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DEVELOPMENTS IN EASTERN INTERIOR BASIN IN 1943¹

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ABSTRACT

Drilling in the Eastern Interior basin declined slightly in 1943 and production of oil declined 20 per cent. There were no major discoveries and little deep exploratory drilling. Prospects for 1944 are for a continued decline of drilling activity unless there is a major discovery, a price rise, or a relaxation of well spacing restrictions accompanied by an adequate supply of materials and manpower.

INTRODUCTION

Drilling in the Eastern Interior basin in 1943 continued at nearly the same rate as in 1942. Forty-nine new pools were discovered, all of them small, and the new reserves found amount to only a fraction of the basin's 1943 production of 94,528,000 barrels. The production was 6.3 per cent of the total for the United States.

The Eastern Interior basin (Fig. 1) comprises about four-fifths of Illinois plus the adjoining parts of Indiana and Kentucky and has a total area of approximately 50,000 square miles. Oil production is largely confined to the south half of the basin.

DEVELOPMENT

Nearly as many wells were drilled for oil and gas in the Eastern Interior basin in 1943 as in 1942, or a total of 2,473 as compared with 2,518, which is a decline of less than 2 per cent. The following table shows the distribution by states.

	<i>Number of Completed Wells</i>	
	<i>1942</i>	<i>1943</i>
Illinois.....	2,017	1,792
Southwestern Indiana.....	315	465
Western Kentucky.....	186	216
	2,518	2,473

¹ Reprinted from *Bull. Amer. Assoc. Petrol. Geol.*, Vol. 28, No. 6 (June, 1944), pp. 751-59.

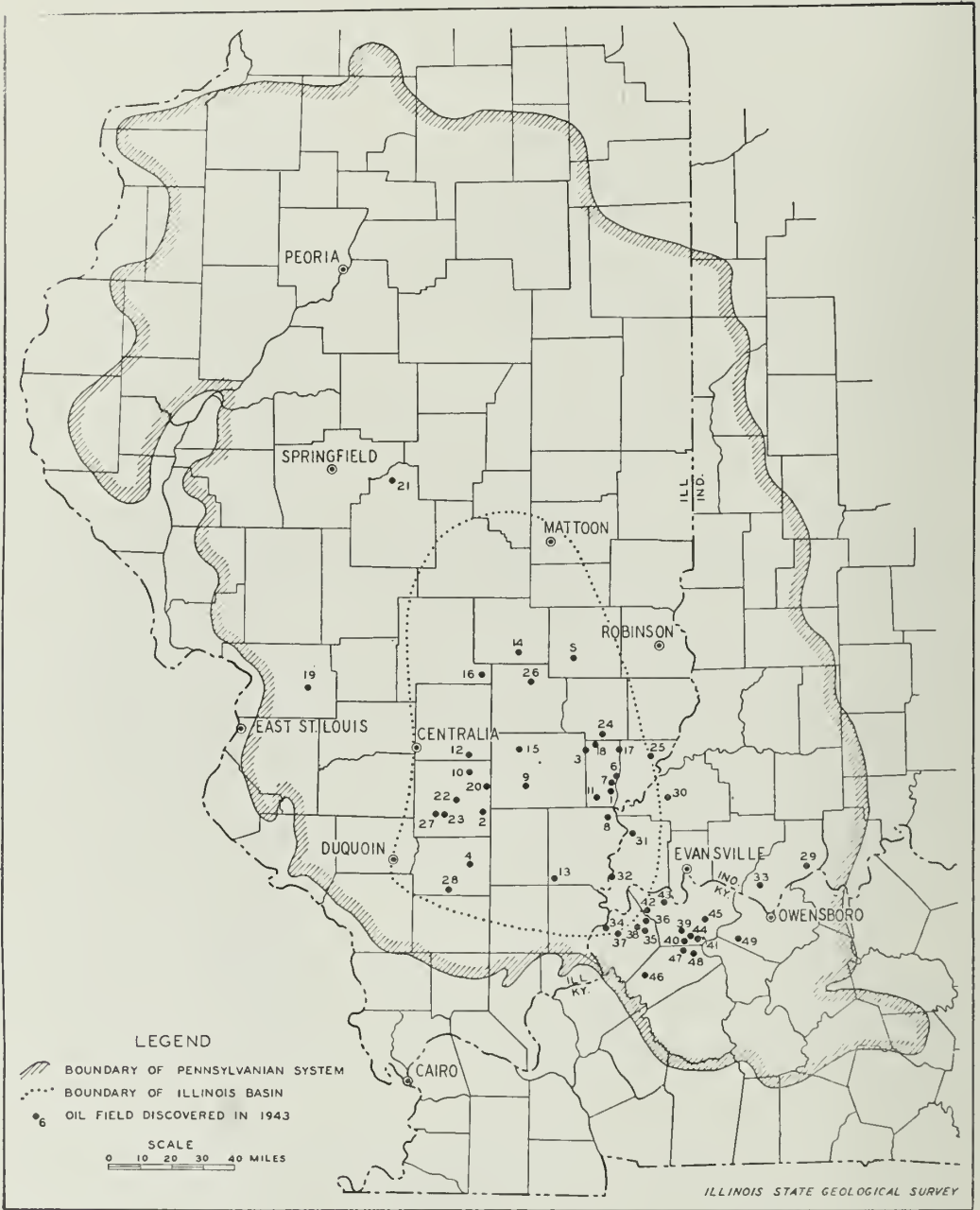


FIG. 1.—Map of Eastern Interior basin showing new oil pools discovered in 1943. For list of pools see Table I.

The total oil production from the Eastern Interior basin in 1943 amounted to 94,528,000 barrels as compared with 117,671,000 barrels in 1942, a decline of 20 per cent. Illinois produced 82,260,000 barrels, of which it is estimated that approximately 91 per cent came from Mississippian strata, four per cent each from Pennsylvanian and Devonian strata, and one per cent from Ordovician strata. This represents a decline of 23 per cent from the 1942 production of 106,590,000 barrels.

Production in Kentucky west of the Cincinnati arch increased from 4,273,616 barrels in 1942 to approximately 7 million barrels in 1943, an increase of 64 per cent. In Southwestern Indiana production decreased from 6,641,000 barrels in 1942 to 5,273,000 barrels in 1943, a decline of 21 per cent.

The distribution of 1943 wildcat drilling with respect to the Illinois basin (central deep part of Eastern Interior basin) was similar to that in 1942; that is, the great majority of the discovery wells were drilled in the deep part of the basin.

NEW FIELDS DISCOVERED

As shown in Table I, 49 new oil pools were discovered in 1943 in the Eastern Interior basin of which 28 are in Illinois, 5 are in Indiana and 16 are in Kentucky. The most noteworthy of these as indicated by the number of wells producing at the end of the year are: Calvin North, White County, Illinois, with 23 wells, total production to end of 1943, was 128,000 barrels; Maple Grove, Edwards County, Illinois, with 14 wells, total production to end of 1943 was 46,000 barrels; North Owensville, Gibson County, Indiana, with 9 wells; St. Vincent, Union County, Kentucky, 18 wells; Hitesville, Union County, Kentucky, 10 wells; and Poole, Henderson County, Kentucky, 13 wells.

The Marine pool, Madison County, Illinois, the discovery well for which was completed July 20, 1943, is of special interest because it is a new Silurian limestone pool located about 40 miles west of the Illinois basin. It is the second Silurian limestone oil pool to be discovered recently in Illinois. The Marine pool was discovered by a seismograph survey. At the end of 1943 there were four producing wells in the pool and a proved area of 200 acres. A preliminary study of well data indicates a dome in the Devonian-Silurian strata having possibly 40 or 50 feet of closure, roughly circular in outline, and occupying an area somewhat more than one square mile. Average depth to the top of the Silurian limestone is approximately 1,730 feet. The producing zone consists of porous dolomitic limestone containing many corals typical of Niagaran reef rock. Overlying the Silurian limestone is approximately 20 feet of Devonian limestone. Initial productions of the better wells are from 200 to 300 barrels.

ILLINOIS

New producing formations.—Additional producing formations discovered in Illinois oil pools in 1943 numbered 51, of which 13 are deeper than the previous

TABLE I
POOLS DISCOVERED IN EASTERN INTERIOR BASIN IN 1943

Index Number on Map	Pool	County	Company and Farm	Location	Total Depth (feet)	Depth to Top (feet)	Producing Formation	Initial Production (barrels) ^a	Date Completion of Discovery Well	Reported Method of Location of Discovery Well*	Number of Wells Producing in Field	Discovery Well	
												Jan. 4, 1944	7
1	Alhion East	Edwards	Mabee Oil and Gas—Cowling I	SW NE SW 20-5S-14W	3,038	2,991	Aux Vases ss.	180	8-10-43	G	1044	7	
2	Belle Rive	Jefferson	Mohawk Drig Co.—Waters <i>et al.</i> I	C NE NE 27-3S-4E	3,089	3,078	McClosky ls.	366	1-12-43	G-Gr	5	2	
3	Bennington	Edwards	Burr Lambrecht—van Schoick I	NW SE NW 18-1N-10E	3,172	3,131	Aux Vases ss.	129	2- 9-43	G	5	2	
4	Bessie	Franklin	Ohio Oil—U. S. coal and Coke I	NE NE NW 13-0S-3E	3,459	3,020	Levias ls.	80+44	6- 8-43	S	1	1	
5	Bogota	Jasper	Big Chisel Dig.—Heap I	C SE SE SW 08-6N-0E	3,213	3,100	McClosky ls.	152	8-17-43	S	6	1	
6	Browns	Edwards	Superior—Slipper I	NW NE SW 28-1S-14W	3,091	2,602	Cypress ss.	209+34	11-23-43	S	1	1	
7	Browns South	White	Superior—Jack I	SE SW SE 2-2S-14W	3,142	2,836	Bethel ss.	16+34	11-23-43	S	1	1	
8	Calvin North	Wayne	N. V. Dunlap—Metcalf I	SW SW NE 31-3S-14W	2,838	2,817	Bethel ss.	70	2-16-43	G	23	1	
9	Covington South	Wayne	Deep Rock Oil—Atkinson <i>et al.</i> I A	C NE SW 12-2S-6E	3,365	3,335	McClosky ls.	223+14	1-12-43	S-G	7	1	
10	Divide	Jefferson	Bell Bros.—Indiana Natl. Bank I	E/2 NENE 24-3S-3E	2,881	2,723	McClosky ls.	264	10-10-43	G	3	1	
11	Ellyery South	Edwards	Deep Oil Co.—Sutton I	S/2 NW SW 33-2S-10E	3,352	3,303	McClosky ls.	416 (Flow.)	9-14-43	S	2	1	
12	Exchange	Marion	Gulf—Floyd I	SE NE NW 25-1N-4E	2,763	2,734	McClosky ls.	155+14	9-14-43	S	2	1	
13	Gossett	White	Smoky—Delap I	SE SW NE 8-7S-8E	3,086	3,080	McClosky ls.	14	10-26-43	S-G	1	1	
14	Hill	Effingham	Williams—Buschie I	SW NW 16-6N-6E	2,653	2,571	McClosky ls.	245+25	10- 5-43	S-G	1	1	
15	Johnsonville North	Wayne	Texas Co.—Hoffee I	NENE NE 9-1N-6E	3,322	3,102	Levias ls.	140	11-23-43	S	1	1	
16	La Clede	Fayette	Central Pipe Line—Littleton I	NE SW 22-5N-4E	2,359	2,356	McClosky ls.	27+63	11-23-43	G	1	1	
17	Lancaster West	Edwards	First Natl. Pet. Trust—E. Myers I	NEN NW 11-1N-14W	2,873	2,857	Levias ls.	961 (Flow.)	7-27-43	G	2	1	
18	Maplegrove	Edwards	Ill. Prod. Corp.—Barber I	E/2 NE SW 4-1N-10E	3,301	3,271	McClosky ls.	83	6-29-43	G	14	1	
19	Marine	Madison	Rockhill Oil—L. Mayer I	SE NW SW 15-4N-6W	2,500	1,727	Silurian ls.	14+3	7-20-43	S	4	1	
20	Markham City North	Jefferson	Williams <i>et al.</i> —Dalton Comm. I	SE SW 13-2S-4E	3,132	3,113	McClosky ls.	517	9-28-43	Gr-S	7	1	
21	Mt. Auburn	Christian	W. Marlow <i>et al.</i> —C. Ralph I	S/2 NE NE 27-15N-2W	1,995	1,900	Silurian ls.	22	3-23-43	G	1	1	
22	Mt. Vernon	Jefferson	Magnolia Pet.—Newall-Badgett I	SW NE NE 18-3S-3E	2,693	2,684	Aux Vases ss.	60+19	8- 3-43	S	5	1	
23	Nason	Jefferson	Murchison—Sledge I	SE SE 34-3S-2E	2,805	2,766	Rosiclare ss.	33	12-17-43	G	2	1	
24	Parkersburg West	Richland	Martin—Boyd I	S/2 SE SW 26-2N-10E	3,037	3,252	McClosky ls.	40	9-21-43	G	1	1	
25	Fatton West	Wabash	Shell—Thraupp I	SW NW 29-1N-12W	2,411	2,328	Rosiclare ss.	207+121	8- 3-43	G	4	1	
26	Tolliver East	Clay	Obering—McCee I	NE NE SW 30-5N-7E	2,847	2,828	McClosky ls.	300	9- 7-43	S-G	1	1	
27	Waltonville	Jefferson	Byars & Ellison—Jefferson O. & G. I	SE SW NW 32-3S-2E	2,766	2,466	Bethel ss.	38+40	5- 2-43	G	1	1	
28	West Frankfort South	Franklin	E. S. Adams—Browns Estate I	SE NE NW 25-7S-2E	2,875	2,795	Levias ls.	182	4- 6-43	G	8	1	

TABLE I—(Continued)

Index Number on Map	Pool	County	Company and Farm	Location	Total Depth (feet)	Depth to Top (feet)	Producing Formation	Initial Production (Barrels) ^a	Date Completion of Drilling	Reported Method of Location of Discovery Well*	Number of Wells Producing in Field
INDIANA											
29	N. Owensville	Gibson	Superior Oil—S. B. Thompson 1	SE NW 25-2S-12W	2,454	2,411-17	McClosky ls.	187	2-23-43		Dec. 31, 1943 9
30	Rogers	Posey	Superior Oil—J. W. Carr et al 1	NE SW 20-6S-13W Plugged back—1,948	2,963	1,885-90	Clare sand	32 oil	1- 6-43		1
31	Upton	Posey	Bennett Bros. Drilg. Co.—John W. Spencer 1	SE SW 32-6S-14W	2,150	2,143-50	Tar Springs ss.	115 oil 20 water	12-22-43 11-10-43		1 1
32	Newtonville	Spencer	Wm. B. Bateman, Trustee—John Ernst 1	NW SW 8-6S-4W	802	798-802	Jackson	10			1
33	Unnamed	Spencer	L. L. Benoist—Clyde A., Flora Richards 1	NE SE 11-7S-7W	1,548	1,541-45	McClosky ls.	4	12- 8-43		1
WESTERN KENTUCKY											
34	Raleigb	Union	Porter Evans—B. Boswell 1	14-O-18	2,854	2,736-62	Aux Vases ss.	127	10-27-43		Dec. 31, 1943 3
35	St. Vincent	Union	Weibert & Pure—G. & F. Greenwell 2	9-O-20	2,675	2,556-59 2,569-74 2,587-93	Lower O'Hara McClosky ls.	318	6-20-43		18
36	Hitesville	Union	Carter—Russellberg 1	24-P-21	1,713	1,706-13	Waltersburg ss.	182	7- 7-43		10
37	Morganfield	Union	Trans-Tex—Newman 1	13-O-19	2,755	1,426-40	Pennsylvanian sand	110	5-10-43		8
38	Chapman	Union	Lubring—Spalding 1	4-O-20	2,730	2,616-52	McClosky ls.	47	12-20-43		1
39	Cairo	Henderson	Carter—Cottingham 1	17-O-23	1,807	1,796-1,807	Waltersburg ss.	119	6-30-43		1
40	Poole	Henderson	Browning—Strum 1	9-N-23	1,976	1,951-68	Tar Springs ss.	135	6-2-43		13
41	Greensboro	Henderson	Carter—DeVasher 1	24-O-24	2,655	2,496-2,504	McClosky ls.	113	7-14-43		1
42	Unley	Henderson	Miller & Sbiarella—Willett 1	16-P-21	2,585	2,579-84	McClosky ls.	232	2-24-43		2
43	Geneva	Henderson	Wood et al—Baldauf 1	15-Q-22	2,317	1,869-78	Tar Springs ss.	101	11-24-43		9
44	Robards	Henderson	Carter Oil—S. T. Denton	21-O-23	2,737	2,360-69	Benoist ss.	101	2-17-43		1
45	Zion	Henderson	Carter Oil—Barrett 1	25-P-25	2,616	2,184-89	Aux Vases ss.	40	2-17-43		1
46	Clay	Webster	Shamrock—Clark 1	23-M-21	1,375	1,227-46	Pennsylvanian sand	18	9-23-43		2
47	East Poole	Webster	Sinclair Oil Co.—Higginson 1	10-N-23	2,747	2,236-48	Cypress ss.	27	7-14-43		1
48	Pratt	Webster	Hamilton—Sellers 1	14-N-24	1,892	1,872-84	McClosky ls.	165	8-11-43		7
49	Panther	Davess	Miller & Sbiarella—T. P. Miller 1	10-N-27	1,909	1,833-69	Benoist ss.	175	6-2-43		4

^a Oil and water (pumping unless otherwise indicated).
 G—subsurface geology.
 S—seismograph.
 Gr—gravimeter.

TABLE II
IMPORTANT DRY TESTS IN 1943

County	Location	Company and Farm	Total Depth (Feet)	Deepest Formation	Depth to Top (Feet)	Date Completed
1 Bond	29-5N-4W	Aetna Oil—M. Spengel 1	3,000	"Trenton"	2,941	7-27-4
2 Bond	14-6N-2W	E. Burgard—Klaus 1	2,460	Devonian	2,425	3- 2-43
3 Champaign	1-22N-7E	R. F. G. Drlg.—Reynolds 3	324	Silurian		6- 1-43
4 Christian	26-15N-2W	Wainright—Bernard 1	2,000	Devonian	1,926	8-31-43
5 Clinton	7-1S-5W	Smockey Oil—J. Friedrich 1	2,741	"Trenton"	2,698	1-26-43
6 Clinton	3-2N-4W	Eason Oil—Schuette 1	3,171	"Trenton"	3,102	3- 2-43
7 Clinton	15-1N-4W	Derby Oil—Conrad Houkap 1	3,287	"Trenton"	3,249	3- 9-43
8 Clinton	22-1N-2W	Wiser Oil—M. Wessel 1	2,815	Devonian	2,700	7- 6-43
9 Clinton	22-2N-1W	Black and Pearson—H. Kluth 1	3,028	Devonian	2,916	7-13-43
10 Clinton	29-3N-2W	P. Mosehach—M. B. Skidmore 1	2,679	Devonian	2,571	9- 7-43
11 Coles	35-14N-7E	Continental—Minno Daily 1	3,172	Devonian	2,940	6-29-43
12 Crawford	11-8N-12W	Ryan Oil (Powers-Krohn)—Boyer 1	2,890	Devonian	2,590	12- 7-43
13 Douglas	31-15N-10E	S. J. Burkett—W. L. Worley 1	1,216	Silurian	1,178	8-17-43
14 Edgar ¹	1-13N-14W	Tom Poppasetal—J. O. Halland 1	2,212	"Trenton"	2,165	6-22-43
15 Fayette	28-9N-1E	Northern Ordnance, Inc.—M. O'Conner 1-D	3,140	Devonian	2,987	4-20-43
16 Ford	10-24N-7E	Nelson, Urp, Stroh—J. Urp 1	3,955	Eau Claire	3,805	7-20-43
17 Ford	1-28N-9E	A. C. Murray—Paulsen 1	720	"Trenton"	690	1- 4-44
18 Fulton	17-6N-1E	J. L. Smith—Bradley 1	1,130	St. Peter	1,116	8- 3-43
19 Greene	30-11N-13W	D. S. Brooks—Valley Farms 2	765	St. Peter	756	5-25-43
20 Hancock	20-3N-5W	Dale Hopkins—K. H. Slater 1	673	Devonian	620	11- 9-43
21 Henderson	14-6N-14W	Newhall Corp.—Hanna 1	610	Maquoketa	416	3- 2-43
22 Henderson	8-8N-5W	C. D. Kidder—C. H. Carpenter 1	530	Devonian	365	4- 6-43
23 Jefferson	27-3S-3E	Nash Redwine—Prudential Life Ins. 1	4,750	Devonian	4,536	4- 6-43
24 Kankakee	2-29N-12W	Ste. Anne Pet.—V. A. Cote 1	780±	"Trenton"		3- 9-43
25 Madison	11-3N-6W	C. G. Smith—Michael 1	2,548	"Trenton"	2,514	4-13-43
26 Madison	12-3N-9W	J. Kestl—Gargac 1	1,370	Devonian	1,262	11-10-43
27 Madison	21-5N-6W	R. Powers-Kaufman—Isenbarg 1	2,573	"Trenton"	2,452	1-12-43
28 Madison	33-4N-7W	L. Alch—Gusewelle 1	2,370	"Trenton"	2,269	2- 9-43
29 Madison	29-5N-5W	Kingwood—J. E. Niggli 1	2,715	"Trenton"	2,618	2-23-43
30 Madison	23-3N-5W	McCullough—Blacet 1	2,948	"Trenton"	2,852	4-27-43
31 Marion	14-3N-1E	Shell Oil—Sugg Heirs 1	3,344	Devonian	3,245	2- 2-43
32 Mason	19-22N-6W	E. W. Hayes—Null 1	1,401	"Trenton"	1,289	6- 1-43
33 Monroe	13-3S-10W	Vawter & Braun—Dill 1	965	"Trenton"	904	7- 6-43
34 Montgomery	35-11N-5W	Central Pipe Line—Gees 1	2,467	"Trenton"	2,408	9-28-43
35 Montgomery	31-8N-5W	W. R. Holmes—Monke 1	752	Pottsville	600	4-13-43
36 Montgomery	28-8N-5W	W. R. Holmes—Sewing 1	699	Pennsylvanian	565	6- 8-43
37 Montgomery	32-11N-5W	Myers & Duff—Keys 1	652	Pennsylvanian		11- 2-43
38 Moultrie	13-15N-6E	Continental Oil—J. L. Beachy 1	3,681	"Trenton"	3,518	4-20-43
39 Perry	36-4S-2W	Texas—J. Matlavish 1	4,119	"Trenton"	3,984	3-23-43
40 Pike	14-5S-6W	Mineral Develop.—G. S. Hyde 2	621	"Trenton"	466	9-28-43
41 Putnam	3-31N-1W	Fuller & Turner—McGhiey 1	2,000	New Richmond	1,940	8-10-43
42 Randolph	25-5S-5W	Southwestern Ill. Coal Corp.—Cleveland 1	2,566	Devonian	2,466	12-14-43
43 St. Clair ²	28-1N-10W	Tarleton <i>et al.</i> —Dyroff 1-A	1,800	New Richmond	1,614	4- 6-43
44 St. Clair	16-2N-6W	Big Four Oil & Gas—Voges 1	2,995	"Trenton"	2,494	3- 2-43
45 St. Clair	17-2S-8W	H. C. Robertson <i>et al.</i> —Karhan 1	1,480	"Trenton"	1,410	2-23-43
46 St. Clair	18-1S-6W	D. S. Hager—Klingler 1	2,303	"Trenton"	2,257	3- 9-43
47 St. Clair	4-1S-8W	Eason Oil—E. Thomas 1	2,174	St. Peter	2,157	3-30-43
48 St. Clair	24-2S-6W	J. Vetch—M. Lange 1	2,745	"Trenton"	2,632	3-30-43
49 St. Clair	24-1S-9W	N. W. Whitton—G. Grossman 1	1,505	"Trenton"	1,427	5-25-43
50 St. Clair	31-1S-8W	H. Gass—A. Englerth 1	1,605	"Trenton"	1,522	7-20-43
51 St. Clair	29-1N-6W	Eason <i>et al.</i> —Engle 1	2,452	"Trenton"	2,346	8-31-43
52 St. Clair	32-2N-7W	W. P. Muller—Smiley 1	1,990	"Trenton"	1,944	8-24-43
53 Sangamon	15-15N-3W	Davis—Taft 1	1,850	Silurian	1,787	12-14-43
54 Sangamon	21-15N-3W	O. A. Reed <i>et al.</i> —C. Ross 1	2,314	"Trenton"	2,217	12-28-43
55 Shelby	21-10N-3E	W. Duncan—H. H. Hoskins 1	3,236	Devonian	3,110	7-27-43
56 Shelby	18-11N-6E	Texas—Ferguson 1	3,534	Devonian	3,345	12-28-43
57 Union	35-11S-1W	Little Egypt Oil—Basler 1	4,053	"Trenton"	3,999	9-21-43
58 Warren	31-8N-1W	King & Heiser—M. Gren 1	810	Maquoketa	742	3-30-43
59 Washington	32-2S-4W	Texas—C. L. Kokesch 1	2,485	Devonian	2,339	6-22-43
60 Washington	9-1S-4W	Fisher Oil <i>et al.</i> —J. Rossell 1	2,646	Devonian	2,340	7-20-43
61 Will	21-35N-9E	Brown & Felts—Gardner 1	900	Platteville		6- 8-43

¹ In Warrenton—Borton pool.² In Dupu pool.

producing zone or zones and 38 are shallower. Of the 51 discoveries of additional producing formations, 4 were Pennsylvanian, 25 Upper Mississippian (Chester series), 21 Lower Mississippian (Iowa series), and 1 Devonian. The first discovery of oil production in the Silurian in Illinois was the Mt. Auburn pool, Christian

County (Table I, line 21). There were no discoveries of Ordovician or deeper production during 1943.

Extensions.—Extensions to pools discovered by outpost wells ($\frac{1}{4}$ mile to 2 miles from nearest production) in 1943 in the Eastern Interior basin number 69, of which 66 are in Illinois, 1 is in Indiana, and 2 are in Kentucky. Because of their number and close spacing, they are not shown on the map. Of the 66 pool extensions in Illinois, 63 are in 10 counties in the Illinois basin (which is outlined in Figure 1), 2 are in marginal counties (one each in Bond and Coles), and only one in all outside counties (Marine pool, Madison County).

Important wildcats and deep tests.—Important dry wildcats and deep tests in pools numbered 61 (Table II). It will be noted that there was little deep testing in the Illinois basin, and that tests which penetrated Ordovician rocks (Maquoketa, "Trenton," St. Peter, New Richmond) are located in areas marginal to the Illinois basin. The drilling of numerous "Trenton" tests in Madison and St. Clair counties and the adjacent territory was stimulated by the discovery of the St. Jacob pool in Madison County in 1942 which produces from the "Trenton." Up to the end of 1942 the St. Jacob pool had produced a total of 685,000 barrels of oil from 27 wells.

Exploratory methods and results.—Subsurface geology and the reflection seismograph continue to be the methods most used in the location of exploratory wells. For the 28 new pools discovered in Illinois in 1943, it was reported that the discovery wells of 14 were located on the basis of subsurface geology, 9 on seismograph surveys, 3 on a combination of seismograph and subsurface geology, one on a combination of gravimeter and seismograph, and one subsurface geology and gravimeter (Table I).

The amount of seismograph work in Illinois in 1943 was only about half of that in 1942. In January, 1943, 11 seismograph parties were active in Illinois and in June, 6 parties were active. There was some activity in gravimeter, magnetometer and soil analysis surveys.

Trend in exploration and development.—There has been a gradual downward trend in the number of exploratory wells drilled in Illinois in the past 2 years. In 1943, in Illinois, 243 wildcat wells located more than 2 miles from production were drilled as compared with 334 in 1942. Of these, 28 (11.5 per cent) were successful, as compared with 40 (12 per cent) in 1942. In 1943, in Illinois, 217 outpost wells were drilled, of which 66 (30 per cent) were successful in discovering pool extensions. This may be compared with 215 outpost wells in 1942 of which 48 (22 per cent) were successful.

Pool development drilling declined about 8 per cent in 1943 when 1,349 wells were drilled for oil and gas in pools as compared with 1,468 wells in 1942. Of the pool development wells completed in 1943, 996 were oil or gas producers as compared with 1,092 in 1942.

It seems probable that the rate of drilling, both for exploratory and develop-

ment wells, will continue to decline slowly unless there is a major discovery, a price rise, or a relaxation of federal well spacing restrictions accompanied by an adequate supply of equipment and manpower.

There are signs of increasing interest in the possibilities of the older Ordovician and Cambrian rocks (below the St. Peter sandstone), especially in the regions north and northwest of the principal producing areas of the Illinois basin. It is anticipated that a number of deep tests will be drilled in 1944.

SOUTHWESTERN INDIANA

The following statement on developments in southwestern Indiana in 1943 was furnished by Ralph E. Esarey, State geologist, and P. Hastings Keller, assistant State geologist, Division of Geology, Department of Conservation, Indianapolis, Indiana

The oil and gas development and production status in Indiana in the year 1943 is about the same as that in 1942, except for the continued decline in activity and production. There were 277 holes drilled for oil and/or gas: 99 of them were completed as oil wells, 19 as gas wells, and 159 as dry holes. This record was a decline of 21 per cent in the total number of completed tests, 20 per cent in the number of completed oil wells, and $9\frac{1}{2}$ per cent in the number of gas wells completed. As in the previous year most of the drilling (82 per cent) was in the southwest part of the state, Gibson County ranking first, with 77 completions and 20 oil wells. The remaining 18 per cent of the drilling was in the old Trenton oil and gas area which is outside of the Eastern Interior basin. The total footage drilled during the year was 482,799 feet, a decline of 18 per cent from the previous year; 146,559 feet of this was wildcat footage. The total initial production of the oil wells completed was 6,362 barrels and of the gas wells, 2,562,000 cubic feet. A few tests in the old Trenton area were drilled to the Cambrian and reported nothing more than tar residue. A Devonian test was to be made in the Griffin field in the Wabash River but due to the delay because of federal restrictions this test was not begun in 1943. It is expected to begin in 1944.

The new discoveries in 1943 were practically all in the southwest part of the State, and they were all one-well pools except one, the North Owensville pool, in Gibson County. In February, the North Owensville pool was brought in, and by the end of the year there were 9 producing wells in the pool, with a reported initial yield of 1,260 barrels per day. By the end of the year it had a daily average production of 401 barrels and an accumulated production of 39,129 barrels. The average gravity of the oil is reported to be 35.6.

Most of the development in the oil-field pools during the year took place in the Kirksville pool in Gibson County and the Caborn pool in Posey County.

The crude-oil production in 1943 was approximately 5,273,000 barrels, a decline of 20 per cent from the previous year. The Griffin field, of Gibson and Posey counties, which produced approximately 2,395,000 barrels of oil, accounted for nearly half of the total production in the state.

Although complete figures on 1943 natural gas production in Indiana are not available, the amounts produced in the three largest producing fields were as follows.

	<i>Cubic Feet</i>
Rockport field, Spencer County	500,151,000
Greensburg field, Decatur County	228,894,100
Unionville field, Monroe County	168,710,000

The total for these three fields showed a decline of 15 per cent from their 1942 production.

WESTERN KENTUCKY

The following statement regarding developments in 1943 in western Kentucky was furnished by D. J. Jones, State geologist, Lexington, Kentucky.

Oil and gas development in Kentucky west of the Cincinnati arch resulted in the drilling of approximately 465 wells for the year of 1943. A tabulation of operations shows that 5 were gas wells, 211 were oil wells, and 249 were dry holes. Formations tested ranged in age from Tertiary to Lower Ordovician. Production was found in the Pennsylvanian, Upper and Lower Mississippian.


The record is encouraging as compared with that of 1942 when 186 wells were reported from this same area. A total production of approximately 7,000,000 barrels, as compared with 4,273,616 barrels in 1942, is reflected in this increased drilling program. The easing of drilling restrictions and the newly discovered productive areas, particularly in Henderson and Union counties, have resulted in increased drilling activity. The percentage of dry holes again reflects the intolerable situation faced by the small independent operator due to the low price of oil.

Distribution of new discoveries during 1943 (Fig. 1) indicates that with more intensified drilling operations, a large number of new productive areas will be found in the Western Kentucky coal basin. Adjacent to the eastern and southeastern border of the basin shallow production has been developed in beds of Devonian and Silurian age. A more aggressive drilling campaign in this area will, no doubt, result in the discovery of new production.

Comparatively little interest has been shown in testing the Knox dolomite.

SOME PUBLICATIONS IN 1943 ABOUT GEOLOGY OF EASTERN INTERIOR BASIN

- BELL, ALFRED H., "Subsurface Structure of the Base of the Kinderhook-New Albany Shale in Central and Southern Illinois," *Illinois State Geol. Survey Rept. Inves.* 92 (1943). 13 pp., 1 pl., 3 figs.
- CARTER, CHARLES W., "Wildcat Drilling in Illinois since 1936 with Discussion of Prospects for Further Discoveries and Table of Wildcat Wells Completed in 1942," *ibid.*, *Illinois Petrol.* 47 (1943). 41 pp., 2 figs.
- EASTON, WILLIAM H., "Subsurface Structure and Oil Possibilities of Parts of Edwards, Richland and Wabash Counties, Illinois," *ibid.*, *Illinois Petrol.* 46 (1943). 12 pp., 5 figs.



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