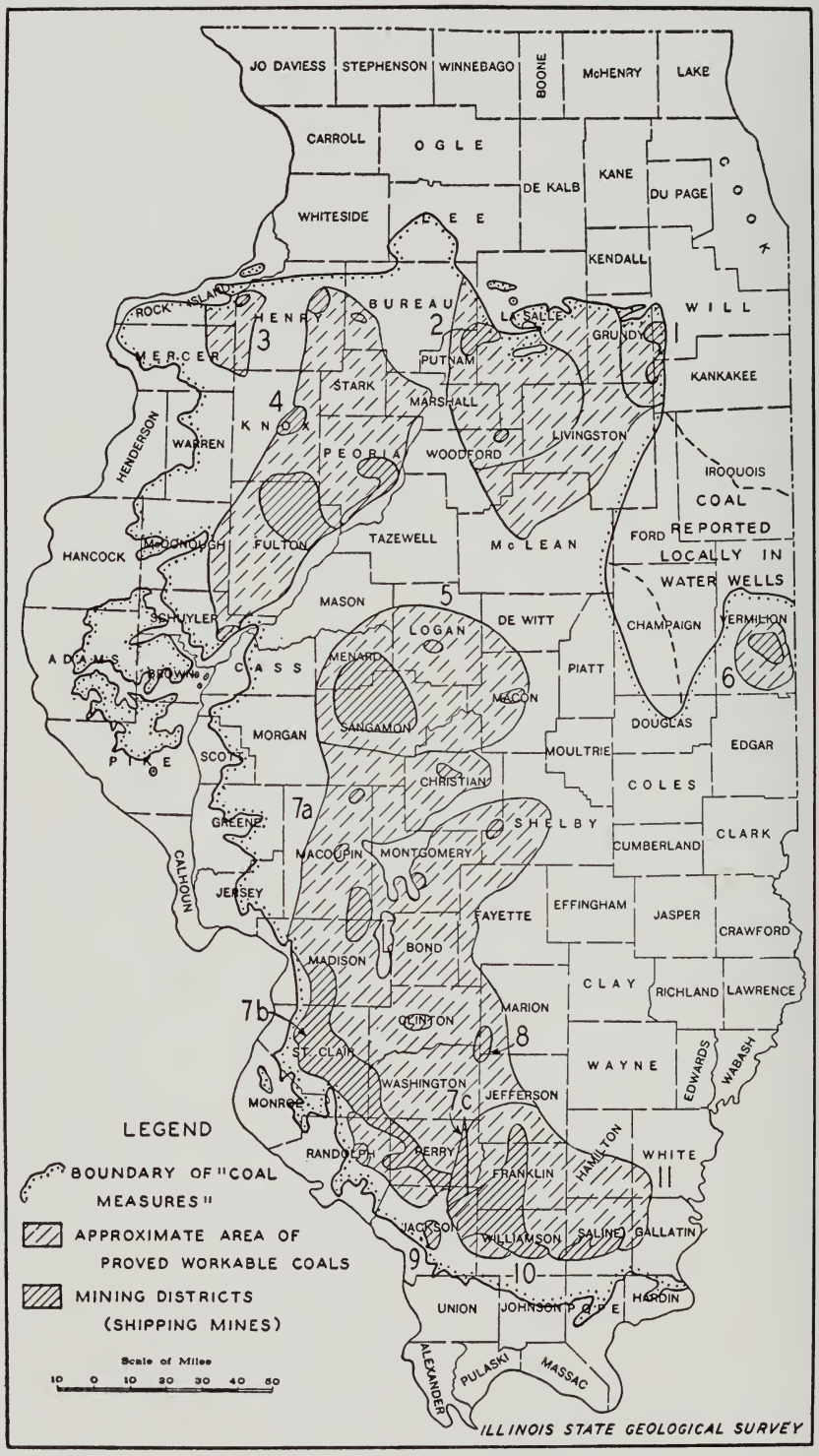

FIG. 3.—Map of Illinois showing location of principal coal mining districts and coal beds mined (see p. 19).

Coal in Illinois

The coal output in Illinois in 1943 was 73,345,000 tons, valued at approximately $152,827,000. After yielding first place to petroleum in value of output since 1939, coal again resumes first place among the value of Illinois mineral products. Illinois ranks third among the states in amount and fourth in value of coal output, being exceeded by West Virginia and Pennsylvania in amount and by West Virginia, Pennsylvania, and Kentucky in value. The comparative position of each coal-producing state for the years 1939 to 1943 is shown in table 7.

Table 8 shows the production for five years in the Eastern Interior basin comprising the coal producing districts of Illinois, Indiana, and Western Kentucky. The production history of these three competitive districts and the contribution of each to the total production of the Eastern Interior basin from 1913 to 1942 is shown in table 4 of Report of Investigations No. 94, page 17.

Illinois coal production for 1943 is shown in table 9, by type of mine, giving the counties and mine inspection districts. Local mines are those which do not ship coal by rail. A map showing the principal coal mining districts and coal beds mined is given in figure 3. A map showing the location of the principal coal mines is given in figure 4.

Seasonal variation in demand for bituminous coal, as reflected in the production by months, is shown in table 10. Because of the heavy demands upon the coal industry occasioned by the war, the usual summer slump beginning about April 1 did not occur. The seasonal decline, under normal conditions, is more pronounced in the producing districts of Illinois, Indiana, and western Kentucky than in the Appalachian fields. In the latter districts lake cargo shipments serve to sustain demand and output during the summer months.

The amount of coal produced and its value at the mines from 1935 to 1943 are shown in table 11. The history of production and prices since 1913 is given in Report of Investigations, No. 94, p. 24, table 7.

The annual production of coal from 1928 to 1943 is shown graphically in figure 5, classified according to methods of mining.

Principal Coal Mining Districts and the Principal Coal Beds Mined
(See Fig. 3)

Map. No.	Mining District	Coal Beds Mined
1	Wilmington (Longwall)	LaSalle (No. 2)
2	LaSalle, or Third Vein (Longwall)	LaSalle (No. 2)
3	Rock Island-Mercer (abandoned)	Rock Island (No. 1)
4	Fulton-Peoria	Herrin (No. 6)
	Fulton-Peoria	Springfield (No. 5)
5	Springfield	Springfield (No. 5)
6	Danville	Danville (No. 7)
	Danville	Grape Creek
7	Southwestern Illinois	
	a) Standard	Herrin (No. 6)
	b) Belleville	Herrin (No. 6)
	c) DuQuoin	Herrin (No. 6)
8	Centralia	Herrin (No. 6)
9	Murphysboro or Big Muddy (abandoned)	Murphysboro
10	Franklin-Williamson	Herrin (No. 6)
	Franklin-Williamson	Harrisburg (No. 5)
11	Saline County	Herrin (No. 6)
	Saline County	Harrisburg (No. 5)

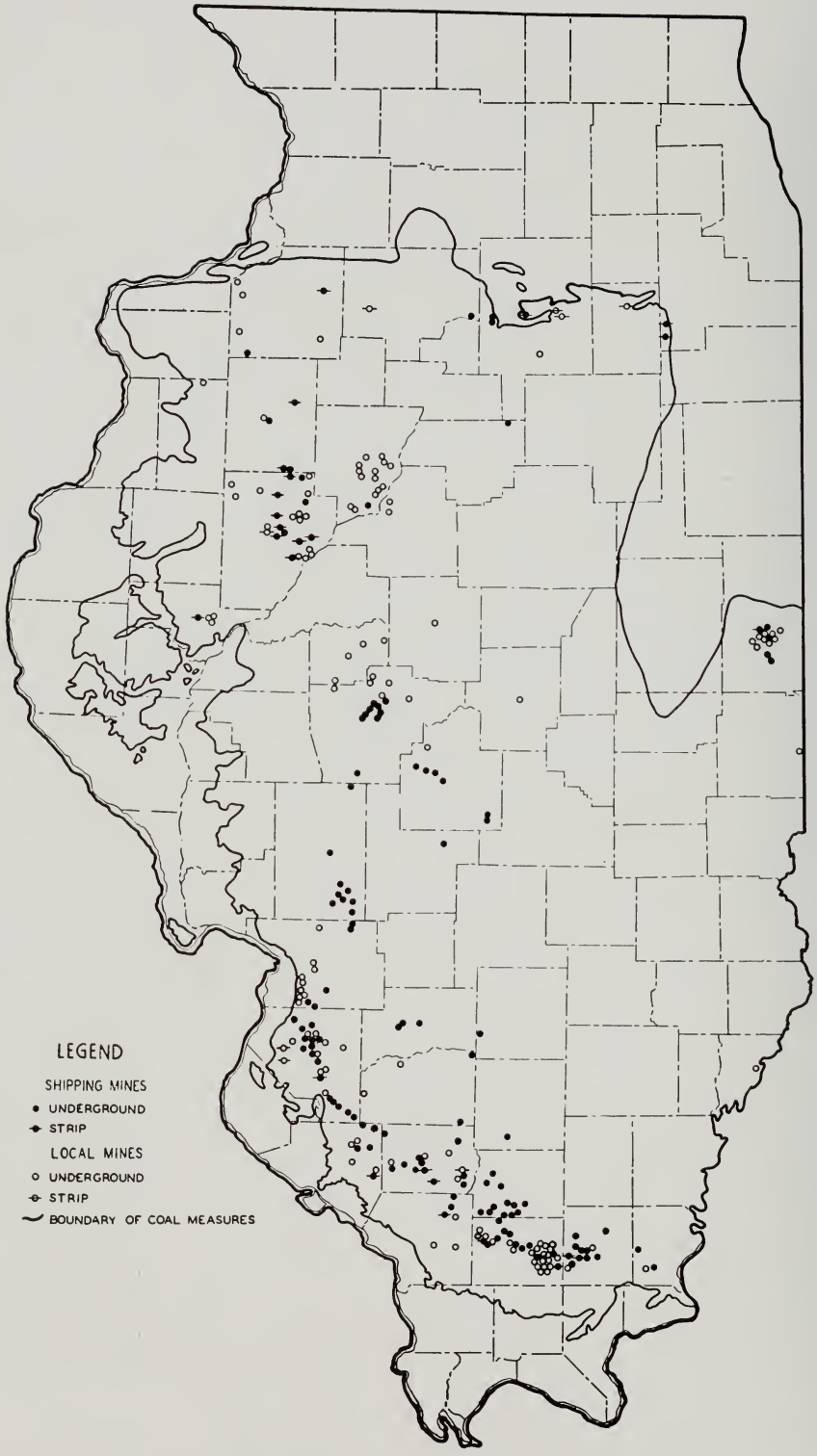

FIG. 4.—Map of Illinois showing location of shipping coal mines, and local mines that have an annual production of 5,000 tons and more, in 1943.

TABLE 7.—BITUMINOUS COAL PRODUCTION IN THE UNITED STATES, BY STATES, 1939–1943[a] [b]
(In thousands of tons)

	1939	1940	1941*	1942	1943
Alabama	12,047	15,324	15,465	18,870	17,750
Alaska	148	174	239	280	300
Arkansas and Oklahoma	2,340	3,100	3,345	4,146	4,490
Colorado	5,923	6,589	6,948	7,990	8,250
Georgia and North Carolina	[c]	42	40	44	38
Illinois	47,627	51,282	55,366	65,746	73,345
Indiana	16,943	18,869	22,484	25,470	25,175
Iowa	2,948	3,231	2,939	2,990	2,760
Kansas and Missouri	5,948	6,676	7,153	8,340	8,375
Kentucky:					
Eastern	34,266	40,346	41,860	46,727	46,486
Western	8,291	8,795	11,850	13,240	15,410
Maryland	1,443	1,503	1,700	1,898	1,850
Michigan	457	410	311	320	180
Montana	2,804	2,867	3,254	3,858	4,715
New Mexico	1,230	1,111	1,251	1,696	1,816
North and South Dakota	2,120	2,284	2,380	2,488	2,568
Ohio	20,289	22,772	29,319	34,600	31,935
Pennsylvania (bituminous)	92,584	116,603	130,240	143,174	141,575
Tennessee	5,185	6,008	7,045	7,425	7,160
Texas	826	621	353	342	195
Utah	3,285	3,576	4,077	5,670	5,770
Virginia	13,531	15,348	18,441	19,900	19,500
Washington	1,690	1,650	1,841	1,988	1,526
West Virginia:					
Southern	108,362	126,438	140,250	111,486	159,620
Northern				45,264	
Wyoming	5,373	5,808	6,646	8,025	9,110
Other states[d]	39	17	15	19	16
Total	395,699	461,445	514,812	581,996	589,915

* Revised figures.

[a] Compiled from the following sources:
For Illinois—Illinois Department of Mines and Minerals, Annual Coal Reports.
For all other states—1939-1942, inclusive, U. S. Bureau of Mines, Minerals Yearbooks.
1943, U. S. Department of the Interior, Solid Fuels Administration for War, Weekly Coal Report, No. W.C.R. 1389, March 4, 1944.
Figures for Illinois include production of all mines. Those for other states exclude mines having annual production of less than 1,000 tons each. Production of small mines in Illinois is included in "Total" in this table.

[b] Includes lignite.

[c] Included in "Other States."

[d] The states reporting are not identical from year to year.

TABLE 8.—PRODUCTION OF BITUMINOUS COAL IN THE EASTERN INTERIOR COAL FIELD, 1939–1943[a]
(In thousands of tons)

Year	ILLINOIS		INDIANA		WEST KENTUCKY		Total
	Amount	Percent[b]	Amount	Percent[b]	Amount	Percent[b]	
1939	46,783	65.0	16,943	23.5	8,291	11.5	72,017
1940	50,610	65.3	18,869	24.1	8,795	11.2	78,274
1941	*54,703	61.5	*22,484	25.3	*11,747	13.2	* 88,934
1942	63,750	62.2	25,470	24.9	13,240	12.9	102,460
1943	72,430	64.1	25,175	22.3	15,410	13.6	113,015

* Revised figures.

[a] Compiled from U. S. Bureau of Mines, Minerals Yearbooks, 1939-1942; U. S. Dept. Interior, Solid Fuels Administration for War, Weekly Coal Report No. W.C.R. 1389, March 4, 1944. Does not include mines with annual production of less than 1,000 tons each. Figures for years 1913-1938 are found in Report of Investigations No. 94, page 17, table 4.

[b] Percent of total in Eastern Interior coal field.

TABLE 9.—COAL PRODUCTION OF ALL ILLINOIS MINES,
(In

Mine Inspection District	County	Shipping Mines					
		Strip		Underground		Total	
		No. of mines[b]	Tons	No. of mines[b]	Tons	No. of mines[b]	Tons
14	Brown	—	—	—	—	—	—
1	Bureau	—	—	1	34,067	1	34,067
4	Christian	—	—	6	6,828,895	6	6,828,895
13	Clinton	—	—	3	382,121	3	382,121
5	Edgar	—	—	—	—	—	—
10	Franklin	—	—	12	16,684,419	12	16,684,419
3	Fulton	8	5,827,117	3	210,811	11	6,037,928
11	Gallatin	—	—	1	23,589	1	23,589
7	Greene	—	—	—	—	—	—
1	Grundy	—	—	—	—	—	—
14	Hancock	—	—	—	—	—	—
3	Henry	1	530,683	1	121,454	2	652,137
9	Jackson	1	619,189	3	2,047,157	[c]3	2,666,346
13	Jefferson	—	—	1	626,440	1	626,440
3	Knox	2	1,385,935	2	131,801	4	1,517,736
1	LaSalle	1	129,037	2	152,773	3	281,810
1	Livingston	—	—	—	—	—	—
2	Logan	—	—	—	—	—	—
14	McDonough	—	—	—	—	—	—
4	Macon	—	—	—	—	—	—
6	Macoupin	—	—	9	5,580,441	9	5,580,441
7	Madison	—	—	5	1,988,015	5	1,988,015
13	Marion	—	—	1	285,768	1	285,768
1	Marshall	—	—	—	—	—	—
4	Menard	—	—	—	—	—	—
14	Mercer	—	—	—	—	—	—
6	Montgomery	—	—	1	980,254	1	980,254
4	Morgan	—	—	—	—	—	—
2	Peoria	—	—	2	413,722	2	413,722
9	Perry	2	2,645,374	8	1,492,606	10	4,137,980
9	Randolph	1	891,911	5	1,567,590	6	2,459,501
14	Rock Island	—	—	—	—	—	—
8	St. Clair	1	225,248	15	1,846,193	16	2,071,441
11	Saline	2	628,401	8	3,713,552	10	4,341,953
4	Sangamon	—	—	9	3,138,636	9	3,138,636
14	Schuyler	1	216,274	—	—	1	216,274
4	Shelby	—	—	—	—	—	—
2	Stark	—	—	—	—	—	—
2	Tazewell	—	—	—	—	—	—
5	Vermilion	1	48,225	4	2,221,173	5	2,269,398
13	Wabash	—	—	—	—	—	—
14	Warren	—	—	—	—	—	—
13	Washington	—	—	2	461,845	2	461,845
1	Will	2	1,545,864	—	—	2	1,545,864
12	Williamson	3	791,454	11	2,523,500	14	3,314,954
2	Woodford	—	—	1	30,087	1	30,087
Number of mines		26		116		[c]141	
Total produced—1943			15,484,712		53,486,909		68,971,621

[a] Compiled from Illinois Department of Mines and Minerals, Sixty-second Coal Report, 1943.
[b] Number of mines reporting production during year indicated.
[c] One mine operated both strip and underground.

BY TYPE OF MINE, AND BY COUNTIES, 1943[a]
tons)

LOCAL MINES						COUNTY TOTAL			Mine Inspection District
Strip		Underground		Total					
No. of mines[b]	Tons	No. of mines[b]	Tons	No. of mines[b]	Tons	No. of mines[b]	Tons	Percent of State total	
1	60	—	—	1	60	1	60	—	14
1	118,646	2	1,158	3	119,804	4	153,871	0.2	1
—	—	1	18,047	1	18,047	7	6,846,942	9.5	4
—	—	—	—	—	—	3	382,121	.5	13
—	—	1	34,365	1	34,365	1	34,365	—	5
—	—	—	—	—	—	12	16,684,419	22.9	10
1	174,604	46	251,655	47	426,259	58	6,464,187	8.9	3
—	—	7	22,094	7	22,094	8	45,683	.1	11
—	—	5	375	5	375	5	375	—	7
1	49,074	2	4,170	3	53,244	3	53,244	.1	1
—	—	1	11	1	11	1	11	—	14
—	—	6	80,239	6	80,239	8	732,376	1.0	3
—	—	6	40,990	6	40,990	9	2,707,336	2.7	9
2	66	—	—	2	66	3	626,506	1.0	13
—	—	6	100,107	6	100,107	10	1,617,843	2.3	3
4	18,888	4	31,265	8	50,153	11	331,963	.5	1
1	594	1	1,022	2	1,616	2	1,616	—	1
—	—	2	46,500	2	46,500	2	46,500	.1	2
2	1,392	6	1,114	8	2,506	8	2,506	—	14
—	—	1	46,241	1	46,241	1	46,241	.1	4
—	—	1	200	1	200	10	5,580,641	7.7	6
—	—	12	291,650	12	291,650	17	2,279,665	3.1	7
—	—	—	—	—	—	1	285,768	.4	13
1	1,077	3	2,736	4	3,813	4	3,813	—	1
—	—	9	80,091	9	80,091	9	80,091	.1	4
—	—	5	6,666	5	6,666	5	6,666	—	14
—	—	—	—	—	—	1	980,254	1.4	6
—	—	1	53	1	53	1	53	—	4
—	—	43	398,690	43	398,690	45	812,412	1.1	2
1	26,105	6	39,636	7	65,741	17	4,203,721	5.7	9
—	—	5	59,766	5	59,766	11	2,519,267	3.5	9
—	—	4	3,331	4	3,331	4	3,331	—	14
2	915,000	14	196,996	16	1,111,996	32	3,183,437	4.4	8
—	—	7	46,354	7	46,354	17	4,388,307	6.0	11
—	—	9	152,150	9	152,150	18	3,290,786	4.5	4
3	208	12	27,023	15	27,231	16	243,505	.3	14
—	—	4	1,162	4	1,162	4	1,162	—	4
—	—	6	2,784	6	2,784	6	2,784	—	2
—	—	3	129,284	3	129,284	3	129,284	.2	2
2	8,013	37	185,234	39	193,247	44	2,462,645	3.4	5
—	—	1	1,023	1	1,023	1	1,023	—	13
—	—	1	5,735	1	5,735	1	5,735	—	14
—	—	2	11,260	2	11,260	4	473,105	.7	13
—	—	—	—	—	—	2	1,545,864	2.1	1
—	—	44	738,236	44	738,236	58	4,053,190	5.5	12
—	—	—	—	—	—	1	30,087	—	2
22		326		348		489			
	1,313,727		3,059,413		4,373,140		73,344,761	100.0	

TABLE 9.—SUMMARY OF PRODUCTION

	1942		1943		Percent change in amount from 1942
	Number of mines[b]	Tons	Number of mines[b]	Tons	
Strip mines:					
Shipping	28	14,827,235	26	15,484,712	+ 4.4
Local	30	1,110,446	22	1,313,727	+18.3
	58	15,937,681	48	16,798,439	+ 5.4
Underground mines:					
Shipping	114	46,297,393	116	53,486,909	+15.5
Local	513	3,511,130	326	3,059,413	—13.2
	627	49,808,523	442	56,546,322	+13.5
Total coal produced	684	65,746,204	[c]489	73,344,761	+11.6

[a] Compiled from Illinois Department of Mines and Minerals, Sixty-second Coal Report, 1943.
[b] Number of mines reporting production during year indicated.
[c] One mine operated both strip and underground.

TABLE 10.—PRODUCTION OF BITUMINOUS COAL IN ILLINOIS AND IN THE UNITED STATES, BY MONTHS, 1943[a]
(In thousands of tons)

Month	United States	Illinois	
		Amount	Percent[b]
January	47,804	5,765	12.06
February	49,131	5,980	12.16
March	56,114	7,035	12.53
April	49,220	6,320	12.84
May	47,417	5,270	11.10
June	34,385	4,298	12.49
July	52,207	6,450	12.35
August	52,432	6,410	12.22
September	52,214	6,435	12.32
October	49,303	5,990	12.15
November	44,643	5,536	12.39
December	54,130	6,941	12.82
	589,000	72,430	
Small mines in Illinois[c]	915	915	
Total	589,915	73,345[d]	12.43

[a] U. S. Dept. Interior, Solid Fuels Adm. for War, Weekly Coal Reports, No. W.C.R. 1389, March 4, 1944, No. W.C.R. 1390, March 11, 1944.
[b] Percent of U. S. total production.
[c] Mines with annual production less than 1,000 tons each.
[d] Illinois Dept. Mines and Minerals, Annual Coal Report, 1943.

TABLE 11.—AMOUNT AND VALUE OF COAL PRODUCED IN ILLINOIS, SHOWING NUMBER AND TYPE OF MINES, 1935–1943[a]
(In thousands of tons, and thousands of dollars)

Year	Number of Mines[b]							Production (thousands of tons)							Value at Mines[c]	
	Shipping		Local		Total			Strip			Underground			Total production	Total (thousands of dollars)	Average per ton
	Strip	Underground	Strip	Underground	Strip	Underground	All	Shipping	Local	Total strip	Shipping	Local	Total underground			
1935	28	154	127	1,041	155	1,195	1,350	7,135	346	7,481	34,275	3,257	37,532	45,013	$ 70,220	$1.56
1936	30	146	86	980	116	1,126	1,242	8,873	474	9,347	38,412	3,717	42,129	51,476	79,788	1.55
1937	31	137	70	782	101	919	1,020	11,176	550	11,726	36,886	3,820	40,706	52,432	82,318	1.57
1938	25	124	74	746	99	870	969	10,059	620	10,679	28,384	3,324	31,708	42,387	63,581	1.50
1939	26	120	82	748	108	868	976	11,296	990	12,286	31,698	3,643	35,341	47,627	78,108	1.64
1940	27	112	53	696	80	808	888	12,025	1,255	13,280	34,047	3,955	38,002	51,282	86,667	1.69
1941	29	113	29	628	58	741	799	13,361	881	14,242	37,673	3,451	41,124	55,366	100,212	1.81
1942	28	114	30	513	58	627	*684	14,827	1,111	15,938	46,298	*3,510	49,808	65,746	123,603	1.88
1943	26	116	22	326	48	442	489	15,485	1,314	16,799	53,487	3,059	56,546	73,345	152,827	2.08

* Revised figures.
[a] Compiled from Illinois Department of Mines and Minerals, Annual Coal Reports.
[b] Number of mines reporting production during year indicated.
[c] Based on total production at average price for each year, which is derived from the following sources:
For years 1935, 1939, 1940, 1941—U. S. Bureau of Mines, Minerals Yearbooks, 1935 and 1939 exclude selling costs, 1940 and 1941 include selling costs.
For years 1936, 1937, 1938, 1942, 1943—U. S. Department of the Interior, Bituminous Coal Division, cost of production data include selling costs.

TABLE 12.—ORIGIN AND DESTINATION OF REVENUE RAILROAD SHIPMENTS OF COAL FROM
(Exclusive of non-
(In

From	To:	Chicago District	Illinois, other[b]	Milwaukee, Wis.	Wisconsin, other	Council Bluffs, Iowa[c]	Iowa, other
			1942				
Western Pennsylvania		5,023	28,642	—	—	—	—
Central Pennsylvania, Somerset-Myersdale, Cumberland-Piedmont		18,147	5,345	174	7,941	596	11,276
Fairmont, West Virginia		137,776	8,528	49	357	—	660
Northern and Eastern Ohio		1,195	183	—	489	—	509
Southern Ohio		2,433	—	—	50	—	448
Kanawha, Logan, Kenova-Thacker		2,327,548	169,787	3,258	19,840	394	201,626
New River-Winding Gulf, Pocahontas-Tug River		9,755,335	488,157	127,008	685,086	48	85,457
NE. Kentucky, McRoberts		2,681,672	109,524	817	30,231	43	148,929
Virginia		283,062	50,972	577	81,173	194	20,487
Hazard, Harlan, S. Appalachians		3,341,359	526,070	308	56,435	460	724,782
Ex-river coal		41,377	—	—	—	—	—
Northern Illinois		820,140	4,127,696	2,405	183,878	147	1,400,618
Central and Southern Illinois		6,079,795	12,462,090	75,718	1,631,359	63,917	2,007,602
Indiana		3,596,192	1,576,663	298,798	831,266	218	511,665
Western Kentucky		767,164	350,812	50	191,457	7,576	311,189
Grand total		29,858,218	19,904,469	509,162	3,719,562	73,593	5,425,248
Percent of change from 1941		+15.2	+18.0	+45.9	+10.2	+114.9	+24.7
			1943				
Western Pennsylvania		115,385	21,386	32	—	—	—
Central Pennsylvania, Somerset-Myersdale, Cumberland-Piedmont		24,905	8,652	154	13,113	581	12,470
Fairmont, West Virginia		53,156	9,396	49	340	—	788
Northern and Eastern Ohio		1,618	820	—	1,472	—	1,393
Southern Ohio		13,989	—	379	451	—	160
Kanawha, Logan, Kenova-Thacker		2,351,381	172,296	2,662	36,191	164	174,297
New River-Winding Gulf, Pocahontas-Tug River		9,439,189	498,514	157,051	662,510	—	82,628
NE. Kentucky, McRoberts		3,376,031	117,029	1,370	29,179	—	172,195
Virginia		338,928	45,225	905	64,745	500	13,453
Hazard, Harlan, S. Appalachians		2,698,608	469,923	307	62,142	308	596,212
Ex-river coal		12,617	—	—	—	—	—
Northern Illinois		933,613	4,915,921	652	196,708	11,965	1,609,638
Central and Southern Illinois		7,266,189	12,823,159	156,140	1,812,833	171,019	2,350,461
Indiana		3,187,672	1,407,702	242,675	757,799	27,857	499,621
Western Kentucky		961,089	424,638	778	193,776	6,730	318,271
Grand total		30,774,368	20,914,661	563,154	3,831,259	219,124	5,831,587
Percent of change from 1942		+3.1	+5.1	+10.6	+3.0	+197.7	+7.5

[a] Data from U. S. Dept. Interior, Bituminous Coal Div., Solid Fuels Adm. for War, and Bureau of Mines, Monthly Coal Distribution Reports.
[b] Includes Davenport, Iowa, for shipments from Ohio and the Crescent, and includes Davenport, Bettendorf, and Iowanna, Iowa, for shipments from Illinois, Indiana, and Western Kentucky; excludes East St. Louis, Illinois.

Illinois, Indiana, Western Kentucky, and the Appalachian Fields, in 1942 and 1943[a]
revenue railroad fuel)
tons)

St. Louis, Mo.[d]	Kansas City, Mo.[e]	St. Joseph, Mo.[f]	Missouri, other	Kansas, other	Nebraska, other	Minnesota	South Dakota	North Dakota	Total	Per cent of total
				1942						
39	—	—	—	—	—	—	—	—	33,704	—
32,621	871	352	1,616	1,462	1,538	6,617	1,201	—	89,757	0.1
1,128	—	—	—	—	—	—	—	—	148,498	.2
—	—	—	—	—	—	42	52	—	2,470	—
—	—	—	—	—	—	—	—	—	2,931	—
219,782	—	—	327	—	166	11,441	474	—	2,954,643	4.3
640,871	46	—	401	122	—	64,318	4,689	—	11,851,538	17.2
474	—	—	357	—	976	22,084	1,499	—	2,996,606	4.4
300,981	—	—	56	—	105	8,707	1,053	—	747,367	1.1
22,239	—	—	870	—	1,742	28,636	1,000	—	4,703,901	6.9
—	—	—	—	—	—	—	—	—	41,377	0.1
—	—	51	12,597	—	24,951	42,133	2,024	—	6,616,640	9.7
4,229,879	97,577	10,966	1,831,391	158,356	124,318	496,192	149,833	622	29,419,615	43.1
17,115	234	—	2,480	—	1,060	84,333	1,126	—	6,921,150	10.1
135,184	—	—	48,406	—	8,846	48,121	19,382	154	1,888,341	2.8
5,600,313	98,728	11,369	1,898,501	159,940	163,702	812,624	182,333	776	68,418,538	100.0
+16.9	+797.0	+150.4	+58.8	+1084.9	+100.4	+22.3	+34.4	—66.1	+18.5	
				1943						
85	—	—	—	—	—	—	—	—	136,888	.2
53,181	991	389	1,377	1,718	1,074	7,804	859	—	127,268	.2
968	—	—	—	—	—	54	—	—	64,751	.1
—	—	—	—	—	—	—	—	—	5,303	—
—	—	—	—	—	—	—	—	—	14,979	—
328,877	—	—	449	—	175	13,875	438	—	3,080,805	4.3
709,201	—	—	432	57	76	131,724	6,893	—	11,688,275	16.2
456	—	—	307	—	1,015	22,429	2,118	—	3,722,129	5.2
206,278	—	—	—	—	53	7,955	803	—	678,845	.9
28,482	—	—	564	—	1,131	29,408	1,335	—	3,888,420	5.4
—	—	—	—	—	—	—	—	—	12,617	—
100	601	—	12,848	—	10,750	28,927	3,000	—	7,724,723	10.7
4,602,407	376,320	30,580	2,181,694	97,073	223,551	472,311	94,486	911	32,659,132	45.2
14,428	101	—	1,150	9,592	12,319	106,435	5,169	—	6,272,520	8.7
81,765	—	—	57,745	—	6,673	45,444	20,380	674	2,117,963	2.9
6,026,228	378,013	30,969	2,256,566	108,440	256,817	866,366	135,481	1,585	72,194,618	100.0
+7.6	+282.9	+172.4	+18.9	—32.2	+56.9	+6.6	—25.7	+104.3	+5.5	

[c] Includes Omaha and South Omaha, Nebraska.
[d] Includes East St. Louis, Illinois.
[e] Includes Kansas City, Kansas.
[f] Includes Atchison and Leavenworth, Kansas.

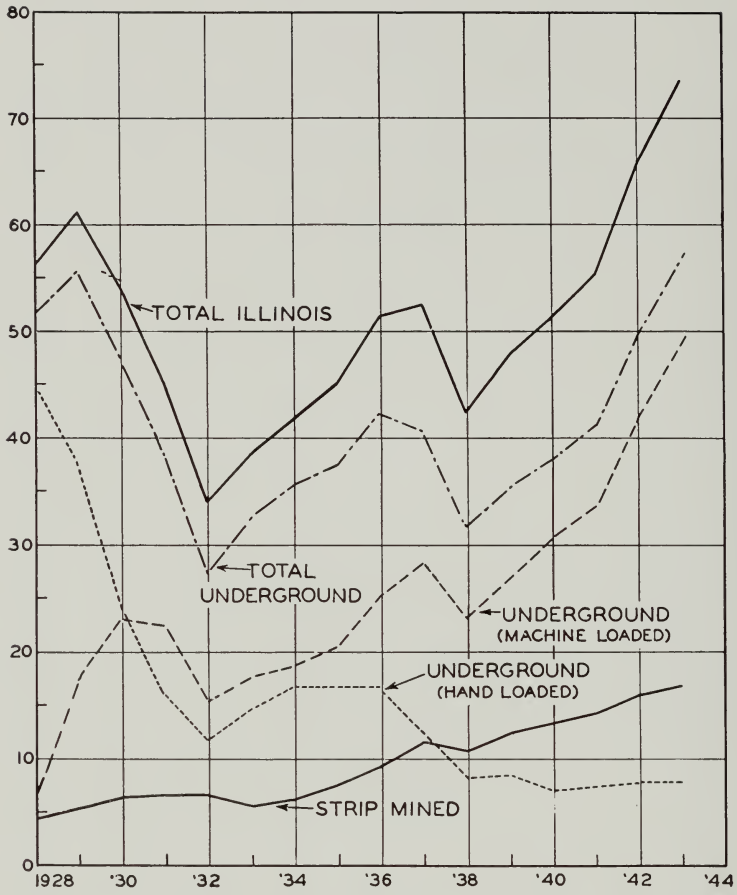

FIG. 5.—Annual production of Illinois coal, classified by mining methods.

DISTRIBUTION

The Illinois coal market area comprises the States of Illinois, Wisconsin, Iowa, Missouri, Kansas, Nebraska, Minnesota, South Dakota, and North Dakota. The principal producing districts which supply this market are Districts Nos. 7 and 8 (southern West Virginia, Virginia, and eastern Kentucky) in the Appalachian region, and districts 9 (western Kentucky), 10 (Illinois), and 11 (Indiana) in the Eastern Interior coal basin. Much of the coal consumed in this area is shipped by rail. Table 12 gives a detailed distribution report of all-rail coal shipped into this area during 1942 and 1943, showing quantities of coal shipped into each of the principal divisions of the market area from the various producing localities, and the percentage change from the preceding year for each division of the area.

The Chicago industrial district is the focal area into which enters a substantial portion of the coal produced in Illinois or shipped into Illinois from competing or adjacent fields.

The Chicago industrial district itself is one of the large coal consumers in the nation, both in absolute quantity and in tons of coal per worker employed. A survey of coal consumption in manufacturing industries in 1939, made by the Bureau of the Census, indicates that Chicago is exceeded only by Pittsburgh as a consumer of coal in industry. Both are important metallurgical centers.

TABLE 13.—ORIGIN OF LAKE CARGO COAL, 1941–1943
(In thousands of tons)

From	1941[a]	1942[b]	1943[b]
Ohio	3,947	4,171	4,682
Pennsylvania	11,612	9,305	8,409
Moundsville, West Virginia	395	358	406
Fairmont, Cumberland, Piedmont	2,568	2,420	2,357
Southern West Virginia—low volatile	9,010	9,160	14,256
Southern West Virginia—high volatile	14,277	14,746	8,653
Eastern Kentucky, Tennessee, and Virginia	9,585	9,295	8,692
Total	51,394	49,455	47,375

[a] Monthly Coal Distribution Report, M.C.D. No. 135, March 15, 1943.
[b] Monthly Coal Distribution Report, M.C.D. No. 147, June 13, 1944.

LAKE SHIPMENTS OF COAL

The lake trade in coal has in the past been exclusively a movement of coal from Appalachian producing districts. Under a decision of the Interstate Commerce Commission, a reduction in rates on coal from mines in Illinois, Indiana, and western Kentucky destined to upper lake ports, was granted. In 1943 a total of 1,062,361 tons was shipped through the port of Chicago.

The data on lake shipments of coal from Appalachian fields do not specify the destinations of coal originating in each field. Some inferences regarding the destinations can be made, however, from the nature of the market. In table 13 is shown the origin of lake cargo coal in the years 1941, 1942, and 1943. As noted in this table, the bulk of the shipments come from Pennsylvania and from the low-, medium-, and high-volatile districts of southern West Virginia and eastern Kentucky. Shipments from the low- and medium-volatile fields consist of screenings destined to the coke ovens of the Chicago district. Coal from Pennsylvania is destined to Upper Lake Michigan and Lake Superior ports, both in the prepared sizes and as screenings for domestic and industrial fuel. The heavy demand for coking coal resulting from the war time expanded steel industry in the Chicago district caused a substantial increase in shipments of coking coal from the low-volatile districts in southern West Virginia in 1943. Total shipments fell off somewhat. This is explained by the heavy war requirements in eastern industries and a resultant shortage of coal, other than coking coal, for shipments to the northwest. Total receipts of Upper Lake ports is shown in table 14.

TABLE 14.—LAKE CARGO SHIPMENTS AND RECEIPTS OF COAL AT UPPER LAKE DOCKS, 1934–1943[a]
(In thousands of tons)

Year	Bituminous coal loaded into vessels at Lake Erie ports	Receipts at		Total receipts
		Lake Superior ports	Lake Michigan ports[b]	
1934...	34,869	8,023	4,535	12,558
1935...	34,730	6,829	4,043	10,872
1936...	44,011	9,358	5,114	14,472
1937...	43,645	9,115	4,822	13,937
1938...	34,173	6,614	3,758	10,372
1939...	39,837	6,515	4,229	10,744
1940...	46,548	6,991	4,436	11,427
1941...	49,733	8,356	4,830	13,186
1942...	47,815	8,108	5,068	13,176
1943...	46,059	9,455	4,982	14,437

[a] U. S. Bituminous Coal Div., Monthly Coal Distribution Reports.
[b] Ports on Lake Michigan north of Waukegan.

A total of 1,062,361 tons of coal moved through the port of Chicago in 1943 going mainly to Fort William, Canada, for use by the Canadian Pacific Railways. The record of monthly shipments is shown in table 15.

Tables 16 and 17 give data on all-rail shipments of coal from Appalachian and Eastern Interior coal fields into the Chicago and St. Louis markets.

TABLE 15.—LAKE SHIPMENTS OF COAL FROM THE EASTERN INTERIOR BASIN, 1943[a]

Month	Tons	Month	Tons
April	38,747	September	158,212
May	121,762	October	220,117
June	92,486	November	97,769
July	153,189		
August	180,079	Total	1,062,361

[a] Chicago Journal of Commerce, August 4, 1944.

TABLE 16—SOURCES OF ALL-RAIL COAL DESTINED FOR CHICAGO, 1941–1943
(In tons)

	1941[a]	1942[a]	1943[b]	Percent change 1943 from 1942
Western Pennsylvania	1,130	5,023	115,385	+2,197.1
Central Pennsylvania, Somerset-Myersdale, and Cumberland-Piedmont	22,908	18,147	24,905	+ 37.2
Fairmont, West Virginia	100,233	137,776	53,156	— 61.4
Northern and Eastern Ohio	859	1,195	1,618	+ 35.4
Southern Ohio	1,725	2,433	13,989	+ 475.0
Kanawha, Logan and Kenova-Thacker	1,483,730	2,327,548	2,351,381	+ 1.0
New River-Winding Gulf and Pocahontas-Tug River	9,360,947	9,755,335	9,439,189	— 3.2
NE. Kentucky and McRoberts	1,370,140	2,681,672	3,376,031	+ 25.9
Virginia	222,790	283,062	338,928	+ 19.7
Hazard, Harlan, and Southern Appalachian	3,473,161	3,341,359	2,698,608	— 19.2
Ex-river coal	—	41,377	12,617	+ 69.5
Northern Illinois	523,947	820,140	933,613	+ 13.8
Central and Southern Illinois	5,272,813	6,079,795	7,266,187	+ 19.5
Indiana	3,437,543	3,596,192	3,187,672	— 11.4
Western Kentucky	650,446	767,164	961,089	+ 25.3
Total	25,922,399	29,858,216	30,774,368	+ 3.1
Percent of Chicago total supplied by Illinois	22.3	23.1	26.6	

[a] Monthly Coal Distribution Report, M.C.D. No. 136, April 23, 1943.
[b] Monthly Coal Distribution Report, No. 148, July 3, 1944.

TABLE 17.—SOURCES OF COAL DESTINED FOR ST. LOUIS, 1941–1943
(In tons)

From	1941[a]	1942[a]	1943[b]	Percent change 1943 from 1942
Central Pennsylvania	24,771	32,660	53,266	+ 63.1
Fairmont, Pa.	1,623	1,128	968	— 14.2
Kanawha, W. Va.	177,927	219,782	328,877	+ 49.6
New River, W. Va.	575,529	640,871	709,201	+ 10.7
Virginia and Northeast Kentucky	289,355	301,455	206,734	— 31.4
Hazard, Harlan	23,997	22,239	28,482	+ 28.1
Illinois	3,595,647	4,229,879	4,602,507	+ 8.8
Indiana	14,415	17,115	14,428	— 15.7
Western Kentucky	88,963	135,184	81,765	— 39.5
Total	4,792,227	5,600,313	6,026,228	+ 7.6
Percent of St. Louis total received from Illinois	75.3	75.5	76.4	

[a] Monthly Coal Distribution Report, M.C.D. No. 136, April 23, 1943.
[b] Monthly Coal Distribution, No. 148, July 3, 1944.

Coal Requirements, April, 1944—March, 1945

The Solid Fuels Administrator for War early estimated that the requirements for coal during 1944 and the first quarter of 1945 would be 620,100,000 tons. This was shown in a table giving allocations to each of the producing districts for railroad fuel, retail yards, byproduct coke, coal for manufacturing industries, and coal destined to tide-water and lake trade. Allocations are also given for coal hauled by truck to local markets and for coal used at the mines.

A summary of coal requirements for the period stated is given in table 18.

It should be noted that a total of 143,609,000 tons is included in lake and tide-water transshipments and truck movements. No segregation has been made into railroad, domestic, byproduct or industrial for the quantity of coal thus transshipped.

Table 18.—Summary of Estimated Lignite and Bituminous Coal Requirements During 12 Months Ending March 31, 1945[a]
(In thousands of tons)

Railroad fuel	137,250
Retail yards	89,658
Byproduct coke	79,250
Industrial and other, including exports	155,803
Lake cargo	55,845
Tidewater shipments	42,764
Truck deliveries	45,000
Coal at the mine	14,530
Total	620,100

[a] Compiled from sources stated in footnote [a], table 19.

In table 19 is given a detailed allocation of coal for producing districts in the Appalachian and Eastern Interior fields (and Iowa). These districts are competitive in northern and eastern industrial districts, and the allocation and use of coal from each of these districts is of interest to the producers.

TABLE 19.—BITUMINOUS COAL REQUIREMENTS FOR PRICE AREAS 1 AND 2 DURING THE 12 MONTHS ENDING MARCH 31, 1945[a]
(In thousands of tons)

District	Price Area	All-rail, River, Ex-river, and Conveyor Shipments					Transshipments, Including Export			Truck deliveries	Coal at the mine[b]	Grand total
		Railroad fuel	Retail yards	By-product	Industrial and other, including exports	Total	Lake	Tidewater	Total			
	Price Area 1											
1	Eastern Pennsylvania	10,800	3,050	5,400	19,500	38,750	3,250	15,000	18,250	3,420	980	61,400
2	Western Pennsylvania	14,225	3,200	29,650	17,850	64,925	8,500	600	9,100	9,870	8,355	92,250
3	Northern West Virginia	13,375	2,450	5,850	12,741	34,416	3,700	3,250	6,950	630	270	42,266
4	Ohio	12,950	2,000	—	9,250	24,200	4,500	—	4,500	6,850	189	35,739
5	Michigan	60	45	—	55	160	—	—	—	175	20	355
6	Panhandle	1,950	130	—	1,900	3,980	730	—	730	785	10	5,505
7	Southern No. 1	825	18,500	12,145	8,750	40,220	9,665	17,000	26,665	400	665	67,950
8	Southern No. 2	19,500	28,050	14,175	28,000	89,725	24,000	6,500	30,500	2,110	1,315	123,650
	Total, Price Area 1	73,685	57,425	67,220	98,046	296,376	54,345	42,350	96,695	24,240	11,804	429,115
	Price Area 2											
9	West Kentucky	4,800	3,450	—	4,000	12,250	600	—	600	1,200	150	14,200
10	Illinois	23,700	11,000	600	27,500	62,800	900	—	900	7,550	975	72,225
11	Indiana	8,675	2,950	25	11,500	23,150	—	—	—	2,650	200	26,000
12	Iowa	275	325	—	750	1,350	—	—	—	1,500	50	2,900
	Total, Price Area 2	37,450	17,725	625	43,750	99,550	1,500	—	1,500	12,900	1,375	115,325

[a] Source: Hearings before the Subcommittee of the Committee on Appropriations, House of Representatives, Seventy-Eighth Congress, Second Session, on the Interior Department Appropriations Bill for 1945, pages 824, 825.
[b] This includes mine fuel, employee coal, coal made into briquets, coal charged into beehive ovens directly from mine cars or conveyors, and other coal used around the mines.

Coal Prices in 1943

Coal prices—mine, lake cargo and retail prices, were subject to regulations imposed by the Office of Price Administration. The most important changes in shipper coal prices came near the close of the year in the low- and high-volatile fields of West Virginia, Virginia, and eastern Kentucky. These price adjustments were made to take care of increased operating costs involving higher wages and other items which go into the expense of producing a ton of coal. At-the-mine prices of coal moving into the Illinois coal market area in 1943 at the beginning and end of 1943 are shown in table 20.

Freight Rates.—The Interstate Commerce Commission on April 12, 1943, temporarily cancelled the general freight rate increases, which had gone into effect March 18, 1942. The cancellation became effective May 15, 1943 to January 1, 1944, and was later amended to extend to July 1, 1944.

Cost of Production of Coal

The Bituminous Coal Act of 1937 empowered the administration of the act to determine the cost of production of coal. The elements comprising costs were specifically itemized in the act and included "the cost of labor, supplies, power, taxes, insurance, workmen's compensation, royalties, depreciation and depletion (as determined by the Bureau of Internal Revenue in the computation of the Federal income tax), and all other direct expenses of production, coal operators' association dues, district board assessments for Board operating expenses only levied under the code, and reasonable costs of selling and the cost of administration."

From time to time, the Bituminious Coal Division has made public the average costs of coal production, averaged for producing districts. These average costs, for periods varying from several months to a year, and covering the years 1936 to 1943, are shown in table 21.

For the last six months of 1943, the Solid Fuels Administrator for War has released data on the distribution of coal in considerably greater detail than has heretofore been available. Data are given on size distribution, destination of the coal, and distribution by use. These are shown in tables 22 to 24.

TABLE 20.—COAL MINE PRICES, JANUARY AND DECEMBER, 1943[a]
(Per ton)

	January, 1943	December, 1943
Southern Illinois		
Freight rate to Chicago, $2.05 a ton	$	$
Lump	3.35	3.35
Egg	3.30	3.30
Nut	2.55– 3.00	2.55– 3.00
Washed screenings	2.10– 2.20	2.10– 2.35
Screenings	1.90	2.05
Mine Run	2.60	2.60
Central Illinois		
Freight rate to Chicago, $1.75 a ton		
Lump	2.45– 2.70	2.45– 3.00
Egg	2.40– 2.60	2.40– 2.60
Nut	2.05– 2.45	2.05– 2.50
Washed screenings	1.75– 2.25	1.75– 2.40
Screenings	1.45– 1.70	1.60– 2.10
Mine run	2.00– 2.25	2.25– 2.65
Indiana, No. 4		
Freight rates to Chicago, $1.65 and $1.75 a ton		
Lump	2.50– 2.75	2.70– 2.95
Egg	2.40– 2.65	2.60– 2.85
Stoker Nut	1.75– 2.20	1.95– 2.40
Nut	1.75– 2.20	1.95– 2.40
Screenings	1.65– 1.85	1.85– 2.05
Mine run	2.30– 2.40	2.50– 2.60
Indiana, No. 5		
Freight rates to Chicago, $1.65, $1.87, $1.90 a ton		
Lump	2.25– 2.40	2.55– 3.00
Egg	2.25– 2.40	2.45– 2.60
Stoker nut	1.65– 1.90	1.85– 2.10
Nut	2.10– 2.25	2.30– 2.45
Screenings	1.55– 1.70	1.75– 1.90
Mine run	2.20– 2.25	2.40– 2.45
West Virginia Smokeless, New River and Pocahontas		
Freight rates to Chicago, $3.39 a ton		
Lump	3.35– 4.05	3.65– 4.35
Egg	3.40– 4.15	3.65– 4.45
Stove	3.25– 3.75	4.10– 4.15
Nut	3.00– 3.15	3.40– 3.55
Stoker pea	3.00– 3.10	3.35– 3.45
Mine run (Dom.)	3.25– 3.35	3.70– 3.80
Straight mine run	2.85– 3.00	3.45– 3.65
Slack	2.20– 2.60	2.70– 2.90
Briquets	4.35	4.70
Eastern Kentucky, Millers Creek—Great Heart		
Freight Rate to Chicago, $3.19 a ton		
Block	4.00	4.35
Furnace	3.35– 3.75	4.35
Small egg	3.00– 3.05	3.50
Stoker nut	3.35– 3.60	4.05
Screenings	2.45– 2.55	2.70
East Kentucky, West Virginia, High Volatile		
Freight rate to Chicago, $3.19 a ton		
Block	3.10– 3.45	3.10– 3.45
Furnace	2.75– 3.05	2.75– 3.05
Small egg	3.20	3.20
Stoker nut	3.05– 3.25	3.05– 3.25
Screenings	2.20– 2.35	2.75– 2.80

TABLE 20.—(Concluded)

	January, 1943	December, 1943
West Kentucky, No. 9 and No. 11		
Freight rate to Chicago, $2.40 a ton		
Lump, 6"	$ 2.25	$ 2.25
Egg, 6"x3"	2.15	2.15
Stoker nut	1.75– 1.85	1.75– 1.85
Screenings	1.25– 1.50	1.35– 1.65
Mine run	1.80	2.10
Western Kentucky, No. 6		
Freight rate to Chicago, $2.40 a ton		
Lump, 6"	2.80	2.80
Egg, 6"x3"	2.60	2.60
Stoker nut	2.55– 2.85	2.70– 3.00
Screenings	2.25– 2.50	2.25– 2.45
Western Kentucky, No. 14		
Freight rate to Chicago, $2.40 a ton		
Lump, 6"	2.50	2.50
Egg, 6"x3"	2.35	2.45
Nut, 3"x2"	2.15	2.25
Chestnut	1.95	2.10
Screenings, 2"	1.90	2.05
Anthracite		
Freight rate to Chicago from mines in Pennsylvania, $4.26 a ton		
Grate, egg, stove, chestnut	7.30	8.00
Pea	5.75	6.45
Buckwheat	4.20	4.80
Rice	3.35	3.85
Coke		
F.o.b. dealers yards in Chicago, f.o.b. ovens, 75 cents a ton less		
Egg, range, nut	9.50	9.50
Pea	8.50	10.30
Foundry (at Chicago ovens)	11.50	12.30

[a] From "Chicago Journal of Commerce."

TABLE 21.—COSTS OF PRODUCTION OF BITUMINOUS COAL, 1936–1943
(In dollars per ton)

Minimum Price Area and Producing District	1936 [1] [a]	Apr.–Dec. 1937 [1] [a]	1938 [1] [a]	1939 [1]	Calendar Year 1940 [2] [b]	Calendar Year 1941 [2] [b]	Calendar Year 1942 [2] [b]	Jan.–March 1943 [2] [b]	April–June 1943 [3]	Jan.–June 1943 [3]
Price Area 1										
Dist. 1 Eastern Pennsylvania	2.0921	2.3413	2.3077	2.1954	2.1487	2.3281	2.4982	2.6420	2.85	2.74
Dist. 2 Western Pennsylvania	1.9596	2.1724	2.2582	2.0794	1.9800	2.2223	2.3872	2.5454	2.76	2.64
Dist. 3 Northern West Virginia	1.6336	1.8208	1.7823	1.7187	1.6581	1.9152	2.0272	2.1208	2.31	2.21
Dist. 4 Ohio	1.7179	1.9245	1.9045	1.7620	1.6996	1.8846	2.0116	2.1503	2.28	2.21
Dist. 5 Michigan	3.5749	4.1018	3.9044	3.8438	3.9022	3.9682	4.3805	4.3680	5.28	4.73
Dist. 6 Panhandle	1.7617	1.9723	1.8554	1.6620	1.6377	1.9699	2.0827	2.2172	2.35	2.28
Dist. 7 Southern Numbered 1	1.9553	2.1711	2.2267	2.0823	2.0386	2.3807	2.6233	2.7358	2.95	2.84
Dist. 8 Southern Numbered 2	1.8150	2.0150	2.0444	1.9491	1.9058	2.1965	2.3644	2.4843	2.68	2.58
Average, Price Area 1	1.8904	2.0996	2.1253	2.0000	1.9426	2.2017	2.3678	2.4954	2.69	2.59
Price Area 2										
Dist. 9 West Kentucky	1.3913	1.5725	1.4807	1.4131	1.4174	1.5102	1.5841	1.5797	1.79	1.68
Dist. 10 Illinois	1.6339	1.7462	1.7185	1.6246	1.5859	1.6740	1.7228	1.7403	1.88	1.80
Dist. 11 Indiana	1.4643	1.6331	1.5844	1.4366	1.4336	1.5017	1.5845	1.6649	1.88	1.76
Dist. 12 Iowa	2.5613	2.7890	2.6301	2.4731	2.4558	2.7238	2.8130	2.7148	3.21	2.87
Average, Price Area 2	1.6152	1.7403	1.6982	1.5838	1.5616	1.6382	1.6999	1.7302	1.88	1.80
Price Area 3										
Dist. 13 Southeastern	2.1604	2.4867	2.4205	2.3499	2.3148	2.7410	2.9794	3.0412	3.39	3.20
Price Area 4										
Dist. 14 Arkansas-Oklahoma	3.1791	3.7523	3.4087	3.3293	3.3043	3.5573	3.7299	3.7453	4.71	4.04
Price Area 5										
Dist. 15 Southwestern	1.9203	2.0383	1.9387	1.8550	1.8569	1.9415	2.0918	2.0552	2.34	2.17

Price Area 6										
Dist. 16 Northern Colorado	2.2900	2.6208	2.5430	2.5374	2.3677	2.4781	2.5508	2.5173	3.07	2.69
Dist. 17 Southern Colorado	2.4550	2.7451	2.7637	2.6035	2.5212	2.7567	2.8472	2.8849	3.10	2.98
Dist. 18 New Mexico	2.8612	3.1399	3.1321	3.2904	3.3679	3.4339	3.6286	3.7261	4.12	3.92
Average, Price Area 6	2.4428	2.7502	2.7214	2.6318	2.5281	2.7262	2.8146	2.8224	3.17	2.97
Price Area 7										
Dist. 19 Wyoming	1.8232	2.0563	1.8994	1.8681	1.8170	1.9149	2.0295	2.0355	2.32	2.16
Dist. 20 Utah	2.2780	2.4513	2.2011	1.9848	2.0138	2.1283	2.2592	2.4547	2.69	2.56
Average, Price Area 7	1.9922	2.2017	2.0096	1.9099	1.8898	1.9941	2.1209	2.1953	2.47	2.31
Price Area 9										
Dist. 22 Montana	1.3897	1.4825	1.4930	1.3585	1.3049	1.3015	1.4253	1.3066	1.24	1.28
Price Area 10										
Dist. 23 Washington	2.8838	3.2128	3.1652	3.0498	3.0703	3.4933	3.9186	4.2137	4.45	4.31
National Average	1.8678	2.0711	2.0638	1.9438	1.9019	2.1207	2.2666	2.3517	2.55	2.44

[1] National Coal Association, Washington, D. C.; May 19, 1943; Bituminous Coal Division, Department of the Interior.
[a] Using total tons produced as divisor for all costs.
[2] National Coal Association, Bulletin No. 2193, August 31, 1943.
[b] These costs cover all mines with rail or river connections and those with a daily capacity of 50 tons or more.
[3] Solid Fuels Administration for War, October 21, 1943, Department of the Interior, Information Service.

TABLE 22.—SHIPMENTS OF COAL FROM INTERIOR BASIN COAL FIELDS, JULY–DECEMBER, 1943[a]
(In tons)

To	From					Total coal received		
	Illinois	Indiana	Western Kentucky	Iowa	Total	By rail shipments	By water shipments	Total rail and water
Illinois	11,988,222	1,804,565	340,307	—	14,133,094	19,831,354	530,680	20,362,034
Indiana	1,270,485	3,990,051	218,662	—	5,479,198	12,540,510	259,047	12,799,557
Michigan	69,237	19,198	2,006	—	90,441	6,564,130	6,466,076	13,030,206
Ohio	2,464	4,188	265	—	6,917	21,397,658	995,155	22,392,813
Wisconsin	1,122,876	461,581	74,266	—	1,658,723	2,133,604	4,202,633	6,336,237
Iowa	2,071,615	273,095	183,068	352,535	2,880,313	3,544,923	62,351	3,607,274
Kansas	87,350	172	—	74	87,596	1,057,441	—	1,057,441
Minnesota	495,606	76,552	24,231	160	596,549	729,359	2,578,739	3,308,098
Missouri	2,067,620	3,172	34,325	337	2,105,454	4,008,860	—	4,008,860
Nebraska	232,578	18,740	5,615	361	257,294	1,182,147	9,802	1,191,949
North Dakota	300	—	1,234	—	1,534	27,496	143,402	170,898
South Dakota	58,281	2,548	8,093	—	68,922	214,376	245,951	460,327
South Atlantic	1,418	—	356	—	1,774	17,383,837	901,633	18,285,470
East South Central	22,081	15,068	2,329,450	—	2,366,599	11,086,061	1,674	11,087,735
West South Central	68,814	—	109,516	—	178,330	999,204	1,968	1,001,172
Mountain	370	—	—	—	370	4,130,375	—	4,130,375
Total	19,559,317	6,668,930	3,331,394	353,467	29,913,108	106,831,335	16,399,111	123,230,446

[a] Data from U. S. Dept. Interior, Bureau of Mines, Monthly Coal Distribution Report No. 146, May 27, 1944.

Table 23.—Shipments of Bituminous Coal by Sizes, from Illinois, July–December, 1943[a]
(In tons)

	Amount	Percent
All lump coal and all double screened coal with top size over 2 inches	12,031,270	35.08
All double screened coal with top size not exceeding 2 inches	1,986,120	5.79
Modified mine-run, domestic mine-run, screened mine-run, and altered mine-run and minus resultant with top size over 2 inches	6,613,877	19.29
All minus resultant and dedusted screenings with top size over ¾ inch and not exceeding 2 inches	11,943,578	34.83
All minus resultant and dedusted screenings with top size not exceeding ¾ inch	1,719,830	5.01
Total	34,294,675	100.00
Size not reported	1,317,963	
Coal used at mines	535,285	
Grand total	36,147,923	

[a] Data from U. S. Dept. Interior, Bureau of Mines, Monthly Coal Distribution Report No. 146, May 27, 1944.

Table 24.—Distribution of Bituminous Coal Produced in Illinois, July–December, 1943[a]
(In tons)

Disposal	Amount	Disposal	Amount
All-rail, river, and ex-river[b] (excluding railroad fuel)		Distributors or wholesalers (destination and use unknown)	66,059
United States	19,893,624	Storage piles	3,559
Canada	1,539	Truck	3,208,042
Alaska	—	Private railroads, tramways and conveyors	58,693
Export	—	Coal used at mines	535,285
Railroad fuel	11,994,690	Total	36,147,923
Tidewater	512	Percentage of estimated production	95.3
Lake	385,920		

[a] Data from U. S. Dept. Interior, Bureau of Mines, Monthly Coal Distribution Report No. 146, May 27, 1944.
[b] Also includes byproduct and smithing coal shipped by all other methods of transportation except by lake and tidewater.

Degree-Days in 1943

Because of the close relationship between the number of degree-days accumulated during the heating season and the quantity of fuels consumed, a degree-day map of Illinois and a table showing degree-day records for the past heating season compared with the normal is useful in estimating domestic fuel consumption. In this issue a modified degree-day map has been prepared in which county boundaries are used to mark the boundaries of degree-day belts. While this results in some inaccuracies, the purpose is to show the number and types of heating units in each degree-day belt. Since these latter are reported by county units only, it was necessary to prepare a map in which

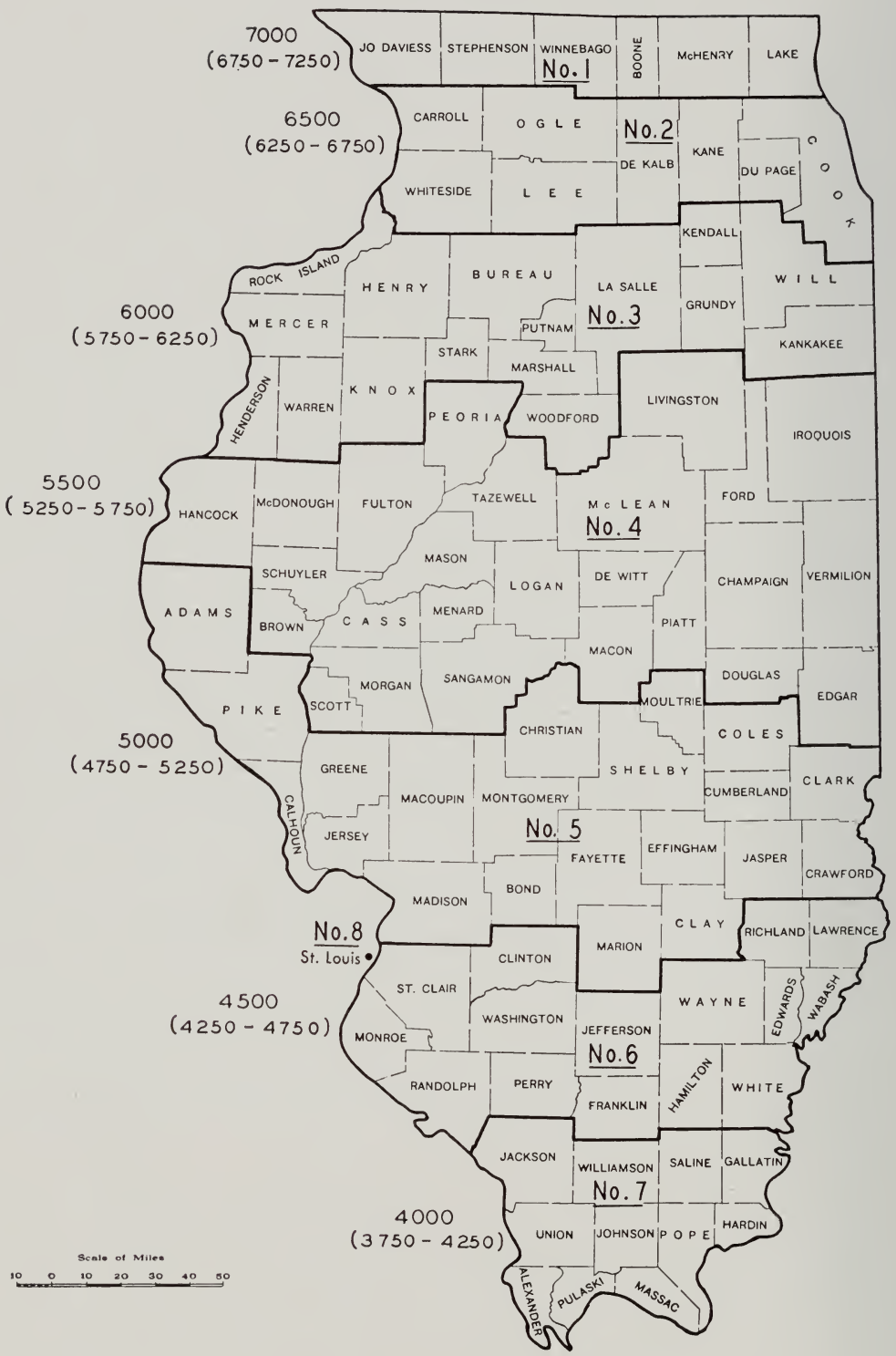

FIG. 6.—Degree-day districts, with averages and ranges. Degree-days are the number of degrees of temperature that the average daily temperature falls below 65° F., and are totaled for the heating season.

boundaries of degree-day belts conformed to the nearest county boundary.

Degree-days are the number of degrees of temperature that the average temperature for each day falls below 65° Fahrenheit. These are totaled for each month and a cumulative total for the heating season through each month is determined. These data averaged over a long period of time give a reliable guide to the fuel needs of the locality in which the temperatures are recorded. This information is given in table 16, Report of Investigations No. 87.

Figure 6 shows the modified degree-day belts of the state numbered from I to VIII. District VIII comprises St. Louis City and county and is included in the tabulations because of the interest of the Illinois coal industry in this large market.

In table 25 is shown the number of heating units by each type of fuel used, for each of the degree-day belts outlined on the map.

TABLE 25.—TYPES OF HEATING EQUIPMENT, BY DEGREE-DAY DISTRICTS[a]

Units With Central Heating

District No.	Coal	Wood	Gas	Fuel oil	Total	Other fuel and not reporting
1	60,076	1,250	1,166	5,820	68,312	685
2	807,045	1,099	30,100	46,366	884,610	12,138
3	101,484	841	1,435	3,301	107,061	872
4	140,604	535	5,420	3,109	149,668	2,741
5	55,464	680	804	854	57,802	783
6	36,169	163	127	720	37,179	240
7	9,426	34	13	40	9,513	82
8 St. Louis, Mo.						
St. Louis County	45,379	129	4,868	6,486	56,862	204
St. Louis City	134,419	56	3,650	4,802	142,927	1,399
Total	1,390,066	4,787	47,583	71,498	1,513,934	19,144

Units Without Central Heating

District No.	Coal	Wood	Gas	Fuel oil	Gas or Kero.	Total	Other fuel and not reporting	None
1	19,753	3,002	117	3,958	152	26,982	96	26
2	224,896	3,991	5,529	87,642	581	322,639	1,235	318
3	57,043	4,319	238	3,008	294	64,902	319	69
4	112,727	8,847	864	2,168	357	124,963	495	79
5	90,881	28,595	1,641	1,712	858	123,687	581	105
6	78,043	14,895	704	636	278	94,556	258	48
7	48,115	7,777	26	126	102	56,146	162	87
8 St. Louis, Mo.								
St. Louis Co.	13,422	1,671	130	656	136	16,015	62	25
St. Louis City	83,434	295	752	2,928	156	87,565	272	247
Total	728,314	73,392	10,001	102,834	2,914	917,455	3,480	1,004

[a] Source: U. S. Census, Housing, Illinois, 2nd. Series.

TABLE 26.—DEGREE-DAYS FOR 47 ILLINOIS CITIES DURING 1943–1944, BY MONTHS, COMPARED WITH NORMAL AVERAGE OVER THE PERIOD DURING WHICH RECORDS HAVE BEEN KEPT[a]

Degree-days are the number of degrees of temperature that the average temperature for each day falls below 65° Fahrenheit. These are totaled for each month and compared with normal monthly averages.

Month	Aurora (Pop. 47,170)[b]		Bloomington (Pop. 32,868)		Cairo (Pop. 14,407)		Carbondale (Pop. 8,550)	
	M[c]	A[c]	M	A	M	A	M	A
September	150	30	90	0	35	0	65	0
October	403	403	372	310	186	155	217	155
November	930	810	840	720	570	510	630	540
December	1,178	1,178	1,178	1,085	899	806	961	868
January	1,085	1,333	1,054	1,209	806	899	868	930
February	783	1,120	899	1,316	1,276	756	1,189	784
March	1,023	930	930	806	527	527	651	558
April	600	510	420	300	210	210	270	240
May	31	186	0	62	0	0	0	0
Total	6,183	6,500	5,783	5,808	4,509	3,863	4,851	4,075
Departure from Normal	—317		—25		+646		+776	

Month	Carlinville (Pop. 4,965)		Charleston (Pop. 8,197)		Chicago (Pop. 3,396,808)		Danville (Pop. 36,919)	
September	87	0	96	0	90	30	90	0
October	248	248	279	279	341	341	372	279
November	750	630	750	660	870	750	810	690
December	1,116	992	1,085	992	1,147	1,116	1,147	1,054
January	961	1,116	961	1,116	1,054	1,271	1,023	1,147
February	1,015	924	1,015	952	841	1,064	928	980
March	806	682	806	713	992	899	868	744
April	420	330	390	360	630	540	450	390
May	0	31	0	93	93	248	0	62
Total	5,403	4,953	5,382	5,165	6,058	6,259	5,688	5,346
Departure from Normal	+450		+217		—201		+342	

Month	Decatur (Pop. 59,305)		Dixon (Pop. 10,671)		Effingham (Pop. 6,180)		Flora (Pop. 5,474)	
September	92	0	120	30	60	0	79	0
October	279	279	372	403	341	248	248	248
November	750	690	900	810	780	660	660	630
December	1,116	1,054	1,147	1,209	1,147	992	992	961
January	961	1,178	1,085	1,364	992	1,085	899	1,054
February	1,015	1,008	812	1,148	986	924	1,131	896
March	837	744	992	899	837	682	713	650
April	420	360	540	480	420	330	300	300
May	0	62	0	155	0	31	0	31
Total	5,470	5,375	5,968	6,498	5,563	4,952	5,022	4,771
Departure from Normal	+95		—530		+611		+251	

Footnotes are given at end of table.

TABLE 26.—(Continued)

Month	Freeport (Pop. 22,366)		Galva (Pop. 2,812)		Greenville (Pop. 3,391)		Harrisburg (Pop. 11,453)	
	M	A	M	A	M	A	M	A
September	210	60	60	0	83	0	62	0
October	465	434	341	341	248	248	217	155
November	960	840	840	780	720	660	600	510
December	1,240	1,240	1,147	1,178	1,085	992	930	837
January	1,178	1,426	1,023	1,302	930	1,085	837	930
February	754	1,176	870	1,120	1,073	924	1,218	784
March	1,085	961	930	837	744	682	589	527
April	630	510	510	450	360	300	240	240
May	31	186	0	124	0	31	0	0
Total	6,553	6,833	5,721	6,132	5,243	4,922	4,693	3,983
Departure from Normal	—280		—411		+321		+710	

Month	Havana (Pop. 3,999)		Hoopeston (Pop. 5,381)		Jacksonville (Pop. 19,844)		Joliet (Pop. 42,365)	
	M	A	M	A	M	A	M	A
September	30	0	90	0	30	0	180	30
October	310	270	341	341	310	279	434	372
November	810	690	840	690	750	660	930	750
December	1,147	1,054	1,178	1,085	1,147	1,054	1,209	1,036
January	1,023	1,178	1,023	1,178	992	1,147	1,085	1,271
February	957	1,008	899	1,008	1,015	980	783	1,120
March	868	744	930	775	806	744	1,023	868
April	450	360	480	420	420	360	600	480
May	0	155	0	93	0	62	31	155
Total	5,595	5,459	5,781	5,590	5,470	5,286	6,275	6,082
Departure from Normal	+136		+191		+184		+193	

Month	Kankakee (Pop. 22,241)		LaHarpe (Pop. 1,322)		Lincoln (Pop. 12,752)		McLeansboro (Pop. 2,528)	
	M	A	M	A	M	A	M	A
September	90	30	60	0	60	0	0	0
October	372	341	310	310	310	310	248	186
November	840	720	840	720	750	690	630	570
December	1,116	1,116	1,147	1,116	1,147	1,054	930	899
January	1,023	1,240	1,023	1,209	992	1,178	837	1,023
February	870	1,008	899	1,064	957	1,008	1,218	840
March	961	806	899	806	837	775	620	620
April	510	480	480	420	450	390	240	270
May	0	155	0	93	0	62	0	0
Total	5,782	5,896	5,658	5,738	5,503	5,467	4,723	4,408
Departure from Normal	—114		—80		+36		+315	

TABLE 26.—(Continued)

Month	Marengo (Pop. 2,034)		Mascoutah (Pop. 2,294)		Minonk (Pop. 1,897)		Monmouth (Pop. 9,096)	
	M	A	M	A	M	A	M	A
September	150	90	66	0	120	30	90	30
October	434	465	248	217	341	341	372	341
November	930	870	660	630	870	750	870	750
December	1,209	1,271	1,023	930	1,147	1,147	1,178	1,147
January	1,116	1,426	899	1,023	1,054	1,271	1,054	1,302
Febraury	754	1,204	1,131	868	841	1,092	841	1,092
March	1,054	1,023	682	620	961	837	930	806
April	630	570	300	300	540	450	540	420
May	31	210	0	0	0	93	0	31
Total	6,308	7,129	5,009	4,588	5,874	6,011	5,875	5,919
Departure from Normal	—821		+421		—137		—44	

Month	Mt. Carmel (Pop. 6,987)		Mt. Carroll (Pop. 1,845)		Mt. Vernon (Pop. 14,724)		New Burnside	
September	62	0	150	60	65	0	77	0
October	217	186	434	434	248	217	248	155
November	630	600	930	840	660	600	630	540
December	961	930	1,178	1,240	1,023	930	961	868
January	837	992	1,085	1,364	899	1,023	899	930
February	1,189	868	783	1,176	1,160	868	1,189	756
March	651	589	1,023	930	713	620	620	558
April	240	300	570	510	300	300	300	270
May	0	0	0	186	0	0	0	0
Total	4,787	4,465	6,153	6,740	5,068	4,558	4,924	4,077
Departure from Normal	+322		—587		+510		+847	

Month	Palestine (Pop. 1,626)		Pana (Pop. 5,966)		Paris (Pop. 9,281)		Peoria (Pop. 105,087)	
September	92	0	101	0	30	0	90	0
October	279	240	279	279	310	279	341	372
November	720	651	720	660	750	690	870	780
December	1,054	961	1,116	1,023	1,116	1,054	1,209	1,116
January	930	1,085	961	1,147	961	1,147	1,054	1,271
February	1,102	896	1,044	952	1,015	980	841	1,036
March	713	682	806	713	806	775	961	806
April	330	330	390	360	390	390	540	420
May	0	31	0	62	0	62	0	93
Total	5,220	4,876	5,417	5,196	5,378	5,377	5,906	5,894
Departure from Normal	+344		+221		+1		+12	

TABLE 26.—(Concluded)

Month	Pontiac (Pop. 9,585)		Quincy (Pop. 40,469)		Rockford (Pop. 84,637)		Rushville (Pop. 2,480)	
	M	A	M	A	M	A	M	A
September	90	30	71	0	120	30	60	0
October	341	310	279	217	403	403	310	279
November	840	690	750	630	900	810	810	720
December	1,147	1,085	1,116	992	1,178	1,209	1,178	1,054
January	1,023	1,209	992	1,147	1,085	1,364	1,023	1,178
February	899	1,036	986	924	812	1,176	928	1,008
March	930	806	806	713	1,023	930	868	744
April	480	420	420	330	600	510	480	360
May	0	93	0	0	0	186	0	62
Total	5,750	5,679	5,420	4,953	6,121	6,618	5,657	5,405
Departure from Normal	+71		+467		—497		+252	

Month	Sparta (Pop. 3,664)		Springfield (Pop. 75,503)		Sycamore (Pop. 4,702)		Urbana (Pop. 14,064)	
	M	A	M	A	M	A	M	A
September	49	0	80	0	122	60	60	30
October	186	186	248	279	434	434	310	310
November	630	570	750	690	930	840	810	720
December	961	899	1,116	1,023	1,178	1,209	1,147	1,085
January	837	992	961	1,147	1,116	1,364	992	1,178
February	1,189	840	986	980	783	1,176	928	1,008
March	651	589	837	744	1,054	961	899	775
April	270	270	420	360	600	540	450	450
May	0	0	0	62	0	217	0	124
Total	4,773	4,346	5,398	5,285	6,217	6,801	5,596	5,680
Departure from Normal	+427		+113		—584		—84	

Month	Walnut (Pop. 961)		Waukegan (Pop. 34,241)		White Hall (Pop. 3,025)	
	M	A	M	A	M	A
September	90	30	150	30	80	0
October	403	341	372	403	248	279
November	870	780	840	780	720	660
December	1,147	1,178	1,178	1,147	1,116	1,023
January	1,054	1,302	1,085	1,302	961	1,147
February	870	1,120	812	1,092	1,044	924
March	961	868	1,023	961	775	713
April	540	450	660	600	390	330
May	0	90	124	279	0	31
Total	5,935	6,159	6,244	6,594	5,334	5,107
Departure from Normal	—224		—350		+227	

[a] Compiled from U. S. Dept. of Commerce, Weather Bureau: Climatological Data.
[b] Population from Sixteenth Census of the United States, 1940.
[c] Column M=Monthly total for 1943-44 heating season.
Column A=Normal monthly average for entire period during which records have been kept. (See Illinois Geol. Survey, Rep. Inv. No. 87, table 16.)

Fuel Briquets and Packaged Fuel

Production.—The principal locations for production of briquets are: (1) in the dock cities of the lake states, where enormous quantities of fines accumulate as a consequence of the rough handling of the coal in transit; and (2) in the coal producing districts of West Virginia and Pennsylvania, where the nature of the coal results in a high percentage of fines being produced in the process of mining. Minor quantities are produced in other eastern and central states and on the Pacific coast.

Production of Briquets.—The total output of briquets in the United States in 1943 was 2,163,998 tons valued at $15,291,109, of which 1,493,368 tons, or 42.5 percent of the total output, was produced in the central states.

The states in the Upper Mississippi Valley in 1943 increased their lead over the remainder of the country as consumers of fuel briquets. Major consumers in this area in order of importance are Wisconsin, Minnesota, Missouri, North Dakota, South Dakota, and Illinois.

Briquets marketed in Wisconsin and Minnesota are manufactured mainly from low-volatile coal screenings obtainable on the lake docks and produced as a result of the double handling of coal from rail to lake and back to rail again at upper lake docks. In North Dakota and South Dakota, the market is supplied by briquets manufactured from the lignites of North Dakota.

Table 27 gives the shipments of fuel briquets of domestic manufacture into the Illinois coal market area in 1941, 1942, and 1943.

Table 27.—Shipments of Fuel Briquets of Domestic Manufacture into the Illinois Coal Market Area, 1941–1943
(In tons)

Destination	1941[a]	1942[b]	1943[b]
Illinois	50,398	65,709	85,174
Indiana	45,934	48,868	48,071
Iowa	31,608	47,392	61,150
Kansas	4,957	10,731	12,018
Kentucky	5,734	4,954	3,757
Minnesota	244,767	303,497	487,122
Missouri	82,954	172,269	202,562
Nebraska	23,992	35,111	38,693
North Dakota	80,136	96,912	94,172
South Dakota	64,026	73,744	84,585
Wisconsin	220,939	317,627	425,258
Total	855,445	1,176,814	1,542,562
Total—United States	1,256,964	1,600,300	1,970,145
Percent of U. S. total	68.0	73.6	78.3

[a] Mineral Market Report MMS No. 1083, June 25, 1943.
[b] Mineral Market Report MMS No. 1175, May 26, 1944.

The production of fuel briquets in Illinois is increasing, an important part of this production being made from deduster dust, a byproduct obtained in the preparation of stoker fuel from southern Illinois coal. It is impossible to publish data on the production of fuel briquets in Illinois without revealing operations of individual concerns.

Table 28.—Retail Fuel Briquet Prices per Ton in 1943, by Cities and Months[a]

Month	Chicago[b]	Louisville	Milwaukee	Minneapolis	St. Louis[b]	St. Paul
January	$12.22	$8.76	$11.78	$13.11	$10.91	$13.11
February	12.29	8.84	11.78	13.13	10.91	13.12
March	12.39	9.04	11.78	13.49	11.13	13.48
April	12.36	9.11	11.79	13.49	11.13	13.49
May	12.36	9.20	12.23	13.49	11.13	13.49
June	12.31	9.18	12.24	13.72	11.25	13.68
July	12.41	9.23	12.42	13.88	11.25	13.86
August	12.41	9.23	12.49	14.09	11.25	14.09
September	12.41	9.24	12.52	14.09	11.25	14.09
October	12.41	9.24	12.52	14.09	11.25	14.09
November	12.41	9.24	12.52	14.09	11.25	14.09
December	12.67	9.36	12.55	14.09	11.59	14.09

[a] Mineral Market Report MMS No. 1175.
[b] Includes 2 percent sales tax.

Prices.—Retail prices of fuel briquets in 1943, by months, in cities of the Upper Mississippi Valley are shown in table 28.

Table 29.—Production and Value of Packaged Fuel in Illinois, 1939–1943[a]

Year	Amount tons	Value at plants		Number of plants
		Total	Average	
1939	3,998	$40,487	$10.10	5
1940	3,813	36,531	9.60	6
1941	8,924	95,431	10.60	6
1942	4,980	60,001	12.05	6
1943[b]	3,081	38,445	12.48	4

[a] U. S. Dept. Interior, Minerals Yearbooks.
[b] Mineral Market Report MMS No. 1175.

Production of packaged fuel in Illinois decreased during 1943, as shown in table 29. This was probably due to labor shortage and to scarcity of coal dust from the rehandling of coal.

Coke and Byproducts

The year 1943 witnessed a new high in coke production in Illinois in response to the heavy demand of the iron and steel industry for metallurgical fuel. A statistical summary of the coke industry in Illinois is given in table 30.

TABLE 30.—STATISTICAL SUMMARY OF THE COKE INDUSTRY IN ILLINOIS, 1941–1943[a]

	1941			1942			1943		
	Quantity	Value at plants		Quantity	Value at plants		Quantity	Value at plants	
		Thousands of dollars	Av.		Thousands of dollars	Av.		Thousands of dollars	Av.
Coal used (M tons)	5,142	$25,319	$4.92	5,225	$27,594	$5.28	5,168	$29,044	$5.62
Plants in existence	9			9			10		
Ovens in existence	915			915			963		
Coke ovens under construction, December 31	—			124			75		
Types of ovens in Illinois									
Koppers	661			379			380		
Koppers-Becker				282			329		
Semet-Solvay	120			120			120		
Wilputte	88			88			88		
Curran-Knowles	46			46			46		
Coal used per ton of coke produced (tons)	1.40		6.89	1.42		7.50	1.43		8.04
Sources of coal purchased for coke manufacture in Illinois (M tons)									
Illinois	236			227			218		
Indiana	46			81			69		
Kentucky	1,419			1,523			1,508		
Pennsylvania	378			311			457		
Tennessee	14			—			0		
Virginia	11			13			0		
West Virginia	3,059			3,200			2,765		
Total (M tons)	5,163			5,355			5,017		
Low-volatile	1,895			1,905			1,419		
Medium-volatile	967			976			852		
High-volatile	2,301			2,474			2,746		

Yield of coke (percent)	71.20			70.63			70.15		
Byproduct coke produced (M tons)	3,661	$25,215	$6.89	3,690	$27,364	$7.42	3,625	$29,417	$8.11
Used by producer in blast furnace[b]	2,585	16,723	6.48	2,561	18,322	7.43	1,826	14,207	7.78
Furnace	8	40	5.00	152	1,210	8.03	1,060	8,829	8.33
Foundry	354	3,811	10.73	298	3,221	10.80	318	[d]	
Domestic	734	4,908	6.71	585	3,964	6.78	343	2,281	6.65
Industrial and other use	93	677	7.29	109	803	7.36	112	[d]	
Production of byproducts									
Coke breeze (M tons)	326	782	2.40	* 321	* 749	*2.33	344	954	2.77
Ammonia (sulfate equivalent) (M pounds)	95,149			95,466			97,070		
Per ton of coal coked (pounds)	19.40			19.10			19.61		
Sulfate sold (M pounds)	74,550	889	.012	74,440	910	.012	76,637	755	.01
Coke oven tar produced (M gals.)	38,218			38,820			39,435		
Per ton of coal coked (gals.)	7.43			7.43			7.63		
Sold (M gals.)	31,575	1,449	.046	29,713	1,601	.054	37,251	2,048	.055
Coke oven gas produced (millions of cu. ft.)	51,267			50,672			49,870		
Used in heating ovens	15,834			15,507			15,233		
Surplus sold	34,302	5,320	.155	34,381	4,508	.131	32,988	5,283	.160
Light oil and derivatives (M gals.)	[c]			* 9,049	[e]* 1,444	.156	—	338	—
Total value of coke and byproducts sold		$33,655			*$36,576			$38,795	

* Revised figures.
[a] U. S. Bur. Mines, Minerals Yearbooks and Mineral Market Report MMS No. 1219, Aug. 11, 1944.
[b] Includes gas used in making producer gas and water gas.
[c] Not available.
[d] Concealed.
[e] Includes naphthalene valued at $26,000.

TABLE 32.—PRODUCTION AND VALUE OF CRUDE OIL AND RELATED PRODUCTS IN ILLINOIS, 1941–1943

	1941*			1942*			1943			Percent change in amount from 1942
	Production	Value at wells		Production	Value at wells		Production	Value at wells		
		Total	Av.		Total	Av.		Total	Av.	
Crude oil (bbls.)[a]	132,393,000	$172,100,000	$1.30	106,391,000	$144,800,000	$1.36	82,260,000	$111,900,000	$1.36	—22.7
Natural gas (M cu. ft.)[b]										
Marketed as gas	10,053,000	186,000	.019	14,484,000	536,000	.037	12,000,000	480,000	.04	—17.2
Used in fields[c]	8,999,256	273,017	.03	11,645,000	412,000	.035	5,812,300	228,400	.04	—50.1
Total	19,052,256	459,017	.024	26,129,000	948,000	.036	17,812,300	708,400	.04	—31.8
Returned to underground formations	1,957,980	—	—	2,258,000	—	—	995,847	—	—	—55.9
Natural gasoline (gals.)[b]	54,872,000	2,693,000	.049	66,389,000	3,252,000	.049	71,615,000	3,847,000	.054	+ 7.9
Liquefied petroleum gases (butane, propane) (gals.)[b]	38,293,000	1,054,000	.028	72,934,000	2,000,000	.027	113,750,000	2,827,000	.025	+56.0
Total value		$176,306,017			$151,000,000			$119,282,400		[d]—21.0

* Revised figures.
[a] U. S. Bureau of Mines, Minerals Yearbooks, and Monthly Petroleum Statement, No. P245.
[b] Compiled from joint canvas made by Illinois Geological Survey and U. S. Bureau of Mines.
[c] Includes extraction loss and fuel used in natural gasoline plants.
[d] Percent change in value from 1942.

PETROLEUM

Petroleum in 1943

Petroleum, in the year 1943, was one of the critical war materials. The war demands for aviation gasoline, for naval fuel oil, and for the vast motor transport fleets of the armed forces, rose to unprecedented demands. Production rose to a level of 1,503,176,000 barrels to meet this extraordinary war demand—an increase of 8.4 percent over 1942.

Illinois is now sixth among oil producing states of the nation, having been surpassed by Kansas for fifth place, and is now exceeded by Texas, California, Louisiana, Oklahoma, and Kansas, as shown in table 31.

Production

Summary statistics of the petroleum industry in Illinois are presented in table 32, which gives the production and value of crude petroleum, natural gas, natural gasoline, and liquefied gases.

Prices of Illinois Crude Oil in 1943

The price of crude oil as posted on May 21, 1941, was $1.22 for the old fields, $1.32 for the Carmi-Storms area, and $1.37 for the basin fields. It remained unchanged throughout 1942 and 1943. The weighted average price of crude petroleum in Illinois in 1942 was $1.36. Under the authority of the Office of Price Administration, maximum prices on crude oil were established under Maximum Price Regulation No. 88, issued February 2, 1942. This regulation established, as a maximum or ceiling price at the well for crude oil, the posted price in effect on October 1, 1941. The average value of crude oil in Illinois, 1937-1943, is shown in table 33.

Posted prices of crude oil by principal purchasers for the year 1943 are shown in table 34.

Table 33.—Average Value of Crude Oil in Illinois, 1937–1943[a]
(Per barrel at wells)

1937	$1.33
1938	1.25
1939	1.07
1940	1.06
1941	1.30
1942	1.36
1943	1.36

[a] U. S. Bur. Mines, Minerals Yearbooks.

Supply and Demand

Relationship of supply and demand, as reflected in changes in stocks of crude oil in Illinois and certain refined products in the Central Refining district, in comparison with stocks of crude oil and gasoline in the United States, are shown in table 35.

Reserves

Estimated known reserves of oil in states adjacent to or supplying the Central Refining District for the decade June 1, 1935 to January 1, 1944, are shown in table 36. These estimates are prepared each year by the American Petroleum Institute and are conservative. They include only oil reserves in proven fields on production and quantities recoverable with existing methods of production at existing prices. It by no means is an evaluation of undiscovered or untested reserves or of the ultimately recoverable oil in this area. The figure for each year represents the estimated reserves as of the given date after deducting the quantity withdrawn during the year and adding the current discoveries, extensions, and upward revisions in existing pools.

Gasoline Consumption in Illinois

The advent of gasoline rationing on December 1, 1942, is shown in the decline of gasoline sales following that date. Table 37 gives sales data, by months, for four years.

TABLE 31.—CRUDE OIL PRODUCTION IN THE UNITED STATES, BY DISTRICTS AND STATES, 1938–1943[a]
(In thousands of barrels)

Districts and States	1938		1939		1940		1941		1942		1943	
	Quantity	Per cent[b]	Quantity	Per cent[b]	Quantity	Per cent[b]	Quantity	Per cent[b]	Quantity	Per cent[b]	Quantity	Per cent[b]
Midcontinent:												
Arkansas	18,180		21,238		25,775		26,327		26,628		27,600	
North Louisiana	28,578		25,403		24,406		24,991		29,310		27,398	
Kansas	60,064		60,703		66,139		83,242		97,636		106,178	
New Mexico	35,759		37,637		39,129		39,569		31,544		38,411	
Oklahoma	174,994		159,913		156,164		154,702		140,690		123,152	
Texas (except Gulf)	360,263		361,005		371,043		370,840		348,077		393,392	
Total	677,838	55.8	665,899	52.6	682,656	50.5	699,671	49.9	673,885	48.6	716,131	47.6
California:												
California	249,749	20.6	224,354	17.7	223,881	16.5	230,263	16.4	248,326	17.9	284,235	18.9
Gulf Coast:												
Louisiana Gulf	66,630		68,243		79,178		90,917		86,475		96,194	
Texas Gulf	115,587		122,523		122,166		134,732		135,020		200,128	
Mississippi	[d]		107		4,400		15,327		28,833		18,807	
Total	182,217	15.0	190,873	15.1	205,744	15.2	240,976	17.2	250,328	18.0	315,129	20.9
Rocky Mountain:												
Colorado	1,412		1,404		1,626		2,150		2,199		2,320	
Montana	4,946		5,960		6,728		7,526		8,074		7,916	
Wyoming	19,022		21,454		25,711		29,878		32,812		33,077	
Total	25,380	2.1	28,818	2.3	34,065	2.5	39,554	2.8	43,085	3.1	43,313	2.9
Central:												
Illinois	24,075		94,912		147,647		132,393		106,391		82,260	
Indiana	995		1,711		4,978		7,411		6,743		5,283	
Kentucky	5,821		5,621		5,188		4,762		4,534		7,883	
Ohio	3,298		3,156		3,159		3,510		3,543		3,322	
Michigan	18,745		23,462		19,753		16,359		21,754		20,768	
Total	52,934	4.4	128,862	10.2	180,725	13.3	164,435	11.8	142,965	10.4	119,516	8.0

Eastern:												
Pennsylvania	17,426		17,382		17,353		16,750		17,779		15,757	
New York	5,045		5,098		4,999		5,185		5,421		5,059	
West Virginia	3,684		3,580		3,444		3,433		3,574		3,349	
Total	26,155	2.1	26,060	2.1	25,796	2.0	25,368	1.8	26,774	1.9	24,165	1.7
Other: [c]	82	—	96	—	347	—	1,961	0.1	1,282	0.1	687	.4
Total United States	1,214,355	100.0	1,264,962	100.0	1,353,214	100.0	1,402,228	100.0	1,386,645	100.0	1,503,176	100.00
Illinois	24,075	2.0	94,912	7.5	147,647	10.9	132,393	9.4	106,391	7.7	82,260	5.5

[a] U. S. Bur. Mines, Minerals Yearbooks and Annual Petroleum Statement No. P241, Monthly Petroleum Statement No. P245.
[b] Percent of total U. S. production.
[c] The states reporting are not identical from year to year.
[d] Included in "Other."

TABLE 34.—CRUDE OIL PRICE CHANGES FOR ILLINOIS, INDIANA, KENTUCKY AND OHIO, 1943[a]

	January 6, 1943	December 29, 1943
Posted by Sohio Corp. (May 21, 1941)		
Illinois basin ([b]), including Griffin pool	$1.37	$1.37
Carmi, Storms, Illinois, area	1.32	1.32
Birk City, Kentucky, area	1.32	1.37 (July 1, 1943)
Corydon, Kentucky, area, Henderson	1.32	1.37 (Dec. 1, 1943)
Posted by Ohio Oil Co. (May 21, 1941)		
Illinois basin	1.37	1.37
Eastern Illinois and Western Indiana	1.22	1.22
Posted by Carter Oil Co. (May 21, 1941)		
Louden, Fayette County, Illinois	1.37	1.37
Posted by Mohawk Oil Lines, Inc. (May 21, 1941)		
Southern Illinois	1.37	1.37
Posted by Ashland Oil & Transp. Co. (June 19, 1941); Somerset Oil in Ashland Lines, Ky.		
Big Sandy River	1.38	1.38
Kentucky River	1.43	1.43
Posted by Owensboro-Ashland Co.		
Owensboro, Kentucky, area (May 21, 1941)	1.32	1.37 (July 1, 1943)
Posted by S. O. Ohio (Sept. 1, 1941)		
Lima, Ohio	1.50	1.50
Cleveland, Lodi & Chatham (Ohio) areas	1.30	1.30

[a] Nat'l Petroleum News, January 6, 1943 and December 29, 1943.
[b] Also posted by the Texas Company.

TABLE 35.—STOCKS OF CRUDE OIL AND REFINED PRODUCTS IN THE UNITED STATES, IN ILLINOIS, AND IN THE CENTRAL REFINING DISTRICT, BY MONTHS, 1943[a]
(In thousands of barrels)

1943	Total Crude Stocks		Stocks of Refined Products			
			Central Refining District			United States
	United States	Illinois	Gasoline	Distillate fuel oil[b]	Residual fuel oil[b]	Gasoline
January	234,423	9,297	18,019	4,832	2,686	88,677
February	237,075	9,527	19,597	3,971	2,910	92,848
March	242,181	10,306	20,314	3,339	2,452	94,114
April	242,934	11,017	18,999	3,709	2,905	89,482
May	243,880	10,405	18,331	4,186	3,097	83,887
June	240,601	11,391	16,108	4,876	3,179	77,540
July	238,346	11,502	14,857	5,578	3,286	73,149
August	236,285	13,929	14,165	5,827	3,279	71,059
September	236,287	14,577	14,089	6,101	3,409	69,219
October	239,451	15,647	14,103	6,606	3,217	69,045
November	241,648	14,973	14,293	6,483	2,908	69,551
December	241,762	14,053	15,592	5,873	2,983	75,327

[a] U. S. Bureau of Mines, Monthly Petroleum Statements.
[b] Includes refinery and bulk stocks.

TABLE 36.—ESTIMATES OF PROVED OIL RESERVES IN THE STATES SERVING THE ILLINOIS AREA, 1935–1944[a]
(Millions of barrels)

As of Jan. 1	Oklahoma	Kansas	Illinois	Arkansas	Kentucky	Indiana	Nebraska	Michigan
1944	909	646	295	297	35	31	1	55
1943	969	687	307	300	35	32	2	64
1942	1,036	690	334	295	36	23	—	56
1941	1,002	692	315	306	41	14	—	35
1940	1,063	726	382	320	44	14	—	51
1939	1,162	613	243	188	38	6	—	43
1938	1,212	601	41	192	38	3	—	49
1937	1,141	568	28	84	39	3	—	44
1936	—	—	—	—	—	—	—	—
1935	1,235	390	37	103	50	5	—	64

[a] From reports of Committee on Petroleum Reserves, American Petroleum Institute.

TABLE 37.—GASOLINE SOLD IN ILLINOIS, 1940–1943, BY MONTHS[a]
(Thousands of gallons)

	1940	1941	1942	1943
January	102,497	111,386	116,305	77,071
February	94,100	105,883	96,237	76,077
March	113,937	127,451	114,387	94,220
April	128,391	140,940	131,138	103,374
May	143,463	162,605	138,072	100,075
June	149,053	148,451	132,000	121,214
July	136,768	155,021	131,683	112,885
August	144,227	155,969	127,469	103,861
September	134,693	145,618	125,830	97,189
October	141,822	143,406	125,274	102,066
November	129,746	134,510	139,732	101,633
December	119,894	135,538	63,479	95,487
Total	1,538,591	1,666,778	1,441,606	1,185,852

[a] Illinois Gasoline Tax Data; Illinois Gasoline Tax Evasion Committee, monthly reports.

GASEOUS FUEL IN ILLINOIS IN 1943

Gas, both natural and manufactured, constitutes an important fuel in certain Illinois industries and localities, particularly Chicago and its environs, as shown in table 38.

Natural gas is obtained from fields both within the State and by importation from three fields in the Midcontinent—the Hugoton field in Kansas, the Amarillo field in the Panhandle of Texas, and the Monroe field in northern Louisiana. The Hugoton gas field supplies cities in central Illinois. The City of Chicago and its environs is supplied by pipelines from the Amarillo field, and the St. Louis industrial district is supplied from Monroe, Louisiana. The above named fields supplying Illinois are primarily gas fields and not associated with oil production.

About 5 percent of the natural gas used in Illinois is obtained within the State. Most of this production is associated with the output of petroleum, although there are two small gas fields in Illinois which have also contributed to the supply.

Manufactured gas is obtained principally as a byproduct of the coking and blast furnace industry and petroleum refining, although a considerable portion is manufactured in gas producers for sale to the public.

The gas manufactured as a byproduct of the coking industry, blast furnace operations, and the refining of petroleum, is used primarily in plant operations, and only a small surplus is sold to the public through

TABLE 38.—CONSUMPTION OF NATURAL AND MANUFACTURED GAS IN ILLINOIS, BY CLASSES OF CONSUMERS, 1940–1943[a]

	1940	1941	1942	1943
Domestic				
Number of consumers	1,237,018	1,282,223	1,305,085	1,354,500
Gas used (M. cu. ft.)	19,268,974	19,458,025	21,290,000	37,857,000
Av. amount per consumer (M. cu. ft.)	15.6	15.2	16.3	27.9
Value at points of consumption	$23,634,750	$24,417,445	$26,333,000	$41,628,900
Average value per M. cu. ft.	$1.23	$1.25	$1.24	$1.10
Commercial				
Number of consumers	65,926	69,225	69,125	68,900
Gas used (M. cu. ft.)	5,179,279	5,401,307	6,074,000	10,649,200
Av. amount per consumer (M. cu. ft.)	78.6	78.0	87.9	154.6
Value at points of consumption	$4,546,757	$4,687,958	$5,148,000	$7,304,200
Average value per M. cu. ft.	$0.88	$0.87	$0.85	$0.69
Industrial				
Number of consumers	7,048	7,494	7,915	8,200
Gas used (M. cu. ft.)	55,814,927	64,775,923	71,932,000	84,098,800
Av. amount per consumer (M. cu. ft.)	7,919	8,644	9,088	10,256
Value at points of consumption	$11,804,688	$13,859,802	$15,989,000	$19,063,300
Average value per M. cu. ft.	$0.21	$0.21	$0.22	$0.23
Fuel in Fields[b]				
Gas used (M. cu. ft.)	7,825,255	8,999,256	11,645,000	5,812,300
Value	$ 246,134	$ 273,017	$ 412,000	$ 228,400
Average value per M. cu. ft.	$0.031	$0.03	$0.035	$0.04
Total gas used	88,088,435	98,634,511	110,941,000	138,417,300
Total value	$40,232,329	$43,238,222	$47,882,000	$68,224,800

[a] Compiled from joint canvass made by Illinois Geological Survey and U. S. Bureau of Mines.
[b] Includes extraction loss and fuel used in natural gasoline plants.

the utilities. For example, the low calorific gas resulting from blast furnace operations may be used as fuel for operating the compressor engines or heating the stoves of a blast furnace plant. Surplus gas from a byproduct coking process may be used in the open-hearth furnace, in the soaking pits, or in several re-heat operations.

The principal outlet of manufactured gas is in manufacturing industries; the public utilities use natural gas or mixed gas in which natural gas is the more important ingredient.

The economics of gas distribution through public utilities in Illinois is of interest because the conditions of distribution and the rates are affected by the cost of transmission from distant fields and the seasonality of the domestic heating load.

Because of the long transmission distance, approximately 900 miles, and the high overhead cost involved, it is advantageous to maintain a full load in the line if a market can be found for surplus gas in off-peak periods. The seasonality of demand in the house-heating load is shown in table 39. This, together with gas for cooking and water heating, return the highest gross revenue to the utilities. The load in the summer season, however, is very low, as for example in August 1943, the load for this month was 17 percent of the yearly average and 8.3 percent of the January load, the month of highest consumption. The transmission system, however, is maintained at full capacity by offering gas for industrial use at especially low rates but subject to a "cut-off" clause which permits the utility to shut off the supply to the industrial consumer on short notice in order to take care of sudden increases in the load among

domestic users. Under these conditions, the utility can profitably dispose of surplus gas during off-peak periods at a price merely above the cost of the gas without charges to overhead, since the latter are unchanged by the full capacity operation of the pipe-line and have already been calculated in the rates charged for firm loads. The importance of the industrial interruptible sales from the point of view of quantity of gas delivered is shown in table 39.

The revenues for the several types of services are shown in table 40. The growth of the several classes of consumer demand over a period of several years is shown in table 41.

TABLE 39.—GAS SALES TO ULTIMATE CONSUMERS IN ILLINOIS, 1943, BY USES AND BY MONTHS[a]
(In thousands of therms)

Month	Residential sales exclusive of space heating	Residential space heating	Industrial interruptible sales	Commercial-industrial non-interruptible and other sales	Industrial non-interruptible sales	Total
January	16,393	21,353	30,811	8,641	8,971	86,169
February	15,284	20,330	29,475	8,080	9,137	82,306
March	15,575	19,329	32,391	8,096	10,205	85,596
April	15,436	13,615	32,835	9,150	11,938	82,974
May	15,867	9,475	36,323	7,915	12,116	81,696
June	16,373	5,221	39,583	7,011	12,576	80,764
July	15,376	2,288	42,613	5,927	12,185	78,389
August	14,485	1,754	36,647	6,436	12,737	72,059
September	15,759	2,754	32,135	6,103	12,562	69,313
October	16,664	5,741	32,988	6,970	13,680	76,043
November	16,099	11,499	32,773	5,995	11,709	78,075
December	16,432	17,473	30,660	7,511	11,643	83,719
Total	189,743	130,832	409,234	87,835	139,459	957,103

[a] Figures taken from "Monthly Summary of Gas Sales in Illinois," Illinois Gas Utilities, Rates and Research Section.

TABLE 40.—GAS SALES TO ULTIMATE CONSUMERS IN ILLINOIS, 1943, BY USES AND BY MONTHS[a]
(In thousands of dollars)

Month	Residential sales exclusive of space heating	Residential space heating	Industrial interruptible sales	Commercial and other sales	Industrial non-interruptible sales	Total
January	$ 2,893	$ 1,612	$ 595	$ 886	$ 613	$ 6,599
February	2,593	1,517	577	763	568	6,018
March	2,621	1,455	624	765	626	6,091
April	2,626	1,068	631	705	627	5,657
May	2,698	787	678	632	621	5,416
June	2,776	492	710	569	634	5,181
July	2,656	275	755	492	609	4,787
August	2,551	229	683	486	635	4,584
September	2,694	310	626	488	618	4,736
October	2,841	532	642	552	690	5,257
November	2,747	927	643	615	678	5,610
December	2,763	1,328	602	724	695	6,112
Total	$32,459	$10,532	$7,766	$7,677	$7,614	$66,048

[a] Figures taken from "Monthly Summary of Gas Sales in Illinois," Illinois Gas Utilities, Rates and Research Section.

TABLE 41.—GAS SALES TO ULTIMATE CONSUMERS IN ILLINOIS, BY PRINCIPAL USES, 1939–1943[a]
(In thousands of therms)

Uses	1939	1940	1941	1942	1943
Residential sales exclusive of space heating	170,542	176,266	176,357	182,250	190,040
Residential space heating sales	88,901	107,312	105,520	124,068	130,870
Commercial sales	67,110	73,413	76,679	85,137	86,409
Industrial non-interruptible	64,397	74,181	95,180	109,234	139,833
Industrial interruptible	383,406	377,970	378,658	449,508	409,672
Public agencies	771	847	954	1,137	1,526
Total	775,138	809,989	833,348	951,334	958,350

[a] Illinois Commerce Commission, Rates and Research Section, Research Bulletins Nos. 33, 35, 40.

STONE, ROCK PRODUCTS

Limestone, dolomite, and calcareous marl.—Production of limestone, dolomite, and calcareous marl in Illinois in 1943 amounted to 11,384,000 tons, valued at the plants at approximately $10,609,000. This was a decrease of about 19 percent in amount from the previous year, due to shortage of labor and truck transportation as well as decreased demand. All of these conditions were caused by concentration on the war effort. In production of stone, Illinois ranked third among the states, being exceeded only by Pennsylvania and Ohio.

Details of this production are given in tables 42 and 43 by kind and by use. Limestone showed a decrease of 15 percent in amount from 1942 and dolomite (stone containing 25 percent or more magnesium carbonate) decreased 22 percent. Calcareous marl increased 2 percent.

Industrial uses of stone declined 11 percent in amount from 1942. Metallurgical and flux uses increased 3 percent. All other industrial uses showed decreases; agstone decreased 15 percent, whiting substitutes 44 percent.

Construction uses of stone declined 23 percent in amount from the previous year. Riprap increased 76 percent, railroad ballast decreased 10 percent, concrete and paving decreased 20 percent, and rubble and veneering stone decreased 94 percent.

During 1943, there were 38 quarries idle or out of business which in 1942 produced 322,472 tons of stone, or 2.3 percent of the 1942 State total. Production of these quarries averaged 8,486 tons, each of them producing less than 30,000 tons, except two. Of the 38 quarries, 22 produced limestone, 15 dolomite, and 1 calcareous marl.

Annual production of stone in Illinois since 1920 is given graphically in figure 7, showing amount and value for each year compared with the 20-year average based on the period 1920-1939, inclusive.

Commercial and government-and-contractor operations.—Production of commercial operations is separated from that of government-and-contractor operations, which include the following: The State of Illinois, counties, townships, municipalities, and the Work Projects Administration, produced either by themselves or by contractors expressly for their use. Purchases by government agencies from commercial producers are included in commercial operations. Government-and-contractor operations declined 70 percent, compared with 16 percent decline for commercial operations. Government-and-contractor operations produced only 2 percent of the total tonnage of stone.

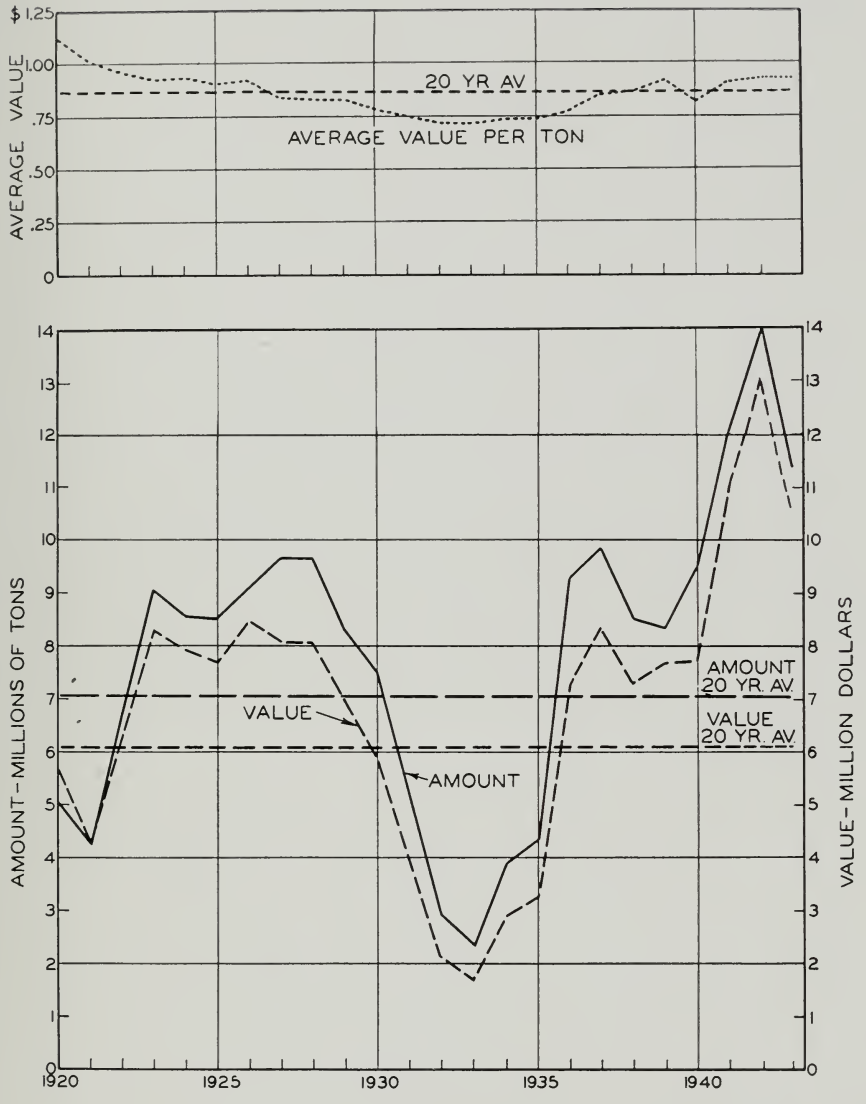

FIG. 7.—Annual production of stone (limestone, dolomite, marl) in Illinois, 1920–1943. (The 20-year average is based on data for 1920–1939 inclusive.)

TABLE 42.—STONE (LIMESTONE, DOLOMITE, AND CALCAREOUS MARL), BY USES, SOLD OR USED BY PRODUCERS IN ILLINOIS, 1942 AND 1943[a]

Use	Type of operation	1942*				1943				Percent change in amount from 1942
		Plants[b]	Amount tons	Value at plants		Plants[b]	Amount tons	Value at plants		
				Total	Av.			Total	Av.	
Industrial										
Agstone[c]	Commercial	131	3,641,534	$ 3,422,593	$0.94	90	3,091,159	$ 3,030,490	$0.98	—15.1
Agstone	Gov.-contr.	3	113,016	74,457	.66	5	39,771	32,695	.82	—64.8
Metallurgical and flux[d]	Commercial	9	847,593	1,231,311	1.45	10	868,798	854,034	.98	+ 2.5
Whiting substitutes[e]	"	4	11,336	48,723	4.30	2	6,407	43,611	6.81	—43.5
Miscellaneous fillers[f]	"	4	100,385	352,492	3.51	6	97,433	303,814	3.12	— 3.0
Other industrial uses[g]	"	9	83,543	113,419	1.36	6	145,511	331,457	2.28	+74.2
Total	Both	134	4,797,407	5,242,995	1.09	95	4,249,079	4,596,101	1.08	—11.4
Construction										
Concrete and paving	Commercial	54	7,574,649	5,974,595	.79	47	5,991,009	4,991,509	.83	—20.1
Concrete and paving	Gov.-contr.	17	623,661	951,847	1.52	21	189,547	173,538	.92	—69.6
Railroad ballast	Commercial	16	804,853	617,988	.77	16	723,281	547,928	.76	—10.1
Rubble and veneering stone	"	10	31,047	29,169	.94	5	1,783	2,386	1.34	—94.3
Rubble and veneering stone	Gov.-contr.	—	—	—	—	1	1,569	1,020	.65	—
Flagging	Commercial	3	158	785	4.97	3	479	2,380	4.97	+203.2
Riprap	"	18	54,826	48,547	.89	17	96,665	112,357	1.16	+76.3
Riprap	Gov.-contr.	2	31,596	42,373	1.34	2	3,977	9,418	2.37	—87.4
Other construction uses[h]	Commercial	7	88,359	106,130	1.20	5	126,778	172,425	1.36	+43.5
Total	Both	85	9,209,149	7,771,434	.84	74	7,135,088	6,012,961	.84	—22.5
Total commercial operations	Commercial	138	13,238,283	$11,945,752	$0.90	93	11,149,303	$10,392,391	$ .93	—15.8
Total gov.-contr. operations	Gov.-contr.	15	768,273	1,068,677	1.39	22	234,864	216,671	.92	—69.5
Total stone	Both	153	14,006,556	$13,014,429	$0.93	115	11,384,167	$10,609,062	$0.93	—18.7

* Revised figures.
[a] Compiled from joint canvass made by Illinois Geological Survey and U. S. Bureau of Mines.
[b] Number of plants reporting production in year indicated.
[c] Compiled from canvass made by Illinois Geological Survey in cooperation with Illinois Agricultural Ass'n. and Midwest Agricultural Limestone Institute.
[d] Includes stone for aluminum refining, refractory dolomite, and flux for open-hearth and blast furnaces.
[e] Includes whiting substitute for pottery and for paint, putty, rubber and other fillers.
[f] Includes pulverized stone for asphalt, fertilizer, and sundry fillers.
[g] Includes stone for glass factories, magnesium metal, mineral feeds, poultry grit, stock feeds, regrinding, reprocessing, and dust for coal mines.
[h] Includes stone for filter beds, stone sand, and unspecified uses.

TABLE 43.—LIMESTONE, DOLOMITE AND CALCAREOUS MARL, BY KINDS AND BY USES, SOLD OR USED BY PRODUCERS IN ILLINOIS, 1943[a]

Use	Type of operation	Limestone				Dolomite			
		Plants[b]	Amount tons	Value at plants		Plants[b]	Amount tons	Value at plants	
				Total	Av.			Total	Av.
Industrial									
Agstone[c]	Commercial	57	1,946,837	$2,094,770	$1.08	31	1,137,012	$ 928,770	$0.82
Agstone	Gov.-contr.	4	39,675	32,637	.82	1	96	58	.60
Marl (used as agstone)	Commercial	2	7,310	6,950	.95	—	—	—	—
Metallurgical and flux[d]	"	6	365,183	376,419	1.03	4	503,615	477,615	.95
Whiting substitute[e]	"	2	6,407	43,611	6.81	—	—	—	—
Miscellaneous fillers[f]	"	4	57,567	184,096	3.20	2	39,866	119,718	3.00
Other industrial uses[g]	"	4	69,648	152,476	2.19	2	75,863	178,981	2.36
Total	Both	63	2,492,627	$2,890,959	1.16	32	1,756,452	$1,705,142	.98
Construction									
Concrete and paving	Commercial	29	1,758,690	1,687,689	.96	18	4,232,319	3,303,820	.78
Concrete and paving	Gov.-contr.	13	100,823	94,020	.93	8	88,724	79,518	.90
Railroad ballast	Commercial	5	256,157	206,102	.80	11	467,124	341,826	.73
Rubble and veneering stone	"	4	1,743	2,221	1.27	—	[h]	[h]	—
Rubble and veneering stone	Gov.-contr.	1	1,569	1,020	.65	—	—	—	—
Flagging	Commercial	2	34	112	3.29	—	[h]	[h]	—
Riprap	"	15	76,299	81,514	1.07	4	20,851	33,276	1.60
Riprap	Gov.-contr.	1	397	250	.63	1	3,580	9,168	2.56
Other construction uses[i]	Commercial	2	93,325	140,874	1.51	3	33,453	31,551	.94
Total	Both	47	2,289,037	2,213,802	.97	27	4,846,051	3,799,159	.78
Total Commercial operations	Commercial	59[j]	4,639,200	$4,976,834	$1.07	34	6,510,103	$5,415,557	$0.83
Total Gov.-contr. operations	Gov.-contr.	13	142,464	127,927	.90	9	92,400	88,744	.96
Total stone	Both	72	4,781,664	$5,104,761	$1.07	43	6,602,503	$5,504,301	$0.83

[a] Compiled from joint canvass made by Illinois Geological Survey and U. S. Bureau of Mines.
[b] Number of plants reporting production during year indicated.
[c] Compiled from canvass made by Illinois Geological Survey in cooperation with Illinois Agricultural Ass'n. and Midwest Agricultural Limestone Institute.
[d] Includes stone for aluminum refining, refractory dolomite, and flux for open-hearth and blast furnaces.
[e] Includes whiting substitute for pottery and for paint, putty, rubber and other fillers.
[f] Includes pulverized stone for asphalt, fertilizer and sundry fillers.
[g] Includes stone for glass factories, magnesium metal, mineral feeds, poultry grit, stock feeds, regrinding, reprocessing, and dust for coal mines.
[h] Included in Riprap-commercial operations.
[i] Includes stone for filter beds, stone sand and unspecified uses.
[j] Includes 7310 tons calcareous marl valued at $6950.

TABLE 44.—AGSTONE USED IN ILLINOIS, 1942 and 1943[a]

	1942				1943				Percent change in amount from 1942
	Plants[b]	Amount tons	Value at plants		Plants[b]	Amount tons	Value at plants		
			Total	Av.			Total	Av.	
Produced in Illinois:									
Limestone	88	2,344,940	$2,310,357	$0.99	59	1,986,512	$2,127,407	$1.07	—15.3
Dolomite	43	1,402,460	1,182,689	.84	32	1,137,108	928,828	.82	—18.9
Calcareous marl	3	7,150	4,004	.56	2	7,310	6,950	.95	+ 2.2
Total produced in Illinois	134	3,754,550	3,497,050	.93	93	3,130,930	3,063,185	.98	—16.3
Less marketed in other states	7	59,017	55,800	.93	9	75,971	73,692	.97	+28.7
Produced and used in Illinois	134	3,695,533	$3,441,250	$0.93	93	3,054,959	$2,989,493	$0.98	—17.3
Produced in other states and used in Illinois	9	171,035	—	—	10	166,518	—	—	— 2.6
Total agstone used in Illinois	143	3,866,568	—	—	103	3,221,477	—	—	—16.7

[a] From canvass made by Illinois Geological Survey, in cooperation with Illinois Agricultural Association and Midwest Agricultural Limestone Institute.
[b] Number of plants reporting production during year indicated.

Agstone Used in Illinois

Agstone (ground limestone, dolomite, and marl, used for soil improvement) amounted to more than 3,221,000 tons in Illinois during 1943, as shown in table 44. This was a reduction of about 17 percent from the previous year. This reduction was caused by shortage of labor, trucks, and repairs for equipment, due to general concentration of all labor and equipment on production of war materials.

During 1943, agstone was produced in 40 of the 102 counties of the State. Of the total amount used during the year, 95 percent was produced in Illinois.

Table 45 gives the use of agstone by counties in Illinois during 1943, showing the amounts produced in Illinois and those produced in other states. It also shows the arable land in each county, and the average quantity of agstone used, in pounds per acre of arable land. These data are from reports of producers, some distribution data being supplemented by information from county farm advisers. Corresponding data are given for 1942.

Table 46 gives the amount and the percentage of total Illinois consumption of agstone produced in other states which was used in Illinois during the past five years. Table 47 gives the distribution of agstone produced in Illinois which was marketed in other states during the same period.

Agstone used in 1943 in Illinois is shown graphically in figure 8, giving by group symbols the county averages in pounds per acre of arable land.

Table 46.—Agstone Produced in Other States and Used in Illinois, 1939–1943[a]
(In tons)

Year	Amount sold in Illinois	Percent of total Illinois consumption
1939.....	71,775	5.1
1940.....	106,912	5.9
1941.....	95,226	3.2
1942.....	171,035	4.5
1943.....	166,518	5.3

[a] From canvass made by Illinois Geological Survey.

Table 47.—Agstone Produced in Illinois and Marketed in Other States, 1939–1943[a]
(In tons)

Year	Wisconsin	Iowa	Missouri	Kentucky	Indiana	Other States	Total
1939....	—	—	441	4,751	3,527	19,450	28,169
1940....	950	—	353	5,450	3,800	15,225	25,778
1941....	—	100	867	940	1,800	1,125	4,832
1942....	450	—	203	9,700	28,811	19,853	59,017
1943....	—	11,000	1,192	1,000	34,579	28,200	75,971

[a] From canvass made by Illinois Geological Survey.

TABLE 45.—AGSTONE USED IN ILLINOIS, BY COUNTIES, 1942 AND 1943[a]

County	Tons used in 1942	Tons used in 1943			Acres of arable land (1939 census)	Pounds used per acre	
		Produced in Illinois	Produced in other states	Total used in Illinois		1942	1943
Adams	43,037	65,551	—	65,551	252,446	340	519
Alexander	9,150	8,024	350	8,374	49,866	366	336
Bond	27,371	20,027	53	20,080	122,224	448	329
Boone	14,023	12,342	—	12,342	115,849	242	213
Brown	17,128	15,000	—	15,000	71,549	479	419
Bureau	39,481	30,876	1,986	32,862	352,777	224	186
Calhoun	18,368	15,906	—	15,906	62,607	587	508
Carroll	47,700	34,800	—	34,800	151,498	630	459
Cass	15,635	14,096	—	14,096	137,405	228	205
Champaign	71,948	26,869	—	26,869	487,052	295	110
Christian	100,883	56,176	—	56,176	317,469	636	354
Clark	50,219	51,818	482	52,300	147,721	679	708
Clay	29,690	22,539	544	23,083	147,932	401	312
Clinton	35,711	34,158	574	34,732	184,463	388	377
Coles	47,628	37,000	59	37,059	204,186	466	363
Cook	38,174	39,140	—	39,140	174,178	438	449
Crawford	33,791	34,980	3,775	38,755	129,019	524	601
Cumberland	34,353	19,299	114	19,413	111,117	618	349
DeKalb	29,091	25,910	—	25,910	300,180	194	173
DeWitt	18,127	4,797	—	4,797	178,758	203	54
Douglas	24,555	9,505	1,014	10,519	203,651	241	103
DuPage	17,886	26,790	—	26,790	98,841	362	542
Edgar	62,333	35,154	127	35,281	255,054	489	277
Edwards	20,606	15,151	4,373	19,524	79,811	516	489
Effingham	36,837	19,154	16,865	36,019	153,841	479	468
Fayette	29,590	29,547	57	29,604	207,106	286	286
Ford	27,135	20,531	—	20,531	235,032	231	175
Franklin	24,820	17,835	5,721	23,556	101,537	489	464
Fulton	22,947	11,974	518	12,492	267,772	171	93
Gallatin	14,120	13,325	—	13,325	102,638	275	260
Greene	31,789	20,622	—	20,622	164,814	386	250
Grundy	23,568	27,098	—	27,098	193,637	243	280
Hamilton	19,263	11,813	2,371	14,184	126,415	305	224
Hancock	39,690	40,529	3,486	44,015	265,043	299	332
Hardin	9,414	7,651	—	7,651	21,367	882	716
Henderson	41,793	30,600	—	30,600	127,291	657	481
Henry	56,586	60,279	7,354	67,633	327,034	346	414
Iroquois	82,925	71,561	3,712	75,273	536,438	309	281
Jackson	20,428	21,717	28	21,745	147,931	276	294
Jasper	41,413	42,923	—	42,923	174,186	475	492
Jefferson	61,567	21,568	35,454	57,022	146,453	841	779
Jersey	30,868	12,300	—	12,300	104,793	589	235
Jo Daviess	30,515	25,300	—	25,300	144,530	422	350
Johnson	28,612	10,687	—	10,687	59,742	958	358
Kane	25,116	21,445	—	21,445	210,186	239	204
Kankakee	56,072	81,355	—	81,355	300,394	373	542
Kendall	29,388	30,588	—	30,588	150,326	391	407
Knox	35,827	19,034	16,020	35,054	253,753	286	276
Lake	10,775	7,858	—	7,858	108,847	198	144
LaSalle	86,445	71,965	—	71,965	506,546	342	284
Lawrence	20,425	9,824	228	10,052	122,007	335	165
Lee	70,400	77,018	—	77,018	317,176	444	486
Livingston	118,615	34,927	—	34,927	522,760	454	134
Logan	20,552	21,617	—	21,617	305,432	135	142
McDonough	39,883	20,267	—	20,267	225,530	354	180

[a] Compiled from canvass made by Illinois Geological Survey, in cooperation with Illinois Agricultural Association and Midwest Agricultural Limestone Institute.

TABLE 45.—(Concluded)

County	Tons used in 1942	Tons used in 1943			Acres of arable land (1939 census)	Pounds used per acre	
		Produced in Illinois	Produced in other states	Total used in Illinois		1942	1943
McHenry	20,580	27,407	—	27,407	211,577	195	259
McLean	142,161	102,245	—	102,245	557,076	510	367
Macon	18,407	35,960	114	36,074	263,970	139	273
Macoupin	34,387	24,217	792	25,009	263,157	261	190
Madison	36,283	25,946	160	26,106	256,470	283	204
Marion	55,294	26,869	11,864	38,733	171,342	645	452
Marshall	18,461	13,896	—	13,896	158,028	234	176
Mason	23,696	21,231	—	21,231	225,535	210	188
Massac	21,100	20,180	—	20,180	56,261	750	717
Menard	23,627	15,526	—	15,526	128,395	368	242
Mercer	28,338	18,350	2,079	20,429	190,569	297	214
Monroe	25,381	35,712	—	35,712	144,902	350	493
Montgomery	43,154	53,955	—	53,955	248,528	347	434
Morgan	14,338	8,620	680	9,300	220,259	130	84
Moultrie	22,513	32,519	409	32,926	154,637	291	426
Ogle	52,017	40,134	—	40,134	309,633	336	259
Peoria	45,973	52,581	226	52,807	203,084	453	520
Perry	21,446	15,639	531	16,170	126,300	340	256
Piatt	38,409	11,595	60	11,655	210,451	365	111
Pike	30,041	14,547	—	14,547	232,460	258	125
Pope	15,988	7,856	—	7,856	52,202	613	301
Pulaski	10,641	7,158	—	7,158	53,830	395	266
Putnam	17,819	7,852	—	7,852	56,148	635	278
Randolph	61,513	40,037	5,839	45,876	196,442	626	467
Richland	17,720	16,033	653	16,686	132,767	267	252
Rock Island	29,204	30,000	107	30,107	127,185	458	474
St. Clair	56,803	73,322	277	73,599	229,600	495	641
Saline	19,744	20,581	—	20,581	99,227	398	415
Sangamon	46,461	42,922	—	42,922	358,668	259	239
Schuyler	8,922	7,100	—	7,100	123,785	144	115
Scott	8,564	4,138	—	4,138	87,070	197	95
Shelby	40,861	33,661	70	33,731	283,990	288	238
Stark	35,148	8,823	2,853	11,676	121,264	580	192
Stephenson	62,000	42,000	—	42,000	212,702	583	395
Tazewell	22,549	16,958	—	16,958	265,832	170	128
Union	19,725	19,130	—	19,130	94,140	419	407
Vermilion	74,908	43,750	—	43,750	390,901	383	224
Wabash	10,234	4,283	4,422	8,705	80,345	255	217
Warren	46,388	56,272	2,658	58,930	210,953	440	559
Washington	49,289	27,559	10,722	38,281	211,504	466	362
Wayne	40,214	37,931	10,555	48,486	215,527	373	450
White	21,272	16,884	4,165	21,049	189,016	225	222
Whiteside	44,025	73,619	2,017	75,636	274,505	320	551
Will	44,984	55,229	—	55,229	345,147	261	321
Williamson	30,826	15,920	—	15,920	86,222	715	369
Winnebago	35,315	35,000	—	35,000	180,603	391	388
Woodford	29,590	19,024	—	19,024	222,776	266	171
Undistributed	215,989	125,970	—	125,970	—	—	—
Total	3,866,568	3,054,959	166,518	3,221,477	20,201,195	Av. 383	Av. 318

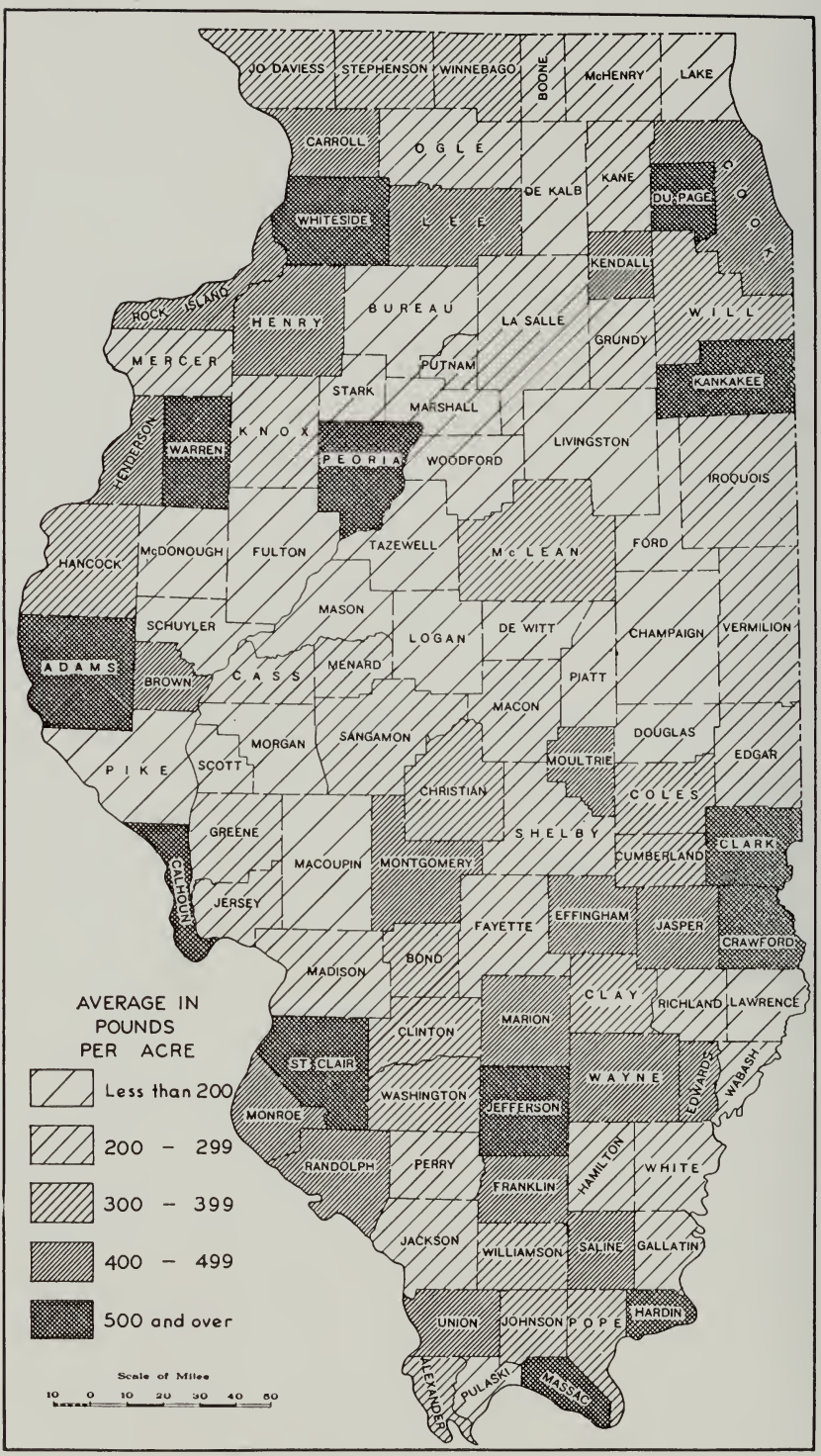

FIG. 8.—Agstone used in 1943. County averages are given in pounds per acre of arable land.

TABLE 48.—CEMENT SHIPPED OR USED BY PRODUCERS IN ILLINOIS, 1942 AND 1943[a]

Kind	Lbs. per per bbl.	1942				1943				Percent change in amount from 1942
		Plants[b]	Amount bbls.	Value at plants		Plants[b]	Amount bbls.	Value at plants		
				Total	Av.			Total	Av.	
Standard Portland cement	376	4	6,165,989	$8,585,213	$1.39	4	3,861,655	$5,808,128	$1.50	—37.4
Special Portland cements:										
High-early-strength, and Portland-puzzolan	376	3	502,483	1,000,565	1.99	3	371,729	750,993	2.02	—26.0
Other	376	3	136,328	201,159	1.47	2	73,894	98,768	1.34	—45.8
Special hydraulic cements:										
Masonry	280	4	379,342	497,174	1.32	4	387,006	436,318	1.13	+ 2.0
Total cement	Equiv. 376	4	7,087,400	$10,284,111	$1.45	4	4,595,474	$7,094,207	$1.54	—35.2

[a] Compiled from canvass made by U. S. Bureau of Mines.
[b] Number of plants reporting production during year indicated.

TABLE 49.—LIME SOLD OR USED BY PRODUCERS IN ILLINOIS, 1942 AND 1943[a]

Kind and Use	1942				1943				Percent change in amount from 1942
	Plants[b]	Amount tons	Value at plants		Plants[b]	Amount tons	Value at plants		
			Total	Av.			Total	Av.	
Quicklime and refractory dolomite									
Building lime	5	8,725	$ 83,943	$9.56	3	4,760	$ 53,271	$11.19	—45.4
Chemical and industrial lime:									
Paper manufacturing	3	11,778	62,629	5.32	3	8,188	53,394	6.52	—30.5
Other industrial uses[c]	6	262,158	1,885,295	7.20	6	335,281	2,054,944	6.13	+27.9
Total	8	282,661	2,031,867	7.19	7	348,229	2,161,609	6.21	+23.2
Hydrated lime									
Building lime	6	4,128	39,481	9.56	3	1,714	20,218	11.80	—58.5
Agricultural lime	5	439	2,877	6.55		[d]	[d]		
Chemical and industrial lime	5	26,849	191,927	7.15	3	25,721	189,117	7.35	— 5.7
Total	6	31,416	234,285	7.46	3	27,435	209,335	7.63	—12.7
Total lime	9	314,007	$2,266,152	$7.21	7	375,664	$2,370,944	$6.31	+19.6

[a] Compiled from joint canvass made by Illinois Geological Survey and U. S. Bureau of Mines.
[b] Number of plants reporting production during year indicated.
[c] Includes dead-burned (sintered) dolomite.
[d] Included in chemical and industrial lime.

Cement, Lime, Mineral Wool

Cement.—Shipments of cement by producers in Illinois during 1943 amounted to 4,595,000 barrels, valued at the plants at more than $7,094,000. This was a decrease in amount of 35 percent from the previous year, as shown in table 48. Special hydraulic masonry cements increased 2 percent, standard portland cements decreased 37 percent, and special portland cements decreased from 26 to 46 percent. These decreases resulted from completions of military construction and plants producing war materials.

Lime.—Production of lime in Illinois in 1943 amounted to 376,000 tons, valued at plants at $2,371,000. This was an increase in amount of 20 percent from the previous year, as shown in table 49. Quicklime, including dead-burned (sintered) dolomite, increased 23 percent, while hydrated lime decreased 13 percent. Considering uses, building operations used 45 percent less quicklime than for the previous year, and 59 percent less hydrated lime. Chemical and industrial uses were 25 percent more for quicklime and 6 percent less for hydrated lime. These changes were the results of increased demand from war industries and less demand for other purposes.

Annual shipments of cement and lime by producers in Illinois are shown graphically in figure 9, beginning with 1920, compared with the 20-year average, based on shipments for 1920-1939, inclusive.

Mineral Wool.—Production data on mineral wool in Illinois are available for the first time in 1943. The value of the product, see table 50, was more than $2,413,000. About 72 percent of this was used for home insulation and the balance for industrial insulation. Raw materials used are woolrock, limestone, slag, and other rock materials.

Table 50.—Mineral Wool Sold or Used by Producers in Illinois, 1943, by Kinds and by Uses[a]

Kind	1943			
	Plants[b]	Amount	Value at plants	
			Total	Av.
		tons		
Loose wool	6	1,771	$ 54,884	$30.99
Granulated wool	6	26,161	946,856	36.19
		M. sq. ft.		
Bats and rolls	3	15,894	580,316	36.51
		board ft.		
Felt, blocks, boards, blankets (with metal mesh)	4	4,214,387	463,519	.11
		tons		
Insulating cement	4	14,984	349,968	23.36
Other products	3	266	18,291	68.80
Total mineral wool	6	—	$2,413,834	—
Use:				
Home insulation	6	—	$1,727,457	—
Industrial insulation	4	—	686,377	—
Total mineral wool	6	—	$2,413,834	—

[a] Compiled from joint canvass made by Illinois Geological Survey and U. S. Bureau of Mines.
[b] Number of plants reporting production during year indicated.

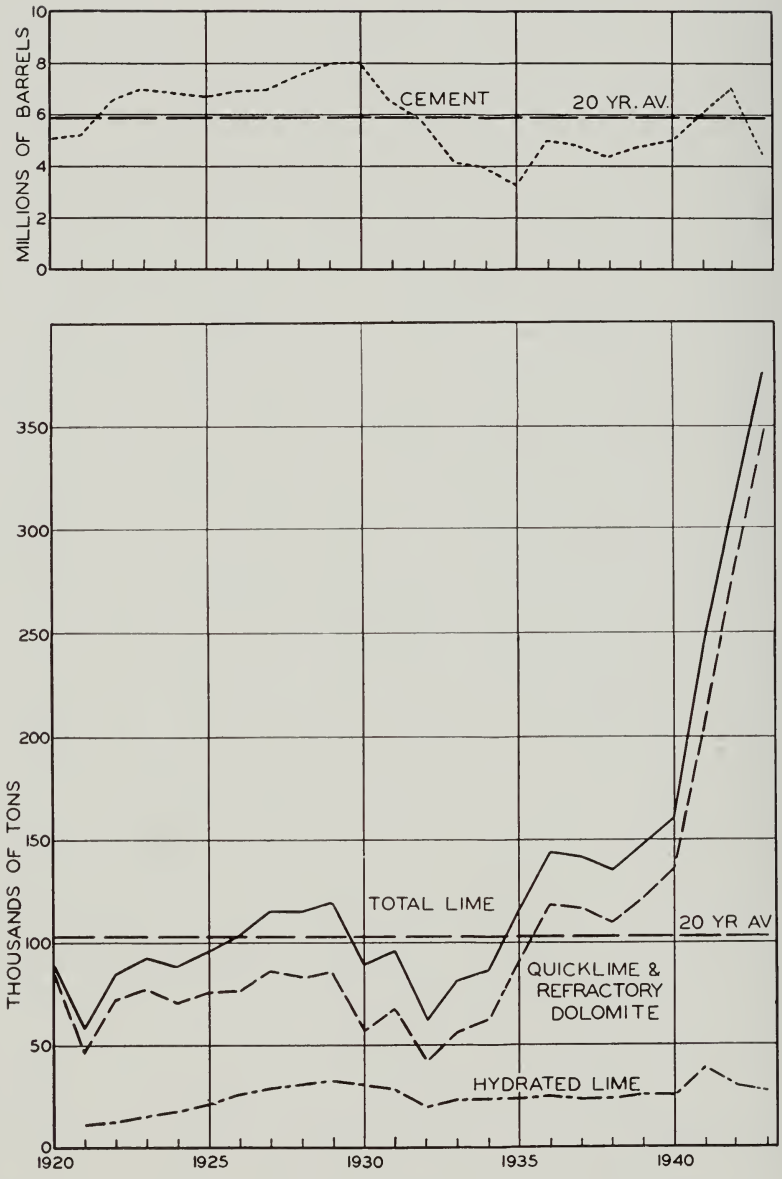

FIG. 9.—Annual shipments of cement and lime by producers in Illinois, 1920–1943. (The 20-year average is based on quantities for 1920–1939 inclusive.)

CLAYS, CLAY PRODUCTS

INCLUDING FULLER'S EARTH AND SILICA REFRACTORIES

Clays Including Fuller's Earth

Clays (including fuller's earth), which were sold and shipped as such in Illinois in 1943, are shown in table 51, by kinds and by uses. These do not include clays burned into clay products by their producers, which are reported in the resultant clay products. Corresponding figures for 1942 are given for comparison, and the percent change in amount from that for 1942.

Considering the kinds of clays, fuller's earth showed the greatest increase in amount of shipments, 110 percent, or more than double that for the previous year. Stoneware clay shipments increased 53 percent, and fire clay 5 percent, whereas kaolin, shale and surface clay decreased. Total clays sold and shipped increased 18 percent to 246,500 tons, valued at plants at more than $1,039,700.

Comparison of the various uses of clays showed the following increases from 1942 in amount of shipments: oil refining and cleaners, 112 percent; bonding foundry sands, 10 percent; for making structural products, 10 percent; laying and daubing refractories, 5 percent. Other uses showed decreases varying from 12 to 30 percent. Total non-ceramic uses increased 44 percent to 112,000 tons, and total ceramic uses increased 3 percent to 134,500 tons.

Clay Products Including Silica Refractories

Clay products (including silica refractories) sold and shipped by producers in Illinois in 1943, and comparative data for 1942, are given in table 52. Wide differences in size of products make it impossible to compare amounts of white wares and pottery, so their comparison is made by values.

Refractories, clay and silica, decreased 5 percent in total, but plastic and castable refractories increased 10 percent, whereas other refractories decreased from 4 to 8 percent. Total refractories were 260,000 tons, valued at $5,379,000.

Structural clay products shipments in 1943 showed a decrease of 27 percent in amount compared with that of the previous year. Drain tile made a notable increase of 35 percent, while other structural products decreased varying amounts from 29 to 48 percent. Total structural products were 830,000 tons, valued at plants at $4,515,000.

White wares and pottery remained practically the same, with a total value at plants of $7,350,000. Porcelain increased 47 percent, while stoneware and kitchenware increased 43 percent. Other kinds of white wares decreased from 1 to 18 percent.

Total clay products sold and shipped in Illinois in 1943 were valued at plants at more than $17,254,000, a decrease of 12 percent from the previous year.

Annual sales of clays and clay products by producers in Illinois for the past five years is shown graphically in figure 10.

TABLE 51.—CLAYS (INCLUDING FULLER'S EARTH) SOLD AND SHIPPED BY PRODUCERS IN ILLINOIS, 1942 AND 1943, BY KINDS AND BY USES[a]

Kind	1942*				1943				Percent change in amount from 1942
	Plants[b]	Amount tons	Value at plants		Plants[b]	Amount tons	Value at plants		
			Total	Av.			Total	Av.	
Fire clay	8	157,104	$386,819	$2.47	4	164,452	$409,729	$2.49	+ 4.6
Stoneware clay	4	1,416	4,986	3.53	2	1,948	4,807	2.47	+ 53.5
Kaolin	3	1,011	9,360	9.26	2	434	3,469	8.00	— 57.2
Shale and surface clay	2	18,132	38,707	2.13	3	15,786	45,981	2.91	— 13.0
	14	177,663	439,872	2.48	11	182,620	463,986	2.54	+ 2.7
Fuller's earth	1	30,421	264,611	8.70	1	63,909	575,805	9.01	+110.0
Total clays sold and shipped	15	208,084	704,483	3.38	12	246,529	1,039,791	4.22	+ 18.2
Use									
Ceramic—									
Refractories: laying and daubing	3	113,781	233,416	2.05	3	119,438	246,927	2.07	+ 5.0
Mfg. brick, crucibles, etc	3	6,785	16,313	2.30	3	5,210	5,225	1.00	— 22.8
Structural products	2	7,200	8,800	1.22	2	7,900	10,380	1.31	+ 10.0
White wares and pottery	7	2,946	8,006	2.72	3	1,948	4,807	2.47	— 30.5
	10	130,712	266,535	2.03	7	134,496	267,339	1.99	+ 3.0
Non-ceramic—									
Bonding foundry sands	5	29,310	136,673	4.66	3	32,338	150,666	4.66	+ 10.1
Fillers, etc	2	17,938	38,891	2.17	4	15,786	45,981	2.91	— 12.0
Oil refining, cleaners	1	30,124	262,384	8.72	1	63,909	575,805	9.01	+112.0
	6	77,372	437,948	5.68	7	112,033	772,452	6.90	+ 44.2
Total clays sold and shipped	15	208,084	$704,483	$3.38	12	246,529	$1,039,791	$4.22	+ 18.2

* Revised figures.
[a] Compiled from joint canvass made by Illinois Geological Survey and U. S. Bureau of Mines.
[b] Number of plants reporting production during year indicated.

TABLE 52.—CLAY PRODUCTS (INCLUDING SILICA REFRACTORIES) SOLD AND SHIPPED BY PRODUCERS IN ILLINOIS, 1942 AND 1943[a]

Kind	1942				1943				Percent change in amount from 1942
	Plants[b]	Amount tons	Value at plants		Plants[b]	Amount tons	Value at plants		
			Total	Av.			Total	Av.	
Refractories—Clay and Silica									
Firebrick and shapes	7	239,603	$4,912,744	$20.50	7	219,258	$4,361,933	$19.89	— 8.5
Plastic and castable refractories	3	12,360	529,367	42.83	4	13,593	506,598	37.27	+10.0
Cements and mortars	6	12,355	331,392	26.90	6	11,788	190,231	16.14	— 4.6
Other refractories	3	11,138	144,615	12.98	8	15,723	320,730	20.40	—
Total refractories	10	275,456	5,918,118	21.48	12	260,362	5,379,492	20.66	— 5.5
Structural Clay Products		thous.				thous.			
Common brick	35	298,181	3,096,717	10.39	31	174,500	1,965,500	11.26	—41.6
Face brick	18	55,045	861,004	15.64	19	28,500	443,800	15.57	—48.1
Paving block	3	2,079	50,682	24.38	3	4,800	110,100	22.94	—
		tons				tons			
Total (in equivalent tons)	39	890,342	4,008,403	4.50	34	524,600	2,519,400	4.80	—41.2
Drain tile	16	72,607	578,834	7.97	14	97,700	800,900	8.20	+34.8
Structural tile	17	88,870	524,144	5.90	16	63,400	381,800	6.02	—28.7
Sewer pipe, flue lining, wall coping	4	27,964	549,592	19.65	3	17,800	383,200	21.53	—36.1
Terra cotta and glazed block	3	3,451	293,837	85.15	4	[c] 5,500	109,500	19.91	—
Other structural products	7	51,933	371,700	7.15	3	121,100	320,500	2.65	—
Total structural clay products	54	1,135,167	6,326,510	5.57	45	830,100	4,515,300	5.44	—26.7
White Wares and Pottery									[d]
Flowerpots	4	—	183,628	—	3	—	188,465	—	+ 2.6
Stoneware and kitchenware	4	—	984,303	—	4	—	1,403,600	—	+42.6
Dinnerware and art china	3	—	431,190	—	3	—	426,694	—	— 1.1
Art pottery	8	—	1,790,714	—	5	—	1,548,800	—	—13.5
Vitreous-china plumbing fixtures	3	—	3,204,601	—	3	—	2,637,500	—	—17.7
Porcelain and other whiteware	*5	—	* 784,951	—	5	—	1,154,500	—	+46.7
Total white wares	20	—	* 7,379,387	—	17	—	7,359,559	—	— 0.3
Total clay products	82	—	*$19,624,015	—	73	—	$17,254,351	—	—12.0
Total clays and clay products (Tables 51 and 52)	97	—	*$20,328,498	—	85	—	$18,294,142	—	—10.0

[a] Compiled from canvass made by Illinois Geological Survey.
[b] Number of plants reporting production during year indicated.
[c] Includes facing block.
[d] Percent change in value from 1942.
* Revised figures.

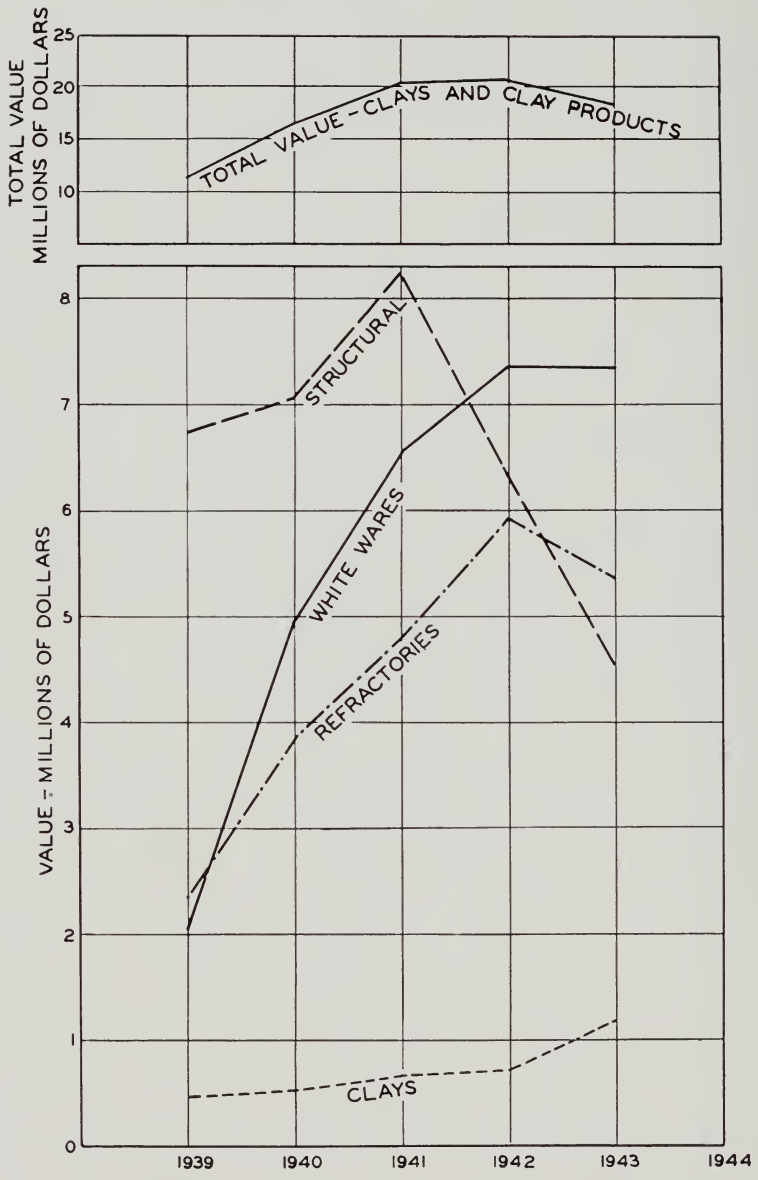

Fig. 10.—Annual sales of clays and clay products by producers in Illinois, 1939–1943.

Building Construction

The decline in shipment of structural clay products is reflected in the trend of residential building as shown by the value of building permits issued. Although the over-all volume of building permits rose 17.4 percent above that for 1942, the gain was entirely in industrial and commercial structures, while residential building fell 20.6 percent. The month-by-month record is shown in table 53.

Table 53.—Value of Building Permits Issued in Illinois by Months and by Type, in 1943[a]

Month	Number of dwelling units		Valuation					
			All building construction (including additions, etc.)		New residential buildings		New non-residential buildings	
	Total	Federal	Total	Federal	Total	Federal	Total	Federal
Jan....	137	[b]	$ 1,607,537	[b]	$ 600,500	[b]	$ 280,812	[b]
Feb....	151	0	16,943,000	$15,376,000	634,000	0	15,680,000	$15,376,000
March.	293	0	3,888,000	1,759,000	1,277,000	0	1,996,000	1,759,000
April...	409	0	3,563,000	934,000	1,486,000	0	1,447,000	934,000
May...	381	0	6,482,000	3,597,000	1,709,000	0	3,868,000	3,582,000
June...	310	0	2,999,000	309,000	1,233,000	0	775,000	289,000
July...	682	0	5,000,000	847,000	2,820,000	0	1,254,000	831,000
Aug....	1,125	0	13,761,000	7,496,000	4,806,000	0	8,075,000	7,468,000
Sept...	679	0	5,806,000	742,000	2,908,000	0	1,467,000	742,000
Oct....	1,869	1,500	16,138,000	12,507,000	9,127,000	$7,597,000	5,775,000	4,910,000
Nov....	328	0	4,945,000	1,553,000	1,350,000	0	2,397,000	1,536,000
Dec....	333	0	4,245,000	906,000	1,525,000	0	1,567,000	892,000
Total, 1943.	6,697	1,500	$85,377,537	$46,026,000	$29,475,500	$7,597,000	$44,581,812	$38,319,000
Total, 1942.			$72,707,046		$37,121,228		$23,326,491	
Percent change 1943 from 1942...			+17.4		—20.6		+91.1	

[a] As reported to U. S. Dept. of Labor, Bureau of Labor Statistics. See monthly reports on "Building Construction" for 1943.
[b] Not available.

SAND AND GRAVEL

Silica Sand.—Production of silica sand in Illinois in 1943 established another all-time high record, 3,375,000 tons, valued at the plants at approximately $4,800,000, as shown in table 54. This was an increase of nearly 9 percent in amount from 1942, which was the previous high record. Illinois ranks first among all the states in the production of silica sand for steel molding sand and for glass sand.

Uses for industrial purposes totaled 3,354,000 tons, valued at $4,766,000, which was an increase in amount of 9 percent from the previous year. The greatest proportionate increases were made in glass sand and fire or furnace sand. Steel molding sand and blast, grinding and polishing sands also showed increases.

Ground Silica.—During 1943 the Illinois production of ground silica, or silica flour, made by fine grinding of washed silica sand, amounted to 173,800 tons, valued at the plants at $1,218,700. As shown in table 55 this was an increase of 4 percent in amount from the previous year. Illinois ranks first among all the states in the production of ground silica.

Use of this material in the manufacture of enamel and glass during 1943 increased 110 percent from the previous year, whereas in the pottery, porcelain and tile industries its use increased 28 percent.

Other Sand and Gravel.—Production of other sand and gravel in Illinois in 1943 declined due to shortage of labor and stoppage of construction, which resulted from concentration on war industries. Natural-bonded molding sand also declined in 1943. However, production of engine and filter sands and novaculite gravel production increased over that of the previous year.

Table 57 shows other sand and gravel, sold or used by producers in Illinois in 1942 and 1943. The total of all sand and gravel produced in 1943 amounted to 13,608,000 tons, valued at the plants at $9,858,000 which was a decrease of 24 percent in amount from 1942. Illinois ranked third among the states, being exceeded only by California and Ohio.

Construction uses of sand and gravel amounted to 10,012,000 tons, valued at $4,918,000, which was a decrease of 31 percent. Each class of construction sand showed decreases varying from 18 to 48 percent. This indicates the thoroughness with which Illinois has supported the war effort.

Commercial and Government-and-contractor operations.—About 700,000 tons, or 5 percent, of sand and gravel produced in Illinois during 1943 came from government-and-contractor operations: The State of Illinois, counties, townships, municipalities and the Work Projects Administration, produced either by themselves or by contractors expressly for their use. Purchases by government agencies from commercial producers are included in commercial operations.

Government - and - contractor operations declined 40 percent, compared with a decline of 30 percent for commercial operations, during 1943.

Annual production and value of sand and gravel, including silica sand, in Illinois is shown graphically in figure 11, for each year since 1920. The average value per ton is also given for each year. The large increase since 1939 is especially notable because sand and gravel are not generally considered very important in war economy. The annual value for 1942, which established an all-time record, was the result of the great increases in the use of silica sand for steel molding sand and the large increases in the use of other sands for various industrial sands. All of these industrial uses were greatly affected by the production of war materials.

TABLE 54.—SILICA SAND SOLD OR USED BY PRODUCERS IN ILLINOIS, 1942 AND 1943[a]

Use	Type of operation	1942				1943				Percent change in amount from 1942
		Plants[b]	Amount tons	Value at plants		Plants[b]	Amount tons	Value at plants		
				Total	Av.			Total	Av.	
Industrial sands										
Glass sand	Commercial	3	833,460	$1,206,598	$1.45	4	1,004,796	$1,425,895	$1.42	+20.6
Steel molding sand	"	14	1,914,491	2,070,436	1.08	9	2,047,092	2,612,407	1.28	+ 6.9
Blast, grinding and polishing sands	"	4	173,500	524,964	3.03	3	186,662	553,844	2.97	+ 7.6
Fire or furnace sand	"	3	36,016	56,222	1.56	3	46,399	53,024	1.12	+28.8
Engine and filter sands	"	4	52,507	45,238	.86	3	10,755	17,372	1.62	—79.5
Other silica sand[c]	"	2	68,008	110,518	1.63	2	58,857	103,499	1.76	—13.5
Total		14	3,077,982	$4,013,976	$1.30	10	3,354,561	$4,766,041	$1.42	+ 9.0
Construction sands										
Structural and paving sands	Commercial	3	25,915	41,626	1.61	2	21,183	32,941	1.56	—18.3
Total silica sand	Commercial	14	3,103,897	$4,055,602	$1.31	10	3,375,744	$4,798,982	$1.42	+ 8.7

[a] Compiled from joint canvass made by Illinois Geological Survey and U. S. Bureau of Mines.
[b] Number of plants reporting production during year indicated.
[c] Except sand ground for silica flour, which is given in table 55, "Ground Silica."

TABLE 55.—GROUND SILICA SOLD OR USED BY PRODUCERS IN ILLINOIS, 1942 AND 1943[a]

Use	1942			1943			Percent change in amount from 1942
	Amount tons	Value at plants		Amount tons	Value at plants		
		Total	Av.		Total	Av.	
Abrasive	51,686	$ 352,345	$6.81	53,347	$ 358,256	$6.72	+ 3.2
Enamel and glass	2,760	19,182	6.90	5,804	42,844	7.38	+110.3
Foundry and filler	82,277	550,443	6.69	69,591	484,824	6.97	— 15.4
Pottery, porcelain and tile	20,677	136,738	6.61	26,479	199,886	7.55	+ 28.1
Other uses	8,903	64,048	7.19	18,633	132,959	6.60	+109.2
Total	166,303	$1,122,756	$6.79	173,854	$1,218,769	$7.01	+ 4.5

[a] Compiled from joint canvass made by Illinois Geological Survey and U. S. Bureau of Mines.

TABLE 56.—TRIPOLI (AMORPHOUS SILICA) SOLD OR USED BY PRODUCERS IN ILLINOIS, 1942 AND 1943[a]

Use	1942			1943			Percent change in amount from 1942
	Amount tons	Value at plants		Amount tons	Value at plants		
		Total	Av.		Total	Av.	
Abrasive	4,000	$ 64,150	$16.04	3,182	$ 51,889	$16.31	—20.0
Filler and other uses	8,575	139,240	16.24	7,021	116,869	16.65	—18.1
Total	12,575	$203,390	$16.17	10,203	$168,758	$16.54	—18.9

[a] Compiled from joint canvass made by Illinois Geological Survey and U. S. Bureau of Mines.

Tripoli (amorphous silica).—Production of tripoli (amorphous silica) in Illinois during 1943 amounted to 10,200 tons, valued at the plants at $168,700 as given in table 56. Illinois ranks first among the states in production of tripoli.

This material was used as an abrasive, polish, filler, and for many other purposes.

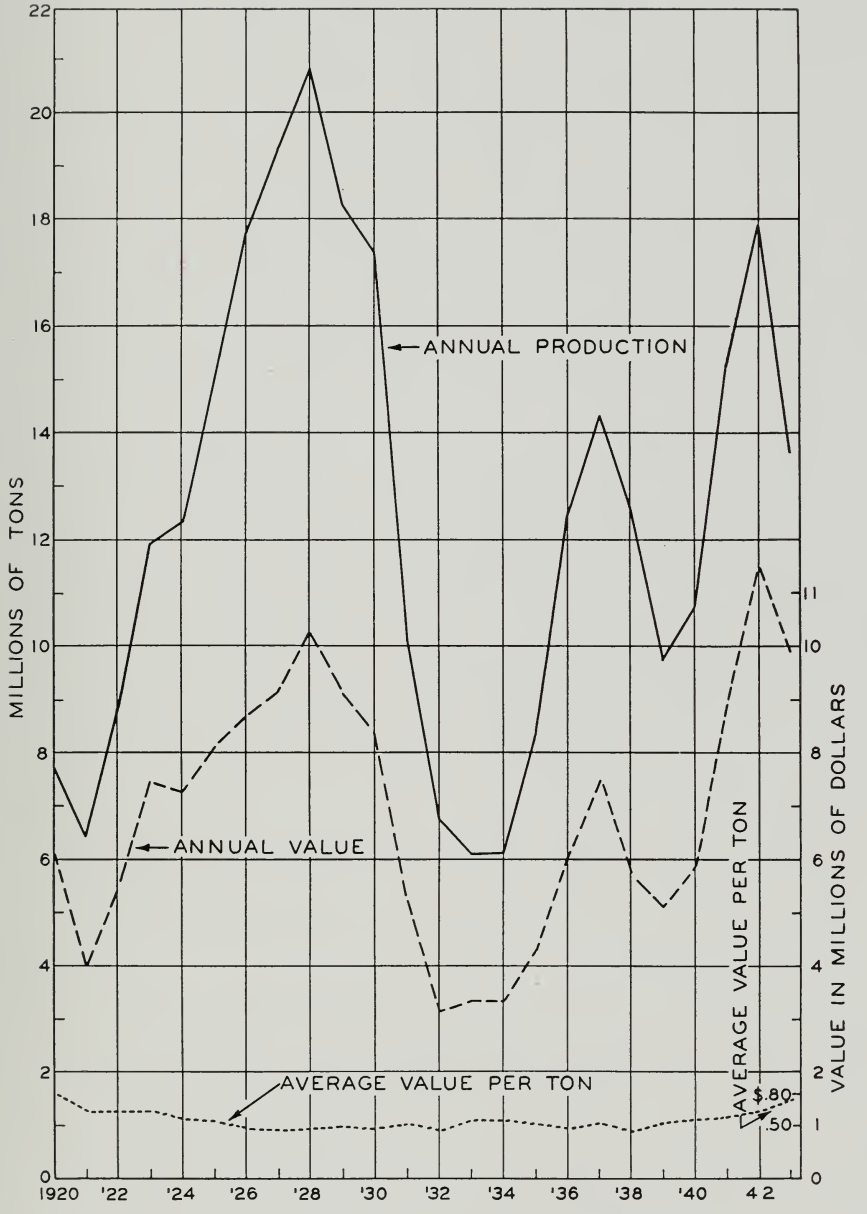

FIG. 11.—Annual production and value of sand and gravel and silica sand in Illinois, 1920–1943.

TABLE 57.—SAND (OTHER THAN SILICA SAND) AND GRAVEL, SOLD OR USED BY PRODUCERS IN ILLINOIS, 1942 AND 1943[a]

Kind and Use	Type of operation	1942*				1943				Percent change in amount from 1942
		Plants[b]	Amount tons	Value at plants		Plants[b]	Amount tons	Value at plants		
				Total	Av.			Total	Av.	
Sand (other than silica sand)										
Industrial Sands										
Natural-bonded molding sand	Commercial	14	107,263	$ 135,391	$1.26	8	81,375	$104,494	$1.28	—24.1
Engine and filter sands	"	12	131,841	62,039	.47	14	160,397	69,307	.43	+21.7
Total	Commercial	26	239,104	197,430	.83	22	241,772	173,801	.72	+ 1.1
Construction Sands										
Structural sand[c]	Commercial	68	2,689,908	1,226,396	.46	56	1,914,595	853,053	.45	—28.8
Structural sand[c]	Gov.-Contr.	2	20,089	11,893	.59	—	—	—	—	—
Paving and highway-structures sand	Commercial	49	1,700,748	917,969	.54	46	873,656	528,483	.60	—48.6
Paving and highway-structures sand	Gov.-Contr.	5	5,285	1,924	.36	5	21,537	15,457	.72	+307.5
Railroad-ballast sand	Commercial	8	576,180	172,923	.30	7	341,699	97,317	.28	—40.7
Other construction sands	"	7	237,992	99,130	.42	9	159,132	95,501	.60	—33.1
Total	Both	104	5,230,202	2,430,235	.46	88	3,310,619	1,589,811	.48	—36.7
Total sand (other than silica sand)	Commercial	97	5,443,932	2,613,848	.48	83	3,530,854	1,748,155	.49	—35.1
Total sand (other than silica sand)	Gov.-Contr.	7	25,374	13,817	.54	5	21,537	15,457	.71	—15.1
Total sand (other than silica sand)	Both	104	5,469,306	2,627,665	.48	88	3,552,391	1,763,612	.50	—34.9
Gravel										
Structural gravel[c]	Commercial	74	2,618,127	1,306,211	.50	63	1,993,963	1,103,387	.55	—23.8
Structural gravel[c]	Gov.-Contr.	4	18,140	8,942	.49	4	19,095	3,991	.21	+ 5.3
Paving and highway-structures gravel	Commercial	95	2,859,185	1,520,249	.53	74	2,191,090	1,052,955	.48	—23.4
Paving and highway-structures gravel	Gov.-Contr.	37	1,137,913	834,510	.73	36	662,275	315,802	.48	—41.8
Railroad-ballast gravel	Commercial	23	2,531,171	1,061,133	.42	17	1,678,145	727,657	.43	—33.7
Novaculite gravel (paving)	Commercial	1	20,934	15,700	.75	1	28,422	20,873	.73	+35.8
Other gravel	Commercial	9	165,166	85,119	.52	11	107,475	71,016	.66	—34.9
Total	Both	167	9,350,636	4,831,864	.52	145	6,680,465	3,295,771	.49	—28.6
Total gravel	Commercial	128	8,194,583	3,988,412	.48	106	5,999,095	2,975,978	.50	—26.8
Total gravel	Gov.-Contr.	39	1,156,053	843,452	.73	39	681,370	319,793	.47	—41.1
Total gravel	Both	167	9,350,636	4,831,864	.52	145	6,680,465	3,295,771	.49	—28.6

Total sand (other than silica sand) and gravel	Commercial	153	13,638,515	6,602,260	.48	126	9,529,949	4,724,133	.50	—30.1
Total sand (other than silica sand) and gravel	Gov.-Contr.	40	1,181,427	857,269	.73	40	702,907	335,250	.48	—40.5
Total sand (other than silica sand) and gravel	Both	193	14,819,942	$7,459,529	$0.50	166	10,232,856	$5,059,383	$0.49	—31.0
Summary—Sand and Gravel (including silica sand) (Tables 54 and 57)										
Total industrial sands (incl. silica sand)	Both	40	3,317,086	4,211,406	1.27	32	3,596,333	4,939,842	1.37	+ 8.4
Total construction sands and gravel	Both	182	14,606,753	7,303,725	.50	160	10,012,267	4,918,523	.49	—31.5
Total sand and gravel (Tables 54 and 57)	Both	207	17,923,839	$11,515,131	$0.64	176	13,608,600	$9,858,365	$0.72	—24.1

* Revised figures.
[a] Compiled from joint canvass made by Illinois Geological Survey and U. S. Bureau of Mines.
[b] Number of plants reporting production during year indicated.
[c] Excluding highway structures.

FLUORSPAR

Production of finished fluorspar in the nation was 406,000 tons in 1943. In addition, 65,000 tons of crude ore, equivalent to 27,400 tons of finished fluorspar, was mined but not milled, in 1943. Thus total production (expressed in terms of finished fluorspar) was 433,400 tons in 1943 compared with 337,000 tons in 1942. The Illinois-Kentucky district accounted for 75 percent of the total in 1943 as compared with 79 percent in 1942.

Illinois not only maintained its rank as the chief producing state by shipping 23 percent more fluorspar than in 1942, the previous record year, but it accounted for 49 percent of the total shipments in 1943. On the other hand, shipments from Kentucky declined for the second successive year and were 18 percent less than 1942. Colorado and New Mexico also made new records in 1943, as shown in tables 58 and 59.

Consumption reached an all-time high of 388,885 tons in 1943 compared with 360,800 tons in 1942. Steel mills continued to be the principal consumers of fluorspar although its use in the chemical and ceramic industries is increasing rapidly. Consumption of fluorspar in the manufacture of hydrofluoric acid, which is essential in the manufacture of artificial cryolite and aluminum fluoride, high-octane gasoline, refrigerating mediums, insecticides and other products, was 39 percent greater than in 1942 and accounted for 29 percent of the total consumption as compared with 23 percent in 1942. The glass industry, ranking third in importance as a consumer of fluorspar, used 11 percent more than in 1942. Uses of fluorspar are given in table 59.

Prices

Maximum prices for metallurgical grade fluorspar, which had been $23 to $25, were increased November 23, 1942, to a range of from $25 to $28 a ton, according to calcium fluoride and silica content. The increase failed to result in increased production, which lagged considerably behind consumption during the first half of 1943. Consequently effective July 1, 1943, the base price for metallurgical grade fluorspar was increased by $5 per ton. Concurrently, a wage raise of about 24 percent was granted mine employees in the Illinois-Kentucky district. These advances were followed by a marked improvement in production, which has since been in excess of consumption.

Fluorspar in Illinois

Mining of fluorspar established another all-time high record in Illinois in 1943, for the second successive year. The record was 198,789 tons, valued at the mines at $6,292,789. This was an increase in tonnage of 23 percent from the previous year. Illinois ranks first among all the states in the production of fluorspar.

Shipments of fluorspar from mines in Illinois for 1942 and 1943 are given in table 60, by kind and by use. The greatest increase in use was for the manufacture of hydrofluoric acid, 43 percent, which brought the amount of fluorspar used in this industry up to that used in the steel industry. The latter showed an increase of 15 percent, and the foundry industry used 32 percent more than the previous year.

Annual shipments and average value of fluorspar from Illinois mines since 1913 are presented graphically in figure 12 showing the effect of two world wars on this industry.

Shipments of fluorspar from Illinois mines from 1939 to 1943 are shown in table 61.

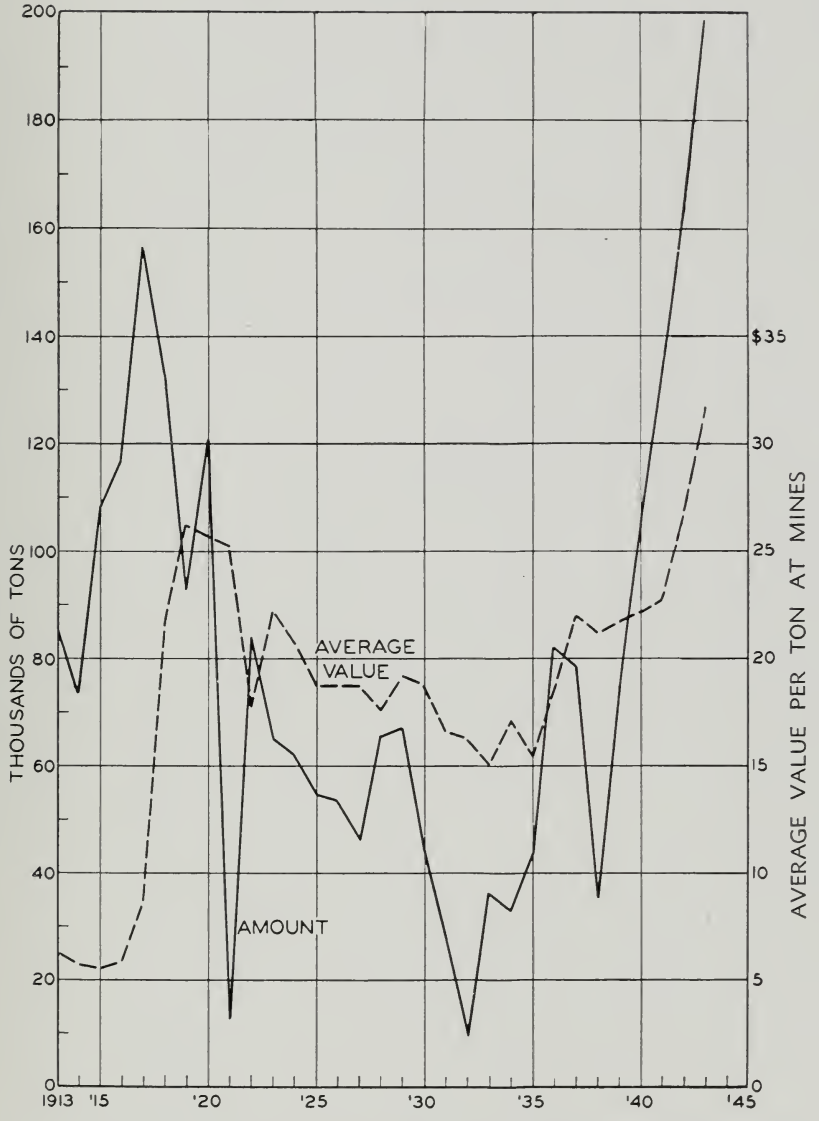

FIG. 12.—Fluorspar, annual shipments and average value, from Illinois mines, 1913–1943.

TABLE 58.—FLUORSPAR SHIPPED FROM MINES IN THE UNITED STATES, 1942 AND 1943, BY STATES[a]

State	1942			1943			Percent of total amount
	Tons	Value		Tons	Value		
		Total	Av.		Total	Av.	
Illinois	161,949	$4,306,750	$26.59	198,789	$6,292,789	$31.66	49.0
Kentucky	134,133	3,266,257	24.35	109,849	3,122,513	28.43	27.1
Colorado	31,743	640,938	20.19	49,145	1,164,868	23.70	12.1
New Mexico				37,050	968,094	26.62	9.1
Texas	23,291	530,025	22.76	960	19,281	20.08	.3
Arizona				1,328	26,441	19.91	.3
Washington	48			—	—	—	—
Nevada	8,020	153,779	16.72	8,653			—
Utah	1,018			51	190,269	21.39	2.1
Tennessee	114			57			
California				134			
Total	360,316	$8,897,749	$24.69	406,016	$11,802,255	$29.07	100.0

[a] U. S. Department of the Interior, M.M.S. No. 1164, April 19, 1944.

TABLE 59.—FLUORSPAR SHIPPED FROM MINES IN THE UNITED STATES, 1942 AND 1943, BY USES[a]

Use	1942			1943		
	Tons	Value		Tons	Value	
		Total	Av.		Total	Av.
Steel	225,233	$5,085,037	$22.58	220,809	$6,006,251	$27.20
Iron foundry	3,408	65,073	19.09	3,398	85,728	25.23
Glass	20,890	576,373	27.59	19,487	582,173	29.87
Enamel	1,923	56,723	29.50	1,572	50,620	32.20
Hydrofluoric acid	88,083	2,540,766	28.85	123,680	4,046,231	32.72
Miscellaneous	11,763	331,242	28.16	19,956	598,627	30.00
Government stockpile	—	—	—	8,070	185,652	23.01
Foreign consumption	9,016	242,545	26.90	9,044	246,973	27.31
Total	360,316	$8,897,749	$24.69	406,016	$11,802,255	$29.07

[a] U. S. Department of the Interior, M.M.S. No. 1164, April 19, 1944.

TABLE 60.—FLUORSPAR SHIPPED FROM MINES IN ILLINOIS, 1942 AND 1943, BY KINDS AND BY USES[a]

Kind of Fluorspar	1942				1943				Percent change in amount from 1942
	Producers[b]	Amount tons	Value at mines		Producers[b]	Amount tons	Value at mines		
			Total	Av.			Total	Av.	
Metallurgical[c]	31	82,919	$2,022,783	$24.39	22	84,929	$2,482,319	$29.23	+ 2.4
Flotation concentrates	5	69,752	1,986,540	28.48	5	104,131	3,810,470	33.47	+49.3
Ground[d]	5	9,278	297,427	32.05	1	9,729			+ 4.8
Total	35	161,949	$4,306,750	$26.59	26	198,789	$6,292,789	$31.66	+22.7
Use									
Steel		77,947	$1,887,216	$24.30		89,789	$2,624,000	$29.22	+15.1
Foundry		912	20,159	22.00		1,204	28,632	23.78	+32.0
Glass and enamel		7,520	234,696	31.10		6,741	227,849	33.80	—10.4
Hydrofluoric acid		62,573	1,788,837	28.60		89,599	3,030,442	33.82	+43.2
Other industries		5,842	180,124	30.80		9,123	309,737	33.95	—
Total		154,794	4,111,032	26.50		196,456	6,220,660	31.66	+26.9
Exported		7,155	195,718	27.30		2,333	72,129	30.91	—67.4
Total	35	161,949	$4,306,750	$26.59	26	198,789	$6,292,789	$31.66	+22.7

[a] Compiled from canvass made by U. S. Bureau of Mines.
[b] Number of producers reporting production during year indicated (53 mines reported production during 1942, 40 mines during 1943).
[c] Includes "pelletized gravel" flotation concentrates in 1942.
[d] Includes flotation concentrates used for ceramic purposes in 1942.

TABLE 61.—FLUORSPAR SHIPPED FROM ILLINOIS MINES, 1939—1943[a]

Year	Tons	Value at mines		Year	Tons	Value at mines	
		Total	Av.			Total	Av.
1939	75,257	$1,638,693	$21.77	1942	161,949	$4,306,750	$26.59
1940	104,698	2,313,747	22.10	1943	198,789	6,292,789	31.66
1941	133,333	3,047,247	22.85				

[a] U. S. Bur. Mines, Minerals Yearbooks, and Mineral Market Report, M.M.S. 1137, Jan. 10, 1944.

TABLE 62.—ZINC, LEAD, AND SILVER, RECOVERED FROM ORES MINED IN ILLINOIS, 1941—1943[a]

Metal	1941			1942			1943		
	Amount	Value[b]		Amount	Value[b]		Amount	Value[b]	
		Total	Av.		Total	Av.		Total	Av.
Zinc	9,198 tons	$1,379,700	$150.00	9,389 tons	$1,746,354	$182.00	5,830 tons	$1,317,580	$226.00
Lead	2,376 tons	270,864	114.00	2,344 tons	314,096	134.00	2,114 tons	312,872	148.00
Silver	20,340 fine ounces	14,464	0.71	104 fine ounces	74	0.71	2,250 fine ounces	1,600	0.71
Total value		$1,665,028			$2,060,524			$1,632,052	

[a] U. S. Bur. Mines, Minerals Yearbooks and Mineral Market Report M.M.S. 1133.
[b] Value for zinc and lead based on yearly average price received by producers, as determined by U. S. Bur. Mines. Value for silver based on U. S. Treasury buying price.

ZINC, LEAD AND SILVER

The Wisconsin-Northern Illinois region was the only important Central States zinc-producing region in which output of both crude ore and recoverable metals increased in 1943.

Silver production in Illinois was obtained from zinc-lead-fluorspar ore and byproduct lead concentrates produced in milling fluorspar.

The zinc and lead ore and concentrates produced in northern Illinois in 1942 and 1943 were shipped to the custom flotation mill of the Vinegar Hill Zinc Company at Cuba City, Wisconsin.

In southern Illinois the bulk of the output of zinc and lead came from zinc-lead-fluorspar mines near Cave in Rock, Hardin County.

Illinois production of zinc, lead, and silver recovered from ores mined in Illinois during 1943 was valued at $1,632,000, as shown in table 62.

OTHER MINERALS

Included in this group are several mineral materials produced in Illinois by less than three producers for each material, so that details of production cannot be published without revealing individual operations. These materials are:

Ganister, a siliceous material found in Union and Alexander counties, of southern Illinois.

Peat, produced in northern Mason county for mixed fertilizer and other purposes (Illinois ranks first among the states in the production of peat).

Pyrites (coal brasses), produced in Henry County from coal-cleaning operations.

Sandstone and miscellaneous stone, produced in various parts of the State for riprap and road work, by government-contractor operations.

The total amount and value of these mineral materials just described, which were produced in Illinois during the past five years, are given in table 63. The total value for 1943 amounted to $124,142.

TABLE 63.—OTHER MINERALS[a] SOLD OR USED BY PRODUCERS IN ILLINOIS, 1939—1943[b]

Year	Amount tons*	Value at plants*	
		Total	Av.
1939	254,164	$327,431	$1.29
1940	181,324	197,215	1.09
1941	31,053	103,843	3.34
1942	36,555	134,037	3.67
1943	29,236	124,142	4.25

* Revised figures.
[a] Minerals included: ganister, peat, pyrites, sandstone, miscellaneous stone.
[b] Compiled from joint canvass made by Illinois Geological Survey and U. S. Bureau of Mines.

MINERALS PROCESSED, BUT NOT MINED, IN ILLINOIS

Included in this group are mineral materials which are processed in Illinois but are mined in other states. Production of these materials in Illinois during the past three years is given in table 64, as far as the data are available.

Coke and byproducts.—All coke produced in Illinois is made in byproduct ovens, most of it from coal mined in the eastern bituminous fields. Coke produced from Illinois coal is not differentiated from the other, so table 64 gives the entire amount of coke

TABLE 64.—MINERALS PROCESSED BUT NOT MINED IN ILLINOIS, SOLD OR USED BY PRODUCERS IN ILLINOIS, 1941—1943[a]

Kind	1941			1942			1943			Percent change in amount from 1942
	Amount tons	Value at plants		Amount tons	Value at plants		Amount tons	Value at plants		
		Total	Av.		Total	Av.		Total	Av.	
Coke (byproduct)[b]	*3,775,000	*$26,160,000	*$6.92	3,690,155	$ 27,364,122	$7.42	3,625,457	$ 29,416,984	$8.11	— 1.8
Coke breeze	* 304,000	* 736,000	* 2.42	* 321,000	* 749,344	2.27	343,874	953,951	2.77	+ 7.1
Byproducts[c]	—	* 9,065,000	—	—	*8,462,543	—	—	8,424,132	—	— 0.4
Total	—	* 35,961,000	—	—	*36,576,009	—	—	38,795,067	—	[i] + 6.1
Packaged fuel[d]	8,924	95,431	10.60	4,980	60,001	12.05	3,081	38,445	12.48	—38.1
Iron, pig	5,461,459	113,558,606	20.79	5,871,858	125,662,134	21.30	5,920,894	126,910,295	21.30	+ .8
Sulfuric acid[e]	213,749	1,814,729	8.49	215,494	2,036,418	9.45	([f])	([f])	—	—
Zinc, slab, from Illinois ore[g]	9,198	1,379,700	150.00	9,389	1,746,354	182.00	5,830	1,317,580	226.00	—37.9
From other ore	112,723	16,908,450	150.00	* 166,066	*28,954,646	*174.00	215,850	36,811,380	170.00	+30.0
Total zinc	121,921	18,288,150	150.00	*175,455	*30,701,000	*174.00	221,680	38,128,960	172.00	+26.3
Miscellaneous minerals[h]	—	—	—	*42,849	*2,436,135	* 56.85	35,855	2,872,624	80.12	—16.3
Total processed, but not mined, in Illinois	—	$168,338,216	—	—	$195,725,343	—	—	$205,427,811	—	[i] + 4.9

* Revised figures.
[a] Compiled from U. S. Bureau of Mines, Minerals Yearbooks, canvass, and Mineral Market Report, M.M.S. 1216 (Slab Zinc).
[b] See table 30—Production of coke and byproducts.
[c] Figures for some byproducts not available, due to war censorship.
[d] See table 29—Production of packaged fuel.
[e] 60° Bäume—from zinc smelting and sulfur.
[f] Figures not available.
[g] Value for zinc based on yearly average price received by producers, as determined by U. S. Bureau of Mines. Figures for zinc smelted from Illinois ore are not included in "Total Processed" in this table, but are included in table 62.
[h] Includes ground feldspar, magnesium compounds, mineral pigments.
[i] Percent change in value from 1942.

made in Illinois. Details of coke manufacture are given in this report in the section on "Coke and Byproducts" (see p. 47).

Packaged fuel.—This material is processed in Illinois from the fines resulting from storage and handling of eastern coal. Details are given in the section on "Fuel Briquets and Packaged Fuel" (see p. 46). Data cannot be published on the production of *fuel briquets* in Illinois without revealing individual operations.

Pig iron.—This basic product in the steel industry is produced in Illinois from iron ore mined in the Lake Superior district and shipped in by water. During 1943 Illinois produced 5,921,000 tons of pig iron, valued at the furnaces at $126,910,000. This was an increase of 1 percent over the previous year and established an all-time high record for the third successive year. This was the result of the great demand for iron and steel for manufacturing war materials.

Sulfuric acid.—This material is produced in Illinois as a byproduct of the smelting of zinc ores and is also produced from sulfur at zinc plants.

Slab zinc.—This basic product in the zinc industry is produced in Illinois from ores mined in Illinois and from ores mined in other states. Zinc recovered from Illinois ores is included in table 62. That recovered from out-of-state ores is included in "Total Processed" in table 64.

Ground feldspar is made in Illinois from crude feldspar which is mined in South Dakota. It is used in the manufacture of white ware and enamels and for other purposes. Data cannot be published on feldspar grinding in Illinois without revealing individual operations, but are included in "Miscellaneous Minerals", in table 64.

Illinois is an important consumer of ground feldspar. Consumption in this State in the period 1939-1943 is shown in table 65.

Sales of ground feldspar to ceramic industries account for more than 95 percent of the total shipments. Most of the ground feldspar consumed is sold to glass and pottery manufacturers.

Table 65.—Consumption of Ground Feldspar in Illinois, 1939—1943[a]

Year	Net tons
1939	15,948
1940	32,811
1941	44,573
1942	50,450
1943	49,302

[a] U. S. Department of the Interior, Bureau of Mines, Mineral Market Report M.M.S. No. 1176, June 19, 1944.

Magnesium compounds are processed in Illinois from out-of-state dolomite. Data on these are included in "Miscellaneous Minerals", table 64, to avoid revealing individual operations.

Mineral pigments are produced in Illinois from crude mineral earth pigments from various sources. Data on these are included in "Miscellaneous Minerals", table 64.

Pig lead is made in Illinois by smelting lead ores; that obtained from ores mined in Illinois is given in table 62. Data on pig lead produced in Illinois from ores mined in other states are not available.

Expanded vermiculite is produced in Illinois by heat-treating crude vermiculite which is mined in the West. Production figures are not availaable.

Alumina, phosphates, and other processed mineral materials are produced in Illinois in large amounts, but data for them are not available.

The total 1943 value of mineral materials which were processed in Illinois but mined in other states, as given in table 64, amounted to $205,427,811. This was an increase of 5 percent from the previous year.

The values of pig lead, expanded vermiculite, alumina, phosphates, and other mineral materials, data for which are not available, would greatly increase the total given in table 64.