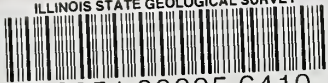



ILLINOIS STATE GEOLOGICAL SURVEY



3 3051 00005 6410





Digitized by the Internet Archive
in 2012 with funding from
University of Illinois Urbana-Champaign

STATE OF ILLINOIS
DEPARTMENT OF REGISTRATION AND EDUCATION

DIVISION OF THE
STATE GEOLOGICAL SURVEY

M. M. LEIGHTON, *Chief*

REPORT OF INVESTIGATIONS—NO. 36

ILLINOIS MINERAL INDUSTRY IN 1933

A Preliminary Statistical Summary and
Economic Review

BY

W. H. VOSKUIL, Ph.D., and ALMA R. SWEENEY, A.B.



PRINTED BY AUTHORITY OF THE STATE OF ILLINOIS

URBANA, ILLINOIS

1934

STATE OF ILLINOIS

HON. HENRY HORNER, *Governor*

DEPARTMENT OF REGISTRATION AND EDUCATION

HON. JOHN J. HALLIHAN, *Director*

SPRINGFIELD

BOARD OF

NATURAL RESOURCES AND CONSERVATION

HON. JOHN J. HALLIHAN, *Chairman*

EDSON S. BASTIN, Ph.D., *Geology*

HENRY C. COWLES, Ph.D., D. Sc.,

WILLIAM A. NOYES, Ph.D., LL.D.,

Forestry

Chem. D., D. Sc., *Chemistry*

ARTHUR CUTTS, WILLARD, D. Engr.,

JOHN W. ALVORD, C.E., *Engineering*

LL.D., *President of the University*

WILLIAM TRELEASE, D.Sc., LL.D.,

of Illinois

Biology

STATE GEOLOGICAL SURVEY DIVISION

UREANA

M. M. LEIGHTON, Ph. D., *Chief*

Geological Resource Section

Geochemical Section

Coal Division

Fuels Division

Oil and Gas Division

Non-Fuels Division

Non-Fuels Division

Analytical Division

Areal and Engineering Geology

Mineral Economics Section

Division

Subsurface Geology Division

Topographic Mapping Section

Division of Stratigraphy and

(In cooperation with the United States Geological Survey)

Paleontology

Division of Petrography

Division of Physics

Publications and Records



Contents

	PAGE
Introduction.....	5
Coal.....	8
Review of production.....	8
Distribution of coal in the Illinois coal market area.....	8
Lake cargo coal.....	44
Coal production in other states within the market area.....	46
Strip mining in 1933.....	46
Mechanical loading of bituminous coal in Illinois.....	47
Natural gas developments affecting the Illinois coal market area.....	48
Number and output of mines by classes.....	49
Petroleum.....	51
The petroleum industry in 1933.....	51
The position of stripper wells.....	52
Building materials.....	55
Building situation in 1933.....	55
Factors underlying present stagnation in home building activities.....	56
The National Housing Act.....	57
Clay products.....	59
Portland cement.....	64
Fluorspar.....	65
Other non-metallic products.....	66

Tables

	PAGE
1. Preliminary summary of production and value of Illinois minerals, 1932-1933..	6
2. Summary of coal production in 1931-1933.....	8
3. Bituminous coal production by shipping mines in Illinois by counties and months for 1933.....	9
4. Origin and destination of revenue railroad shipments from Illinois, Indiana, and western Kentucky and from the Appalachians (exclusive of non-revenue railroad fuel) 1932.....	10
5. Origin and destination of revenue railroad shipments from Illinois, Indiana, and western Kentucky and from the Appalachians (exclusive of non-revenue railroad fuel) 1933.....	10

6. Summary of revenue railroad shipments from Illinois, Indiana, and western Kentucky and west bound from the Appalachians (exclusive of non-revenue railroad shipments)	12
7. All-rail coal shipments by months to Chicago	14
8. All-rail coal shipments by months to other Illinois	16
9. All-rail coal shipments by months to Milwaukee	18
10. All-rail coal shipments by months to other Wisconsin	20
11. All-rail coal shipments by months to Council Bluffs, Iowa	22
12. All-rail coal shipments by months to other Iowa	24
13. All-rail coal shipments by months to St. Louis, Missouri	26
14. All-rail coal shipments by months to Kansas City, Missouri	28
15. All-rail coal shipments by months to St. Joseph, Missouri	30
16. All-rail coal shipments by months to other Missouri	32
17. All-rail coal shipments by months to other Kansas	34
18. All-rail coal shipments by months to other Nebraska	36
19. All-rail coal shipments by months to Minnesota	38
20. All-rail coal shipments by months to South Dakota	40
21. All-rail coal shipments by months to North Dakota	42
22. Bituminous coal shipments via lakes to Lake Michigan and Lake Superior ports	44
23. Daily average shipments of all-rail and lake cargo coal to the Illinois coal market area	45
24. Coal production of Iowa, Kansas, Missouri, and North Dakota	46
25. Strip mined coal in Illinois, 1929-1933	46
26. Mechanically mined tonnage, 1932 and 1933 in net tons	47
27. Natural gas imported into the Illinois coal market area (in thousands of cubic feet)	48
28. Consumption of natural gas in the Illinois coal market area (in thousands of cubic feet) (1929-1932)	49
29. Number and output of mines by classes	50
30. Petroleum production in Illinois in 1933	51
31. Building permits in Illinois cities, 1923-1933	55
32. Production of clay products, by classes in 1933	59
33. Production of common brick, by principal districts, in 1933	60
34. Shipments of common brick in Illinois in 1932 and 1933	61
35. Shipments of face brick in Illinois in 1932 and 1933	62
36. Shipments of hollow building tile in Illinois in 1932 and 1933	63
37. Shipments of cement, consumption, and stocks in Illinois, 1928-1933	64
38. Portland cement consumption in Illinois, 1930-1933	64
39. Fluorspar shipped from Illinois and Kentucky mines, 1930-1933	65
40. Distribution of fluorspar, by uses, 1932	65
41. Production of sand and gravel and of limestone in Illinois by districts, 1931-1933	67

ILLINOIS MINERAL INDUSTRY IN 1933

A PRELIMINARY STATISTICAL SUMMARY AND ECONOMIC REVIEW

By Walter H. Voskuil and Alma R. Sweeny

INTRODUCTION

This report, which presents the fundamental statistics in the distribution and consumption of the major mineral products of the State, is made possible through the cooperation of the United States Bureau of Mines and the United States Bureau of Census, through the active collection and publication of coal statistics by the Illinois State Department of Mines and Minerals, and through the generous cooperation of the mineral producers of the State in complying with requests for information.

The quantity and value of mineral output in Illinois in 1932 and 1933 is shown in Table 1.

The production of minerals and the manufacturing industries based upon mineral commodities occupies an important position in the industrial position of the State.

An analysis of census data shows that the persons employed in mineral extraction and fabrication of mineral goods number about 350,000 which is slightly in excess of agricultural workers. In addition to this there is a considerable employment in those types of construction industries such as road building, brick and concrete structures, etc., which are made possible through the utilization of non-metallic materials.

The wide variety of minerals produced in the State is an important factor in localizing the manufacturing activities of the Upper Mississippi Valley in the State of Illinois. Of principal importance are the energy minerals--coal and petroleum--the minerals used in the construction industry, and the chemical and metallurgical minerals. The coal output of the State finds an outlet in seven states of the Upper Mississippi Valley. Construction materials include the important group of clay products, cement, sand, gravel and limestone. Minerals of importance as chemical and metallurgical raw materials include agricultural limestone, fluxing stone, fluorspar, glass sand, molding sand, lime, quartz, and tripoli. The metal industries of the State are supplied with pig iron manufactured mainly in the Chicago district from the ores of the Superior district which are readily available by low cost lake transportation.

TABLE 1.—Summary of production and value of Illinois minerals, 1932-1933

Product	1932		1933 (a)	
	Tons	Value	Tons	Value
	Coal.....	34,120,786	\$51,316,000	38,320,623	$57,481,000
Pig iron.....	819,597	11,544,298	1,422,333	20,063,481
Clay products.....	.....	4,341,643	.....	4,145,033
Coke.....	1,428,334	6,830,743	1,501,020	7,379,561
Cement, Portland (barrels).....	5,829,687	3,446,482	4,193,048	4,607,335
Sand and gravel (total).....	6,751,324	3,184,407	5,326,020	2,990,268
Structural sand.....	743,553	304,863	678,776	293,237
Paving and road-making sand.....	1,417,064	501,657	1,002,318	413,170
Glass sand.....	324,587	329,639	402,240	403,579
Molding sand.....	159,140	155,457	225,042	212,988
Railroad ballast sand.....	320,356	71,004	185,720	64,854
Cutting, grinding and blast sand.....	83,942	210,209	99,136	275,295
Engine sand.....	45,964	25,172	50,505	26,223
Fire or furnace sand.....	(b)	(b)	(b)	(b)
Other sands.....	54,337	61,079	41,200	70,593
Paving and road-making gravel.....	2,292,315	1,003,278	1,700,808	767,647
Structural gravel.....	873,553	407,739	580,588	298,876
Railroad ballast gravel.....	427,856	111,514	293,912	134,545
Other gravel.....	8,657	2,796	60,446	23,738
Petroleum (barrels).....	4,673,000	4,720,000	4,227,000	3,643,674
Limestone (total).....	2,965,300	2,133,081	2,314,517	1,685,491
Road metal and concrete.....	2,277,120	1,517,402	1,709,626	1,190,150
Flux.....	144,440	115,878	35,226	20,462
Railroad ballast.....	159,700	106,233	126,144	85,378
Rip-rap.....	181,680	152,812	109,977	109,572
Rubble.....	(b)	(b)	.....	.....
Agriculture.....	154,910	132,262	218,016	155,450

Other uses.....	47,450	108,494	115,528	124,479
Natural gasoline (gallons).....	4,557,716	139,000	(c)	(c)
Natural gas (M. cu. ft.).....	1,769,000	144,000	(c)	(c)
Lime (total).....	62,436	450,033	81,888	575,864
Building.....	12,149	92,867	11,799	93,919
Tanneries.....	(b)	(b)	(b)	(b)
Metallurgy.....	(b)	(b)	(b)	(b)
Paper mills.....	3,805	23,476	(b)	(b)
Other uses.....	46,482	333,690	70,089	481,945
Fluorspar.....	9,615	156,279	36,075	543,060
Quartz (silica).....	40,036	219,370	133,182	212,609
Clay (raw).....	45,747	113,236	72,447	197,532
Tripoli.....	6,097	84,795	8,757	149,979
Lead.....	(c)	(c)	(c)	(c)
Sandstone.....	36,730	24,287	(c)	(c)
Zinc.....	(c)	(c)	(c)	(c)
Total.....	.....	\$71,692,511	.....	(d) \$103,672,709

(a) Preliminary figures.

(b) Included in other uses.

(c) Not available.

(d) Not including value of natural-gas gasoline, natural gas, lead, and zinc.

COAL

REVIEW OF PRODUCTION

Coal production in Illinois in 1933 recovered somewhat from the output of the previous year and essentially maintained its ratio of the national production. The low ebb of industrial activity continued to have a depressing effect upon coal demand.

TABLE 2.—*Summary of coal production in 1931-1933*

Year	United States (a)	Illinois (b)	Illinois per cent of the total
1931.....	382,089,000	45,152,623	11.8
1932.....	305,667,000	34,120,786	11.2
1933 (c).....	327,940,000	38,320,623	11.1

(a) U. S. Bureau of Mines.

(b) Department of Mines and Minerals, Illinois.

(c) Preliminary.

DISTRIBUTION OF COAL IN THE ILLINOIS COAL MARKET AREA IN 1932 AND 1933

The coal consumed in the Illinois coal market area is obtained from five sources, namely:

Illinois

Indiana and Western Kentucky

Appalaehian field, mainly from Ohio, Pennsylvania, West Virginia, and Eastern Kentueky

Wyoming and Colorado

Local production in Iowa, Missouri, Kansas, and North Dakota.

The most important competition in this market area is from the Appalachian fields, Western Kentucky, and Indiana. Production in Iowa, Missouri, Kansas, and North Dakota amounts to about 10,000,000 tons. Shipments from the western fields are relatively insignificant.

Coal from the Appalachian field reaches the Illinois coal market area by all-rail haul and by way of the Lakes, principally through Chicago into Wisconsin and Minnesota ports.

The principal market districts in which coal from outside districts competes with the Illinois product are Chicago, Milwaukee, and Minnesota, while less significant competition is noticeable in Iowa, Illinois outside of Chicago, and the Dakotas.

TABLE 3.—Bituminous coal production by shipping mines in Illinois by counties and months for 1933(a)
In net tons

County	January	February	March	April	May	June	July	August	September	October	November	December	Total
Christian.....	237,993	278,005	324,489	254,611	257,940	278,567	319,387	306,121	336,013	359,902	314,550	362,868	3,650,446
Clinton.....	20,086	23,371	13,034	7,563	6,953	5,155	9,588	12,524	18,089	32,282	30,572	34,151	213,168
Franklin.....	579,351	579,675	558,411	374,439	320,139	374,977	463,827	557,271	563,249	812,027	732,241	721,703	7,410,180
Fulton.....	95,926	109,378	84,786	63,264	67,456	62,548	57,207	48,034	52,072	101,214	116,740	111,179	969,804
Henry.....	43,704	48,301	49,136	37,574	35,930	30,097	42,032	55,658	51,980	47,322	52,739	50,517	554,092
Jackson.....	127,035	114,943	88,156	35,695	24,938	78,927	95,904	111,569	98,127	141,361	118,093	145,242	1,179,990
LaSalle.....	19,237	18,498	14,749	12,777	10,641	15,055	15,753	18,769	14,277	20,604	19,282	17,843	197,505
Macoupin.....	251,039	237,206	296,111	158,304	202,315	208,794	204,337	239,964	303,114	279,000	316,065	344,786	3,041,035
Madison.....	124,121	154,881	112,623	54,437	54,336	54,840	63,371	104,181	112,259	154,221	142,154	153,686	1,283,110
Marion.....	38,347	42,603	40,910	22,947	22,690	22,211	26,043	28,146	30,681	41,631	38,256	40,885	395,353
Montgomery.....	76,426	92,604	88,206	31,417	37,595	30,283	40,554	40,170	43,919	53,743	70,189	68,765	673,867
Peoria.....	107,083	106,157	98,489	72,962	68,080	62,236	64,162	92,285	114,179	127,363	115,278	131,838	1,160,112
Perry.....	248,276	250,913	209,468	153,819	145,975	171,242	190,582	205,926	194,520	260,020	235,986	239,042	2,525,769
Randolph.....	20,028	22,536	30,634	23,892	29,021	24,967	24,259	28,188	28,565	41,704	36,275	43,116	353,185
Saline.....	269,378	274,708	170,609	112,320	123,165	113,797	165,355	239,015	213,611	245,061	279,235	273,517	2,479,771
Sangamon.....	204,525	218,359	209,864	112,850	99,008	89,026	92,204	115,211	126,922	179,111	217,835	270,657	1,935,572
St. Clair.....	239,992	264,102	209,456	116,862	90,879	79,498	99,128	140,850	150,211	233,064	224,280	247,269	2,095,301
Tazewell.....	28,674	25,483	26,771	16,805	16,805	15,450	15,450	15,450	14,687	15,216	15,944	20,155	179,185
Vermilion.....	173,241	183,142	172,650	157,675	145,684	114,836	125,538	132,398	111,648	152,718	146,657	160,112	1,776,299
Washington.....	25,272	32,750	26,700	11,996	14,051	12,559	15,527	19,096	14,673	29,694	28,410	27,327	257,355
Williamson.....	300,621	244,294	139,784	111,552	127,906	94,245	121,218	110,423	132,900	164,964	198,498	179,375	1,925,780
Woodford.....	10,984	15,546	10,687	2,575	2,575	.....	.....	.....	7,665	13,326	12,622	13,435	86,840
Other counties.....	177,313	144,788	164,548	110,813	114,763	90,279	114,339	117,967	118,337	140,764	147,711	143,993	1,515,615
Total.....	3,418,582	3,560,243	3,140,271	2,057,149	1,990,485	2,023,139	2,350,255	2,739,516	2,851,694	3,645,715	3,609,472	3,821,461	35,216,992
Strip mines.....	549,642	554,118	514,293	361,475	349,337	358,507	412,713	414,942	381,800	505,153	506,143	515,673	5,423,796
Shaft mines.....	2,868,940	3,006,125	2,625,978	1,695,674	1,650,148	1,664,632	1,937,522	2,324,554	2,469,894	3,140,562	3,103,329	3,305,788	29,713,146

(a) Compiled from Illinois State Department of Mines and Minerals, Monthly Reports.

TABLE 4.—*Origin and destination of revenue railroad shipments from Illinois, Indiana and*
1932

From	Chicago	Illinois, other	Mil- waukee	Wis- consin, other	Council Bluffs
Western Pennsylvania.....	325	86	126	226	.....
Altoona, Somerset-Meyersdale and Cumberland-Piedmont.....	12,417	3,813	242	1,814	588
Fairmont.....	14,840	1,670	1,003	2,386	.....
Northern and Eastern Ohio.....	1,980	.....	150	770	.....
Southern Ohio.....	2,596	142	.....	50	.....
Kanawha, Logan and Kenova- Thacker.....	825,727	178,434	4,206	70,537	3,621
New River-Winding Gulf and Poe- hontas-Tug River.....	5,942,825	375,706	158,848	535,263	202
Northeast Kentucky and McRoberts Virginia.....	491,950	220,571	1,479	70,290	288
Harlan and Hazard.....	39,361	13,214	2,422	28,945	.....
Ex-River Coal.....	1,030,422	514,807	4,469	60,264	1,838
Northern Illinois.....	626	1,101	.....	.....	.....
Central and Southern Illinois.....	603,657	1,244,808	.....	14,632	238
Indiana.....	3,862,441	5,454,889	11,297	321,495	94,237
Western Kentucky.....	2,720,859	1,143,782	18,689	286,759	2,340
	1,004,353	1,003,425	4,757	260,201	18,863
Total.....	16,554,379	10,156,448	207,688	1,653,632	122,305

(a) Data from U. S. Bureau of Mines, Monthly Coal Distribution Reports.

TABLE 5.—*Origin and destination of revenue railroad shipments from Illinois, Indiana and*
1933

From	Chicago	Illinois, other	Mil- waukee	Wis- consin, other	Council Bluffs
Western Pennsylvania.....	3,964	50	.....	839	32
Altoona, Somerset-Meyersdale and Cumberland-Piedmont.....	29,667	5,324	383	2,040	561
Fairmont.....	17,928	1,671	306	1,982	.....
Northern and Eastern Ohio.....	1,175	1,526	50	2,054	.....
Southern Ohio.....	2,010	.....	.....	.....	.....
Kanawha, Logan and Kenova- Thacker.....	854,811	127,639	1,486	57,419	1,953
New River-Winding Gulf and Tug River.....	5,908,215	392,942	194,074	532,527	149
Northeast Kentucky and McRoberts Virginia.....	696,218	225,820	1,894	62,523	91
Harlan and Hazard.....	56,084	14,040	490	23,710	.....
Ex-River Coal.....	1,294,290	385,414	3,286	53,118	1,250
Northern Illinois.....	243	51	.....	.....	.....
Central and Southern Illinois.....	623,439	1,216,138	154	16,812	.....
Indiana.....	4,922,351	5,219,466	10,872	409,127	45,241
Western Kentucky.....	2,701,214	995,944	28,629	336,083	651
	646,009	507,085	8,178	255,947	10,183
Total.....	17,757,618	9,093,110	249,802	1,754,181	60,111

(a) Data from M. C. D. 32, Monthly Coal Distribution Report, U. S. Bureau of Mines, March, 1934.

western Kentucky and from the Appalachians (exclusive of non-revenue railroad fuel) (a)

1932

Iowa, other	St. Louis	Kan- sas City	St. Joseph	Missouri, other	Kansas, other	Ne- braska, other	Minne- sota	South Da- kota	North Da- kota
1,379	102								
2,435	1,602	1,317	411	2,125	1,317	1,175	3,503	1,029	
3,054	52					155	651	361	
948							35		
166									
252,846	41,137	89		4,804	89	861	27,980	4,841	
87,114	73,317			637		81	223,095	32,900	
206,139	203,585			108		697	46,400	6,115	
5,213	52						9,068	461	
473,569	12,366		48	4,044		2,584	55,853	13,003	
178,236	209			192		32	119,518	892	75
1,295,142	2,883,363	12,739	21,707	928,259	21,504	136,741	326,604	105,697	482
303,999	70,638	101		9,106		7,127	124,287	2,772	148
621,262	426,477			287,788	240	19,662	146,432	58,895	3,392
3,431,502	3,712,900	14,246	22,166	1,237,063	23,891	169,115	1,083,426	226,966	4,097

western Kentucky and from the Appalachians (exclusive of non-revenue railroad fuel) (a)

1933

Iowa, other	St. Louis	Kan- sas City	St. Joseph	Missouri, other	Kansas, other	Ne- braska, other	Minne- sota	South Da- kota	North Da- kota
2,647	23			53				45	
2,786	2,074	638	248	1,846	1,199	1,278	4,223	1,149	
3,048				35		109	1,216	252	
1,870							238	293	
322									
208,094	42,586	43		3,191	35	340	31,207	4,299	
86,807	65,644		89	750	83	134	197,457	27,590	
170,380	179,463			868		412	40,154	7,747	
3,986	142						8,149	513	
425,256	11,251			2,750		1,133	45,069	12,312	
266,983							61,856	954	
1,288,290	2,630,143	4,343	14,759	816,659	15,202	103,930	297,789	81,235	672
282,932	60,246	105		4,134		5,021	137,232	18,649	584
398,858	123,562			152,053		16,303	96,904	35,678	2,885
3,142,259	3,115,134	5,129	15,096	982,339	16,519	128,660	921,494	190,716	4,141

The principal sources of coal from the Appalachian fields entering the Illinois coal market area are the southern Appalachian fields of West Virginia, (Kanawha, Logan, New River-Winding Gulf, Pocahontas-Tug River) and of eastern Kentucky (Kenova-Thacker, Northeast Kentucky and McRoberts, and Hazard and Harlan). In 1933, their contribution to consuming centers in the market district was 33.3 per cent of the total all-rail shipments.

The penetration of these coals into the Illinois coal market area is shown in the series of tables given below.

Tables 4 and 5 give a summary of all-rail coal receipts in fifteen market districts in the Illinois coal market area, together with a percentage of the total supplied by Illinois. Of particular interest to Illinois

TABLE 6.—Summary of revenue railroad shipments from Illinois, Indiana, and western Kentucky and west bound from the Appalachian (a)

(Exclusive of non-revenue railroad shipments)

Market district	1932			1933		
	From Illinois	Total shipments	Per cent from Illinois	From Illinois	Total shipments	Per cent from Illinois
Chicago.....	4,466,098	16,554,379	27.0	5,545,390	17,757,618	31.4
Illinois, other (b).....	6,699,697	10,156,448	61.0	6,430,604	9,093,110	71.3
Milwaukee, Wis.....	11,297	207,688	5.4	11,026	249,802	4.4
Wisconsin, other.....	336,127	1,653,632	20.3	425,939	1,754,181	24.7
Council Bluffs, Iowa (c).....	94,565	122,305	77.2	45,241	60,111	76.0
Iowa, other.....	1,473,378	3,431,502	42.9	1,555,073	3,142,259	50.2
St. Louis, Mo. (d).....	2,883,572	3,712,900	77.5	2,598,993	3,115,134	84.9
Kansas City, Mo. (e).....	12,739	14,246	89.4	4,343	5,129	84.5
St. Joseph, Mo. (f).....	21,707	22,166	97.8	14,759	15,096	97.6
Missouri, other.....	928,451	1,237,063	75.0	814,159	982,339	83.0
Kansas, other.....	21,504	23,891	89.8	15,202	16,519	92.0
Nebraska, other.....	136,773	169,115	80.6	103,930	128,660	81.2
Minnesota.....	446,122	1,083,426	41.1	359,645	921,494	39.4
South Dakota.....	106,589	226,996	46.8	82,189	190,716	43.6
North Dakota.....	557	4,097	13.6	672	4,141	16.8
Total.....	17,639,176	38,619,824	45.5	18,007,165	37,114,880	48.4

(a) Data from M. C. D. 32, U. S. Bureau of Mines. Monthly Coal Distribution Report, March, 1934.

(b) Includes Davenport, Iowa, for shipments from Ohio and the Crescent; and includes Davenport, Bettendorf, and Iowa, for shipments from the Interior field; excludes East St. Louis.

(c) Includes Omaha, and South Omaha, Nebraska.

(d) Includes East St. Louis, Illinois.

(e) Includes Kansas City, Kansas.

(f) Includes Atchison and Leavenworth, Kansas.

producers is the high percentage of all-rail shipments to the Chicago district from outside sources. The dominant position of the Lake trade in the Milwaukee market is shown by the low all-rail shipments to this point from all sources (Tables 6, 9 and 22).

The extent to which the Illinois coal industry participates in the principal coal markets of the Illinois coal market area are shown in summary form in Table 6.

The seasonal trend in coal shipments is shown in Tables 7 to 21 which show monthly shipments by fields into each of the fifteen market districts of the Illinois coal market area in 1932 and 1933.

The seasonal fluctuation from the Illinois fields in 1932 are, of course, abnormal because of the suspension of mining for several of the summer months. The effect of this suspension upon shipments from other fields can be observed from a study of the tables.

TABLE 7.—All-rail coal shipments by months to Chicago, from the

Month	From							
	Western Pennsylvania		Altoona, Somerset Meyersdale and Cumberland-Piedmont		Fairmont		Northern and eastern Ohio	
	1932	1933	1932	1933	1932	1933	1932	1933
January...	50	116	741	1,117	345	1,599	689	159
February...			474	1,363	649	2,852	247	142
March.....			463	764	459	2,199	307	202
April.....	48	81	550	530	342	1,702		159
May.....	139		420	419	103	846		
June.....	41	138	667	745	52	1,813		
July.....			236	4,980	747	867		50
August.....		75	688	5,235	2,198	886	54	
September..		48	2,479	3,492	2,221	948	99	54
October....	47	50	2,765	4,851	4,102	1,990	286	149
November..		2,942	1,914	2,712	1,837	1,258	149	154
December..		514	1,020	3,459	1,785	968	149	106
Total.	325	3,964	12,417	29,667	14,840	17,928	1,980	1,175

Month	Virginia		Hazard, Harlan and southern Appalachian		Ex-River Coal		Northern Illinois	
	1932	1933	1932	1933	1932	1933	1932	1933
	January...	5,011	4,280	160,544	87,325			59,927	81,196
February..	2,355	4,236	138,345	103,187			54,297	75,850
March....	2,386	4,435	146,016	78,217			81,073	89,091
April.....	720	3,763	81,630	67,915			5,023	65,514
May.....	293	1,986	64,447	96,498	263		8,286	36,238
June.....	728	2,979	50,900	153,003			14,691	25,405
July.....	1,460	5,101	54,101	117,556		243	14,061	24,809
August....	2,986	8,160	49,093	166,057	363		47,942	24,705
September.	4,747	6,856	52,537	103,025			76,920	16,389
October...	7,658	6,290	72,552	113,617			83,414	39,715
November..	5,405	4,317	72,611	116,447			80,011	72,930
December.	5,612	3,681	87,646	91,443			78,012	71,597
Total.	39,361	56,084	1,030,422	1,294,290	626	243	603,657	623,439

(a) Data from U. S. Bureau of Mines, Monthly Coal Distribution Reports.

Appalachians and from Illinois, Indiana and Western Kentucky (a)

From							
Southern Ohio		Kanawha, Logan and Kenova-Thacker		New River, Winding Gulf and Pocahontas-Tug River		Northeast Kentucky and McRoberts	
1932	1933	1932	1933	1932	1933	1932	1933
419	131	87,641	90,573	572,977	608,018	48,790	60,807
54	122	79,557	101,658	599,647	685,325	55,797	71,887
.....	.....	60,052	68,372	622,304	487,886	62,588	61,805
.....	.....	41,843	60,303	367,891	396,974	34,095	54,601
.....	.....	38,501	47,883	289,824	342,612	28,190	41,748
.....	44	35,424	44,980	224,127	429,862	21,109	36,361
.....	205	42,608	52,965	282,469	545,065	20,336	84,265
104	266	53,161	56,417	398,636	485,741	22,614	90,953
44	307	74,005	63,004	612,468	437,213	25,570	50,481
625	527	103,117	60,869	774,319	454,861	43,041	34,791
875	174	94,660	92,545	531,063	474,297	45,189	43,332
475	234	115,158	115,242	667,100	560,361	84,631	65,187
2,596	2,010	825,727	854,811	5,942,825	5,908,215	491,950	696,218

Central and southern Illinois		Indiana		Western Kentucky		Total	
1932	1933	1932	1933	1932	1933	1932	1933
512,320	473,674	241,705	243,240	86,138	68,760	1,777,297	1,720,995
474,457	507,975	202,224	290,530	70,942	100,939	1,679,045	1,946,066
742,233	439,733	375,548	223,388	99,179	68,066	2,192,608	1,524,158
77,414	289,846	131,166	166,272	78,276	41,792	818,998	1,149,452
48,570	306,712	142,310	157,061	64,170	37,614	685,516	1,069,617
30,539	312,827	184,752	162,158	95,659	29,684	658,689	1,199,999
32,781	321,433	166,082	191,860	133,817	35,218	748,698	1,384,617
170,022	364,989	182,561	206,886	79,549	41,660	1,009,971	1,452,030
209,551	353,795	200,439	206,284	57,804	42,420	1,318,884	1,284,316
335,285	494,225	280,316	248,294	73,396	51,028	1,780,923	1,511,257
579,181	518,228	304,945	291,963	75,585	59,383	1,793,425	1,680,682
650,088	538,914	308,811	313,278	89,838	69,445	2,090,325	1,834,429
3,862,441	4,922,351	2,720,859	2,701,214	1,004,353	646,009	16,554,379	17,757,618

TABLE 8.—Coal shipments by

Month	From							
	Western Pennsylvania		Altoona, Somerset Meyersdale and Cumberland-Piedmont		Fairmont		Northern and eastern Ohio	
	1932	1933	1932	1933	1932	1933	1932	1933
January...			330	324	305	44		
February..			193	303	214	197		
March.....			460	413	243	127		
April.....	40		407	274		62		
May.....			368	929				
June.....			252	510		34		
July.....	46		174	540	189	302		104
August.....		50	598	416	326	93		56
September.			276	548		337		
October...			434	552	184	93		1,366
November..			271	174	173			
December..			50	341	36	382		
Total.	86	50	3,813	5,324	1,670	1,671		1,526

Month	Virginia		Hazard, Harlan and southern Appalachian		Ex-River Coal		Northern Illinois	
	1932	1933	1932	1933	1932	1933	1932	1933
January...	875	1,799	42,467	36,184			124,959	112,675
February..	677	1,713	41,527	47,372			116,250	133,849
March....	635	662	49,672	19,909			165,801	109,404
April.....	139	394	16,803	11,843			71,272	71,566
May.....	338	531	20,265	17,066			88,237	66,741
June.....	1,116	1,244	18,775	21,979			77,358	51,499
July.....	1,331	1,833	27,890	49,254			106,261	67,664
August....	1,735	1,848	61,456	54,810			78,404	80,640
September.	1,425	1,583	84,101	48,382	733		48,742	82,054
October...	1,423	1,460	61,514	31,945	324	51	106,934	123,385
November..	1,575	536	38,004	23,858	44		118,263	141,678
December..	1,945	437	52,333	22,812			142,327	174,983
Total.	13,214	14,040	514,807	385,414	1,101	51	1,244,808	1,216,138

(a) Data from U. S. Bureau of Mines, Monthly Coal Distribution Reports.

months to Illinois, other (a)

From							
Southern Ohio		Kanawha, Logan and Kenova-Thacker		New River, Winding Gulf and Pocahontas-Tug River		Northeast Kentucky and McRoberts	
1932	1933	1932	1933	1932	1933	1932	1933
49	24,046	9,988	31,415	31,969	9,392	22,677
.....	20,038	14,180	26,294	38,827	12,336	23,316
.....	12,220	6,091	33,693	29,904	10,383	19,575
.....	7,013	7,475	18,293	19,196	3,273	15,069
.....	11,329	4,752	17,895	22,811	12,976	14,104
.....	4,621	5,382	19,113	30,927	18,714	17,562
.....	8,639	14,732	36,176	43,591	24,069	16,295
.....	15,178	21,205	38,096	38,797	29,159	17,030
.....	25,232	16,916	37,545	32,938	26,116	20,320
93	23,179	11,496	45,570	36,030	27,139	21,871
.....	10,109	7,118	30,837	34,590	22,237	16,142
.....	16,830	8,304	40,779	33,362	24,777	21,859
142	178,434	127,639	375,706	392,942	220,571	225,820

Central and southern Illinois		Indiana		Western Kentucky		Total	
1932	1933	1932	1933	1932	1933	1932	1933
626,335	489,649	96,988	102,276	46,558	62,938	1,003,719	870,523
639,563	583,833	112,265	115,232	43,732	74,631	1,013,089	1,033,453
940,170	529,002	150,027	81,138	65,066	50,758	1,428,370	846,983
124,667	317,378	50,650	58,168	29,190	26,655	321,747	528,080
106,216	256,750	62,086	52,319	45,006	23,618	364,716	459,721
75,535	253,850	64,881	54,461	53,484	23,296	333,849	460,744
150,430	321,178	63,726	64,680	125,353	35,239	544,284	615,412
269,456	381,029	90,760	76,763	194,525	49,229	779,693	721,966
537,245	373,083	90,934	81,864	119,948	45,532	972,297	703,557
728,278	540,735	124,688	106,035	116,335	33,912	1,236,095	909,131
621,065	532,798	111,503	94,650	75,072	32,952	1,029,153	884,446
635,929	639,931	125,274	108,358	89,156	48,325	1,129,436	1,059,094
5,454,889	5,219,466	1,143,782	995,944	1,003,425	507,085	10,156,448	9,093,110

TABLE 9.—Coal shipments

Month	From							
	Western Pennsylvania		Altoona, Somerset Meyersdale and Cumberland-Piedmont		Fairmont		Northern and eastern Ohio	
	1932	1933	1932	1933	1932	1933	1932	1933
January...						108	150	
February..	74					48		
March.....								
April.....	52			109	41			
May.....			29	28				
June.....			54					
July.....			45	77				
August....			55	29	93	150		
September..			28	81	153			
October...				59	477			
November...			31		239			
December..								50
Total.	126		242	383	1,003	306	150	50

Month	Virginia		Hazard, Harlan and southern Appalachian		Ex-River Coal		Northern Illinois	
	1932	1933	1932	1933	1932	1933	1932	1933
January...	51		342	1,117				
February..	48	346	93	324				
March....	219		146	438				
April.....			646	288				
May.....			194	199				
June.....			102	49				
July.....			882					
August....			199	261				
September..	1,474		148	94				
October...	501		138	135				52
November..	129	144	1,231	44				102
December..			348	337				
Total.	2,422	490	4,469	3,286				154

(a) Data from U. S. Bureau of Mines, Monthly Coal Distribution Reports.

by months to Milwaukee (a)

From							
Southern Ohio		Kanawha, Logan and Kenova-Thacker		New River, Winding Gulf and Pocahontas-Tug River		Northeast Kentucky and McRoberts	
1932	1933	1932	1933	1932	1933	1932	1933
		805	46	16,661	17,295	376	48
		507	340	14,637	31,949	248	42
		647	221	20,698	20,258	220	44
		152	279	19,720	13,935	146	1,000
		350	96	7,961	13,307		51
		95	155	8,077	12,869		
		49	50	7,465	15,118		40
		47	52	10,622	19,671	145	48
		54		9,973	17,099	49	90
		639	103	14,548	15,116		88
		582	44	12,325	12,477	119	43
		279	100	16,161	4,980	176	
		4,206	1,486	158,848	194,074	1,479	1,894

Central and southern Illinois		Indiana		Western Kentucky		Total	
1932	1933	1932	1933	1932	1933	1932	1933
1,813	1,227	1,589	2,376	728	417	22,515	22,634
1,620	1,030	2,092	2,371	715	374	20,034	36,824
2,548	969	2,307	1,946	873	412	27,658	24,688
432	1,460	413	1,608	569	203	22,171	18,882
100	607	350	1,721	104		9,088	16,009
	517	577	1,557	254		9,159	15,147
	686	363	1,553	48	300	8,852	17,824
322	256	717	2,550	187		12,387	23,017
619	802	1,482	2,232	362	6,003	14,342	26,401
1,245	998	2,073	3,676	441	185	20,062	20,412
1,062	964	3,271	3,182	229	137	19,218	17,137
1,536	1,356	3,455	3,857	247	147	22,202	10,827
11,297	10,872	18,689	28,629	4,757	8,178	207,688	249,802

TABLE 10.—Coal shipments by

Month	From							
	Western Pennsylvania		Altoona, Somerset Meyersdale and Cumberland-Piedmont		Fairmont		Northern and eastern Ohio	
	1932	1933	1932	1933	1932	1933	1932	1933
January...		230	33	22	348	311	49	464
February...		325	124	101	46	232	51	152
March...		184	110	66	56	597	58	145
April...		100	145	239	102	128		389
May...			210	166	92			116
June...			133	308		122		54
July...			93	127	96	277		37
August...			378	276	46	40	50	113
September...			131	165	141	46		57
October...			295	172	380	95	248	263
November...			133	273	698	87	155	102
December...	226		29	125	381	47	159	162
Total.	226	839	1,814	2,040	2,386	1,982	770	2,054

Month	Virginia		Hazard, Harlan and southern Appalachian		Ex-River Coal		Northern Illinois	
	1932	1933	1932	1933	1932	1933	1932	1933
January...	3,085	2,332	5,896	5,905			2,990	1,388
February...	1,974	1,954	6,639	6,905			2,805	2,949
March...	1,668	923	5,269	3,199			2,096	1,349
April.....	616	557	2,410	2,484			256	590
May.....	1,123	909	3,061	2,415			155	95
June.....	1,489	1,855	2,941	3,083			152	75
July.....	2,558	2,446	4,231	4,225			83	268
August....	3,475	4,408	4,720	4,141			220	436
September.	3,362	3,266	4,619	6,642			91	724
October...	3,454	3,238	7,325	4,684			1,688	1,593
November.	3,025	1,159	5,710	4,403			2,424	1,717
December.	3,116	663	7,443	5,032			1,672	5,628
Total.	28,945	23,710	60,264	53,118			14,632	16,812

(a) Data from U. S. Bureau of Mines, Monthly Coal Distribution Reports.

months to Wisconsin, other (a)

From							
Southern Ohio		Kanawha, Logan and Kenova-Thacker		New River, Winding Gulf and Pocahontas-Tug River		Northeast Kentucky and McRoberts	
1932	1933	1932	1933	1932	1933	1932	1933
		6,818	5,345	34,159	42,811	9,054	8,561
50		7,433	7,056	44,571	55,523	6,812	10,471
		9,393	5,973	43,858	32,419	6,982	7,149
		5,536	4,593	22,794	22,389	4,109	3,462
		3,674	3,067	26,570	31,130	3,839	4,052
		3,593	4,236	24,600	36,994	4,332	3,899
		3,794	4,208	47,103	50,402	4,038	4,369
		5,205	4,901	57,467	64,562	4,492	5,556
		5,322	5,758	58,475	52,170	6,600	4,303
		7,215	4,590	71,236	52,180	6,044	3,527
		5,529	3,103	51,104	48,678	5,647	3,872
		7,025	4,589	53,326	43,269	8,341	3,302
50		70,537	57,419	535,263	532,527	70,290	62,523

Central and southern Illinois		Indiana		Western Kentucky		Total	
1932	1933	1932	1933	1932	1933	1932	1933
42,604	34,067	25,197	30,561	27,059	25,713	157,292	157,710
42,183	39,213	31,110	38,944	28,151	29,841	171,949	193,666
53,877	26,258	37,771	25,145	31,144	25,336	192,282	128,743
8,921	18,730	15,396	16,227	18,667	14,471	78,952	84,359
4,678	17,699	13,115	15,333	14,261	9,250	70,778	84,232
2,970	18,576	13,127	17,005	11,644	7,589	64,981	92,896
1,352	22,524	13,862	22,176	11,072	13,282	88,282	124,341
19,381	23,809	15,658	25,361	13,734	10,810	124,826	144,413
29,362	26,786	18,388	23,674	18,833	15,119	145,324	138,710
32,880	55,575	31,744	36,149	25,012	28,734	187,521	190,796
40,230	59,403	32,675	39,383	27,551	39,756	174,881	201,936
43,057	66,487	38,716	46,125	33,073	36,046	196,564	211,475
321,495	409,127	286,759	336,083	260,201	255,947	1,653,632	1,754,181

TABLE 11.—Coal shipments by

Month	From							
	Western Pennsylvania		Altoona, Somerset Meyersdale and Cumberland-Piedmont		Fairmont		Northern and eastern Ohio	
	1932	1933	1932	1933	1932	1933	1932	1933
January...			32	77				
February...			41	29				
March...			66					
April...			77	69				
May...			41	135				
June...			48	98				
July...		32	46					
August...				38				
September...			59	32				
October...			80	49				
November...			43	34				
December...			55					
Total...		32	588	561				

Month	Virginia		Hazard, Harlan and southern Appalachian		Ex-River Coal		Northern Illinois	
	1932	1933	1932	1933	1932	1933	1932	1933
January...			199	139				
February...			190	150				
March...			196	48				
April...								
May...				286				
June...				151				
July...			87	91				
August...			434	102				
September...			193	92				
October...			351	142			238	
November...			92					
December...			96	49				
Total...			1,838	1,250			238	

(a) Data from U. S. Bureau of Mines, Monthly Coal Distribution Reports.

months to Council Bluffs, Iowa (a)

From							
Southern Ohio		Kanawha, Logan and Kenova-Thacker		New River, Winding Gulf and Pocahontas-Tug River		Northeast Kentucky and McRoberts	
1932	1933	1932	1933	1932	1933	1932	1933
		576	184	25		48	
		273	106	55	48	50	
		205				48	
		54	52			51	
			51				
		145	251				
		608	242		101		
		264	193				
		140	396				
		753	276	74		50	91
		334	95	48		41	
		269	107				
		3,621	1,933	202	149	288	91

Central and southern Illinois		Indiana		Western Kentucky		Total	
1932	1933	1932	1933	1932	1933	1932	1933
18,652	5,036	1,262	329	3,124	1,447	23,918	7,212
17,709	8,414	48	42	2,829	2,287	21,195	11,076
17,076	1,654	237		2,408	861	20,236	2,563
233	813	95		507	625	1,017	1,559
274	1,094	40	48	159	334	514	1,948
369	581			343	141	905	1,222
822	1,799		71	632	400	2,195	2,736
3,464	1,523			1,021	678	5,183	2,534
5,907	3,077	50	117	927	1,064	7,276	4,778
10,276	6,279	276		2,463	328	14,561	7,165
9,686	5,881	41	44	2,106	718	12,391	6,772
9,859	9,090	291		2,344	1,300	12,914	10,546
94,327	45,241	2,340	651	18,863	10,183	122,305	60,111

TABLE 12.—Coal shipments

Month	From							
	Western Pennsylvania		Altoona, Somerset Meyersdale and Cumberland-Piedmont		Fairmont		Northern and eastern Ohio	
	1932	1933	1932	1933	1932	1933	1932	1933
January...	384		181	62	426	503	96	133
February..	377		176	97	29	495		203
March....	80		265	216	234	42	45	
April.....		99	347	388				
May.....			118	299				
June.....	41	170	278	302	174			44
July.....		111	201	183	138	116		331
August....	292		248	356	151	213		270
September.			168	296	431	498	231	430
October...	161		329	254	477	538	325	129
November.	44	2,267		236	493	384	127	135
December.			124	97	501	259	124	195
Total.	1,379	2,647	2,435	2,786	3,054	3,048	948	1,870

Month	Virginia		Hazard, Harlan and southern Appalachian		Ex-River Coal		Northern Illinois	
	1932	1933	1932	1933	1932	1933	1932	1933
January...	533	374	45,500	32,474			17,397	19,237
February..	527	215	41,443	46,896			11,067	22,150
March....	483	211	37,288	13,151			12,253	20,378
April.....	47		8,405	7,372			4,039	19,015
May.....	46		15,860	9,638			11,502	20,290
June.....	133	182	13,443	25,833			17,971	17,023
July.....	522	281	24,256	50,106			20,552	19,030
August....	614	531	56,967	51,663			14,541	20,664
September.	426	578	69,137	59,925			5,883	19,196
October...	808	921	65,493	46,975			17,321	26,966
November.	509	441	44,373	37,696			21,262	30,898
December.	565	262	51,404	43,527			24,448	32,136
Total.	5,213	3,986	473,569	425,256			178,236	266,983

(a) Data from U. S. Bureau of Mines, Monthly Coal Distribution Reports.

by months to Iowa, other (a)

From							
Southern Ohio		Kanawha, Logan and Kenova-Thacker		New River, Winding Gulf and Pocahontas-Tug River		Northeast Kentucky and McRoberts	
1932	1933	1932	1933	1932	1933	1932	1933
57		32,010	17,231	6,059	4,543	24,406	13,960
		23,699	23,890	5,005	6,341	22,092	20,219
		17,483	5,627	3,540	2,141	17,753	7,880
		4,143	3,280	2,061	1,027	4,900	4,730
		4,661	5,507	1,924	2,502	3,512	4,962
		7,467	9,731	3,216	5,740	4,943	9,789
		11,745	22,083	6,877	12,247	11,364	15,039
		23,727	32,011	13,808	18,214	17,969	19,052
	56	36,159	31,422	18,016	12,743	23,958	23,565
63		41,234	23,878	13,298	10,503	32,918	19,497
46	266	21,616	15,112	6,230	5,884	20,542	15,085
		28,902	18,322	7,080	4,922	21,782	16,602
166	322	252,846	208,094	87,114	86,807	206,139	170,380

Central and southern Illinois		Indiana		Western Kentucky		Total	
1932	1933	1932	1933	1932	1933	1932	1933
167,966	105,035	35,664	21,555	58,960	57,074	389,639	272,181
154,667	128,826	32,856	25,713	49,171	61,829	341,109	336,874
211,178	94,188	41,343	17,487	54,368	31,981	396,313	193,302
19,718	62,918	14,423	12,684	28,052	16,743	86,135	128,156
40,310	71,419	16,292	16,225	22,602	18,368	116,827	149,210
36,258	55,566	11,619	13,301	26,436	15,099	121,979	152,780
26,920	95,069	12,858	18,807	43,058	35,082	158,491	268,485
79,588	101,759	13,116	21,576	50,317	33,964	271,338	300,273
124,099	116,619	20,329	22,343	83,590	42,270	382,427	329,941
147,589	156,087	34,850	35,522	72,979	28,212	427,845	349,482
121,008	147,400	35,240	39,254	67,354	25,947	338,844	321,005
165,841	153,409	35,409	38,465	64,375	32,289	400,555	340,460
1,295,142	1,288,290	303,999	282,932	621,262	398,858	3,431,502	3,142,259

TABLE 13.—Coal shipments by

From								
Month	Western Pennsylvania		Altoona, Somerset Meyersdale and Cumberland-Piedmont		Fairmont		Northern and eastern Ohio	
	1932	1933	1932	1933	1932	1933	1932	1933
January...	66		78					
February...			58	74				
March.....			117	179				
April.....	36		200	143	52			
May.....			108	201				
June.....			216	195				
July.....			75	252				
August....			79	374				
September..			221	320				
October....			147	115				
November..			256	110				
December..		23	47	111				
Total.	102	23	1,602	2,074	52			

Month	Virginia		Hazard, Harlan and southern Appalachian		Ex-River Coal		Northern Illinois	
	1932	1933	1932	1933	1932	1933	1932	1933
January...	52		1,432	1,592				
February...			1,643	770				
March.....			1,711	661				
April.....			825	333				
May.....				625				
June.....		45	664	603			209	
July.....			141	947				
August....		46	1,023	1,180				
September..		51	1,322	1,496				
October....			1,979	964				
November..			658	763				
December..			968	1,317				
Total.	52	142	12,366	11,251			209	

(a) Data from U. S. Bureau of Mines, Monthly Coal Distribution Reports.

months to St. Louis, Missouri (a)

From							
Southern Ohio		Kanawha, Logan and Kenova-Thacker		New River, Winding Gulf and Pocahontas-Tug River		Northeast Kentucky and McRoberts	
1932	1933	1932	1933	1932	1933	1932	1933
		2,228	2,816	7,829	5,386	22,709	14,886
		1,492	3,837	8,106	5,144	19,489	15,355
		3,727	3,232	6,543	4,991	18,106	15,506
		3,016	3,099	5,028	5,141	22,977	15,284
		3,089	2,751	4,707	4,618	15,756	13,782
		3,432	2,781	5,001	4,632	13,562	12,400
		3,507	3,990	4,463	5,043	12,086	15,866
		4,000	3,817	5,630	4,858	13,662	12,827
		5,279	4,399	7,298	5,119	16,024	18,857
		4,211	4,212	6,273	5,597	16,078	14,412
		2,170	2,992	5,636	7,558	14,705	13,629
		4,986	4,660	6,803	7,557	18,431	16,659
		41,137	42,586	73,317	65,644	203,585	179,463

Central and southern Illinois		Indiana		Western Kentucky		Total	
1932	1933	1932	1933	1932	1933	1932	1933
313,430	235,465	2,791	7,025	9,728	12,826	360,343	279,996
289,380	288,402	2,312	6,155	9,447	14,477	331,927	334,214
506,187	206,189	3,075	3,810	16,776	9,680	556,242	244,248
59,779	117,782	775	2,525	47,947	6,435	140,635	150,742
83,216	113,223	1,174	4,015	66,672	8,058	174,722	148,273
85,291	155,336	3,540	7,849	71,771	7,556	183,686	191,397
82,451	195,705	8,664	7,550	51,693	9,733	163,080	239,086
205,196	225,340	12,676	6,210	43,138	11,665	285,404	266,317
291,823	212,574	9,755	5,262	37,779	12,207	369,501	260,285
336,203	314,353	12,155	7,390	40,998	13,027	418,044	360,070
290,934	254,932	5,729	977	15,026	8,635	335,114	289,596
339,473	310,842	7,992	1,478	15,502	9,265	394,202	351,912
2,883,363	2,630,143	70,638	60,246	426,477	123,562	3,712,900	3,115,134

TABLE 14.—Coal shipments by

Month	From							
	Western Pennsylvania		Altoona, Somerset Meyersdale and Cumberland-Piedmont		Fairmont		Northern and eastern Ohio	
	1932	1933	1932	1933	1932	1933	1932	1933
January...			176	67				
February..			175	61				
March.....			185	75				
April.....			185	80				
May.....			136	65				
June.....			66	105				
July.....			32	42				
August....			76	39				
September.			86	40				
October...			166					
November.			34	64				
December.								
Total.....			1,317	638				

Month	Virginia		Hazard, Harlan and southern Appalachian		Ex-River Coal		Northern Illinois	
	1932	1933	1932	1933	1932	1933	1932	1933
January...								
February..								
March.....								
April.....								
May.....								
June.....								
July.....								
August....								
September.								
October...								
November.								
December.								
Total.....								

(a) Data from U. S. Bureau of Mines, Monthly Coal Distribution Reports.

TABLE 15.—Coal shipments by

Month	From							
	Western Pennsylvania		Altoona, Somerset Meyersdale and Cumberland-Piedmont		Fairmont		Northern and eastern Ohio	
	1932	1933	1932	1933	1932	1933	1932	1933
January...			39					
February...			39	33				
March...				30				
April...			33	35				
May...			34	34				
June...			129	58				
July...			35	25				
August...			26	33				
September...			60					
October...								
November...			30					
December...			25					
Total...			411	248				

Month								
	Virginia		Hazard, Harlan and southern Appalachian		Ex-River Coal		Northern Illinois	
	1932	1933	1932	1933	1932	1933	1932	1933
January...								
February...								
March...								
April...								
May...								
June...								
July...								
August...								
September...								
October...			48					
November...								
December...								
Total...			48					

(a) Data from U. S. Bureau of Mines, Monthly Coal Distribution Reports.

TABLE 16.—*Coal shipments by*

From								
Month	Western Pennsylvania		Altoona, Somerset-Meyersdale and Cumberland-Piedmont		Fairmont		Northern and eastern Ohio	
	1932	1933	1932	1933	1932	1933	1932	1933
January.....			150	33				
February.....			173	230				
March.....			122	175				
April.....			526	164				
May.....			162	224				
June.....			173	183		34		
July.....			122	70				
August.....			185	150				
September.....		53	221	363				
October.....			123	67				
November.....			60	86				
December.....			108	101				
Total.....		53	2,125	1,846		34		

Month	Virginia		Hazard, Harlan and southern Appalachian		Ex-River Coal		Northern Illinois	
	1932	1933	1932	1933	1932	1933	1932	1933
January.....			298	409				
February.....			140	416			102	
March.....			94	283			90	
April.....			229	221				
May.....			135	268				
June.....			374	224				
July.....			332	96				
August.....			424	142				
September.....			669	471				
October.....			593	86				
November.....			319	43				
December.....			437	91				
Total.....			4,044	2,750			192	

(a) Data from U. S. Bureau of Mines, Monthly Coal Distribution Reports.

months to Missouri, other (a)

From							
Southern Ohio		Kanawha, Logan and Kenova-Thacker		New River, Winding Gulf and Pocahontas-Tug River		Northeast Kentucky and McRoberts	
1932	1933	1932	1933	1932	1933	1932	1933
		384	368				
		364	100	29	73		
		46					
		101		84	33		
		158			101		
		52	349	133			
		108	397	126	113		
		771	377	118	49		99
		886	1,016	96	116	57	238
		1,080	384		213	51	145
		367	101	49			144
		487	99		52		242
		4,804	3,191	637	750	108	868

Central and southern Illinois		Indiana		Western Kentucky		Total	
1932	1933	1932	1933	1932	1933	1932	1933
115,973	75,437	518	396	14,738	18,142	132,061	94,785
111,161	97,289	809	360	13,667	17,267	126,445	115,735
147,122	60,292	550	280	16,467	13,457	164,491	74,487
13,790	39,131	243	233	11,591	7,630	26,564	47,412
21,675	33,715	191	197	16,602	6,997	38,923	41,502
25,507	48,418	1,033	278	16,922	8,641	44,196	58,127
22,221	72,069	1,736	442	65,104	11,524	89,749	84,711
59,716	83,021	1,798	581	24,423	17,041	87,435	101,460
102,135	68,798	382	545	27,523	14,161	131,969	85,761
113,280	90,708	656	485	29,011	13,669	144,794	105,757
87,182	67,480	591	147	26,328	13,055	114,896	81,056
108,497	80,301	599	190	25,412	10,469	135,540	91,545
928,259	816,659	9,106	4,134	287,788	152,053	1,237,063	982,339

TABLE 17.—Coal shipments

Month	From							
	Western Pennsylvania		Altoona, Somerset-Meyersdale and Cumberland-Piedmont		Fairmont		Northern and eastern Ohio	
	1932	1933	1932	1933	1932	1933	1932	1933
January			89	30				
February			242	95	180			
March			181	149				
April			279	64				
May			189	129				
June			151	206				
July			101	205				
August			279	115				
September			120	142				
October			61	34				
November			24					
December			37	30				
Total			1,753	1,199	180			

Month	Virginia		Hazard, Harlan and southern Appalachian		Ex-River Coal		Northern Illinois	
	1932	1933	1932	1933	1932	1933	1932	1933
January								
February								
March								
April								
May								
June								
July								
August								
September								
October								
November								
December								
Total								

(a) Data from U. S. Bureau of Mines, Monthly Coal Distribution Reports.

7 months to Kansas, other (a)

From							
Southern Ohio		Kanawha, Logan and Kenova-Thacker		New River, Winding Gulf and Pocahontas-Tug River		Northeast Kentucky and McRoberts	
1932	1933	1932	1933	1932	1933	1932	1933
		43			30		
			35	42			
				43			
				47			
		39			53		
		82	35	132	83		

Central and southern Illinois		Indiana		Western Kentucky		Total	
1932	1933	1932	1933	1932	1933	1932	1933
3,870	933					4002	993
2,723	1,282					3,187	1,377
1,497	366					1,721	550
	464					279	528
	411					189	540
45	568					196	774
	1,719					101	1,924
2,081	2,248					2,407	2,363
3,609	2,312					3,768	2,507
3,721	1,927					3,782	1,961
1,819	1,501			240		2,083	1,501
2,139	1,471					2,176	1,501
21,504	15,202			240		23,891	16,519

TABLE 18.—*Coal shipments by*

From								
Month	Western Pennsylvania		Altoona, Somerset-Meyersdale and Cumberland- Piedmont		Fairmont		Northern and eastern Ohio	
	1932	1933	1932	1933	1932	1933	1932	1933
January...			28					
February...			86	149				
March...			203	175				
April...			292	302	70			
May...			91	162		66		
June...			176	170				
July...			184	57		43		
August...			59	163	41			
September...				33				
October...			56	29				
November...								
December...				38	44			
Total.			1,175	1,278	155	109		

Month	Virginia		Hazard, Harlan and southern Appalachian		Ex-River Coal		Northern Illinois	
	1932	1933	1932	1933	1932	1933	1932	1933
January...			281	47				
February...			417					
March...			49	45				
April...								
May...								
June...			52	40				
July...			186	137				
August...			420	93				
September...			405	359				
October...			366	228			32	
November...			234	49				
December...			174	135				
Total.			2,584	1,133			32	

(a) Data from U. S. Bureau of Mines, Monthly Coal Distribution Reports.

months to Nebraska, other (a)

From							
Southern Ohio		Kanawha, Logan and Kenova-Thacker		New River, Winding Gulf and Pocahontas-Tug River		Northeast Kentucky and McRoberts	
1932	1933	1932	1933	1932	1933	1932	1933
						92	
		84			50	49	
						50	
			54				
		95	53		51	54	50
		98	93			150	97
		280		40	33	183	159
			96	41		44	
		304	44			75	106
		861	340	81	134	697	412

Central and southern Illinois		Indiana		Western Kentucky		Total	
1932	1933	1932	1933	1932	1933	1932	1933
25,844	8,506	1,749	410	1,994	1,388	29,988	10,351
20,070	10,792	879	615	1,659	1,801	23,244	13,407
15,470	5,102	662	34	1,213	700	17,647	6,056
695	3,911	40		193	724	1,290	4,937
492	4,170		140	332	996	915	5,534
634	3,134	51	92	1,306	1,869	2,219	5,305
366	8,419		360	2,687	1,732	3,423	10,802
9,821	9,432		553	1,386	1,051	11,876	11,446
13,995	11,390	830	1,035	2,125	1,985	17,603	14,992
22,983	12,823	1,483	692	2,417	1,778	27,840	15,742
11,790	11,319	689	573	2,257	976	15,055	13,013
14,581	14,932	744	517	2,093	1,303	18,015	17,075
136,741	103,930	7,127	5,021	19,662	16,303	169,115	128,660

TABLE 19.—*Coal shipments*

Month	From							
	Western Pennsylvania		Altoona, Somerset-Meyersdale and Cumberland-Piedmont		Fairmont		Northern and eastern Ohio	
	1932	1933	1932	1933	1932	1933	1932	1933
January...			68	40	53	85		
February..			111	167		129		
March.....			320	263				
April.....	34		280	289		119		
May.....			744	575		42		36
June.....			208	482		241		
July.....			439	379	99	194		
August....			489	935		164		78
September.			413	523	76	87		79
October...			236	360	30	113		
November..			122	99	261	42		
December..			73	111	98		35	45
Total.	34		3,503	4,223	617	1,216	35	238

Month	From							
	Virginia		Hazard, Harlan and southern Appalachian		Ex-River Coal		Northern Illinois	
	1932	1933	1932	1933	1932	1933	1932	1933
January...	633	935	3,537	4,407			18,953	13,663
February..	187	1,244	3,572	5,185			16,869	15,141
March....	393	195	3,641	1,503			15,411	7,926
April.....	70	137	1,457	878				4,802
May.....	234	544	3,252	3,117			1,587	1,902
June.....	703	628	3,991	2,814			11,221	1,523
July.....	860	876	5,178	4,514			11,424	1,211
August....	1,315	1,443	5,777	4,304			5,519	1,364
September.	1,801	1,203	6,385	5,479			37	2,074
October...	1,014	737	6,589	4,519			10,516	5,291
November..	849	477	5,625	3,568			11,388	2,610
December..	1,009		6,849	4,781			16,593	4,349
Total.	9,068	8,419	55,853	45,069			119,518	61,856

(a) Data from U. S. Bureau of Mines, Monthly Coal Distribution Reports.

by months to Minnesota (a)

From							
Southern Ohio		Kanawha, Logan and Kenova-Thacker		New River, Winding Gulf and Pocahontas-Tug River		Northeast Kentucky and McRoberts	
1932	1933	1932	1933	1932	1933	1932	1933
.....		2,023	3,131	14,635	22,381	3,127	3,855
.....		1,499	5,895	19,142	23,664	3,405	5,375
.....		1,206	799	14,821	10,149	2,309	1,724
.....		832	518	12,629	10,517	1,547	826
.....		764	895	16,101	24,821	2,237	2,663
.....		1,030	2,045	13,877	21,784	1,855	3,417
.....		2,700	4,017	15,003	16,195	2,747	5,528
.....		3,258	2,846	18,405	14,180	3,666	3,082
.....		3,475	2,483	17,755	13,748	6,737	3,361
.....		4,487	2,136	21,217	14,644	7,896	3,026
.....		3,128	2,438	29,283	14,587	5,337	3,642
.....		3,578	4,004	30,227	10,787	5,537	3,655
.....		27,980	31,207	223,095	197,457	46,400	40,154

Central and southern Illinois		Indiana		Western Kentucky		Total	
1932	1933	1932	1933	1932	1933	1932	1933
50,492	24,183	9,051	18,375	12,001	11,462	114,573	102,517
43,902	29,420	9,600	14,999	11,497	10,821	109,784	112,040
44,721	13,163	13,493	11,416	9,319	6,017	105,634	53,155
5,534	9,623	4,707	7,863	7,972	5,476	35,062	41,048
5,395	11,229	3,751	10,357	8,536	4,464	42,601	60,645
3,094	11,499	3,709	5,272	9,833	7,592	49,521	57,297
531	18,627	4,295	4,309	17,008	8,882	60,284	64,732
28,576	22,041	8,915	5,860	11,920	6,598	87,840	62,895
35,302	23,965	7,097	9,198	9,985	8,425	89,063	70,625
37,382	44,404	15,722	14,128	22,866	7,932	127,955	97,290
34,949	47,192	18,943	17,114	12,338	8,887	122,223	100,656
36,726	42,443	25,004	18,341	13,157	10,348	138,886	98,854
326,604	297,789	124,287	137,232	146,432	96,904	1,083,426	921,494

TABLE 20.—Coal shipments

Month	From							
	Western Pennsylvania		Altoona, Somerset-Meyersdale and Cumberland-Piedmont		Fairmont		Northern and eastern Ohio	
	1932	1933	1932	1933	1932	1933	1932	1933
January...			34		48			
February...			57	25	48	39		
March...			134	159				
April...			121	201				
May...			180	218				
June...			35	58	34			
July...			94	105				
August...		45	114	34		80		85
September...			53	184	43	133		170
October...			128	137	106			38
November...			49		82			
December...			30	28				
Total.		45	1,029	1,149	361	252		293

Month	Virginia		Hazard, Harlan and southern Appalachian		Ex-River Coal		Northern Illinois	
	1932	1933	1932	1933	1932	1933	1932	1933
January...		47	1,157	778			118	184
February...		52	959	1,271			355	257
March...			695	324				
April...			234	314				
May...			570	395				
June...	91		469	541				
July...	92		909	2,061				
August...	46	93	2,242	1,772				
September...	47	189	1,927	1,641				93
October...	41	83	1,570	1,247			97	143
November...	46	49	1,048	635			101	106
December...	98		1,213	1,333			221	171
Total.	461	513	13,003	12,312			892	954

(a) Data from U. S. Bureau of Mines, Monthly Coal Distribution Reports.

by months to South Dakota (a)

From							
Southern Ohio		Kanawha, Logan and Kenova-Thacker		New River, Winding Gulf and Pocahontas-Tug River		Northeast Kentucky and McRoberts	
1932	1933	1932	1933	1932	1933	1932	1933
.....		465	546	3,569	2,666	323	617
.....		374	676	2,927	3,079	289	733
.....		144	48	1,275	877	225	37
.....		96	208	182	41	137
.....		95	108	366	258	87	116
.....		101	142	654	1,564	402	388
.....		288	479	1,953	2,864	277	972
.....		284	243	3,674	5,158	637	1,442
.....		839	629	6,239	4,467	1,061	1,282
.....		800	734	5,444	2,873	1,277	1,333
.....		491	290	3,356	1,864	583	235
.....		960	308	3,235	1,738	913	455
.....		4,841	4,299	32,900	27,590	6,115	7,747

Central and southern Illinois		Indiana		Western Kentucky		Total	
1932	1933	1932	1933	1932	1933	1932	1933
20,047	8,437	206	238	7,813	5,512	33,780	19,025
16,477	9,422	603	97	8,284	6,314	30,373	21,965
12,908	4,010	45	54	4,230	2,164	19,656	7,673
2,168	3,195	48	54	1,016	1,633	3,836	5,812
1,381	3,632	51	71	1,484	834	4,214	5,632
1,089	2,506	.....	54	2,529	1,280	5,404	6,533
856	4,217	.....	55	2,560	1,788	7,029	12,541
5,632	5,625	252	206	3,716	2,178	16,597	16,961
9,380	7,947	492	1,161	5,073	3,325	25,164	21,221
12,558	10,925	515	3,419	8,133	4,035	30,669	24,767
11,904	9,062	322	4,113	7,594	2,317	25,576	18,671
11,297	12,257	238	9,127	6,463	4,298	24,668	29,715
105,697	81,235	2,772	18,649	58,895	35,678	226,966	190,716

TABLE 21.—*Coal shipments*

Month	From							
	Western Pennsylvania		Altoona, Somerset-Meyersdale and Cumberland-Piedmont		Fairmont		Northern and eastern Ohio	
	1932	1933	1932	1933	1932	1933	1932	1933
January								
February								
March								
April								
May								
June								
July								
August								
September								
October								
November								
December								
Total								

Month	Virginia		Hazard, Harlan and southern Appalachian		Ex-River Coal		Northern Illinois	
	1932	1933	1932	1933	1932	1933	1932	1933
January							39	
February								
March								
April								
May								
June								
July							36	
August								
September								
October								
November								
December								
Total							75	

(a) Data from U. S. Bureau of Mines, Monthly Coal Distribution Reports.

LAKE CARGO COAL

In addition to all-rail shipments into the Illinois coal market area, a substantial quantity of coal is received over the Lakes by ports on Lake Michigan and Lake Superior. Shipments to American ports on these two lakes amounted to 13,284,000 tons in 1932 and 17,179,000 tons in 1933. Most of this coal is delivered to the Chicago district and to port cities in Wisconsin and Minnesota. A small portion of this coal is trans-shipped by rail to interior points. In Table 22 is given monthly shipments of lake cargo coal to American ports on Lake Michigan and Lake Superior. These large shipments of coal, occurring chiefly from May to November, are of peculiar advantage to Appalachian fields in maintaining production during the summer season. An opposite depressive effect is felt in those fields which are dependent upon an all-rail haul.

TABLE 22.—*Bituminous coal shipments via lakes to Lake Michigan and Lake Superior ports (a)*

	1932			1933		
	To Superior ports	To Michigan ports	Total	To Superior ports	To Michigan ports	Total
January }	72,000	334,000	406,000	208,000	408,000	616,000
February }						
March }						
April }						
May.....	365,000	516,000	881,000	753,000	998,000	1,751,000
June.....	812,000	749,000	1,561,000	1,023,000	1,217,000	2,240,000
July.....	805,000	876,000	1,681,000	1,384,000	1,832,000	3,216,000
August.....	983,000	969,000	1,952,000	1,097,000	1,737,000	2,834,000
September.....	1,186,000	1,112,000	2,298,000	1,130,000	1,619,000	2,749,000
October.....	1,128,000	1,285,000	2,413,000	663,000	1,316,000	1,979,000
November.....	869,000	1,210,000	2,079,000	653,000	1,126,000	1,779,000
December.....	0	13,000	13,000	0	15,000	15,000
Year.....	6,220,000	7,064,000	13,284,000	6,909,000	10,267,000	17,179,000

(a) Data from Monthly Coal Distribution reports, U. S. Bureau of Mines.

Of the amount shown in 1933, 11,068,000 tons was received by American ports on Lake Superior and by ports on the west shore of Lake Michigan as far south as Kenosha, Wisconsin. There remains little over 6,000,000 tons for ports in the Chicago district from Waukegan to Gary, Indiana.

The importance of lake cargo coal as a source of supply and its effect upon the seasonal variations in shipments from the producing centers is further shown in Table 23. The sharp falling off in shipments of all-rail coal in 1932 beginning in April is the result of suspension of mining activities in the Illinois and Indiana fields in April 1st of that year.

TABLE 23.—Daily average shipments of all-rail and lake cargo coal to the Illinois coal market area

	Daily average all-rail shipments	Daily average lake cargo shipments	Daily average total shipments	Index of monthly shipments Yearly average=100		
				All-rail	Lake cargo	Total
1932						
January.....	130,926	(a) 0	130,926	124	0	123
February.....	137,712	(a) 1,195	134,908	130	3	105
March.....	165,477	(a) 2,237	167,684	157	6	118
April.....	51,235	(a) 3,467	54,702	49	10	39
May.....	46,680	28,420	77,106	46	78	54
June.....	49,169	52,033	101,202	47	143	71
July.....	60,475	54,200	114,701	57	149	74
August.....	87,003	63,000	149,971	82	173	106
September.....	116,041	76,600	192,641	110	210	136
October.....	142,742	77,840	220,580	135	214	156
November.....	132,886	69,200	202,186	126	190	143
December.....	147,373	419	147,793	140	1	104
Year.....	105,520	36,300	141,817	100	100	100
1933						
January.....	114,899	(a) 0	114,899	103	0	77
February.....	148,577	(a) 3,666	152,223	146	8	102
March.....	100,249	(a) 6,623	106,872	99	14	72
April.....	71,160	(a) 10,267	84,760	70	22	57
May.....	65,110	56,484	121,594	64	120	87
June.....	74,142	74,667	148,809	73	159	100
July.....	90,382	103,742	194,124	89	220	130
August.....	99,047	91,420	190,466	98	194	128
September.....	96,677	91,633	188,307	95	194	127
October.....	114,700	63,840	178,548	113	136	120
November.....	118,967	59,300	178,267	117	126	120
December.....	129,379	484	129,862	127	1	87
Year.....	101,685	47,066	148,750	100	100	100

(a) Lake shipments by months for January to April were not available separately. The total quantity in 1932 was 406,000 tons and in 1933, 616,000 tons. In this table an estimated distribution for these four months was made.

Source: Monthly Coal Distribution Reports, U. S. Bureau of Mines.

COAL PRODUCTION IN OTHER STATES WITHIN THE MARKET AREA

In addition to shipments of coal from the Appalachian, Indiana, and Western Kentucky fields by rail and rail-lake hauls, the Illinois coal industry shares the market with local production in states west of the Mississippi River. Production in these states, 1930-1933, is as follows:

TABLE 24.—*Coal production in Iowa, Kansas, Missouri, and North Dakota*

In thousands of tons

Producing State	1930	1931	1932	1933
Iowa.....	3,893	3,388	3,862	3,230
Kansas.....	2,430	1,987	1,953	} 5,930
Missouri.....	3,853	3,621	4,070	
North Dakota.....	1,700	1,519	1,740	1,650
Total.....	11,876	10,515	11,625	10,810

STRIP MINING IN 1933

Production of coal by strip mining showed a slight decrease from that of 1932. (Table 25.) The record of production since 1929 is as follows:

TABLE 25.—*Strip mined coal in Illinois, 1929-1933*

Year	Output, tons	Per cent of total output
1929.....	5,374,813	8.8
1930.....	6,116,415	11.3
1931.....	6,262,501	14.6
1932.....	6,423,935	20.4
1933.....	5,423,796	15.4

Strip mine production for the period 1914 to 1932 is given in Report of Investigations 28, Table 11, p. 17.

MECHANICAL LOADING OF BITUMINOUS COAL IN ILLINOIS

Illinois is the leading state in the use of mechanical loading devices. Mechanical loaded coal in this State increased 11.5 per cent over 1932, whereas, the increase for the country as a whole was 5.6 per cent. The total tonnages so mined and the increase from 1932 to 1933 is shown in Table 26.

TABLE 26.—*Mechanically loaded tonnage, 1932 and 1933, in net tons (a)*

State	1932	1933	Per cent increase
Illinois.....	15,360,000	17,122,000	11.5
Indiana.....	3,225,000	4,222,000	30.9
All other states.....	17,232,000	16,476,000	-4.5
Total.....	35,817,000	37,820,000	5.6

(a) Weekly Coal Report No. 877, U. S. Bureau of Mines.

NATURAL GAS DEVELOPMENTS AFFECTING THE ILLINOIS COAL
MARKET AREA

Importation of natural gas into the Illinois coal market area, which began in 1929, has increased rapidly in each succeeding year. Importation, by states, is shown in Table 27.

TABLE 27.—*Natural gas imported into the Illinois coal market area (a)*
(In thousands of cubic feet)

From	1928	1929	1930	1931	1932
<i>Illinois</i>					
Kansas.....	0	0	0	26,000	719,000
Louisiana.....	0	156,000	6,712,000	7,553,000	8,330,000
Missouri.....	0	0	0	175,000	223,000
Texas.....	0	0	0	4,166,000	18,348,000
Kentucky.....	0	0	0	0	49,000
Indiana.....	0	0	0	0	6,000
Total.....	0	156,000	6,712,000	11,920,000	27,675,000
<i>Missouri</i>					
Kansas.....	9,406,000	14,635,000	20,284,000	3,033,000	3,771,000
Louisiana.....	0	133,000	5,464,000	5,406,000	7,673,000
Oklahoma.....	0	0	0	5,447,000	3,607,000
Texas.....	0	0	0	9,217,000	9,822,000
Total.....	9,406,000	14,768,000	25,748,000	23,103,000	24,873,000
<i>Iowa</i>					
Kansas.....	0	0	8,000	1,795,000	4,641,000
Texas.....	0	0	0	1,727,000	2,892,000
Total.....	0	0	8,000	3,522,000	7,523,000
<i>Nebraska</i>					
Kansas.....	0	0	1,098,000	2,802,000	5,340,000
Oklahoma.....	0	0	0	31,000	39,000
Texas.....	0	0	0	1,837,000	2,677,000
Wyoming.....	0	0	0	147,000	605,000
Total.....	0	0	1,098,000	5,817,000	8,661,000
Grand total.....	9,406,000	14,924,000	33,666,000	43,362,000	68,732,000

(a) Annual Mineral Resources of the United States, U. S. Bureau of Mines.

Consumption of natural gas, by uses, is shown in Table 28.

TABLE 28.—Consumption of natural gas in the Illinois coal market area, 1929-1932

(In thousands of cubic feet)

	Illinois	Minne- sota	Iowa	Missouri	South Dakota	Nebraska
1929						
Domestic.....	94,000	0	0	7,224,000	8,700,000	0
Field.....	2,895,000	0	0	12,000	0	0
Petroleum refineries.....	0	0	0	0	0	0
Electric utility plants.....	0	0	0	456,000	0	0
Industrial.....	150,000	0	0	7,386,000	847,000	0
Total.....	3,139,000	0	0	15,078,000	1,717,000	0
1930						
Domestic and commercial	115,000	0	0	9,158,000	1,172,000	180,000
Field.....	2,806,000	0	0	3,000	0	0
Petroleum refineries.....	149,000	0	0	2,422,000	0	0
Electric utility plants.....	0	0	0	966,000	0	263,000
Industrial.....	6,532,000	0	0	13,573,000	1,733,000	655,000
Total.....	9,602,000	0	0	26,122,000	2,905,000	1,098,000
1931						
Domestic and commercial	3,631,000	0	471,000	9,734,000	1,142,000	1,163,000
Field.....	2,038,000	0	0	7,000	0	0
Petroleum refineries.....	11,000	0	0	1,106,000	0	0
Electric utility plants.....	0	0	358,000	1,106,000	0	1,084,000
Industrial.....	8,370,000	0	2,693,000	12,308,000	1,661,000	2,570,000
Total.....	14,050,000	0	3,522,000	24,261,000	2,803,000	4,817,000
1932						
Domestic and commercial	16,113,000	0	1,328,000	11,684,000	1,350,000	2,605,000
Field.....	1,722,000	0	0	3,000	0	0
Petroleum refineries.....	136,000	0	0	18,000	0	0
Electric utility plants.....	0	0	1,314,000	1,867,000	62,000	1,726,000
Industrial.....	11,461,000	0	4,891,000	11,738,000	1,364,000	4,330,000
Total.....	29,432,000	0	7,533,000	25,310,000	2,776,000	8,661,000

NUMBER AND OUTPUT OF MINES BY CLASSES

Table 29 shows by classes the number of Illinois coal mines in operation, the total output, and the percentage of the total output of each class from 1925 to 1932 (see Illinois Mineral Industry in 1931 for data for years 1919-1924). The year 1932 showed a prominent decline in output by the mines in Class 1A. This condition may be considered abnormal since the small mines were less affected by the suspension of mining activities during the summer months than the larger mines.

TABLE 29.—Number and output of coal mines, by classes, 1924-1932 (a)

Year	Class 1A (more than 500,000 tons)	Class 1B (200,000 to 500,000 tons)	Class 2 (100,000 to 200,000 tons)	Class 3 (50,000 to 100,000 tons)	Class 4 (10,000 to 50,000 tons)	Class 5 (less than 10,000 tons)	Total
<i>Number of mines</i>							
1925.....	48	48	45	33	73	219	466
1926.....	48	48	37	39	81	262	515
1927.....	21	52	52	46	88	286	545
1928.....	33	50	40	37	65	322	547
1929.....	43	49	35	34	64	303	528
1930.....	35	48	31	26	70	298	508
1931.....	30	43	21	30	68	344	536
1932.....	16	42	25	26	94	383	586
<i>Production by classes</i> (In thousands of tons)							
1925.....	40,031	15,144	6,622	2,537	1,875	701	66,909
1926.....	43,394	14,736	5,373	2,909	2,014	742	69,367
1927.....	15,313	17,214	7,684	3,475	2,372	789	46,848
1928.....	28,029	16,718	6,039	2,724	1,547	892	55,948
1929.....	34,830	16,130	5,033	2,330	1,523	812	60,658
1930.....	28,642	16,256	4,324	1,802	1,865	863	53,731
1931.....	22,750	14,000	2,920	2,040	1,640	953	44,303
1932.....	11,078	13,436	3,753	1,905	2,183	1,119	33,474
<i>Percentage of output by classes</i>							
1925.....	59.8	22.6	9.9	3.8	2.8	1.1	100
1926.....	62.6	21.2	8.0	4.2	2.9	1.1	100
1927.....	32.7	36.7	16.4	7.4	5.1	1.7	100
1928.....	50.1	29.9	10.8	4.9	2.7	1.6	100
1929.....	57.4	26.6	8.3	3.9	2.5	1.3	100
1930.....	53.3	30.2	8.0	3.4	3.5	1.6	100
1931.....	51.3	31.6	6.6	4.6	3.7	2.2	100
1932.....	33.1	40.1	11.2	5.7	6.5	3.4	100

(a) Data from Mineral Resources of the United States, Part II, Nonmetals: U. S. Bureau of Mines, annual reports.

PETROLEUM

The production of crude petroleum in Illinois in 1933, by months, was as follows:

TABLE 30.—*Petroleum production in Illinois in 1933*

Month	Barrels	Month	Barrels
January.....	297,000	July.....	404,000
February.....	263,000	August.....	411,000
March.....	314,000	September.....	412,000
April.....	284,000	October.....	406,000
May.....	313,000	November.....	388,000
June.....	357,000	December.....	378,000
First 6 months.....	1,828,000	Year.....	4,227,000

Price changes during 1933 were as follows:

Date	Price per barrel for Illinois crude
Jan. 1 to Jan. 17.....	\$0.87
Jan. 18 to May 8.....	0.67
May 9 to June 15.....	0.47
June 16 to July 4.....	0.67
July 5 to July 11.....	1.00
July 12 to Aug. 1.....	0.90
Aug. 2 to Aug. 24.....	0.77
Aug. 25 to Sept. 5.....	0.87
Sept. 6 to Sept. 8.....	0.97
Sept. 9 to Sept. 29.....	1.13
Sept. 30 to Dec. 31.....	1.23

The calculated average price for 1932 was \$1.032 and for 1933, \$0.862.

THE PETROLEUM INDUSTRY IN 1933

The economic position of the Illinois petroleum industry is intimately related to the national oil industry and is therefore concerned with the general economic condition of the industry. In the first half of 1933, reduced consumption and aggravated conditions of over-supply, due in part to a great volume of illegally produced oil, resulted in the breaking down of price structures for both crude oil and by-products and the industry generally operated at a loss. Toward the end of the

year consumption increased and, with the incidence of the Government's recovery program, improvement became apparent.

Recovery in the latter part of 1933 is illustrated by the fact that while in United States consumption of crude oil and refined products showed a loss of 2.7 per cent in the first six months of 1933, it increased sufficiently to extinguish this decrease and close the full year with a gain of 3.8 per cent. This was the first time in four years that total consumption, including exports, showed a gain over the previous year.

Domestic gasoline consumption in 1933 was one million barrels above that for 1929, although motor vehicle registration showed a loss of 2,781,000 cars from the previous year.

The average wholesale price of gasoline, Midcontinent base, was 3.06 cents per gallon in 1933 and 3.89 cents per gallon in 1932. The average service station price ex-tax, in fifty representative cities was 12.41 cents a gallon in the past year and 13.30 cents in 1932.

For the first time in years no new field of major importance was discovered in the United States.

THE POSITION OF THE STRIPPER WELLS

The policy of control of the oil industry inaugurated by the Federal Government under the National Recovery Act with its attendant regulations of wages and hours of labor will eventually necessitate the formulation of a plan for dealing with the so-called "stripper" wells. These are wells of settled production of low average daily output which require pumping to recover the oil. Of the 321,000 wells producing in 1932, 181,585 produced 2 barrels a day or less.

The fields in which these wells are located are by no means exhausted and recovery of oil may be considerably increased and prolonged if improved recovery methods such as air or gas repressuring, water flooding, or acid treatment are used. Encouragement in the application of these methods to the "stripper" wells is linked with and contingent upon the policy that the Federal Government is going to pursue with regard to the oil industry of the United States, and what its attitude will be toward the potential future supply of oil.

In considering the importance of the position of the stripper well in the future of the oil industry, two points of view may be considered.

First, the stripper well as a marginal or sub-marginal producer.

On this basis the stripper well may provisionally be compared to marginal and sub-marginal agricultural land.

By definition, a marginal farm is one on which the costs of production, either by reason of poorer soil, or distance from the market are so much higher than farms in a rich agricultural district that there are no surplus earnings to pay interest on an investment. Hence the value of the land theoretically falls to zero.

The analogy of the stripper well with the marginal farm falls down when the competitive conditions in the two industries are examined more closely.

The marginal farm is competing with the better farm on a more or less constant differential. New, low-cost, highly productive farms do not enter the picture every season to upset completely this relatively constant competitive differential.

In the case of the oil industry, an entirely different element enters the picture, that is, the flush pool. This factor is particularly critical because these pools are opened up and throw their floods of oil on the market utterly regardless of current market demand.

The result is a drop in price, at this particular time and in this flush oil district, so low as to be below a cost-of-production price even for the pool, if the cost of the entire life of this pool is to be compared with its income during both the period of flood production and settled production. Gradually this price drop spreads through the entire production industry.

Now, if the country can be assured of the discovery and opening up of flush pools, in rapid succession, and properly timed for an indefinite future, then this type of production could be looked upon as normal, the need for improved production practices would disappear, and the stripper well would go permanently into the sub-marginal class. The assumption of a continuing occurrence of flush pools cannot be justified. To frame an oil policy on this basis, which would mean the extinction of the stripper well, would result in periods of underproduction with high prices to the consumer, and a dislocation of the price structure in the oil industry which would be just as bad in one direction as ruinously low prices are in the other direction.

The alternative is to consider the small wells of the country as a back-log of assured production during the intervals between flush pool production. As such, an economic policy must be framed which will protect the life of these wells. As such, the basis of their continuance must not be measured by the price of distress oil, from flush pools, thrown upon the market utterly regardless of the existing conditions of demand, but must be measured on a basis of over-all costs of production

that are necessary to keep the country adequately supplied with oil from both big and small wells. This may appear to be a subsidy for the small wells but it is doubtful, in fact, if such is the case. For example, if by the iron law of uncontrolled competition, the flush pools were allowed temporarily to govern the price, and the small wells suffered extinction, then with the first lull in flush production output, the prices would rise and also expenditures to revive production in abandoned fields or to find oil in hitherto unexplored fields. These total expenditures may quite likely exceed the expenditures of supporting the small wells through flush and lean periods.

An immediate problem in the stripper well districts has arisen from the request of the owners of these wells for a modification of the minimum wages and maximum hour regulation of the Code.

Closing of these wells would result in unemployment at these particular wells, and, it is yet to be demonstrated that an off-setting increased production in flush pools would create an equivalent employment opportunity in the latter fields. Moreover, the conservation of a limited natural resource is also an important factor in this problem and must receive careful consideration before a policy is laid down. The large number of wells, scattered through all the oil producing states in the country, that are involved in this question make it necessary that a detailed economic analysis of the subject be made before action is undertaken.

BUILDING MATERIALS

Illinois produces a wide variety of mineral materials used in the building and construction industries, including sand and gravel, cement, clay products, lime, glass sand, crushed stone, rubble and rip-rap. These mineral resources and the industries based upon them are in a strategic position to share in construction and home building activities as soon as more favorable conditions return.

BUILDING SITUATION IN 1933

For almost five years a definite shortage in housing has been developing in the State. The losses due to fire, depreciation, and obsolescence, and the increased demand incident to growing population and more family units have surpassed the volume of new homes and home repairs consummated since 1929. Building permits in 16 cities in Illinois give a graphic portrayal of the tremendous decline in building in the last decade.

Table 31 shows a statistical record of value of building permits in Chicago and fifteen other cities in Illinois since 1923. The decline is especially severe in the city of Chicago although this is offset somewhat by more sustained building activities in the suburban cities of the Chicago district.

TABLE 31.—*Building permits in Illinois cities, 1923-1933 (a)*

(In thousands of dollars)

	Chicago	Other Illinois cities (b)	Total
1923.....	\$329,604	\$47,459	\$377,063
1924.....	296,894	51,658	348,552
1925.....	360,804	63,299	424,103
1926.....	364,584	61,330	425,914
1927.....	352,936	61,965	414,901
1928.....	315,800	56,933	372,733
1929.....	202,287	43,394	245,681
1930.....	79,614	24,215	103,829
1931.....	44,031	16,281	60,313
1932.....	3,783	4,482	8,215
1933.....	3,683	4,438	8,122

(a) Commercial and Financial Chronicle, January 27, 1934.

(b) Aurora, Bloomington, Decatur, East St. Louis, Elgin, Evanston, Freeport, Moline, Oak Park, Peoria, Quincy, Rockford, Rock Island and Springfield.

FACTORS UNDERLYING PRESENT STAGNATION IN HOME BUILDING INDUSTRIES

The housing shortage which has developed has only recently become pronounced for the reason that during the years of severe economic depression hundreds of families have been obliged to live with relatives or others, and because in some communities the noticeable vacancies in a small number of the more expensive homes has led to the impression that there is an over-supply of all types of houses which is entirely unjustified. As an actual fact, the average volume of residential construction in the years 1932 and 1933 has been less than 10 per cent of the average for the five years from 1922 to 1926.

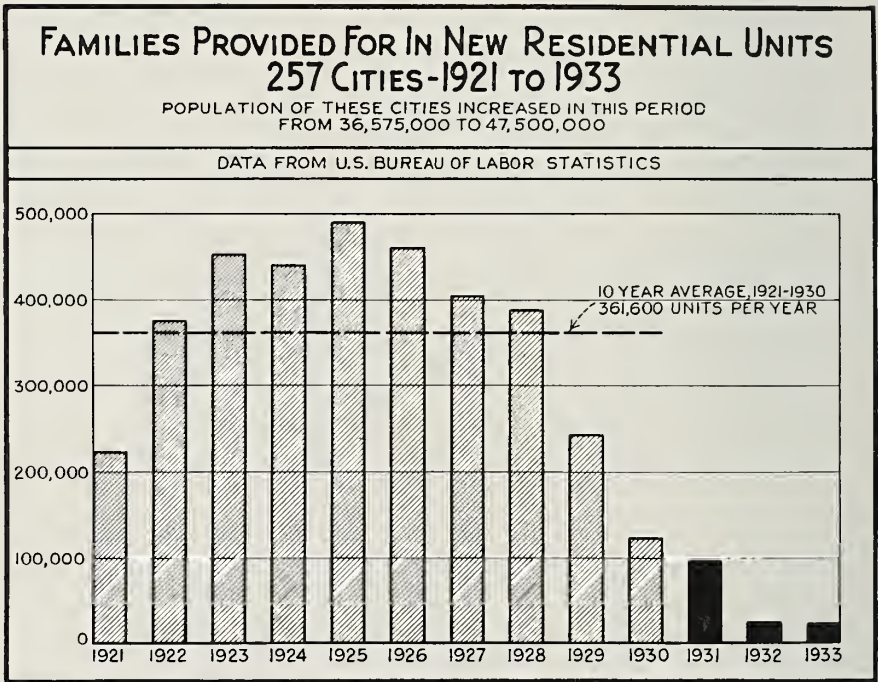


FIG. 1

Data from the United States Bureau of Labor Statistics shows the same trends. In the period from 1921 to 1930 there was an average of 361,600 new residential units provided in 257 representative cities, but in 1931 there were less than 100,000, in 1932 less than 25,000 and in 1933 less than 23,000 new units. The record for the above period is shown in figure 1.

Figure 1 should be examined in connection with figure 2 which shows that 1921 was the final year of a twelve year decline in building activity which began in 1909. This chart indicates that during this long decline a housing shortage developed which was remedied by the building boom in the period from 1922 to 1928.

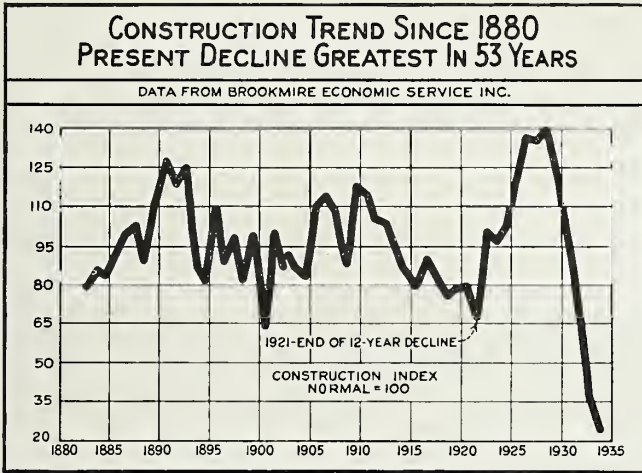


FIG. 2

THE NATIONAL HOUSING ACT

The efforts of the Federal Government to support a house building program is expressed in the National Housing Act which passed Congress in the closing days of the last session. This act is of particular interest to the building materials industries of the State because of its provisions for new construction and home repair as well as for more favorable conditions of financing the prospective owner and of protecting his investment.

This act has several broad objectives:

It seeks to repair and improve existing homes.

It seeks to provide new homes at a cost and under conditions within reach of persons in the moderate income group.

It seeks to protect the invested savings of all home owners.

It seeks to provide a program of construction that will prove effective in stimulating the cooperation of private capital and to bring about re-employment of the large number of people who have been employed in the building trades.

It seeks to promote long-term financing of home mortgages. Such mortgages will not require renewal during depression periods and therefore will not become a frozen commodity subject to the fear of investors.

In addition to the direct benefit to the building and related industries, by this act, it is hoped to stimulate activity in the so-called "heavy" or "capital goods" industries. This group of industries has not revived to the extent that has been apparent in such industries dealing with goods used in daily consumption. According to figures compiled by the F. W. Dodge Corporation, covering returns from 37 states east of the Rocky Mountains, residential construction dropped off from a 5-year average of \$2,539,200,000 for 1925-1929 to barely \$249,300,000 in 1933.

FINANCIAL AID PROVIDED BY THE ACT

The significant portions of the National Housing Act are those dealing with the methods of financing the prospective home builder and owner. The most serious factor with which the home buyer of moderate means had to contend was the short term (three-to-five year) mortgage. During prosperous times mortgage lenders are anxious to keep their money profitably employed and call upon the home owner for interest payments only. During depression periods, however, the same investors become fearful and demand large reductions of principal just at the time when such burdens are most difficult for the home owner to meet.

Federal relief already extended to home owners through the operation of the Home Owners' Loan Corporation was designed to meet critical individual situations where foreclosure was imminent through deficits in our past methods of short-term mortgage financing. The National Housing Act proposes to remedy the basic conditions which created these critical conditions.

The long term (twenty-year) mortgages provided for in this act are designed to prevent the occurrence of unusual demands upon home owners in periods of stress. He will amortize the principal of his mortgage as he goes along with regular payments within his current means. So long as he meets these regular payments he is safe from sudden demands for large sums and ruin through foreclosure.

With money for mortgages available through the facilities and impetus of the Housing Act and because of the attractive features of reasonable mortgage money over a twenty-year amortization period without periodical bonuses and fees for renewals also provided for the home owner, there is no reason why families who do not now own these homes should not begin building.

Since one of the most serious obstacles to a revival of building, that is, costly and inadequate financing, has been removed, the time seems opportune for the building materials and related industries to take concerted action in promoting the revival of building. The provisions of the National Housing Act should be carefully studied so that the aid which the building industries can derive from it will be fully understood.

CLAY PRODUCTS

The value of clay products in 1933 was \$4,145,033 as compared with \$4,341,643 in 1932 and \$10,585,136 in 1931, distributed as follows:

	1932	1933
Structural and refractory clay products.....	\$2,504,610	\$2,328,566
Pottery.....	1,837,033	1,816,467
Total.....	\$4,341,643	\$4,145,033

Production of clay products, by types, was as follows:

TABLE 32.—*Production of clay products, by classes, in 1933*

	Quantity	Value	Stocks on hand
Common brick (thousands).....	32,465	\$ 280,248	55,126
Face brick (thousands).....	8,191	104,640	20,132
Hollow building tile (tons).....	20,460	73,672	125,234
Drain tile (tons).....	18,264	124,722	134,809
Vitrified brick or block (thousands)...	10,283	119,842	11,105
Refractory clay products.....		1,015,813	.....
Other clay products.....		609,629	.....
Pottery.....		1,816,467	.....
Total.....		\$4,145,033	.....

Production of common brick and stocks on hand in principal market districts of the State is shown in Table 33. Stocks on hand at the end of 1933 show a marked decline from 1932. Eighteen producers of common brick reported no production in the year 1933, while at the same time reporting a large volume of stocks on hand. Although building activity is increasing somewhat, the necessity of reducing the heavy inventories of material on hand will tend to retard renewed activity in manufacturing.

TABLE 33.—*Production of common brick, by principal districts, in 1933*

Area	1933 Quantity thousands	Value 1933	Stocks on hand, Dec. 31 (thousands.)	
			1933	1932
Chicago (Lake, Cook and Will counties).	17,030	\$124,852	43,910	64,535
Northern Illinois (Bureau, Fulton, Knox, LaSalle, Livingston and Tazewell counties).....	8,237	79,212	5,206	7,856
Central and Western Illinois (Henry, Macon, Menard and Sangamon coun- ties).....	(a)	(a)	(a)	2,778
East St. Louis district.....	3,865	43,593	1,827	2,799
Other.....	3,333	32,591	4,183	3,795
Total.....	32,465	280,248	55,126	81,763

(a) Included in "other".

Stocks of structural clay products in the hands of producers continued to decline in 1933, although they are still excessive in relation to current demand. Inventories should be still further reduced in order to remove some of the costs carried by the producers. The dollars-and-cents value of keeping inventories close to market demand was discussed in a previous report (Illinois Mineral Industry in 1932, Report of Investigations No. 28, p. 48). The trend of shipments and stocks in common brick, face brick, and hollow building tile is shown in Tables 34, 35 and 36, as reported by representative producers.

TABLE 34.—Shipments of common brick in Illinois in 1932 and 1933 (a)

	Number of plants	Shipments		Thousands stocks on hand at end of month
		Thousands	Value	
1932				
January.....	39	4,307	\$35,469	108,780
February.....	37	4,215	33,219	104,854
March.....	38	3,591	34,691	98,384
April.....	36	6,165	51,235	96,036
May.....	33	6,558	52,546	89,841
June.....	33	5,316	40,947	86,715
July.....	34	5,488	43,172	86,016
August.....	32	5,430	40,669	81,203
September.....	33	4,848	36,675	80,839
October.....	30	4,791	35,899	74,568
November.....	32	3,485	25,862	69,014
December.....	30	2,194	16,522	69,771
1933				
January.....	30	1,787	13,795	68,236
February.....	31	1,357	10,775	67,196
March.....	32	1,975	15,695	66,275
April.....	33	3,072	24,885	70,180
May.....	33	4,138	32,253	62,771
June.....	34	4,774	37,497	64,197
July.....	34	5,888	47,280	65,574
August.....	34	5,810	45,889	66,620
September.....	34	5,843	44,983	61,883
October.....	34	7,423	58,430	56,228
November.....	34	5,083	41,183	56,993
December.....	34	3,861	31,148	58,993

(a) Source: Monthly report on "Structural Clay Products," Bureau of Census.

TABLE 35.—Shipments of facebrick in Illinois in 1932 and 1933 (a)

	Number of plants	Shipments		Thousands stocks on hand at end of month
		Thousands	Value	
1932				
January.....	22	2,182	\$30,945	51,867
February.....	20	2,212	32,227	47,851
March.....	22	2,443	35,186	53,654
April.....	19	3,918	62,071	48,801
May.....	18	3,479	53,447	42,702
June.....	18	3,615	53,168	41,502
July.....	19	2,978	41,695	42,726
August.....	18	3,124	43,604	39,657
September.....	18	3,182	42,222	41,039
October.....	15	2,950	40,502	36,827
November.....	17	1,622	20,297	36,863
December.....	18	734	9,034	46,668
1933				
January.....	18	932	11,718	46,811
February.....	18	605	7,778	45,700
March.....	19	1,212	16,581	46,166
April.....	19	1,576	20,937	45,245
May.....	19	2,117	28,901	43,777
June.....	20	2,826	34,898	41,866
July.....	20	2,913	39,382	32,972
August.....	21	3,152	42,175	31,844
September.....	21	2,367	31,148	31,607
October.....	20	2,167	30,633	29,735
November.....	20	1,690	23,184	29,148
December.....	20	1,268	17,833	26,863

(a) Source: Monthly report on "Structural Clay Products," Bureau of the Census.

TABLE 36.—Shipments of hollow building tile in Illinois in 1932 and 1933 (a)

	Number of plants	Shipments		Thousands stocks on hand at end of month
		Thousands	Value	
1932				
January.....	19	3,484	\$14,755	74,478
February.....	17	2,879	10,498	71,602
March.....	17	2,521	8,734	70,179
April.....	15	3,578	11,980	67,985
May.....	15	3,562	12,332	66,268
June.....	15	2,765	8,179	68,172
July.....	16	3,933	10,865	63,352
August.....	15	2,479	7,383	54,913
September.....	15	2,978	9,375	52,055
October.....	14	1,517	5,964	45,884
November.....	14	735	2,945	45,612
December.....	16	499	1,912	45,282
1933				
January.....	15	2,269	6,554	47,880
February.....	16	538	1,862	47,331
March.....	15	525	1,944	47,125
April.....	15	927	3,676	46,216
May.....	16	1,147	4,921	45,176
June.....	17	1,142	4,690	45,565
July.....	17	1,124	5,549	46,004
August.....	16	1,611	7,001	45,834
September.....	17	3,132	10,853	42,922
October.....	17	1,940	8,249	41,790
November.....	17	1,177	5,284	40,406
December.....	17	1,053	5,032	39,519

(a) Source: Monthly report on "Structural Clay Products," Bureau of the Census.

PORTLAND CEMENT

Portland cement shipped from mills in Illinois in 1933 amounted to 4,193,048 barrels valued at \$4,607,335. This was a decline of 1,636,639 barrels from 1932. Values increased, however, by \$1,160,853,

Consumption of cement has declined far more rapidly than shipments from mills, as is shown in Table 37.

TABLE 37.—*Shipments of cement in barrels, consumption and stocks in Illinois, 1928-1933 (a)*

Year	Shipments	Value	Average factory value per barrel	Stocks Dec. 31	Consumption
1928.....	7,405,667	\$11,602,848	\$1.57	697,441	17,683,269
1929.....	7,738,208	11,134,538	1.44	1,201,958	13,490,520
1930.....	7,951,680	10,519,162	1.32	1,178,037	11,164,248
1931.....	6,425,909	5,342,446	.83	1,161,459	7,925,435
1932.....	5,829,687	3,446,482	.59	812,585	5,822,358
1933.....	4,193,048	4,607,335	1.08	(b)	5,276,836

(a) Mineral Resources of the United States, U. S. Bureau of Mines.

(b) Not available.

TABLE 38.—*Portland cement consumption in Illinois, 1930-1933*

(In barrels)

Month	1930	1931	1932	1933
January.....	182,347	195,146	103,901	71,367
February.....	356,200	227,023	108,880	115,629
March.....	379,453	279,530	118,689	125,846
April.....	694,367	717,468	335,544	171,203
May.....	1,038,904	882,739	703,571	177,861
June.....	1,212,319	1,069,134	815,496	347,314
July.....	1,495,891	1,054,935	923,612	1,124,429
August.....	1,604,378	1,063,517	867,859	996,408
September.....	1,704,696	975,734	779,476	881,269
October.....	1,586,016	856,580	694,410	638,165
November.....	655,302	406,836	272,348	267,761
December.....	247,845	193,244	98,572	302,131
Total.....	11,157,718	7,921,936	5,822,358	5,219,383

FLUORSPAR

Fluorspar was produced in fifteen mines or prospects in Illinois in 1933. The industry recovered substantially from the low level of activity in 1932, and exceeded slightly the output of 1931. Fluorspar shipped from Illinois mines in 1930-1933 was as follows:

TABLE 39.—*Fluorspar shipped from Illinois and Kentucky mines, 1930-1933 (a)*

Year	Production (tons)	Value	Average value
Illinois—			
1930.....	44,134	\$936,473	\$18.95
1931.....	28,072	468,386	16.69
1932.....	9,615	156,279	16.25
1933.....	36,075	543,060	15.05
Kentucky—			
1930.....	39,181	836,473	18.95
1931.....	23,462	437,642	18.65
1932.....	14,975	225,052	15.28
1933.....	34,614	469,451	13.56

(a) U. S. Bureau of Mines, Mineral Resources of the United States.

The distribution of fluorspar, by uses, in 1932 and 1933 was as follows:

TABLE 40.—*Distribution of fluorspar by uses (a)*

Use	1932			1933		
	Short tons	Value		Short tons	Value	
		Total	Average		Total	Average
Steel.....	18,881	\$228,933	\$12.13	60,279	\$769,889	\$12.77
Foundry.....	524	7,636	14.57	1,039	13,791	13.27
Glass.....	3,596	101,765	28.30	6,778	147,985	21.83
Enamel and vitrolite.....	1,261	36,318	28.80	3,100	76,932	24.82
Hydrofluoric acid.....	738	14,603	19.79	950	18,604	19.58
Miscellaneous.....	226	2,691	11.91	713	11,010	15.44
Exported.....	25	553	22.12	71	967	13.62
Total.....	25,251	\$392,499	\$15.54	72,930	\$1,039,178	\$14.25
Per cent used in steel.....	74.7			82.7		

The sharp upward trend from the previous year is accounted for largely by the revival of the steel industry.

OTHER NON-METALLIC PRODUCTS

Detailed statistics of use of sand, gravel, and limestone are given in Table 41. Use of sand and gravel declined principally in paving and road making and in structural work. Substantial increases occurred in the use of molding and glass sand.

Use of limestone decreased in all principal items except in agricultural stone. The severe decline in this market from the levels of 1925 to 1930 appears to be ended and purchases of this material are showing a slight increase. A detailed report, by counties, on the use of agricultural limestone is given in Information Circular No. 8 of the State Geological Survey.

TABLE 41.—Production of sand and gravel and limestone in Illinois by districts, 1931-1933

District number	1931		1932		1933	
	Tons	Value	Tons	Value	Tons	Value
<i>Structural Sand</i>						
I.....	(b) 206,173	(b) \$118,066	(a)	(a)	(a)	(a)
II.....	471,170	122,174	286,486	\$105,617	162,571	\$66,689
III.....	276,244	89,899	148,380	61,189	132,133	62,625
IV.....	360,727	211,905	164,623	78,680	167,312	92,076
V.....	(b) 122,638	(b) 76,274	64,108	28,572	163,774	52,798
VI.....	28,916	16,414	33,956	10,132	34,986	13,548
<i>Paving and Roadmaking Sand</i>						
I.....	75,292	\$ 49,331	(a)	(a)	(a)	(a)
II.....	1,013,952	365,448	422,432	\$126,481	292,287	\$ 89,704
III.....	240,645	83,527	321,026	97,637	117,248	55,395
IV.....	360,727	211,905	392,388	159,931	310,335	156,238
V.....	(c)	(c)	135,588	58,905	197,587	69,193
VI.....	175,785	90,029	131,630	52,403	79,861	41,140
<i>Structural Gravel</i>						
I.....	(b)	(b)	(a)	(a)	(a)	(a)
II.....	709,795	\$231,973	431,665	\$172,178	237,085	\$100,208
III.....	248,489	129,285	188,693	92,368	128,004	64,113
IV.....	299,893	178,622	216,780	121,039	182,892	112,680
V.....	(b)	(b)	(a)	(a)	(a)	(a)
VI.....	36,653	20,728	17,884	10,049	15,506	10,163
<i>Paving and Roadmaking Gravel</i>						
I.....	40,897	\$ 22,048	(a)	(a)	(a)	(a)
II.....	2,233,264	1,012,105	1,151,801	\$454,997	757,988	\$271,443
III.....	633,904	283,932	509,921	253,704	237,599	110,849
IV.....	487,719	257,072	481,033	220,246	583,081	308,810
V.....	(c)	(c)	(c)	(c)	.....	.....
VI.....	169,194	93,242	122,638	57,494	114,140	74,745
<i>Railroad Ballast Sand and Gravel</i>						
I.....	(d) 496,694	(d) \$78,329	(d) 245,269	(d) \$41,776	(a)	(a)
II.....	289,687	128,031	174,019	83,828	204,120	\$93,918
III.....	103,456	11,839	70,170	10,563	21,335	8,290
IV.....	262,314	69,225	128,706	25,000	116,541	49,114
V.....	.....	.....	.....	.....	.....	.....
VI.....	(d)	(d)	(d)	(d)	(a)	(a)
<i>Other Sand and Gravel</i>						
I.....	(a)	(a)	.....	.....	.....	.....
II.....	65,720	\$ 7,250	5,400	\$ 2,201	23,047	\$ 7,565
III.....	926,730	1,175,972	620,643	748,165	778,318	960,728
IV.....	25,480	19,537	17,864	14,461	28,763	22,226
V.....	(a)	(a)	16,025	8,780	(a)	(a)
VI.....	50,468	33,177	16,695	10,745	42,275	21,685
<i>Total Sand and Gravel</i>						
I.....	566,035	\$ 231,653	(e)	(e)	(e)	(e)
II.....	4,783,598	1,866,981	(e) 2,901,053	(e) \$1,039,552	(e) 1,830,498	(e) \$679,827
III.....	2,429,468	1,774,454	1,858,833	1,263,599	1,415,132	1,262,235
IV.....	1,698,624	877,396	1,420,144	623,107	1,388,924	741,144
V.....	345,241	200,632	233,174	111,199	384,462	137,704
VI.....	474,977	258,358	338,120	146,950	307,004	169,358
Illinois.....	[10,297,943]	[\$5,209,474]	[6,751,324]	[\$3,184,407]	[5,326,020]	[\$2,990,268]

(a) Concealed in total: less than three producers.

(b) Structural sand and gravel combined.

(c) Paving and roadmaking sand and gravel combined.

(d) Districts I and VI combined.

(e) Districts I and II combined.

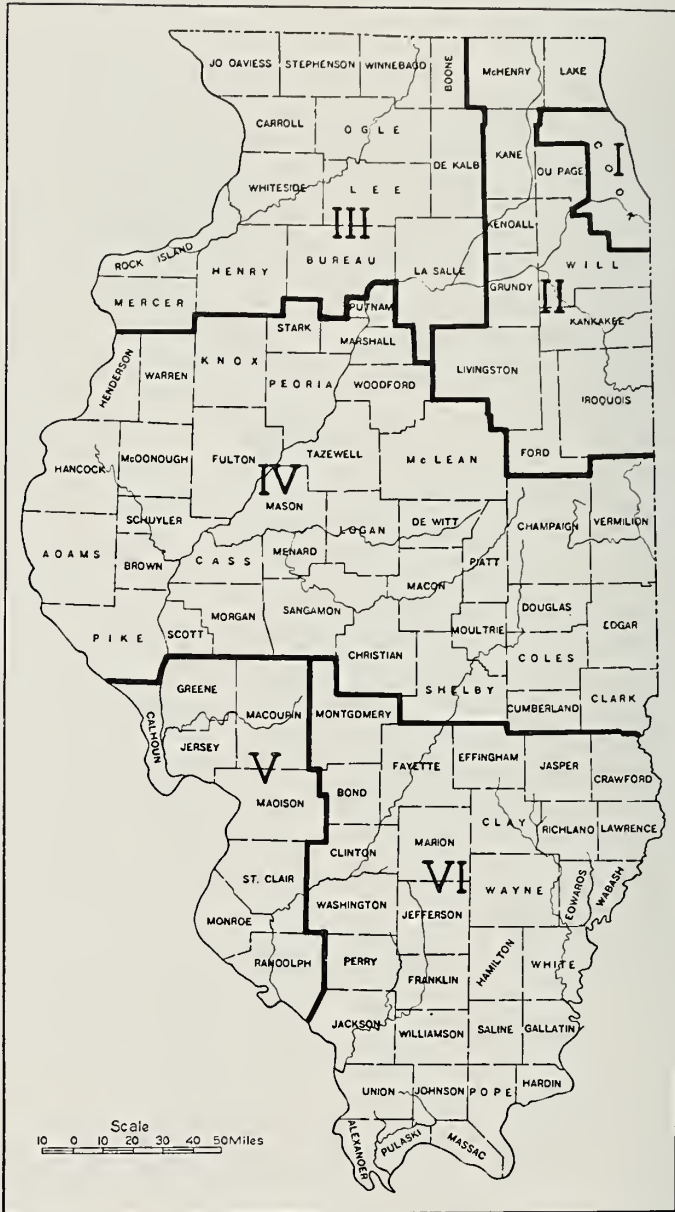


FIG. 3. Index map of Illinois showing location of districts according to which production of sand and gravel and limestone (Table 41) is given.

TABLE 41.—Concluded

District number	1931		1932		1933	
	Tons	Value	Tons	Value	Tons	Value
<i>Road Metal and Concrete</i>						
I.....	1,905,483	\$1,130,453	1,047,230	\$576,057	658,465	\$418,206
II.....	839,215	589,321	517,255	365,548	403,726	271,085
III.....	82,878	74,810	91,410	82,855	56,157	50,130
IV.....	45,000	61,620	55,787	69,805	30,615	31,592
V.....	655,394	316,259	390,492	277,337	469,231	335,000
VI.....	120,850	91,013	174,950	145,800	91,432	84,137
<i>Railroad Ballast</i>						
I.....	132,175	\$85,247	69,764	\$42,630	(a)	(a)
II.....	123,015	91,064	58,833	41,718	64,753	\$47,693
III.....						
IV.....			(a)	(a)		
V.....	101,847	61,587	25,813	17,796	(a)	(a)
VI.....	(a)	(a)	(a)	(a)	(a)	(a)
<i>Agricultural Limestone</i>						
I.....	45,203	\$ 20,438	39,144	\$23,895	36,875	\$22,350
II.....	73,209	58,350	15,026	11,276	40,812	22,278
III.....	3,900	6,325	11,396	9,788	8,203	6,735
IV.....	14,115	24,330	15,380	21,061	14,068	17,009
V.....	101,020	102,514	65,919	58,222	103,812	74,645
VI.....	17,237	16,649	7,944	8,020	14,246	12,433
<i>Flux</i>						
I.....	318,089	\$231,252	83,589	\$49,874	(a)	(a)
II.....						
III.....						
IV.....	(a)	(a)	(a)	(a)	(a)	(a)
V.....	100,495	113,403	60,794	65,909	(a)	(a)
VI.....						
<i>Rubble and Rip Rap</i>						
I.....	418,265	\$416,417	20,875	\$ 22,625	(b)22,776	\$(b)21,741
II.....	5,986	6,750	(b)21,908	(b)24,754	(b)	(b)
III.....					(a)	(a)
IV.....	1,493	2,018	(c)	(c)	(a)	(a)
V.....	78,904	84,909	138,900	105,433	81,885	83,504
VI.....	(a)	(a)	(c)	(c)	(a)	(a)
<i>Miscellaneous</i>						
I.....	25,933	\$60,339	25,336	\$56,765	67,800	\$27,900
II.....	(a)	(a)	(a)	(a)	12,023	11,284
III.....	(a)	(a)	(a)	(a)	(a)	(a)
IV.....	10,334	29,792	7,574	23,421	(a)	(a)
V.....	17,102	46,121	8,249	24,145	25,704	57,602
VI.....	(a)	(a)			(a)	(a)
<i>Total Limestone</i>						
I.....	2,845,168	\$1,944,146	1,285,938	\$ 771,846	854,640	\$ 529,036
II.....	1,060,641	810,858	598,358	424,547	527,890	356,381
III.....	86,828	81,160	103,056	92,753	66,770	61,020
IV.....	70,837	117,569	81,775	117,752	53,262	73,763
V.....	833,809	681,703	690,267	548,842	701,815	564,118
VI.....	159,687	125,358	205,914	177,342	110,140	101,173
Illinois.....	5,278,173	\$3,945,064	2,965,308	\$2,133,082	1,709,620	\$1,685,491
					2,314,517	

(a) Concealed in total; less than three producers.

(b) Districts I and II combined.

(c) Districts II, IV, and VI combined.

"WASCHER'S"
LIBRARY BINDERS
507 S. Goodwin
Urbana, Ill.

