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## DEVELOPMENTS IN EASTERN INTERIOR BASIN IN 1944<sup>1</sup>

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### ABSTRACT

Drilling in the Eastern Interior basin increased 20 per cent and oil production decreased 4.4 per cent in 1944. The increase in drilling followed the change in the well-spacing rules in Supplementary Order No. 5, dated April 19, 1944, to Petroleum Administrative Order No. 11. This permitted the drilling of 1 well in 10 acres to any formation above the base of the Aux Vases formation regardless of depth, and 1 well in 20 acres to any formation between the base of the Aux Vases and the base of the Fredonia. There was little deep testing in 1944.

Production in Kentucky of 9,621,000 barrels of oil in 1944 was the highest annual production yet recorded for that state, an increase of 22 per cent over that of 1943. Illinois production in 1944 was down 6 per cent from that of 1943 and Indiana production was down 4 per cent.

Drilling in 1945 is expected to continue at nearly the same rate as in 1944, with continued discovery of new pools and extensions.

### INTRODUCTION

Drilling in the Eastern Interior basin in 1944 increased by one-fifth partly as a result of the relaxation of the federal Government's well-spacing restrictions effective on April 19, 1944. Forty-eight new pools were discovered, all of them small. Total production in 1944 was approximately 90 million barrels which amounted to 5.4 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 southern half of the basin.

### DEVELOPMENT

Approximately 2,967 wells were drilled for oil and gas in the Eastern Interior basin in 1944 as compared with 2,473 in 1943, an increase of 20 per cent. The following table shows the distribution by states.

<sup>1</sup> Reprinted from *Bull. Amer. Assoc. Petrol. Geol.*, Vol. 29, No. 6 (June, 1945), pp. 685-692.

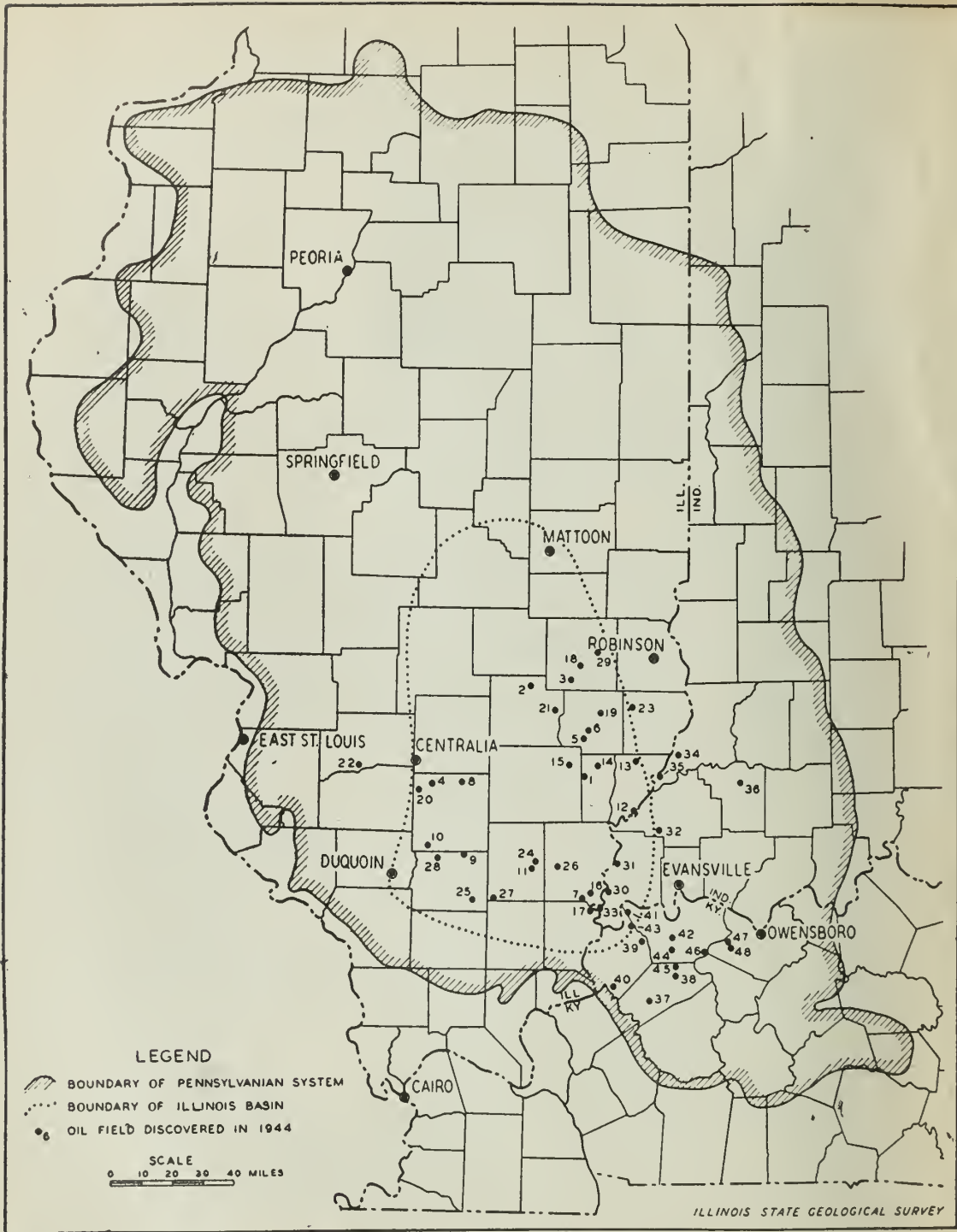


FIG. 1.—Map of Eastern Interior basin showing new oil pools discovered in 1944. For list of pools see Table I.

|                      | Number of Completed Wells<br>(Excluding water and gas input wells, salt-water<br>disposal wells, and old wells worked over) |      |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------|------|
|                      | 1943                                                                                                                        | 1944 |
| Illinois             | 1792                                                                                                                        | 1991 |
| Southwestern Indiana | 465                                                                                                                         | 276  |
| Western Kentucky     | 216                                                                                                                         | 700* |
|                      | 2473                                                                                                                        | 2967 |

\* Approximate.

The total oil production from the Eastern Interior basin in 1944 amounted to 90,400,000 barrels as compared with 94,528,000 barrels in 1943, a decrease of 4.4 per cent. Illinois produced 77,413,000 barrels of which it is estimated 90 per cent was from Mississippian strata, 5 per cent was from Devonian strata, 3.5 per cent was from Pennsylvanian strata, 1 per cent from Ordovician strata and 0.5 per cent from Silurian strata.

Production in Kentucky west of the Cincinnati arch increased from approximately 6,160,000 barrels in 1943 to approximately 7,800,000 barrels in 1944, an increase of 26 per cent. In southwestern Indiana production decreased from 5,273,000 barrels in 1943 to 5,088,000 in 1944, a decrease of 4 per cent.

Most of the wildcat drilling in the Eastern Interior basin in 1944 was in the deep part of the basin, and most of the new pools discovered were in the deep basin area.

#### NEW POOLS DISCOVERED

As shown in Table I, 48 new oil pools were discovered in 1944 in the Eastern Interior basin. Of these 29<sup>2</sup> are in Illinois, 7 are in Indiana, and 12 are in Kentucky.

The most noteworthy of the Illinois pools are: Boyd, Jefferson County, with 16 wells at the end of the year and a total production to the end of 1944 of 158,000 barrels; Roaches North, Jefferson County, with 25 wells and total production of 149,000 barrels; Divide West, Jefferson County, with 13 wells and total production of 67,000 barrels; and Calhoun, Richland County, with 6 wells and total production of 71,000 barrels.

#### ILLINOIS

All but one of the new pool discovery wells produced from Mississippian formations, of which 13 were in Chester series sandstones and 15 in the Ste. Genevieve formation of the Lower Mississippian. There was one small discovery well in the Pennsylvanian, the Lancaster East pool, Wabash County.

*New producing formations.*—Additional producing formations discovered in Illinois oil pools in 1944 numbered 37 of which 3 were in the Pennsylvanian, 18 were in the Chester series, and 16 were in the Ste. Genevieve formation of the Lower Mississippian series. There were no discoveries of new producing formations below the Ste. Genevieve formation.

<sup>2</sup> This included Whittington West pool, Franklin County, which was discovered in December, 1943, but was not named until 1944.

TABLE I  
POOLS DISCOVERED IN EASTERN INTERIOR BASIN IN 1944

| Pool                              | County    | Company and Farm                   | Location   | Total Depth (Feet) | Depth to Top (Feet) | Producing Formation | Initial Production (Barrels) <sup>a</sup> | Date of Completion | No. of Wells Producing in Field Jan. 2, 1945 |
|-----------------------------------|-----------|------------------------------------|------------|--------------------|---------------------|---------------------|-------------------------------------------|--------------------|----------------------------------------------|
| ILLINOIS                          |           |                                    |            |                    |                     |                     |                                           |                    |                                              |
| 1. Bennington South               | Edwards   | Nash Redwine—G. C. Jones I         | 31-1-N-10E | 3353               | 3338                | McClosky            | 132+67                                    | 7-18-44            | 1                                            |
| 2. Bible Grove East               | Clay      | Wise, Rig and Doran—Murvin I       | 22-5-N-7E  | 3517               | 4368                | Cypress             | 150                                       | 12-19-44           | 2                                            |
| 3. Bogota South                   | Jasper    | Schuller & Witt—Lourance I         | 5-1-N-9E   | 3067               | 3054                | McClosky            | 57                                        | 7-4-44             | 1                                            |
| 4. Bond                           | Jefferson | Cameron—Bizzit I                   | 3-1-S-9E   | 2665               | 1676                | Bethel              | 167                                       | 8-22-44            | 15                                           |
| 5. Calhoun                        | Richard   | Phillips Pet.—Jennings I           | 6-1-N-10E  | 3283               | 3196                | Levias              | 178                                       | 8-22-44            | 0                                            |
| 6. Calhoun North                  | Richard   | Pure Oil—Koertge I                 | 3-3-N-10E  | 3276               | 3165; 3184          | Residual; McClosky  | 149+97                                    | 1-2-45             | 1                                            |
| 7. Concord South                  | White     | Great Lakes Carbon—Burriss I       | 15-1-S-10E | 3133 (Ph. 2411)    | 3133                | Tar Springs         | 80                                        | 9-12-44            | 2                                            |
| 8. Divorc West                    | Jefferson | Texas Co.—W. Green I               | 15-1-S-10E | 2866               | 2752                | McClosky            | 85                                        | 2-29-44            | 11                                           |
| 9. Ewing                          | Franklin  | Central Pipe Line—Rose I           | 4-3-S-1E   | 2080               | 203                 | McClosky            | 140+15                                    | 12-5-44            | 1                                            |
| 10. Fitzgerald                    | Jefferson | Texas Co.—Inland Steel I           | 25-5-S-7E  | 3012 (Ph. 2776)    | 2750                | Bethel              | 53+40                                     | 12-12-44           | 1                                            |
| 11. Hoosville East                | Hamilton  | Natl. Assoc. Pet.—Stocker I        | 33-5-S-7E  | 3387               | 3164                | McClosky            | 80+10                                     | 6-13-44            | 0                                            |
| 12. Keensburg South               | Wabash    | Central Pipe Line—Garst I          | 27-2-S-13W | 2728               | 2713                | Levias              | 173                                       | 6-13-44            | 2                                            |
| 13. Lanco Grove East              | Wabash    | Greuling—Case I                    | 16-2-N-13W | 2630 (Ph. 1761)    | 1743                | Bibbl               | 5                                         | 12-12-44           | 2                                            |
| 14. Maplegrove East               | Edwards   | Texas Co.—C. Lambright I           | 1-1-N-9E   | 3242               | 3213                | McClosky            | 133+42                                    | 9-6-44             | 3                                            |
| 15. Mt. Erie North                | Wayne     | Jablonski—Yorndorf—Ascher I        | 5-1-N-9E   | 3226               | 3100                | Aux Vases           | 47                                        | 8-23-44            | 4                                            |
| 16. New Haven North               | White     | Sobio—Union Cen. Life Ins. I-A     | 10-7-S-10E | 2183               | 2174                | Tar Springs         | 18                                        | 8-15-44            | 8                                            |
| 17. New Haven West                | Gallatin  | Oil Management—Goforth 2           | 27-7-S-10E | 2115               | 2098                | Tar Springs         | 184                                       | 8-15-44            | 4                                            |
| 18. Newton                        | Jasper    | Texas Co.—Huddleston I             | 2-4-N-10E  | 3022               | 2920                | McClosky            | 39+22                                     | 1-12-45            | 1                                            |
| 19. Olney East                    | Jasper    | Texas Co.—Wright I                 | 8-5-S-1E   | 3004               | 2980                | McClosky            | 41                                        | 12-12-44           | 1                                            |
| 20. Roaches North                 | Jefferson | Texas Co.—Kashan I                 | 8-5-S-1E   | 2355               | 2103                | Rosclaire           | 231+10                                    | 8-15-44            | 28                                           |
| 21. Sailor Springs E.             | Clay      | Texas Co.—Mary A. Rimmert I        | 33-4-N-8E  | 2718               | 2660                | Cypress             | 32                                        | 12-2-44            | 0                                            |
| 22. Sante Fe                      | Clinton   | Magnolia Pet.—Althoff I            | 29-1-N-3W  | 2512 (Ph. 974)     | 953                 | Cypress             | 31+2                                      | 8-2-44             | 1                                            |
| 23. Sumner                        | Lawrence  | Texas Co.—M. D. Smith I            | 16-4-N-13W | 2359               | 2261                | McClosky            | 84                                        | 8-2-44             | 0                                            |
| 24. Thackeray                     | Hamilton  | Natl. Assoc. Pet.—Jobson 2         | 10-5-S-7E  | 3402               | 3384                | Aux Vases           | 60                                        | 8-8-44             | 3                                            |
| 25. Thompsonville No.             | Franklin  | Deep Rock—Kirk Tr. I               | 15-7-S-9E  | 3152               | 3113                | Aux Vases           | 110+3                                     | 12-10-44           | 1                                            |
| 26. Trumbull                      | White     | Lewis—Burkhard I                   | 18-5-S-8E  | 2858               | 2830                | Cypress             | 102                                       | 1-2-45             | 1                                            |
| 27. West End                      | Hamilton  | Sinclair-Wyoming—Russell I         | 17-7-S-8E  | 3150               | 3131                | Aux Vases           | 435                                       | 1-2-45             | 1                                            |
| 28. Whittington West <sup>b</sup> | Franklin  | Murchison—Franklin Co. Coal I      | 11-5-S-2E  | 2042               | 2752                | Levias              | 8+5                                       | 12-14-43           | 3                                            |
| 29. Willow Hill                   | Jasper    | Pure Oil—Dboom "A" I               | 34-7-N-10E | 2715               | 2665                | McClosky            | 213                                       | 11-28-44           | 1                                            |
| INDIANA                           |           |                                    |            |                    |                     |                     |                                           |                    |                                              |
| 30. Upton                         | Posey     | Bennett Bros.—Spencer I            | 32-6S-14W  |                    |                     | Tar Springs         | 86+86                                     | 1-20-44            |                                              |
| 31. S. New Harmony                | Posey     | Sells Pet.—Wade I                  | 14-5S-14W  |                    |                     | Hardinsburg         | 298+15                                    | 1-20-44            |                                              |
| 32. S. Owensville                 | Gibson    | Cherry & Kidd—Virginia Baird       | 25-3S-12W  |                    |                     | McClosky            | 163                                       | 8-3-44             |                                              |
| 33. West Hovey                    | Posey     | Roger-Cartage Co.—Deakin & Lynch I | 35-7S-15W  |                    |                     | McClosky            | 55+40                                     | 10-7-44            |                                              |
| 34. Decker                        | Knox      | W. M. Muller—B. M. McDowell I      | 36-2N-11W  |                    |                     | McClosky            | 22+30                                     | 4-13-44            |                                              |
| 35. Patton                        | Knox      | B.B.&M. Drig. Co.—Wm. P. Stecker I | 35-1N-12W  |                    |                     | Bibbl               | 35                                        | 6-22-44            |                                              |
| 36. Cato                          | Pike      | H. C. Detrick et al.—Knick I       | 8-1S-7W    |                    |                     | Cypress             | 18+5                                      | 9-14-44            |                                              |
| KENTUCKY*                         |           |                                    |            |                    |                     |                     |                                           |                    |                                              |
| 37. East Clay                     | Webster   | Carl Sneff et al Page I            | 9-L-21     | 1026               | 1003                | Penn. ss.           | 125                                       | August             |                                              |
| 38. South Poole                   | Webster   |                                    |            |                    |                     |                     |                                           |                    |                                              |
| 39. Waverly                       | Union     |                                    |            |                    |                     |                     |                                           |                    |                                              |
| 40. Sturgis                       | Union     | Farmer & Chenaunt—W. W. Slaton I   | 17-M-10    | 1361               | 1347                | Hardinsburg         | 40                                        | December           |                                              |
| 41. Powell Lake                   | Henderson | Gulf Ref. Co.—Rankin I             | 16-Q-20    | 1811               | 1820                | Waltersburg         | 70                                        | August             |                                              |
| 42. Rock Springs                  | Henderson | Natl. Assoc. Pet. Co.—Rudy I       | 4-Q-23     | 2251               | 2246                | Cypress             | 70                                        | September          |                                              |
| 43. North Utley                   | Union     | Trans. Text Oil Co.—Culver I       | 12-P-20    | 2710 (Ph. 2549)    | 2523                | Levias              | 13                                        | August             |                                              |
| 44. Wannemaker                    | Henderson |                                    |            |                    |                     |                     |                                           |                    |                                              |
| 45. East Poole                    | Webster   |                                    |            |                    |                     |                     |                                           |                    |                                              |
| 46. McKinley                      | Webster   | Sohio Oil Co.—Rash Hrs. I          | 24-O-25    | 1727               | 1710                | Tar Springs         | 80                                        | July               |                                              |
| 47. Curdsville                    | Daviess   | Shell Oil Co. Inc.—Hamilton I      | 14-O-27    | 1833 (Ph. 1848)    | 2358                | Cypress             | 37                                        | September          |                                              |
| 48. St. Raphael                   | Daviess   | Miller & Sbiarella—Simmons I       | 20-O-27    | 2033 (Ph. 1918)    | 1842                | Aux Vases           | 25                                        | April              |                                              |

<sup>a</sup> Oil and water.

<sup>b</sup> Discovered in 1943; named 2-3-44.

\* Names of pools furnished by D. J. Jones, State geologist of Kentucky, personal communication, February 17, 1945; data on discovery wells from *Oil and Gas Journal* (January 27, 1945), p. 223.

## DEVELOPMENTS IN EASTERN INTERIOR BASIN IN 1944 689

 TABLE II  
 SELECTED LIST OF DRY TESTS IN ILLINOIS IN 1944

| County                    | Company             | Farm                      | Location   | Total Depth (Feet) | Depth to Top (Feet) | Deepest Formation  | Date Completed |
|---------------------------|---------------------|---------------------------|------------|--------------------|---------------------|--------------------|----------------|
| 1 Bond                    | Magnolia            | L. V. Hunter 1            | 15-6N-3W   | 2386               | 2276                | Dutch Creek (Dev.) | 11-14-44       |
| 2 Bond                    | Texas               | Enloe 1                   | 6-4N-2W    | 3307               | 3372                | Trenton            | 5-2-44         |
| 3 Bond                    | Texas               | F. M. Miller 1            | 22-6N-2W   | 2485               | 2416                | Clear Creek (Dev.) | 11-28-44       |
| 4 Bond                    | Union Prod. Pet.    | Acconero 1                | 26-4N-4W   | 3170               |                     |                    | 11-28-44       |
| 5 Clark                   | Jansen              | Carpenter 1               | 9-9N-12W   | 2735               | 2697                | Devonian           | 6-6-44         |
| 6 Clark                   | Texas               | Coldren 1                 | 4-11N-11W  | 2406               | 2236                | Devonian           | 10-3-44        |
| 7 Clark <sup>d</sup>      | Wright              | Hight 1                   | 32-9N-14W  | 2570               | 2503                | Devonian           | 10-17-44       |
| 8 Clinton                 | Stanolind           | Phillips 1                | 4-2N-3W    | 2513               | 2301                | Devonian           | 2-1-44         |
| 9 Clinton                 | Strickland          | Haake 1                   | 32-2N-3W   | 2602               | 2498                | Devonian           | 12-10-44       |
| 10 Clinton                | Texas               | Schumacber 1              | 29-3N-4W   | 2426               | 2225                | Devonian           | 5-2-44         |
| 11 Douglas                | Ohio                | Shaw 1                    | 36-16N-8E  | 4151               | 4045                | Mt. Simon          | 1- 2-45        |
| 12 Fayette                | Texas               | Sbridan-Stokes 1          | 7-8N-1E    | 3603               | 3607                | Plattin            | 1-11-44        |
| 13 Ford                   | Herndon             | W. J. Fecht 1             | 33-26N-9E  | 2237               | 2075                | Oneota             | 2- 1-44        |
| 14 Greene                 | Beatrice Creamery   | Chicago Cold Storage 1    | 26-12N-13W | 1100               | 1063                | St. Peter          | 5- 2-44        |
| 15 Greene                 | Johnson             | Waller 1                  | 12-11N-10W | 1100               | 1001                | Devonian           | 5-23-44        |
| 16 Hamilton <sup>e</sup>  | Texas               | Davis 14                  | 7-6S-7E    | 5358               | 5020                | Devonian           | 12- 5-44       |
| 17 Hancock                | Herndon             | M. D. Laffey 1            | 17-3N-7W   | 3025               | 2760                | Mt. Simon          | 3-14-44        |
| 18 Henderson              | Northern Ordinance  | Adams 1                   | 28-8N-4W   | 323                |                     |                    | 6-27-44        |
| 19 Henderson              | Northern Ordinance  | Boban 1                   | 18-8N-4W   | 729                | 608                 | Maquoketa          | 7-18-44        |
| 20 Henderson              | Northern Ordinance  | Covert 1                  | 35-8N-4W   | 725                |                     |                    | 8- 1-44        |
| 21 Henderson              | Northern Ordinance  | Likely 1                  | 1-9N-5W    | 410                | 405                 | Maquoketa          | 8-22-44        |
| 22 Henderson              | Northern Ordinance  | Pendarvis 1               | 17-9N-4W   | 446                |                     |                    | 6-27-44        |
| 23 Henderson              | Northern Ordinance  | Pendarvis 1               | 23-9N-4W   | 492                |                     |                    | 8-22-44        |
| 24 Henderson              | Northern Ordinance  | Tubbs 1                   | 22-9N-4W   | 390                |                     |                    | 7-11-44        |
| 25 Henderson              | Northern Ordinance  | Tubbs 2                   | 22-9N-4W   | 605                |                     |                    | 8-22-44        |
| 26 Henderson              | Northern Ordinance  | Schenck 1                 | 15-8N-4W   | 674                | 667                 | Maquoketa          | 12- 5-44       |
| 27 Jackson                | Magnolia            | Froemling-Reuscher 1      | 11-7S-4W   | 3982               | 3421                | Trenton            | 6-27-44        |
| 28 Jefferson <sup>f</sup> | Nash Redwine        | V. Laux 1                 | 15-1S-2E   | 3765               | 3611                | Devonian           | 6-20-44        |
| 29 Kendall                | Herndon             | R. Proctor 1              | 36-36N-8E  | 2328               |                     | Mt. Simon          | 2- 2-44        |
| 30 McDonough              | Northern Ordinance  | Cbampton 1                | 9-6N-3W    | 642                |                     |                    | 11- 7-44       |
| 31 McDonough              | Northern Ordinance  | Deems 1                   | 26-7N-4W   | 760                |                     |                    | 11-14-44       |
| 32 Madison                | Magnolia            | Plocker 1                 | 10-3N-5W   | 2897               | 2876                | Plattin            | 12-10-44       |
| 33 Montgomery             | Malone              | Todt 1                    | 21-11N-4W  | 632                |                     |                    | 4- 4-44        |
| 34 Montgomery             | Texas               | Long 1                    | 27-11N-5W  | 2525               | 2359                | "Trenton"          | 6-13-44        |
| 35 Montgomery             | Texas               | Springfield Marine Bank 1 | 32-10N-3W  | 2714               | 2636                | "Trenton"          | 5-2- 44        |
| 36 Randolph               | General Oil and Gas | Schmall 3                 | 27-4S-7W   | 450                |                     |                    | 8-22-44        |
| 37 Randolph               | General Oil and Gas | Schmall 4                 | 27-4S-7W   | 427                |                     |                    | 11-28-44       |
| 38 Randolph               | McHughes            | Wilson 1                  | 23-6S-6W   | 757                | 635                 | Aux Vases          | 4-18-44        |
| 39 St. Clair              | Braun               | Munier 1                  | 27-1S-8W   | 309                | 185                 | Cypress            | 2-20-44        |
| 40 St. Clair              | Sinclair-Wyoming    | Bear 1                    | 23-2N-6W   | 2575               | 2459                | "Trenton"          | 10-24-44       |
| 41 St. Clair              | Skelly              | Sbickedanz 1              | 12-3S-6W   | 2805               | 2684                | "Trenton"          | 8-15-44        |
| 42 St. Clair              | Young               | McCurdy 3                 | 32-3S-6W   | 530                | 506                 | Cypress            | 3-28-44        |
| 43 St. Clair              | Young               | McCurdy 4                 | 29-3S-6W   | 618                | 590                 | Bethel             | 7-25-44        |
| 44 Saline                 | Brebm               | Webb 1                    | 28-8S-6E   | 3063               | 2855                | Ste. Genevieve     | 12-10-44       |
| 45 Saline                 | Jarvis and Marcell  | R. Raley 1                | 10-10S-6E  | 2074               | 1953                | Cypress            | 1-25-44        |
| 46 Saline                 | Jarvis and Marcell  | Sisk 1                    | 15-10S-6E  | 1520               | 1498                | Waltersburg        | 3-21-44        |
| 47 Saline                 | Magnolia            | Pruett 1                  | 7-9S-6E    | 2886               | 2615                | Ste. Genevieve     | 7-11-44        |
| 48 Schuyler               | Amberg and Miller   | Taylor 1                  | 30-1N-1W   | 630                |                     |                    | 6-20-44        |
| 49 Schuyler               | Northern Ordinance  | F. B. Greuel 1            | 7-3N-1W    | 684                | 617                 | Maquoketa          | 8-15-44        |
| 50 Schuyler               | Northern Ordinance  | E. Payne 1                | 3-3N-2W    | 756                |                     |                    | 10-10-44       |
| 51 Schuyler               | Northern Ordinance  | A. Yaap 1                 | 1-3N-2W    | 783                | 664                 | Devonian           | 9-12-44        |
| 52 Shelby                 | Luttrell            | McAndrew 1                | 15-10N-6E  | 2314               | 2208                | St. Louis          | 10-31-44       |
| 53 Shelby                 | Lynch               | Amling 1                  | 20-12N-2E  | 1666               | 1558                | Ste. Genevieve     | 6-27-44        |
| 54 Shelby                 | Texas               | Noffke 1                  | 31-11N-6E  | 2182               | 2070                | Ste. Genevieve     | 3-28-44        |
| 55 Shelby                 | Thorpe              | Hosteler 1                | 33-11N-4E  | 2034               | 1888                | Ste. Genevieve     | 7-11-44        |
| 56 Union                  | Nation Oil          | Gray 1                    | 2-11S-1E   | 1949               | 1730                | Ste. Genevieve     | 2-22-44        |
| 57 Washington             | Hubbard             | Sandbeindrich 1           | 18-2S-5W   | 952                | 920                 | Aux Vases          | 2- 1-44        |
| 58 Washington             | Ruwalt              | Brinkman 1                | 14-2S-5W   | 2475               | 2290                | Devonian           | 2- 8-44        |
| 59 Wayne <sup>g</sup>     | Texas               | Draper 1                  | 8-3S-6E    | 5377               | 5169                | Devonian           | 6- 6-44        |
| 60 Wayne <sup>h</sup>     | Texas               | Greathouse 1              | 27-1N-6E   | 5200               | 5186                | Clear Creek (Dev.) | 11-14-44       |
| 61 Will                   | Livingood           | E. L. Herren 1            | 23-36N-9E  | 1058               | 1904                | Mt. Simon          | 11-14-44       |
| 62 Williamson             | Browning            | Hayton 1                  | 32-9S-1E   | 2000               | 1958                | Ste. Genevieve     | 12-12-44       |
| 63 Williamson             | Superior            | Pulley et al 1            | 13-9S-3E   | 2790               | 2776                | St. Louis          | 4-18-44        |

d. Old well deepened. Near Johnson South field.

e. In Dale-Hoodville field.

f. In Dix field.

g. In Mayberry field. Old well deepened, plugged back to McClosky producer.

h. Old well deepened. In Johnsonville field.

*Extensions.*—Extensions to pools discovered by outpost wells (from  $\frac{1}{4}$  mile to 2 miles from production), in Illinois numbered 41 of which 3 were in formations in the Pennsylvanian, 14 in the Chester series, 23 in the Lower Mississippian (all in the Ste. Genevieve formation) and 1 in the Silurian.

The Marine pool, which was discovered in 1943, was extended in 1944 by the addition of 24 producing wells; making a total of 28. It produces oil from a Silurian coral reef. Its 1944 production amounted to 480,000 barrels of oil. The Illinois Geological Survey is making a study of the subsurface geology of the Marine pool.

*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 29 pools discovered in 1944, 15 were reported to be discovered by subsurface geology, 7 by geophysics, 3 by a combination of geology and geophysics, 3 non-scientific, and 1 unknown.

The amount of seismograph work in Illinois in 1944 was approximately half that done in 1943. The reason for the decline in the use of the seismograph appears to be that the large structures have already been located and the structures remaining to be discovered are smaller. Numerous structures which produce oil in Illinois are so small as to be near the limits of error of the reflection-seismograph method now in use.

*Wildcat drilling.*—Wildcat drilling continued at a high rate during 1944, increasing somewhat in the latter part of the year. The number of wildcat wells completed in 1944 was 441 as compared with 462 in 1943, but the number of these located 2 miles or more from production was 266 in 1944 and 243 in 1943, an increase of 23. Counting only the wildcats 2 or more miles from production, the proportion of successful wildcats was 12 per cent in 1943 and 11 per cent in 1944. It is reasonable to expect that one wildcat in 10 will be successful in 1945.

A number of wildcat tests were drilled in the non-producing parts of the Eastern Interior basin in northern and western Illinois north of the Colmar-Plymouth pool (Table II). Some of this drilling was financed by profits from war industries.

*Deep testing.*—There was less deep testing in Illinois in 1944 than had been anticipated because available drilling equipment was used mainly for pool development drilling of the shallower formations after the well-spacing restrictions were relaxed in April, 1944. No pre-Mississippian pools were discovered.

Five deep tests are of special interest (Table II, Nos. 11, 16, 28, 59, and 60).

The Ohio Oil Company's Shaw well No. 1 (11) near Tuscola is located on top of a large closed dome on the LaSalle anticlinal belt and in an area where the uppermost bedrock is Devonian limestone. It had a total depth of 4,151 feet and reached the top of the Mt. Simon formation in the Cambrian at the depth of 4,045 feet. Oil stains were found in the "Trenton" limestone but no oil showings were found below that.

The other four deep tests are Devonian tests in the Illinois basin, one each in

the Johnsonville (60), Mayberry (59), and Dale-Hoodville (16) pools, and one on the edge of the Dix pool (28). The last named had a showing of oil in the Devonian, but none of the four Devonian tests had any large porous zones comparable with the producing zone in the Salem and Centralia pools.

The Devonian strata in The Texas Company's Draper well No. 1 (Table II, No. 59) in the Mayberry pool, Wayne County, consist of the following.

|                                                                         | <i>Thickness<br/>(Feet)</i> | <i>Depth<br/>(Feet)</i> |
|-------------------------------------------------------------------------|-----------------------------|-------------------------|
| Top, Devonian limestone                                                 |                             | 5169                    |
| Lingle? formation—limestone, cherty, light brownish gray                | 63                          | 5232                    |
| Grand Tower? formation—limestone, white, coarsely crystalline           | 98                          | 5330                    |
| Dutch Creek formation—sandy limestone grading to sandstone              | 10                          | 5340                    |
| Clear Creek formation—limestone, cherty, dolomitic, light brownish gray | 37                          | 5377                    |

The lower part of Grand Tower (?) is slightly vesicular and showed slight oil stain. No vesicular dolomite of the type that produces in the Salem pool, probably to be correlated with the Geneva of Indiana, was found in either this well or Nash Redwine's Laux No. 1 in Sec. 15, T. 1 S., R. 2 E., Jefferson County.

#### INDIANA

The number of wells in Southwestern Indiana in 1944 was 276, about 40 per cent less than the number drilled in 1943, according to data furnished by Ralph E. Esarey, State geologist, Department of Conservation, Indianapolis, Indiana. Of the 276 wells completed, 136 were oil producers, 8 were gas producers and 132 were dry holes.

Drilling was largely concentrated in a few counties in the extreme southwest part of Indiana. Two counties, Gibson and Posey, had 88 well completions each, or a total of 176, which amounted to 64 per cent of the total for southwestern Indiana.

Total production of oil in Indiana in 1944 was 5,118,000 barrels (U. S. Bureau of Mines Monthly Petroleum Statement No. P 258) nearly all of this being from the southwestern part of the state.

In 1944, 62 wildcat wells were completed in southwestern Indiana. Most of these were completed in the Chester series or in the Ste. Genevieve formation (McClosky limestone) of the Lower Mississippian, but a few penetrated the St. Louis limestone, next below the Ste. Genevieve. In Perry County, the Henry Delaisse well No. 1 in the Bristow pool tested the Trenton limestone, top 3,151 feet, total depth 3,255 feet. No tests to the Devonian or deeper were drilled in the Gibson and Posey County area.

#### WESTERN KENTUCKY

The following statement regarding developments in Kentucky in 1944 was furnished by D. J. Jones, State geologist, Lexington, Kentucky.

As the need for bolstering oil reserves became urgent during the war, a continually increasing number of wildcat wells have been drilled in Kentucky, particularly west of the Cincinnati arch. The results were gratifying, and the new

pools discovered in the last 3 years have doubled production. In 1944 Kentucky produced slightly more than 9,500,000 barrels of oil, an all-time record. A large percentage of this increase came from western Kentucky.

Development in the western Kentucky coal basin, the southern extension of the Illinois basin, has resulted in the discovery of twelve new fields. Incomplete records of drilling show that approximately 700 tests were drilled during the year in that part of the state, involving twenty-five counties west of the Cincinnati arch, of which slightly more than half were producers. This means that the rate of drilling has been increased three-fold over that of 1942.

Producing formations ranged from the Pennsylvanian to the McClosky of the Lower Mississippian. Fifteen unsuccessful Devonian tests were drilled. There were no Knox dolomite tests.

A summary of drilling operations reveals that out of a total initial production of 48,000 barrels, 37,500 barrels were produced from the Waltersburg, Tar Springs and the Cypress of the Chester and 8,500 from the McClosky. The Pennsylvanian and the Hardinsburg, Jackson, Bethel, and Cunningham of the Chester accounted for the remainder.

Daily production for the month of December, 1944, averaged approximately 29,000 barrels as against less than 21,000 barrels for December, 1943. In anticipation of the discovery of the usual number of new pools in western Kentucky, it is expected that the 1945 production will exceed that of 1944.

#### OUTLOOK FOR 1945

The rate of drilling in the Eastern Interior basin is expected to continue about the same in 1945 as in 1944 with probably an increase in the number of wildcat tests. The high demand for oil for both military and civilian uses will continue to stimulate oil production by all possible means, including exploratory and pool-development drilling and secondary-recovery methods.

Increased costs of drilling and shortage of equipment and manpower are factors which limit the rate of drilling development. Since May 21, 1941, the price of crude oil has been frozen but since that time drilling and production costs have risen sharply. The price premium for stripper well production is of some help but it does not meet the situation.

Geological data from thousands of wells in the Eastern Interior basin reveal a different picture of the oil reservoirs from that available 2 or 3 years ago. Production is from many small lenticular reservoirs and many producing structures are so small as to be near the limits of error of the reflection seismograph. This means that aside from the possibility of pre-Mississippian production in the basin, wildcat drilling from Mississippian and Pennsylvanian sands will continue in the Eastern Interior basin for many years and that many more pools, extensions, and new producing formations remain to be discovered and developed. This and the expansion of secondary recovery of oil promise well for the future of the oil industry in this region.