

STATE OF ILLINOIS
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Oil and Gas Development in Illinois in 1936

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THE year 1936 in Illinois was marked by considerably increased activity in drilling, both wildcat and proved territory, in leasing, and in seismic and geologic exploration. Of the 92 oil and gas wells completed during 1936 in Illinois, 49 were oil wells, 3 were gas wells and 40 were dry holes. This compares with but 34 completions in 1935. The total of the daily initial productions of the new oil wells was 1755 bbl., or an average of 36 bbl. per well.

One new field was discovered, the Bartelso field in Clinton County.

The leasing of some large blocks of acreage in Clay, Marion, and other counties by the Carter Oil Co. in the late fall of 1935 was followed in 1936 by extensive leasing in southern Illinois by 10 major companies and many smaller companies and individuals. It is estimated that 2½ million acres were under lease by the end of 1936. Seismograph surveying has been carried on by about seven companies, and the number of seismograph parties operating in Illinois has varied from six to eight throughout most of 1936. It is estimated that approximately two million dollars has been spent in the state in seismic and geologic exploration and in leasing during the last quarter of 1935 and all of 1936.

Production of crude oil in Illinois in 1936, according to the Bureau of Mines, was as follows:

| | BARRELS | | BARRELS |
|---------------|---------|----------------|-----------|
| January..... | 325,000 | July..... | 402,000 |
| February..... | 294,000 | August..... | 380,000 |
| March..... | 396,000 | September..... | 386,000 |
| April..... | 347,000 | October..... | 393,000 |
| May..... | 389,000 | November..... | 363,000 |
| June..... | 383,000 | December..... | 387,000 |
| | | | 4,445,000 |

This 4,445,000 bbl. was an increase of 3 per cent over 1935. Although this increase was due largely to the fact that production was not artificially curtailed, it also reflects some new production and some increases in production from repressuring and water-flooding, which offset the

TABLE 1.—*Oil and Gas Production in Illinois*

| Line Number | Field, County | Age, Years to End of 1936 | Area Proved, Acres | | | Total Oil Production, Bbl. | |
|-------------|--|---------------------------|--------------------|-------|--------|----------------------------|-------------|
| | | | Oil | Gas | Total | To End of 1936 | During 1935 |
| 1 | Warrenton-Borton, <i>Edgar</i> | 30 | 100 | 0 | 100 | 27,600± | 550± |
| 2 | Westfield (Parker Twp.), <i>Clark, Coles</i> | 32 | 9,000 | 55 | 9,055 | x | x |
| 3 | | | 850 | 75 | 925 | x | x |
| 4 | | | 9,000 | 0 | 9,000 | x | x |
| 5 | | | 1,500 | 0 | 1,500 | x | x |
| 6 | Siggins (Union Twp.), <i>Cumberland, Clark</i> | 30 | 3,580 | 75 | 3,655 | x | x |
| 7 | | | 3,135 | 55 | 3,190 | x | x |
| 8 | | | 435 | 15 | 450 | x | x |
| 9 | | | 855 | 105 | 960 | x | x |
| 10 | York, <i>Cumberland</i> | | 310 | 40 | 350 | x | x |
| 11 | Casey, <i>Clark</i> | 29 | 1,925 | 55 | 1,980 | x | x |
| 12 | | | 190 | 15 | 205 | x | x |
| 13 | | | 400 | 0 | 400 | x | x |
| 14 | | | 1,525 | 15 | 1,540 | x | x |
| 15 | Martinsville, <i>Clark</i> | 29 | 710 | 155 | 865 | x | x |
| 16 | | | 15 | 20 | 35 | x | x |
| 17 | | | 275 | 35 | 310 | x | x |
| 18 | | | 105 | 0 | 105 | x | x |
| 19 | | | 170 | 0 | 170 | x | x |
| 20 | | | 195 | 0 | 195 | x | x |
| 21 | | | 5 | 0 | 5 | x | x |
| 22 | North Johnson, <i>Clark</i> | 29 | 1,320 | 20 | 1,340 | x | x |
| 23 | | | 1,115 | 0 | 1,115 | x | x |
| 24 | | | 160 | 0 | 160 | x | x |
| 25 | | | 820 | 5 | 825 | x | x |
| 26 | | | 215 | 0 | 215 | x | x |
| 27 | South Johnson, <i>Clark</i> | 29 | 1,715 | 65 | 1,780 | x | x |
| 28 | | | 185 | 5 | 190 | x | x |
| 29 | | | 295 | 0 | 295 | x | x |
| 30 | | | 1,675 | 35 | 1,710 | x | x |
| 31 | | | 845 | 5 | 850 | x | x |
| 32 | Bellair, <i>Crawford, Jasper</i> | 29 | 1,300 | 5 | 1,305 | x | x |
| 33 | | | 1,165 | 0 | 1,165 | x | x |
| 34 | | | 315 | 0 | 315 | x | x |
| 35 | | | 910 | 0 | 910 | x | x |
| 36 | Clark County Division ¹ | | 19,960 | 475 | 20,435 | 51,450,000± | 479,000 |
| 37 | Main ² , <i>Crawford</i> | 30 | 35,135 | 515 | 35,650 | x | x |
| 38 | | | 340 | 0 | 340 | x | x |
| 39 | | | 33,795 | 510 | 34,305 | x | x |
| 40 | | | 1,000 | 0 | 1,000 | x | x |
| 41 | New Hebron, <i>Crawford</i> | 27 | 1,350 | 210 | 1,560 | x | x |
| 42 | Chapman, <i>Crawford</i> | 22 | 1,045 | 515 | 1,560 | x | x |
| 43 | Parker, <i>Crawford</i> | 29 | 1,310 | 30 | 1,340 | x | x |
| 44 | Allison-Weger, <i>Crawford</i> | y | 1,075 | 20 | 1,095 | x | x |
| 45 | Flat Rock ³ , <i>Crawford</i> | y | 1,375 | 545 | 1,820 | x | x |
| 46 | Birds, <i>Crawford, Lawrence</i> | y | 4,370 | 115 | 4,485 | x | x |
| 47 | Crawford County Division ⁴ | | 45,655 | 1,945 | 47,600 | 140,390,000 | 1,532,000 |
| 48 | Lawrence, <i>Lawrence, Crawford</i> | 30 | 24,150 | 1,550 | 25,700 | x | x |
| 49 | | | 5,015 | 35 | 5,050 | x | x |
| 50 | | | 2,240 | 0 | 2,240 | x | x |
| 51 | | | 345 | 1,095 | 1,440 | x | x |
| 52 | | | 15,960 | 220 | 16,180 | x | x |
| 53 | | | 4,020 | 200 | 4,220 | x | x |
| 54 | | | 6,950 | 0 | 6,950 | x | x |
| 55 | St. Francisville, <i>Lawrence</i> | y | 420 | 0 | 420 | x | x |
| 56 | Lawrence County Division ⁵ | | 24,570 | 1,550 | 26,120 | 219,343,000± | 1,785,000± |

¹ Total of lines 1, 2, 6, 10, 11, 15, 22, 27, 32.² Includes Kibbie, Oblong, Robinson and Hardinsville.³ Includes Swearingen gas.⁴ Total of lines 37, 41, 42, 43, 44, 45, 46.⁵ Total of lines 48 and 55.

natural decline in other areas. The price of Illinois crude oil was \$1.23 per barrel from Jan. 5, 1936, until the end of the year, an increase of 10¢ per barrel over that of 1935. This price rise has tended to check

TABLE 1.—(Continued)

| Line Number | Total Oil Production, Bbl. | | Total Gas Production, Millions Cu. Ft. | | | | Number of Oil and/or Gas Wells | | | | | | | | |
|-------------|----------------------------|--------------------------------|--|-------------|-------------|---------------------------|--------------------------------|-------------|-----------|-----------------------|--------------------|------------------------------------|--------------------|-----------------|-------|
| | During 1936 | Daily Average during Nov. 1936 | To End of 1936 | During 1935 | During 1936 | Maximum Daily during 1936 | Completed to End of 1936 | During 1936 | | At End of 1936 | | | | | |
| | | | | | | | | Completed | Abandoned | Temporarily Shut Down | Producing Oil Only | Producing Oil and Gas ^b | Producing Gas Only | Total Producing | |
| 1 | 1,095 | 3.0 | 0 | 0 | 0 | 0 | 22 | 0 | 0 | 2 | 13 | 0 | 0 | 13 | |
| 2 | x | x | x | 0 | 0 | 0 | 1,616 | 6 | 0 | y | y | 418 | 0 | 0 | 418 |
| 3 | x | x | x | 0 | 0 | 0 | 1,855 | 1 | 0 | y | y | y | 0 | 0 | y |
| 4 | x | x | x | 0 | 0 | 0 | 1,435 | 0 | 0 | y | y | y | 0 | 0 | y |
| 5 | x | x | x | x | 0 | 0 | 12 | 0 | 0 | y | y | y | 0 | 0 | y |
| 6 | x | x | x | 0 | 0 | 0 | 995 | 0 | 0 | y | y | 916 | y | 0 | 916 |
| 7 | x | x | x | 0 | 0 | 0 | 854 | 0 | 0 | y | y | y | y | 0 | y |
| 8 | x | x | x | 0 | 0 | 0 | 90 | 0 | 0 | y | y | y | y | 0 | y |
| 9 | x | x | x | 0 | 0 | 0 | 192 | 0 | 0 | y | y | y | y | 0 | y |
| 10 | x | x | x | 0 | 0 | 0 | 70 | 0 | 0 | y | y | 44 | y | 0 | 44 |
| 11 | x | x | x | 0 | 0 | 0 | 532 | 0 | 25 | 15 | 473 | 0 | 0 | 0 | 473 |
| 12 | x | x | x | 0 | 0 | 0 | 41 | 0 | y | y | y | 0 | 0 | 0 | y |
| 13 | x | x | x | 0 | 0 | 0 | 82 | 0 | y | y | y | 0 | 0 | 0 | y |
| 14 | x | x | x | 0 | 0 | 0 | 319 | 0 | y | y | y | 0 | 0 | 0 | y |
| 15 | x | x | x | 0 | 0 | 0 | 213 | 0 | 0 | y | y | 135 | 0 | 0 | 135 |
| 16 | x | x | x | 0 | 0 | 0 | 7 | 0 | 0 | y | y | y | 0 | 0 | y |
| 17 | x | x | x | 0 | 0 | 0 | 63 | 0 | 0 | y | y | y | 0 | 0 | y |
| 18 | x | x | x | 0 | 0 | 0 | 21 | 0 | 0 | y | y | y | 0 | 0 | y |
| 19 | x | x | x | 0 | 0 | 0 | 34 | 0 | 0 | y | y | y | 0 | 0 | y |
| 20 | x | x | x | 0 | 0 | 0 | 39 | 0 | 0 | y | y | y | 0 | 0 | y |
| 21 | x | x | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| 22 | x | x | x | x | x | x | 485 | 0 | 0 | y | y | 457 | y | 0 | 457 |
| 23 | x | x | x | x | x | x | 296 | 0 | 0 | y | y | y | y | 0 | y |
| 24 | x | x | x | x | x | x | 32 | 0 | 0 | y | y | y | 0 | 0 | y |
| 25 | x | x | x | x | x | x | 177 | 0 | 0 | y | y | y | y | 0 | y |
| 26 | x | x | 0 | 0 | 0 | 0 | 44 | 0 | 0 | y | y | y | y | 0 | y |
| 27 | x | x | x | x | x | x | 534 | 1 | 0 | y | y | 487 | y | 0 | 487 |
| 28 | x | x | x | x | x | x | 38 | 0 | 0 | y | y | y | y | 0 | y |
| 29 | x | x | x | x | x | x | 59 | 0 | 0 | y | y | y | y | 0 | y |
| 30 | x | x | x | x | x | x | 401 | 0 | 0 | y | y | y | y | 0 | y |
| 31 | x | x | x | x | x | x | 170 | 0 | 0 | y | y | y | y | 0 | y |
| 32 | x | x | x | x | x | x | 485 | 0 | 0 | y | y | 407 | 0 | 0 | 407 |
| 33 | x | x | x | x | x | x | 309 | 0 | 0 | y | y | y | 0 | 0 | y |
| 34 | x | x | x | x | x | x | 63 | 0 | 0 | y | y | y | 0 | 0 | y |
| 35 | x | x | x | x | x | x | 182 | 0 | 0 | y | y | y | 0 | 0 | y |
| 36 | 463,600 | 1,225 | x | y | y | y | 4,874 | 8 | 25 | 17 | 3,351 | y | 0 | 0 | 3,351 |
| 37 | x | x | x | x | x | x | 7,318 | 6 | 158 | y | 5,388 | y | 0 | 0 | 5,388 |
| 38 | x | x | x | x | x | x | 68 | 0 | y | y | y | 0 | 0 | 0 | y |
| 39 | x | x | x | x | x | x | 7,134 | 6 | y | y | y | y | 0 | 0 | y |
| 40 | x | x | x | x | x | x | 108 | 0 | y | y | y | y | 0 | 0 | y |
| 41 | x | x | x | x | x | x | 295 | 0 | 0 | 0 | 181 | 0 | 0 | 0 | 181 |
| 42 | x | x | x | x | x | x | 193 | 0 | 6 | y | 77 | 0 | 0 | 0 | 77 |
| 43 | x | x | x | x | x | x | 255 | 0 | 0 | y | 221 | 0 | 0 | 0 | 221 |
| 44 | x | x | x | x | x | x | 146 | 0 | 7 | y | 65 | 0 | 0 | 0 | 65 |
| 45 | x | x | x | x | x | x | 283 | 2 | 11 | y | 152 | 0 | 0 | 0 | 152 |
| 46 | x | x | x | x | x | x | 684 | 1 | 2 | y | 482 | 0 | 0 | 0 | 482 |
| 47 | 1,546,000 | 3,950 | x | y | y | y | 9,174 | 9 | 184 | 31 | 6,534 | y | 1 | 1 | 6,535 |
| 48 | x | x | x | x | x | x | 4,388 | 5 | 38 | y | 3,304 | y | y | y | 3,304 |
| 49 | x | x | x | x | x | x | 1,231 | 3 | y | y | y | y | y | y | y |
| 50 | x | x | x | x | x | x | 475 | 0 | y | y | y | y | y | y | y |
| 51 | x | x | x | x | x | x | 243 | 0 | y | y | y | y | y | y | y |
| 52 | x | x | x | x | x | x | 3,017 | 0 | y | y | y | y | y | y | y |
| 53 | x | x | x | x | x | x | 684 | 0 | y | y | y | y | y | y | y |
| 54 | x | x | x | x | x | x | 952 | 2 | y | y | y | y | y | 0 | y |
| 55 | x | x | x | x | x | x | 54 | 0 | y | y | y | 45 | y | y | 45 |
| 56 | 1,908,000± | 5,017± | x | y | y | y | 9,169 | 5 | 38 | y | 3,349 | y | y | y | 3,349 |

^b Footnotes to column heads and explanation of symbols are given on page 14.

TABLE 1.—(Continued)

| Line Number | Depth, Average in Feet | | Oil Production Methods at End of 1936 | | | Pressure, Lb. per Sq. In. | | Character of Oil, Approx. Average during 1936 | | | | | Character of Gas, Approx. Average during 1936 | | | |
|-------------|-----------------------------|---------------------------|---------------------------------------|---------|---------------------------|---------------------------|-------------------|---|--|---------|------------------|------------------|---|--------------------|------------------------------|---|
| | Bottoms of Productive Wells | To Top of Productive Zone | Number of Wells | | Injection into Reservoirs | Initial | Average at End of | | Gravity A.P.I. at 60° F. ²⁵ | | | Sulphur Per Cent | Base* | B.t.u. per Cu. Ft. | Gal. Gasoline per M. Cu. Ft. | |
| | | | Flowing | Pumping | | | 1935 | 1936 | Maximum | Minimum | Weighted Average | | | | | |
| 1 | 215 | 159 | | 13 | | x | x | x | x | x | y | y | | | | |
| 2 | | | | 418 | | 200± | x | x | x | 38.4 | 28.3 | 34.0 | y | M | x | x |
| 3 | 376 | 281 | | y | | x | x | x | y | y | 30.0 | y | M | x | x | |
| 4 | 446 | 334 | | y | | x | x | x | y | y | 33.5 | y | M | x | x | |
| 5 | 2,568 | 2,265 | | y | | x | x | x | y | y | 37.0 | y | M | x | x | |
| 6 | | | | 916 | A2 | x | x | x | (36.9) | 27.4 | 33.0 | y | M | x | x | |
| 7 | 465 | 367 | | y | | x | x | x | y | y | 34.0 | y | M | x | x | |
| 8 | 562 | 478 | | y | | x | x | x | y | y | (33.6) | y | M | x | x | |
| 9 | 590 | 556 | | y | | x | x | x | y | y | (25.7) | y | M | x | x | |
| 10 | 680 | 588 | | 44 | | x | x | x | 33.9 | 30.0 | (30.3) | y | M | x | x | |
| 11 | | | | 473 | 21 | x | x | x | 37.2 | 27.2 | 29.2 | y | M | x | x | |
| 12 | 358 | 263 | | y | | x | x | x | y | y | (31.9) | y | M | x | x | |
| 13 | 426 | 309 | | y | | x | x | x | y | y | (30.1) | y | M | x | x | |
| 14 | 505 | 444 | | y | | x | x | x | y | y | (33.6) | y | M | x | x | |
| 15 | | | | 135 | A2 | x | x | x | 37.5 | 30.2 | 36.8 | y | M | x | x | |
| 16 | 411 | 255 | | y | | x | x | x | y | y | y | y | y | x | x | |
| 17 | 511 | 449 | | y | | x | x | x | y | y | y | y | y | x | x | |
| 18 | 506 | 477 | | y | | x | x | x | y | y | y | y | y | x | x | |
| 19 | 1,418 | 1,340 | | y | | x | x | x | y | y | (38.9) | y | M | x | x | |
| 20 | 1,596 | 1,553 | | y | | x | x | x | y | y | y | y | y | x | x | |
| 21 | 2,830 | 2,708 | | 1 | | x | x | x | y | y | (39.6) | y | M | x | x | |
| 22 | | | | 457 | | x | x | x | 36.2 | 27.2 | 31.0 | y | M | x | x | |
| 23 | 486 | 416 | | y | | x | x | x | y | y | y | y | y | x | x | |
| 24 | 451 | 314 | | y | | x | x | x | y | y | y | y | y | x | x | |
| 25 | 508 | 465 | | y | | x | x | x | y | y | y | y | y | x | x | |
| 26 | 554 | 534 | | y | | x | x | x | y | y | y | y | y | x | x | |
| 27 | | | | 487 | | x | x | x | 35.1 | 28.5 | 32.2 | y | M | x | x | |
| 28 | 549 | 392 | | y | | x | x | x | y | y | y | y | y | x | x | |
| 29 | 518 | 453 | | y | | x | x | x | y | y | y | y | y | x | x | |
| 30 | 570 | 489 | | y | | x | x | x | y | y | y | y | y | x | x | |
| 31 | 618 | 598 | | y | | x | x | x | y | y | y | y | y | x | x | |
| 32 | | | | 407 | AG2 | x | x | x | 35.6 | 27.3 | 28.5 | y | M | x | x | |
| 33 | 726 | 561 | | y | | x | x | x | y | y | 33.7 | y | M | x | x | |
| 34 | 907 | 817 | | y | | x | x | x | y | y | (32.4) | y | M | x | x | |
| 35 | 920 | 886 | | y | | x | x | x | y | y | (37.0) | y | M | x | x | |
| 36 | | | | 3,351 | 22 | x | x | x | 39.6 | 25.8 | 33.0 | y | y | x | x | |
| 37 | | | | 5,388 | 23 | 425± | y | y | 36.8 | 25.1 | 33.0 | y | M | 960 | 2.5 | |
| 38 | 822 | 508 | | y | | x | x | x | y | y | y | y | y | x | x | |
| 39 | 960 | 900 | | y | | x | x | x | 36.8 | 25.1 | 32.8 | y | M | 960 | 2.5 | |
| 40 | 1,416 | 1,337 | | y | | x | x | x | y | y | y | y | y | x | x | |
| 41 | 975 | 940 | | 181 | G2 | x | x | x | 35.0 | 24.3 | 30.1 | y | y | x | x | |
| 42 | 1,015 | 995 | | 77 | AG1 | x | x | x | y | y | y | y | y | x | x | |
| 43 | 1,025 | 1,000 | | 221 | | x | x | x | y | y | y | y | y | x | x | |
| 44 | 930 | 912 | | 65 | | x | x | x | 30.4 | 22.6 | 29.5 | y | y | x | x | |
| 45 | 945 | 935 | | 152 | | x | x | x | 26.6 | 20.1 | 22.5 | y | y | x | x | |
| 46 | 950 | 930 | | 482 | A7 | x | x | x | 34.1 | 26.5 | 31.3 | y | y | x | x | |
| 47 | | | | 6,534 | 25 | 425± | x | x | 38.6 | 18.5 | 32.5 | y | M | 960 | 2.5 | |
| 48 | | | | 3,304 | A1 | 650± | x | x | 39.3 | 26.7 | 32.9 | y | M | y | 2.4 | |
| 49 | 1,000 | 800 | | y | | x | x | x | y | y | y | y | y | x | x | |
| 50 | 1,265 | 1,250 | | y | | x | x | x | y | y | y | y | y | x | x | |
| 51 | 1,345 | 1,320 | | y | | x | x | x | y | y | y | y | y | x | x | |
| 52 | 1,430 | 1,400 | | y | | 600± | x | x | y | y | y | y | y | x | x | |
| 53 | 1,580 | 1,560 | | y | | 650 | x | x | y | y | y | y | y | x | x | |
| 54 | 1,710 | 1,700 | | y | | x | x | x | y | y | y | y | y | x | x | |
| 55 | 1,865 | 1,843 | | 45 | | 600 | x | x | 37.3 | 37.3 | 37.3 | y | y | x | x | |
| 56 | | | | 3,349 | A1 | | x | x | | | | | | x | x | |

* Numbers in this column indicate numbers of injection wells.

²¹ G1, A14.

²² G1, AG13, AS.

²³ G17, AG20, A42.

²⁴ G17, AG20, A42.

²⁵ G26, AG21, A42, W3.

²⁶ All gravities given (except those in parentheses) were from data for the year 1925 furnished by the Illinois Pipe Line Co. Gravities in parentheses are for particular samples; see Illinois State Geol. Survey Bull. 54, Table 3. The values have been converted from Baumé to A.P.I. gravities.

the abandonment of old wells, which had been increasing during the years of low prices (1931-1933). A preliminary estimate of the total value of the crude oil produced in Illinois is \$5,500,000.

TABLE 1.—(Continued)

| Line Number | Producing Rock | | | | | | Number of Dry and/or Near-dry Holes to End of 1936 | Deepest Zone Tested to End of 1936 | |
|-------------|-------------------------------|------------------|------------------------|-----------------------|-------------------------------|------------------------|--|------------------------------------|--------------------|
| | Name | Age ^f | Character ^g | Porosity ^h | Net Thickness Average in Feet | Structure ⁱ | | Name | Depth of Hole, Ft. |
| 1 | Unnamed | Pen | S | Por | z | ML | 0 | Pen | 715 |
| 2 | See below | | | | | D | 101 | Trenton | 2,918 |
| 3 | Shallow gas sand | Pen | S | Por | 36 | D | z | | |
| 4 | Westfield lime | Mis L | L | Cav | z | D | z | | |
| 5 | Trenton (Ordo) | Ordo | L | Por | z | D | z | | |
| 6 | See below | | | | | D | 28 | Dev. limestone | 2,010 |
| 7 | First Siggins sand | Pen | S | Por | z | D | z | | |
| 8 | Second and third Siggins sand | Pen | S | Por | z | D | z | | |
| 9 | Lower Siggins sand | Pen | S | Por | z | D | z | | |
| 10 | York sand | Pen | S | Por | z | AM | 20 | MisL | 960 |
| 11 | See below | | | | | AM | 5 | | 808 |
| 12 | Upper gas sand | Pen | S | Por | z | AM | 12 | | |
| 13 | Lower gas sand | Pen | S | Por | z | AM | 20 | | |
| 14 | Casey sand | Pen | S | Por | z | AM | 5 | St. Peter | 3,411 |
| 15 | See below | | | | | D | 1 | | |
| 16 | Shallow sands | Pen | S | Por | z | D | 5 | | |
| 17 | Casey sand | Pen | S | Por | z | D | 1 | | |
| 18 | Martinsville sand | MisL | L | Por | z | D | 1 | | |
| 19 | Carper | MisL | S | Por | z | D | 3 | | |
| 20 | "Niagaran" | Der | L | Por | z | D | 1 | | |
| 21 | Trenton | Ordo | L | Por | z | D | 16 | Mis | 965 |
| 22 | See below | | | | | AM | 12 | | |
| 23 | Claypool sand | Pen | S | Por | z | AM | 4 | | |
| 24 | Shallow sands | Pen | S | Por | z | AM | 12 | | |
| 25 | Casey sand | Pen | S | Por | z | AM | 16 | | |
| 26 | Upper Partlow | Pen | S | Por | z | AM | 29 | Mis | 1,160 |
| 27 | See below | | | | | AM | 3 | | |
| 28 | Claypool sand | Pen | S | Por | z | AM | 11 | | |
| 29 | Casey sand | Pen | S | Por | z | AM | 29 | | |
| 30 | Upper Partlow | Pen | S | Por | z | AM | 10 | | |
| 31 | Lower Partlow | Pen | S | Por | z | AM | 14 | MisL | 1,471 |
| 32 | See below | | | | | AM | 3 | | |
| 33 | "500 Ft." sand | Pen | S | Por | z | AM | 3 | | |
| 34 | "800 Ft." sand | Pen | S | Por | z | AM | 12 | | |
| 35 | "900 Ft." sand | MisU | S | Por | z | AM | 213 | | |
| 36 | See below | | | | | ML | 202 | Trenton (Ordo) | 4,620 |
| 37 | Shallow sand | Pen | S | Por | z | ML | z | | |
| 38 | Robinson sand | Pen | S | Por | 25± | ML | 167 | Trenton (Ordo) | 4,620 |
| 39 | Oblong | Mis | S or L | Por | z | A, ML | 23 | Mis | 1,479 |
| 40 | Robinson sand | Pen | S | Por | z | ML | 5 | Mis L | 2,056 |
| 41 | Robinson sand | Pen | S | Por | z | ML | 10 | Mis | 2,279 |
| 42 | Robinson sand | Pen | S | Por | z | ML | 10 | Pen? | 1,127 |
| 43 | Robinson sand | Pen | S | Por | z | ML | 6 | Pen | 1,041 |
| 44 | Robinson (Flat Rock) | Pen | S | Por | z | ML | 8 | Pen | 1,032 |
| 45 | Robinson sand | Pen | S | Por | z | ML | 12 | MisL | 1,731 |
| 46 | See below | | | | | ML | 251 | Trenton (Ordo) | 4,620 |
| 47 | Bridgeport sand | Pen | S | Por | 40 | A | 84 | St. Peter | 5,190 |
| 48 | Buchanan | Pen | S | Por | 15 | A | 3 | | |
| 49 | "Gas" sand | MisU | S | Por | 15 | A | 5 | | |
| 50 | Kirkwood | MisU | S | Por | 30 | A | 10 | | |
| 51 | Tracy | MisU | S | Por | 20 | A | 11 | | |
| 52 | McClosky | MisL | L | Por | 10 | A | 24 | | |
| 53 | Kirkwood | MisU | S | Por | 22 | ML | 0 | Mis | 1,900 |
| 54 | See below | | | | | | 84 | St. Peter | 5,190 |

In most Illinois fields the 1936 oil production differed only slightly from that of 1935. Slight increases took place in Crawford and Lawrence Counties and slight decreases in Clark and St. Clair Counties, no change in these counties being greater than 3 per cent. Production from the Colmar-Plymouth oil field, McDonough and Hancock Counties, nearly doubled, because of air repressuring. The Marion County district of the Illinois Pipe Line Co., which includes the old Carlyle, Sandoval, Wamac

TABLE 1.—(Continued)

| Line Number | Field, County | Age, Years to End of 1936 | Area Proved, Acres | | | Total Oil Production, Bbl. | |
|-------------|--|---------------------------|--------------------|--------|---------|----------------------------|-------------------------|
| | | | Oil | Gas | Total | To End of 1936 | During 1935 |
| 57 | Allendale, Wabash..... | 24 | 1,670 | 0 | 1,670 | 4,220,000 ± | 280,000 ± |
| 58 | Total Southeastern Illinois Field ⁶ | | 91,845 | 3,970 | 95,815 | 415,403,000 | 4,076,000 |
| 59 | Colmar-Plymouth, Hancock, McDonough..... | 23 | 2,450 | 0 | 2,450 | 2,140,000 | 86,800 |
| 60 | Pike County Gas, Pike..... | 31 ⁷ | 0 | 8,960 | 8,960 | 0 | 0 |
| 61 | Jacksonville, Gas, Morgan..... | 26 | 30 | 1,290 | 1,320 | 2,100 | 0 |
| 62 | Carlinville, Macoupin..... | 27 ¹⁰ | 30 | 50 | 80 | x | 0 |
| 63 | Spanish Needle Creek, Macoupin..... | 21 ¹¹ | 0 | 80 | 80 | 0 | 0 |
| 64 | Gillespie-Wyen, Macoupin..... | 21 | 40 | 0 | 40 | x | 1,925 |
| 65 | Gillespie-Benld Gas, Macoupin..... | 13 ¹² | 0 | 80 | 80 | 0 | 0 |
| 66 | Stanton Gas, Macoupin..... | 20 ¹³ | 0 | 400 | 400 | 0 | 0 |
| 67 | Litchfield, Montgomery..... | 57 ¹⁴ | 100 | 0 | 100 | 22,000 | 0 |
| 68 | Collinsville, Madison..... | 27 ¹⁵ | 40 | 0 | 40 | 715 | 0 |
| 69 | Ayers Gas, Bond..... | 14 | 0 | 320 | 320 | 0 | 0 |
| 70 | Greenville Gas, Bond..... | 26 ¹⁶ | 0 | 160 | 160 | 0 | 0 |
| 71 | Carlyle, Clinton..... | 25 | 915 | 0 | 915 | 3,289,000 ± | 39,500 |
| 72 | Frogtown, Clinton..... | 18 ¹⁷ | 300 | 0 | 300 | x | 0 |
| 73 | Sandoval, Marion..... | 27 | 770 | 0 | 770 | 2,607,000 ± | 27,000 ± |
| 74 | Centralia, Marion..... | 26 | 175 | 0 | 175 | x | y |
| 75 | Wamac, Clinton, Marion, Washington..... | 15 | 250 | 0 | 250 | 353,000 ± | 35,000 ± |
| 76 | Dupo, St. Clair..... | 8 | 670 | 0 | 670 | 877,600 | 51,500 |
| 77 | Waterloo, Monroe..... | 16 ⁷ | 125 | 0 | 125 | 166,000 | 0 |
| 78 | Sparta Gas, Randolph..... | 19 ¹⁸ | 65 | 100 | 165 | x | 0 |
| 79 | Ava-Campbell Hill, Jackson..... | 19 ¹¹ | 70 | 370 | 440 | 25,000 | 0 |
| 80 | Bartelso, Clinton..... | 1 | 200 | 0 | 200 | 40,700 ± | 0 |
| 81 | Total Illinois ¹⁹ | | 98,085 | 15,770 | 113,855 | 425,495,000 ²⁰ | 4,322,000 ²⁰ |

⁶ Total of lines 36, 47, 56, 57.

⁷ Abandoned 1930.

¹⁰ Abandoned 1925 ±.

¹¹ Abandoned 1934.

¹² Abandoned 1935.

¹³ Abandoned 1919.

¹⁴ Abandoned 1904.

¹⁵ Abandoned 1921.

¹⁶ Abandoned 1923.

¹⁷ Abandoned 1933.

¹⁸ Abandoned.

¹⁹ Total of lines 58 to 79 inclusive.

²⁰ The total oil production is the figure furnished by the U. S. Bureau of Mines and is not the exact total of the figures given in the table, which were obtained from other sources.

and Macoupin County fields and the new Bartelso field, had an increased production of approximately 30,000 bbl., or 31 per cent over 1935. The Bartelso field itself produced approximately 40,700 bbl. of oil. A decline in the production of the Carlyle field from 39,500 bbl. in 1935 to 28,200 in 1936 was owing to the fact that about 13 former producers were made input wells for water-flooding, and up to the end of 1936 no increased production from the adjacent wells had been effected by the water. Lack of sufficient gas reduced the amount of pumping in the whole field.

The well that discovered the new Bartelso oil field was located on the crest of a dome that was mapped, described, and recommended in *Bulletin* 20A of the Illinois State Geological Survey, published in 1912. Subsequent test wells on the west flank of the dome had obtained showings of oil but until 1936 there was no drilling on the high part of the structure.

The discovery well of the Bartelso oil field was the Bartelso Oil and Gas Company's C. Trame No. 1 well, SE. $\frac{1}{4}$ NW. $\frac{1}{4}$ sec. 8, T.1N.,

TABLE 1.—(Continued)

| Line Number | Total Oil Production, Bbl. | | Total Gas Production, Millions Cu. Ft. | | | | Number of Oil and/or Gas Wells | | | | | | | |
|-------------|-------------------------------|---|---|-------------|-------------|------------------------------|--------------------------------|-------------|-----------|--------------------------|-----------------------|---------------------------------------|-----------------------|--------------------|
| | During 1936 | Daily Average during Nov. 1936 | To End of 1936 | During 1935 | During 1936 | Maximum Daily during 1936 | Completed to End of 1936 | During 1936 | | At End of 1936 | | | | |
| | | | | | | | | Completed | Abandoned | Temporarily Shut Down | Producing Oil Only | Producing Oil and Gas ^a | Producing Gas Only | Total Producing |
| 57 | 220,000± | 365± | x | y | y | y | 411 | 4 | 11 | y | 319 | y | 0 | 319 |
| 58 | 4,137,600 | 10,557 | x | y | y | y | 19,005 | 26 | 258 | 48 | 13,553 | y | 1 | 13,554 |
| 59 | 153,000 | 430 | 0 | 0 | 0 | 0 | 463 | 9 | 0 | 69 | 196 | 0 | 0 | 196 |
| 60 | 0 | 0 | x | 0 | 0 | 0 | 68 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 61 | 0 | 0 | x | x | 0 | 0 | 53 | 0 | y | y | 0 | 0 | y | y |
| 62 | 0 | 0 | x | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 63 | 0 | 0 | 14.4 | 0 | 0 | 0 | 22 | 0 | 0 | 12 | 0 | 0 | 0 | 0 |
| 64 | 4,758 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 65 | 0 | 0 | 135.8 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 66 | 0 | 0 | 1,050 | 0 | 0 | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 67 | 0 | 0 | x | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 68 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 69 | 0 | 0 | 117,447 | 13,420 | 37,047 | y | 17 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70 | 0 | 0 | 990 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 10 | 10 |
| 71 | 28,200± | 77± | 0 | 0 | 0 | 0 | 164 | 0 | 0 | 21 | 88 | 0 | 0 | 88 |
| 72 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 73 | 30,160± | 82± | 0 | 0 | 0 | 0 | 122 | 0 | 0 | y | 45 | 0 | 0 | 45 |
| 74 | y | y | 0 | 0 | 0 | 0 | 22 | 0 | 0 | y | 3 | 0 | 0 | 3 |
| 75 | 23,200± | 65± | 0 | 0 | 0 | 0 | 103 | 0 | 4 | y | 46 | 0 | 0 | 46 |
| 76 | 53,100 | 138 | 0 | 0 | 0 | 0 | 237 | 7 | 0 | 0 | 45 | 0 | 0 | 45 |
| 77 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 78 | 0 | 0 | x | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79 | 0 | 0 | x | 0 | 0 | 0 | 35 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80 | 40,700± | 230± | 0 | 0 | 0 | 0 | 9 | 9 | 0 | 0 | 9 | 0 | 0 | 9 |
| 81 | 4,445,000 ²⁰ | 12,100 ²⁰ | x | y | y | y | 20,433 | 52 | 262 | 150 | 13,985 | y | 11 | 13,996 |

In the Dupo field, St. Clair County, seven oil wells were drilled, having average initial daily productions of 33 bbl. per well. Three wildcat wells were drilled in the remainder of the county, all dry holes. Only one of the three was located on known favorable structure—the W. O. Shock et al. Evans-Fritz No. 1, total depth 630 ft., SE. $\frac{1}{4}$ SW. $\frac{1}{4}$ SW. $\frac{1}{4}$ sec. 32, T.3S., R.6W., on a dome mapped and described in Illinois State Geological Survey Illinois Petroleum No. 18. The well ended near the base of the Chester series and therefore did not test the lower Mississippian and other underlying formations.

An extension of the producing area of the Ayers gas field was made when the Ray, Evans et al. John Merry No. 1, NW. $\frac{1}{4}$ SE. $\frac{1}{4}$ sec. 30, T.6N., R.3W., Bond County, total depth 942 ft., was completed on Feb. 3, 1936, with an estimated initial open-flow capacity of $1\frac{1}{2}$ million cubic feet per day. This well is approximately $\frac{1}{4}$ mile south of the nearest producing well and extends the proved area. The Ayers gas field furnishes gas for municipal and industrial use in Greenville.

TABLE 1.—(Continued)

| Line Number | Producing Rock | | | | | | Number of Dry and/ or Near-dry Holes to End of 1936 | Deepest Zone Tested to End of 1936 | |
|-------------|--------------------------|------------------|------------------------|-----------------------|-----------------------------------|------------------------|---|---------------------------------------|-----------------------|
| | Name | Age ^f | Character ^z | Porosity ^a | Net Thickness, Average in Feet | Structure ^r | | Name | Depth of Hole, Ft. |
| 57 | Biehl sand | Pen | S | Por | 20 | AM | 43 | MisL | 2,228 |
| 58 | | | | | | | 595 | | |
| 59 | Hoing sand | Dev | S | Por | 21 | A | 3 | Trenton (Ord) | 805 |
| 60 | Niagaran | Sil | L | Por | 10 | A | 0 | St. Peter | 893 |
| 61 | Gas sand | Pen, Mis | S, SL | Por | 5 | ML | 8 | Trenton (Ord) | 1,390 |
| 62 | Unnamed | Pen | S | Por | 33 | A | 0 | Pen | 410 |
| 63 | Unnamed | Pen | S | Por | 33 | D | 1 | Pen | 495 |
| 64 | Unnamed | Pen | S | Por | 33 | T | 14 | Trenton (Ord) | 2,560 |
| 65 | Unnamed | Pen | S | Por | 33 | A | 0 | Pen | 575 |
| 66 | Unnamed | Pen | S | Por | 33 | A | 0 | Trenton (Ord) | 2,371 |
| 67 | Unnamed | Pen | S | Por | 33 | D | 0 | Pen | 681 |
| 68 | Trenton | Ord | L | Por | 20 | ML | 0 | Trenton (Ord) | 1,500 |
| 69 | Lindley (2d) | MisU | S | Por | 5 | A | 0 | MisL | 1,150 |
| 70 | Lindley (1st, 2d) | MisU | S | Por | 33 | A | 0 | Mis | 1,065 |
| 71 | Carlyle | MisU | S | Por | 20 | A | 17 | Sil | 2,620 |
| 72 | Carlyle | MisU | S | Por | 7 | D | 0 | Carlyle γ | 962± |
| 73 | Benoist | MisU | S | Por | 20± | D | 7 | Mis | 1,732 |
| 74 | Dykstra, Wilson, Benoist | Pen, MisU | S | Por | 20 | D, ML | 6 | MisL | 1,779 |
| 75 | Petro | Pen | S | Por | 20 | D | 0 | Benoist | 1,484 |
| 76 | Trenton | Ord | L | Cav | 50 | A | 0 | Trenton (Ord) | 819 |
| 77 | Trenton | Ord | L | Por | 50 | A | 19 | Trenton (Ord) | 845 |
| 78 | Sparta gas sand | MisU | S | Por | 7 | D | 5 | MisU | 985 |
| 79 | Unnamed | MisU | S | Por | 13 | A | γ | Dev | 2,530 |
| 80 | Carlyle | MisU | S | Por | 21 | D | 0 | Carlyle | 1,065 |
| 81 | | | | | | | 671± | | |

Of the 30 wells drilling or temporarily shut down at the end of 1936, three are of special interest because of their location in the deep basin area. Two of these, the Pure Oil Company's Bradley No. 1, SW. $\frac{1}{4}$ SW. $\frac{1}{4}$ NW. $\frac{1}{4}$ sec. 26, T.1N., R.7E., Wayne County, and Weiler No. 1, SE. $\frac{1}{4}$ SW. $\frac{1}{4}$ SE. $\frac{1}{4}$ sec. 33, T.3N., R.8E., Clay County, were located on the basis of seismograph surveys. These had reached depths of approximately 2050 and 1425 ft., respectively, at the end of the year. The third, the T. E. Baldwin et al. H. Nichols' No. 1, SW. $\frac{1}{4}$ SE. $\frac{1}{4}$ sec. 12, T.4N., R.4E., Marion County, is on the basis of a surface structure

TABLE 2.—Summary of Drilling Operations in Illinois

| Wildcats Drilled in 1936 | | | | | | | | | | |
|--------------------------|----------|-------|-------|------------------|-------------------|------------------------|---------------------------------|----------------------------|---------|--|
| County | Location | | | Total Depth, Ft. | Surface Formation | Deepest Horizon Tested | Drilled by | Initial Production per Day | Remarks | |
| | Sec. | Twp. | Rge. | | | | | | | |
| | Survey | Lat. | Long. | | | | | | | |
| 1 Bond..... | 31 | 6 N. | 3 W. | 1118 | Pleistocene | Chester | F. S. Ray et al. | | Dry | |
| 2 Brown..... | 7 | 2 S. | 3 W. | 780 | Pleistocene | Maquoketa | Super Oil Co. | | Dry | |
| 3 Champaign..... | 11 | 18 N. | 9 E. | 1725 | Pleistocene | Trenton | Meyers et al. | | Dry | |
| 4 Clinton..... | 10 | 3 N. | 2 W. | 1283 | Pleistocene | Chester | Hempen et al. | | Dry | |
| 5 Clinton..... | 5 | 1 N. | 4 W. | 1090 | Pleistocene | Chester | Goldschmidt et al. | | Dry | |
| 6 Clinton..... | 25 | 2 N. | 4 W. | 1097 | Pleistocene | Chester | J. Young et al. | | Dry | |
| 7 Clinton..... | 8 | 1 N. | 3 W. | 1118 | Pleistocene | Chester | Ohio Oil Co. | | Dry | |
| 8 Clinton..... | 4 | 1 N. | 3 W. | 1090 | Pleistocene | Chester | Meyers and Hawley | | Dry | |
| 9 Clinton..... | 7 | 1 N. | 3 W. | 1039 | Pleistocene | Chester | Nollem Oil and Gas Co. | | Dry | |
| 10 Clinton..... | 7 | 1 N. | 3 W. | 1026 | Pleistocene | Chester | Cooksey et al. | | Dry | |
| 11 Clinton..... | 4 | 1 N. | 3 W. | 1058 | Pleistocene | Chester | Jonas et al. | | Dry | |
| 12 Clinton..... | 3 | 1 N. | 3 W. | 1089 | Pleistocene | Chester | Hempen and Burgess | | Dry | |
| 13 Clinton..... | 8 | 1 N. | 3 W. | 1037 | Pleistocene | Chester | Bartelso Oil and Gas Co. | 115 | Dry | |
| 14 Clinton..... | 8 | 1 N. | 3 W. | 1030 | Pleistocene | Chester | Nollem Oil and Gas Co. | | Dry | |
| 15 Douglas..... | 6 | 14 N. | 7 E. | 260 | Pleistocene | Pennsylvanian | Meyers et al. | | Dry | |
| 16 Jasper..... | 15 | 8 N. | 14 W. | 721 | Pleistocene | Pennsylvanian | National Cons. Oil Co. | | Dry | |
| 17 Jasper..... | 15 | 8 N. | 14 W. | 681 | Pleistocene | Pennsylvanian | National Cons. Oil Co. | 10 | Dry | |
| 18 Lawrence..... | 5 | 4 N. | 11 W. | 1460 | Pleistocene | Ste. Genevieve | Yaw, Pierson, Sage | | Dry | |
| 19 Logan..... | 22 | 18 N. | 2 W. | 575 | Pleistocene | Pennsylvanian | Ed. Hood et al. | | Dry | |
| 20 Macoupin..... | 15 | 8 N. | 8 W. | 465 | Pleistocene | Pennsylvanian | Boone Oil Co. | | Dry | |
| 21 Macoupin..... | 36 | 11 N. | 9 W. | 1076 | Pleistocene | Devonian | Hettick Oil Dev. Association | | Dry | |
| 22 Marion..... | 8 | 2 N. | 4 E. | 587 | Pleistocene | Pennsylvanian | Iuka Oil and Gas Co. | | Dry | |
| 23 Pike..... | 19 | 5 S. | 2 W. | 412 | Pleistocene | Devonian | Super Oil Co. | | Dry | |
| 24 Pope..... | 18 | 13 S. | 6 E. | 1000 | Chester | Ste. Genevieve | Rodgers, Rumsey, Barger, et al. | | Dry | |
| 25 Pope..... | 5 | 11 S. | 7 E. | 455 | Chester | Chester | O. B. Clark et al. | | Dry | |
| 26 Randolph..... | 31 | 4 S. | 5 W. | 904 | Pleistocene | Chester | Cain and Beattie | | Dry | |
| 27 St. Clair..... | 2 | 2 N. | 6 W. | 1035 | Pleistocene | Ste. Genevieve | Eisenmayer et al. | | Dry | |
| 28 St. Clair..... | 32 | 3 S. | 6 W. | 630 | Pleistocene | Chester | W. O. Schock | | Dry | |
| 29 St. Clair..... | 2 | 2 N. | 6 W. | 1000 | Pleistocene | Ste. Genevieve | Eisenmayer et al. | | Dry | |
| 30 Vermillion..... | 31 | 20 N. | 12 W. | 230 | Pleistocene | Pennsylvanian | Central Assoc. | | Dry | |
| 31 Washington..... | 33 | 3 S. | 4 W. | 1100 | Pleistocene | Ste. Genevieve | Hunlith et al. | | Dry | |
| 32 Washington..... | 34 | 1 S. | 5 W. | 1068 | Pleistocene | Chester | J. E. Yoek | | Dry | |
| 33 Washington..... | 10 | 1 S. | 3 W. | 1320 | Pleistocene | Ste. Genevieve | Fricke et al. | | Dry | |
| Total..... | | | | | | | | 225 | | |

| | In Proven Fields | Wildcats |
|--|------------------|----------|
| Number of wells drilling Dec. 31, 1936..... | 3 | 6 |
| Number of oil wells completed during 1936..... | 47 | 2 |
| Number of gas wells completed during 1936..... | 3 | 0 |
| Number of dry holes completed during 1936..... | 9 | 31 |

(the Iola dome) described in a publication of the Illinois State Geological Survey¹. It had reached a depth of 760 ft. at the end of the year.

Of the 33 wildcat wells listed in Table 2, the great majority were not located in areas of known favorable structure.

It has long been recognized that there should be a systematic program of coring oil sands and making laboratory tests on the cores for the purpose of making reliable estimates of oil reserves in the producing fields of the state and to aid in applying improved methods of recovery. During previous years this program has been held back by lack of drilling but during 1936 for the first time substantial progress has been made. During 1936, cores of six sands have been taken in eight wells as follows: three from the Robinson sand (Pennsylvanian) in Crawford County; one from the Bridgeport sand (Pennsylvanian) in western Lawrence County; one from the Kirkwood (Cypress formation, Chester series) in eastern Lawrence County; one from the Hoing sand (Devonian) in the Plymouth

TABLE 3.—Wells Drilled in Illinois in 1936

| County | Total Completions | Oil | Gas | Dry | Initial Production | |
|-----------------|-------------------|-----|-----|-----|--------------------|-----------------|
| | | | | | Oil, Bbl. | Gas, M. Cu. Ft. |
| Bond..... | 2 | 0 | 1 | 1 | | 1.5 |
| Brown..... | 1 | 0 | 0 | 1 | | |
| Champaign..... | 1 | 0 | 0 | 1 | | |
| Clark..... | 9 | 6 | 1 | 2 | 16 | " |
| Clinton..... | 19 | 9 | 0 | 10 | 1016 | |
| Crawford..... | 11 | 9 | 0 | 2 | 49 | |
| Douglas..... | 1 | 0 | 0 | 1 | | |
| Jasper..... | 2 | 1 | 0 | 1 | 10 | |
| Lawrence..... | 6 | 5 | 0 | 1 | 41 | |
| Logan..... | 1 | 0 | 0 | 1 | | |
| McDonough..... | 13 | 9 | 0 | 4 | 38 | |
| Macoupin..... | 2 | 0 | 0 | 2 | | |
| Marion..... | 1 | 0 | 0 | 1 | | |
| Pike..... | 1 | 0 | 0 | 1 | | |
| Pope..... | 2 | 0 | 0 | 2 | | |
| Randolph..... | 1 | 0 | 0 | 1 | | |
| St. Clair..... | 10 | 7 | 0 | 3 | 352 | |
| Vermilion..... | 1 | 0 | 0 | 1 | | |
| Wabash..... | 5 | 3 | 1 | 1 | 233 | 1 |
| Washington..... | 3 | 0 | 0 | 3 | | |
| Total..... | 92 | 49 | 3 | 40 | 1755 | 2.5 |

^a 100 lb. per sq. in. closed pressure.

¹ J. M. Weller and A. H. Bell: Geology and Oil and Gas Possibilities of Parts of Marion and Clay Counties, Illinois, with Discussion of the Central Portion of the Illinois Basin, Illinois State Geol. Survey *R. I.* 40 (1936).

field, McDonough County; one from the Carlyle sand (Cypress formation, Chester series) in the Bartelso field, Clinton County; and one from the Biehl sand (Pennsylvanian), Allendale field, Wabash County. The Illinois Geological Survey plans to publish the results of tests on the cores.

Three new repressuring plants, two using natural gas and one using air, were installed in Illinois oil fields in 1936. These were all in Crawford County and are using one, three, and six input wells, respectively. In the last-mentioned operation an increase in production has already been noted. In general other repressuring plants continued in operation with few changes in number of key wells (Table 1).

No new water-flooding projects were undertaken in Illinois fields in 1936. In some of the previous projects, as for example in the Carlyle field, Clinton County and Wamac field, Marion County, the number of input wells was increased. Neither of these fields had increased production in 1936.

Acid treatment of "lime pays" was used in 12 wells in Illinois fields in 1936. One of the wells treated was a new producer, so that no comparison is possible between oil production before and after treatment. The particular well referred to was a McClosky "sand" (Ste. Genevieve limestone) well in eastern Lawrence County. It had an initial production (after acid treatment) of 25 bbl. per day. Of the 11 old producing wells treated with acid, 6 had reported increases in production. Total daily production of the 6 wells before treatment was approximately 15 bbl. and after treatment approximately 170 bbl., an eleven-fold increase.

The fourth annual petroleum conference of Illinois-Indiana was held at Robinson, Ill., June 1, 1936 and was attended by about 150 oil operators, geologists, and geophysicists. The program was devoted to discussion of seismograph exploration, the geology and oil possibilities of the Illinois basin² and field problems in the recovery of oil.

The Fourth Annual Mineral Industries Conference of Illinois, held at Urbana April 24 and 25, included two half-day programs on oil and gas, one on Researches in Progress, the other on Needed Researches. Five of the ten papers presented have been published³.

² J. M. Weller: Geology and Oil Possibilities of the Illinois Basin. Illinois State Geol. Survey Ill. Pet. No. 27.

³ M. H. Flood: Problems in Oil Recovery. *Oil Weekly* (June 8, 1936) **81**, No. 13, 37-38.

W. S. Corwin: The Permeability of Oil Sands in Relation to Increased Recovery. *Oil Weekly* (June 15, 1936) **82**, No. 1, 58-62.

W. Bell: A Comprehensive Survey of Reserves and Underground Conditions in Illinois Oil Fields. *Oil Weekly* (Aug. 24, 1936) **82**, No. 11, 38-40.

A. H. Bell: Studies of Repressuring and Water-flooding. *Petr. Engr.*, **7**, No. 12, 60-62.

F. Squires: Present Status and Future Possibilities of Acid Treatment in Illinois Oil Fields. *Petr. Engr.*, **7**, No. 12, 40-42.

At a meeting of the Kansas Geological Society at Topeka, Kansas, Sept. 5, 1936, during the annual field conference, a paper was presented on Recent Oil Activity in the Illinois Basin⁴.

Data on the production of natural gas and natural gasoline in 1936 are not yet available. According to the U. S. Bureau of Mines (Mineral Market Reports No. M.M.S. 530, Feb. 12, 1937) the production of natural gas in Illinois in 1935 was 1448 million cubic feet (compared with 1838 million cubic feet in 1934). The average value in cents per thousand cubic feet at the wells in 1935 was 8.4¢ and the total value at the wells was \$122,000. Data concerning natural gasoline from 1931 to 1935 inclusive are given in Table 4.

TABLE 4.—*Natural Gasoline Produced in Illinois*

| Year | Production, Thousands of Gallons | Value | | Natural Gas Treated, Millions Cu. Ft. | Yield, Gal. per M. Cu. F. |
|------|--|----------------------------------|------------|---|------------------------------|
| | | Total Thousands of Dollars | Unit Cents | | |
| 1931 | 5024 | 204 | 4.6 | 2106 | 2.39 |
| 1932 | 4558 | 139 | 3.2 | 1924 | 2.37 |
| 1933 | 3673 | 194 | 5.3 | 1701 | 2.14 |
| 1934 | 3810 | 183 | 4.8 | 1512 | 2.52 |
| 1935 | 2642 | 141 | 5.3 | 1076 | 2.64 |

PRODUCED BY COUNTIES IN 1935

| Counties | Production, Thousands of Gallons | Total Value, Thousands of Dollars | Natural Gas Treated Millions Cu. Ft. | Yield, Gal. per M. Cu. Ft. |
|---------------------------|--|--|---|----------------------------------|
| Clark and Cumberland..... | 352 | 20 | 96 | 3.65 |
| Crawford..... | 1583 | 86 | 632 | 2.50 |
| Lawrence and Wabash..... | 707 | 43 | 348 | 2.03 |
| State total..... | 2642 | 140 | 1076 | 2.46 |

ACKNOWLEDGMENTS

Production data for oil and gas were furnished by the U. S. Bureau of Mines; the Illinois Pipe Line Co., Findlay, Ohio; the Ohio Oil Co., Marshall, Ill.; Petro Oil and Gas Co., St. Louis, Mo.; Bond County Gas Co., Greenville, Ill.; and Southwestern Oil and Gas Co., Sandoval, Ill. Mr. George V. Cohee, of the Survey Staff, assisted the writer in assembling the statistical data for this report.

⁴ A. H. Bell: Recent Oil Activity in the Illinois Basin. Abstract, Kansas Geol. Soc. (Sept. 1936).

FOOTNOTES TO COLUMN HEADINGS—TABLE 1

^a In areas where both oil and gas are produced, unless gas is marketed outside the field, such areas are included in column headed "Oil." Manufacture of casinghead gasoline and carbon black is interpreted as outside marketing of gas.

^b Wells producing both oil and gas are classified as "Producing Oil Only" unless gas from them is marketed off the lease.

^c W, water; G, gas; A, air; AG, air-gas mixture. Numbers following letters indicate numbers of injection wells.

^d Bottom-hole pressures are preceded by "e." All other figures represent pressures at casinghead with well closed.

^e P, paraffin; A, asphalt; M, mixed.

^f Cam, Cambrian; Ord, Ordovician; Sil, Silurian; Dev, Devonian; Mis, Mississippian; MisL, Lower Mississippian; MisU, Upper Mississippian; Pen, Pennsylvanian; Per, Permian; Tri, Triassic; Jur, Jurassic; CreL, Lower Cretaceous; CreU, Upper Cretaceous; Eoc, Eocene; Olig, Oligocene; Mio, Miocene; Pli, Pliocene.

^g S, sandstone; SH, sandstone, shaly; Ss, soft sand; H, shale; L, limestone; LS, limestone, sandy; C, chalk; A, anhydrite; D, dolomite; Da, arkosic dolomite; GW, granite wash; P, serpentine; O, oolite; Slt, siltstone.

^h Figures are entered only for fields where the reservoir rock is of pore type. Figures represent ratio of pore space to total volume of net reservoir rock expressed in per cent. "Por" indicates that the reservoir rock is of pore type but said ratio is not known by the author. "Cav" indicates that the reservoir rock is of cavernous type; "Fis," fissure type.

ⁱ A, anticline; AF, anticline with faulting as important feature; Af, anticline with faulting as minor feature; AM, accumulation due to both anticlinal and monocline structure; H, strata are horizontal or near horizontal; MF, monocline-fault; MU, monocline-unconformity; ML, monocline lens; MC, monocline with accumulation due to change in character of stratum; MI, monocline with accumulation against igneous barrier; MUP, monocline with accumulation due to sealing at outcrop by asphalt; D, dome; Ds, salt dome; T, terrace; TF, terrace with faulting as important feature; N, nose; S, syncline.

^j Information will be found in text as indicated by symbols; A, name of author, other than above, who has compiled the data on the particular field; C, chemical treatment of wells; G, gas-oil ratios; P, proration; U, unit operation; R, references; W, water; O, other information.

INTERPRETATIONS*

Generally in Table 1 the unit for presentation of data is a field. For our purposes a field is defined as the whole of a surface area wherein productive locations are continuous. Such unit commonly includes and surrounds nonproductive areas. Such unit commonly includes a great variety of geologic conditions—several units of continuous productive reservoirs of distinctly different structure and of distinctly different stratigraphy. Therefore it is hoped that our authors will subdivide "field" so as to enable students to make analyses that may have scientific and/or commercial value.

As to each space in the tabulation, it is either (1) not applicable, (2) the proper entry is not determinable, (3) the proper entry is determinable, but not determinable from data available to the author, (4) the proper entry is determinable by the author. In spaces not applicable, the author will please draw horizontal lines; in spaces where the proper entries are not determinable, the author will please insert x ; in spaces where the proper entries are determinable but not determinable from data available to the author, the author will please insert y ; in spaces where the proper entries are determinable by the author he will, of course, make such entries. Generally, y implies a hope that in some future year a definite figure will be available.

Inability to determine precisely the correct entry for a particular space should not lead the author to insert merely y . Contributions of great value may be made by the author in many cases where entries are not subject to precise determination. In such cases the author should use his good judgment and make the best entry possible under the circumstances. For many spaces, the correct entries represent the opinion of the

* Quoted from Circular to Authors by Frank A. Herald, Consulting Petroleum Geologist and Engineer; Vice Chairman for Production, A.I.M.E. Petroleum Division, 1933 and 1934.

author (for example, "Area Proved") and in such cases the entries need not be hedged to such extent as in cases where the quantities are definite yet can be ascertained only approximately by the author.

In cases under definite headings but where figures are only approximate, the author may use x . For example, if the total production of a field is known to be between 1,800,000 and 1,850,000, the author may report 1,8 xx,xxx ; or if the production is between 1,850,000 and 1,900,000, the author may report 1,9 xx,xxx .

Where a numeral is immediately to the left of x or y , such numeral represents the nearest known number in that position.

As to quantity of gas produced from many fields the question will arise as to whether the figures should include merely the gas marketed or should include also estimates of gas used in operations and gas wasted. Although rough approximations may be involved, our figures should represent as nearly as possible the total quantity of gas removed from the reservoir.

While we have not provided a column for showing the thickness of the productive zone, generally the difference between average depth to bottoms of productive wells and average depth to top of productive zone will represent approximately the average thickness of the productive zone. For fields where this is not true because of unusually high dips, or for other reasons, it is suggested that the authors indicate in their texts the approximate average thickness of the productive zone.

The figure representing net thickness of producing rock should correspond to the total of the net portions of the producing zone which actually yield oil into the drill hole. It is recognized that for some fields the authors can make only rough guesses—so rough that figures would be of no value. In such cases the authors should enter either x or y , whichever is more appropriate.

We are particularly anxious to have every author give due consideration to the determination of structural conditions of each oil and/or gas body. Please consider each oil and/or gas reservoir and indicate its structure. The mere fact that a reservoir is on an anticline is not proof that the structural condition affecting the accumulation is anticlinal; for example, an oil and/or gas body limited by the upper margin of a lens on the limb of an anticline is "ML" as to structure. By all means, if the oil body occupies any position in the lens other than its upper limit, please so indicate clearly by footnote, for "ML" means, unless modified, that the accumulation is at the upper part of the lens. In every case where the oil and/or gas body terminates short of the up-dip continuity of the reservoir, please carefully check your evidence and then appropriately record your conclusion. "Terrace," "Nose" and "Syncline" are the only terms in our legend which presume such continuity.

Please note that the heading "Number of Dry and/or Near-dry Holes" is intended to cover only such holes as are within the limits of the defined fields.

In Table 2 are listed the important wildcat wells completed during the year. By the term "important" is meant: wells discovering new fields; wells resulting in the discovery of important extensions to old fields; wells discovering new zones in old fields; wells condemning important areas or resulting in significant stratigraphic information, even if the wells are dry; and exceptionally deep wells. At the foot of this table the total number of wells drilled in each district is given, segregated as to oil wells, gas wells and dry holes. The number of wells drilling on Dec. 31, 1936 are in two divisions, designated as wildcat wells and wells in proven fields.