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BULLETIN 54

EXPLORATION FOR OIL AND GAS IN WESTERN KANSAS DURING 1943

BY WALTER A. VER WIEBE

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EXPLORATION FOR OIL AND GAS IN WESTERN KANSAS DURING 1943

By

Walter A. Ver Wiebe

ABSTRACT

Oil and gas production in Kansas reached an all-time peak in 1943. During the year practically all oil wells produced at their maximum economic capacity. During 1943 about 107,000,000 barrels of oil were produced as compared to about 97,000,000 barrels in 1942; during the same period about 122 billion cubic feet of gas was produced as compared to about 98½ billion cubic feet in 1942.

At least 1,464 wells were drilled in western Kansas, of which 765 were completed as oil wells and 22 were completed as gas wells. At least 577 wildcat wells were drilled in the entire state during 1943. Included in these wildcat wells are rank wildcat wells drilled more than 2 miles from production and "extension wildcat" wells drilled less than 2 miles from production. Fifty of these wildcat wells found new pools in western Kansas and seven found new pools in eastern Kansas. Of the 577 wildcat wells, 317 were listed as rank wildcats, and they resulted in the discovery of 23 new oil pools and 2 new gas pools in the state.

Tests for oil and gas were drilled in 43 western counties during the year, and production was obtained in 26 counties. More than 100 test wells were drilled in each of six counties of western Kansas during the year. Russell county had 216 tests drilled, Barton county 201, Stafford county 144, McPherson county 129, Rice county 125, and Pratt county 123. In regard to commercial wells completed, Russell county leads with 139 producers, Barton county is second with 96 producers Pratt county, is third with 94 producers, McPherson county is fourth with 78 producers, Stafford county is fifth with 72 producers, and Rice county is sixth with 69 producers.

INTRODUCTION

For a number of years the State Geological Survey of Kansas has issued reviews of oil and gas developments in the western part of the state. The first of these was published in 1928 as Mineral Resources Circular 1. Mineral Resources Circular 2 published in 1933 describes developments in 1928, 1929, and 1930; Mineral Resources Circular 3 published in 1934 describes developments in 1931 and 1932. Mineral Resources Circular 10 published in 1938 describes developments to the end of 1937 and gives information as to the areal geology, stratigraphy, and structure of each producing county. Mineral Resources Circular 13 and Bulletins 28, 36, 42, and 48 describe developments in the years 1938, 1939, 1940,

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TABLE 1.—*Oil and gas pools discovered in western Kansas in 1943*

County, field, and location	Discovery well	Producing zone	Depth, feet	Month	Initial prod., per day, bbls.
Barber County					
Skinner 29-31-14W	Deep Rock No. 1 "B" Skinner	Viola	4,626-4,640	December	200
Turkey Creek 20-30-15W	Aladdin No. 1 National Gypsum	Simpson	4,430-4,451 4,438-4,448	April	129
Barton County					
Ainsworth Southeast 11-17-13W	Black & Marshall No. 1 Hitchman	Arbuckle	3,358-3,360	December	211
Ames 22-18-11W	Jonas No. 1 Ames	K.C.-Lans.	3,042-3,048	July	287
Bahr 26-18-15W	Clum No. 1 Bahr	Reagan	3,495-3,506	August	140
Barrett 36-16-14W	Vernon Oil No. 1 Barrett	Arbuckle	3,463-3,465	March	266
Eveleigh 11-18-14W	Cities Service No. 1 Eveleigh	Sooy	3,300-3,310	December	425
Millard 29-16-14W	Phillips No. 1 Brack	Arbuckle	3,462-3,480	December	10
Roesler 14-18-11W	Helmerich & Payne No. 1 Roesler	Arbuckle	3,291-3,298	March	150
Silica Northwest 27-19-11W	Texas No. 1 Lanterman	Arbuckle	3,331-3,361	March	25
Ellis County					
Beeching 34-15-16W	Coralena No. 1 Beeching	K.C.-Lans.	3,156-3,160	August	800
Beeching West 33-15-16W	Coralena No. 1 Urban	K.C.-Lans.	3,292-3,326	December	475
Glathart 16-12-19W	Coralena No. 1 Glathart	K.C.-Lans.	3,504-3,514	July	275
Leiker 14-15-18W	B & R Drilling No. 1 Leiker	K.C.-Lans.	3,292-3,298	June	112
Riverview 19-11-18W	Appleman No. 1 Richards	Arbuckle	3,610-3,619	July	1,300
Harvey County					
Burrton Northeast 9-23-3W	Branine No. 1 Lagree	"Chat"	3,305-3,315	December	200
McPherson County					
Paden 10-18-1W	Adair & Morton No. 1 Paden	"Chat"	2,752-2,770	November	500
Roxbury Southeast 20-17-1W	Shallow Water No. 1 Boyd	"Chat"	2,665-2,674	July	66
Ness County					
Arnold 22-16-25W	Falcon Seaboard Drilling-Sohio No. 1 Frevele	"Mississippi lime"		November	142
Phillips County					
Dayton North 13-2-19W	Allan No. 1 Skelton	K.C.-Lans.	3,406-3,422	March	109
Hansen 14-5-20W	Cities Service No. 1 "C" Hansen	K.C.-Lans.	3,363-3,371	February	1,626
Pratt County					
Chitwood 23-28-12W	Lion No. 1 Chitwood	Simpson	4,396-4,399	September	2,672
Frisbie 5-26-13W	Stanolind No. 1 Frisbie	K.C.-Lans.	3,947-3,955	April	470
Reno County					
Hilger North 34-25-4W	Phillips No. 1 Manning	Viola	4,099-4,102	August	2,595

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TABLE 1.—*Oil and gas pools discovered in western Kansas in 1943, concluded*

County, field, and location	Discovery well	Producing zone	Depth, feet	Month	Initial prod., per day, bbls.
Rice County					
Click 3-18-7W	Phillips No. 1 Click	Misener	3,182-3,187	December	110
Keller 3-19-9W	Ackley No. 1 Keller Estate	Sooy	3,240-3,243	August	432
Volkland 27-18-9W	Phillips No. 1 Volkland	Arbuckle	3,234-3,256	September	2,364
Rooks County					
Kriley 22-8-18W	Continental No. 1 Kriley	Arbuckle	3,331-3,355	June	80
Marcotte 15-10-20W	Champlin No. 1 Marcotte	Arbuckle	3,752-3,758	December	2,711
Palco 5-10-20W	Continental No. 1 Brueggeman	Arbuckle	3,824-3,843	December	200
Russell County					
Chegwidden 29-15-11W	Mid-Plains No. 1 Chegwidden	K.C.-Lans.	2,998-3,007	December	12 mil. cu. ft. gas
Gustafson Northwest 15-15-12W	Gore No. 1 Kastrup	K.C.-Lans.	3,021-3,027	April	203
Janne 24-15-12W	Nadel & Gussman No. 1 Janne	Arbuckle	3,319-3,329	December	143
Sellens Northwest 22-15-13W	Mid-Plains No. 1 Sellens	K.C.-Lans.	3,039-3,050	July	154
Strecker 21-15-14W	Ohio No. 1 Strecker	Arbuckle	3,342-3,345	June	267
Saline County					
Hunter 20-16-1W	Deep Rock No. 1 Hunter	"Chat"	2,681-2,683	February	1,500
Pliny 9-16-1W	Wolf Creek No. 1 Karber	K.C.-Lans.	1,989-1,998	July	288
Salina 30-14-2W	Westgate-Greenland No. 1 Sudendorf	Viola	3,223-3,232	March	124
Sheridan County					
Studley 23-8-26W	Union Oil No. 1 Pratt	K.C.-Lans.	3,808-3,817	March	689
Stafford County					
Byron 4-21-12W	Stanolind No. 1 "A" Hewitt	Arbuckle	3,460-3,463	August	388
Farmington 34-24-15W	Skelly No. 1 Campbell	Arbuckle	4,417-4,433	July	3,000
Gates South 3-22-13W	Bartlett & Crum No. 1 Kisner	Arbuckle	3,704-3,711	September	148
Grunder 11-25-15W	Cities Service No. 1 Grunder	K.C.-Lans.	3,945-3,960	March	50
Heyen 24-22-12W	Hirshfield No. 1 Heyen	Arbuckle	3,652-3,654	December	25
James 18-21-12W	Faulkner No. 1 Welsh	Arbuckle	3,554-3,563	December	250
Rothgarn 10-21-13W	Faulkner No. 1 Rothgarn	Arbuckle	3,569-3,588	March	880
Spangenberg 21-22-12W	Falcon-Seaboard No. 1 Spangenberg	Arbuckle	3,691-3,697	April	228
Syms 20-21-12W	Stanolind No. 1 Syms	Arbuckle	3,580-3,594	December	100
Van Lieu 20-24-13W	Stanolind No. 1 Van Lieu	Arbuckle	4,069-4,080	April	1,450
Zenith West 8-24-11W	Plains No. 1 Kelly	Viola	3,798-3,803	May	270

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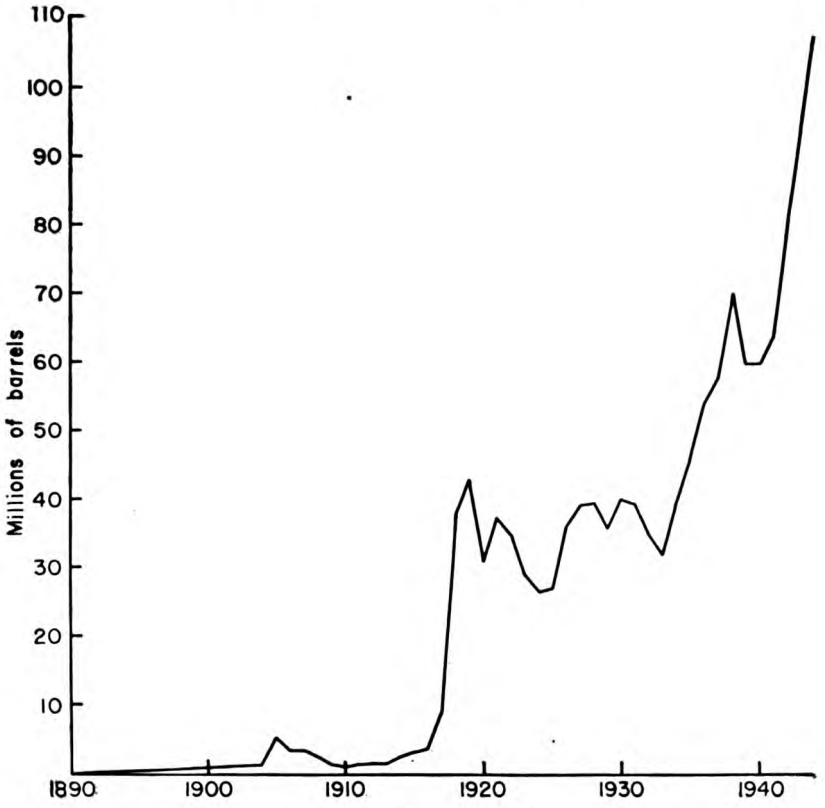

FIG. 1.—Annual oil production in Kansas from 1890 to 1943.

1941, and 1942, respectively. The purpose of the present report is to furnish similar information for the year 1943.

Spurred on by the high demands for new crude supplies resulting from World War II, the oil men of Kansas attempted to find as many new pools as possible in 1943. During that year, a total of 1,464 test wells were drilled in western Kansas of which 765 found oil and 22 found gas (table 3). The total number of wildcat wells drilled in the state was 577. This number includes the rank wildcats and the so-called "extension wildcats" which are less than 2 miles from production. Fifty of these wells found new oil and gas pools in western Kansas (table 1), and seven found new oil pools in eastern Kansas. Of the 577 wildcat wells drilled in 1943, 317 were rank wildcat tests, and they were responsible for 28 of the new oil pools and 2 of the new gas pools in the state. The ratio of

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dry holes to producing wells among such rank wildcats is thus approximately 10 to 1. The methods employed in determining the location of wildcat wells are shown in table 4. It should be noted that only 4 percent of the wells drilled at chance locations and not aided by reliable data found oil, whereas 16 percent of the wells located by technical methods found oil.

Nearly all the wells flowed to their maximum economic capacity in 1943, and the total oil production for Kansas during that year reached a new high of 107,700,000 barrels (fig. 1, table 5). During the previous year, 97,000,000 barrels of oil were produced. The amount of gas sold during 1943 also reached a new high. The total amount of gas was 122 billion cubic feet compared with about 98½ billion cubic feet for the previous year (table 2). As in 1942, the

TABLE 2.—*Kansas natural gas production in 1942 and 1943*
(From records of the Conservation Division, Kansas Corporation Commission)

Field	1942 M cu. ft.	1943 M cu. ft.
Alden	3,265,357	2,116,385
Barton county, miscellaneous	216,930	
Burrton	3,876,450	6,441,632
Cairo (Viola)		494,135
Cowley county, miscellaneous	299,142	260,590
Cunningham (Viola)	11,001,518	7,772,750
Cunningham (Arbuckle)	1,594,638	1,674,739
Eastern Kansas, miscellaneous*	7,000,000	6,300,000
Ellsworth	105,200	110,813
Hollow	56,504	29,331
Hugoton	41,418,093	63,353,908
Krier		229,664
Lyons	564,981	399,441
Merten		244,398
McCarty	23,138	30,701
McLouth	4,438,867	2,626,203
McPherson county	1,848,975	1,164,668
Medicine Lodge	9,905,548	13,721,146
Orth	494,973	539,313
Otis	11,065,286	13,339,645
Prusa	179,172	38,095
Schraeder	207,142	205,647
Silica		98,803
Sperling	24,001	21,110
Wellington	496,124	310,125
Whelan		78,892
Yoder	519,163	487,365
Totals	98,601,202	122,089,499
Daily average	270,140	334,492

* Estimated

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large Hugoton field of southwestern Kansas accounted for approximately one-half of the total gas production.

TABLE 3.—*Wells drilled in western Kansas in 1943, by counties*

County	Oil	Gas	Dry	Total
Barber	8	4	16	28
Barton	96		105	201
Clark			1	1
Decatur			4	4
Edwards	1	1	8	10
Ellis	37		38	75
Ellsworth	26		27	53
Finney	1			1
Gove			2	2
Graham	11		25	36
Greeley			1	1
Harvey	3	2	5	10
Haskell		2		2
Kearny		6	1	7
Kingman			6	6
Kiowa			3	3
Lincoln			1	1
Logan			1	1
McPherson	78		51	129
Mitchell			2	2
Morton			1	1
Ness	3		2	5
Norton			4	4
Osborne			3	3
Ottawa			3	3
Pawnee			3	3
Phillips	25		15	40
Pratt	93	1	29	123
Reno	49		22	71
Rice	69		56	125
Rooks	25		37	62
Rush	2		12	14
Russell	139		77	216
Saline	16		18	34
Scott			1	1
Sedgwick	3	1	11	15
Sheridan	4		2	6
Stafford	72		72	144
Stevens		4		4
Sumner		1	6	7
Thomas			1	1
Trego	4		3	7
Wallace			2	2
Totals	765	22	677	1464

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TABLE 4.—*Results of drilling in western Kansas based on type of exploration method*

Exploration method	Producing wells	Dry holes	Total	Percent successful
Drilling location based on technical data				
Subsurface geology	21	82	103	20
Seismograph	11	59	70	16
Core drill	6	45	51	12
Subsurface geology and core drill	1	10	11	9
Seismograph and core drill	0	7	7	0
Gravimeter	0	2	2	0
Totals	39	205	244	16
Drilling location based on show in near-by well				
Show in near-by well	2	5	7	29
Drilling location made without benefit of technical data				
Chance	5	127	132	4
Grand total	46	337	383	12

DRILLING ACTIVITIES

Despite the fact that 49 new pools were found in western Kansas during 1943, it must be admitted that the reserves of the state have not been increased greatly. Most of the new pools seem to be of minor value, although it is impossible to gauge accurately the future production of any pool in Kansas. Judging by the perform-

TABLE 5.—*Crude oil production in Kansas during 1943*

Month	Total Number of wells	Number of prorated wells	Daily average per prorated well	Total runs, barrels
January	22,401	7,220	37.1	9,182,200
February	22,438	7,234	36.8	8,686,384
March	22,469	7,251	38.4	9,730,032
April	22,548	6,746	36.3	9,580,488
May	22,548	6,749	34.6	9,080,768
June	22,567	6,689	34.6	9,003,237
July	22,615	6,708	35.4	9,068,709
August	22,698	6,173	33.4	8,914,701
September	22,728	6,144	34.2	8,835,310
October	22,792	6,209	32.2	8,525,775
November	22,828	6,246	32.1	8,666,515
December	22,889	6,299	32.4	8,435,560
Total				107,709,679

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ance of some of the pools found in 1941 and 1942, less than five of the pools discovered in 1943 are likely to make any great contribution to the state's oil reserves.

In Graham county, the Morel pool was extended to the southeast. This pool now promises to become one of the important pools of western Kansas. Several of the older wells have already contributed more than 100,000 barrels of oil.

In McPherson county, important new reserves were found by persistent drilling in T. 17 S., R. 1 W. Because of many new wells in older pools and discovery wells in new pools, this region looks promising. The Lindsborg pool, which had a sensational revival during 1942, was also extended in several directions and has now become a rather large producing area having a fairly high future potential capacity.

In Phillips county, drilling in and northeast of the Ray pool has confirmed predictions that this pool might become one of the major pools of western Kansas. The new extension toward the northeast, the Hansen pool, carries much promise. More than two million barrels of oil have been produced from the Ray and Hansen pools, and this is only the first flush production of these pools.

Pratt county seems destined to become one of the active areas in 1944 because of the many oil wells completed during 1943. Wells with large potentials were drilled in the older Iuka and Carmi pools, and large wells were drilled in the younger Stark pool and in the new Chitwood pool. In addition, there were important extension wells drilled southwest of the old Cunningham pool and north of the Cairo gas pool. The great thickness of Simpson sand found in some of the wells of the Pratt county pools augurs well for an ultimate high recovery per acre.

In Reno county, a number of extension wells were drilled in the Peace Creek pool. The limits of the probable producing area have now been fairly well defined. Drilling at the south end of the pool has revealed that this large pool is a part of the older Zenith pool of Stafford county, and the two pools are now completely joined by a continuous row of good producing wells. In one of these intermediate producers, a lower producing horizon (Arbuckle) was found; this may result in the deepening of many of the present Viola producers.

Russell county still remains the rich spot of western Kansas. The large Trapp pool has now produced nearly 50 million barrels of

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oil which entitles it to rank with the major pools of the country. The Hall-Gurney and the Gorham pools, which will probably be joined in the near future, have produced almost as much oil as the Trapp pool. The joining of the Greenvale pool with the Hall-Gurney pool during 1943 was an outstanding development.

Saline county became important in 1943 when 14 producing wells were drilled in the new Hunter pool. Much new exploratory drilling resulted from this discovery, but the results to date are not entirely satisfactory. Two other pools were found and one old pool was revived in Saline county and a new pool was found in adjoining Dickinson county, but none of these is likely to become a major pool or even a large pool of minor character. Undoubtedly, much more drilling will be done in Saline county during 1944 to further test the possibilities of that area.

One of the encouraging developments of the year was the discovery of oil in Sheridan county. In that county, the Union Oil Company of California drilled a deep test well into the Arbuckle dolomite and later plugged it back to good showings in the Kansas City-Lansing limestone. Four wells having good production have now been drilled in this new pool, called the Studley pool. This discovery will doubtless lead to a much more hopeful attitude toward the vast undrilled acres in western Kansas.

In Stafford county, activity was encouraged by the good results obtained in the extension of the Drach pool. This pool now covers an area about as large as that of the Richardson pool, the largest pool in the county. As a result of the renewed drilling activity, 11 new oil pools were found in Stafford county.

OIL AND GAS DEVELOPMENT IN WESTERN KANSAS COUNTIES

Barber County

Barber county (fig. 2) received much attention during 1943. Extension wells were drilled in the large **Medicine Lodge** gas pool and in the smaller **Deerhead** gas pool. Four new wells were added to the **Sun City** oil pool and one new producer was added to the **Lake City** pool. One of the encouraging developments was the discovery of important quantities of oil in the Deerhead gas pool. The Champlin Refining Company drilled one large producer and one smaller well in section 22, northwest of the original gas producer in section 26. The same company also completed one addi-

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tional gas well having a rated capacity of 30 million cubic feet per day.

Two new oil pools were found during the year. One of these, the **Turkey Creek** pool, was discovered by the Aladdin Petroleum Company when it completed a test well on land of the National Gypsum Company in sec. 20, T. 30 S., R. 15 W. The pay zone in this well lies in the Simpson sand between depths of 4,438 and 4,448 feet. The second pool to be discovered in Barber county during 1943 was the **Skinner** pool, in sec. 29, T. 31 S., R. 14 W. It bears the same name as one of the pools discovered during the previous year. The Skinner pool of 1942 was abandoned because of the low productivity of the discovery well. The new Skinner well, which was drilled by the Deep Rock Oil Corporation and the Hill Interests, is capable of producing about 200 barrels of oil per day.

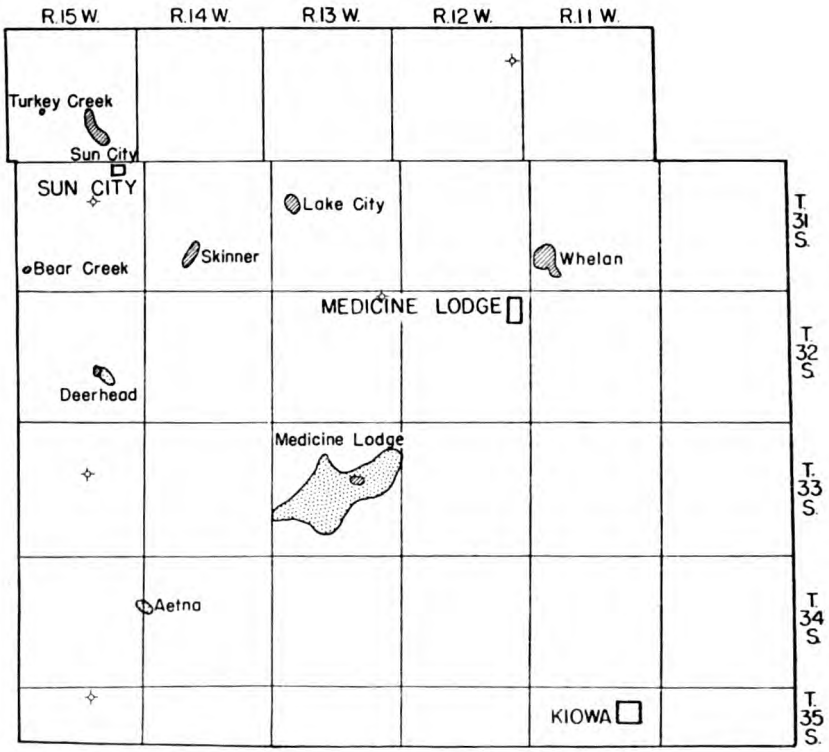

FIG. 2.—Barber county map showing oil and gas pools and dry rank wildcat wells drilled in 1943.

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Table 6 gives information on the Barber county oil and gas pools. These pools and the dry rank wildcat wells drilled in 1943 are shown on figure 2.

Exploratory wells.—Among the five wildcat wells drilled in Barber county, three are particularly interesting because of the geological information obtained in the course of drilling. One was drilled by the Shell Oil Company in sec. 12, T. 30 S., R. 12 W., on the Mary Hull tract. In this well, the Mississippian rocks were found at 4,384 feet and were 214 feet thick. Below them the Viola limestone was encountered at 4,598 feet, the Simpson group at 4,679 feet, and the Arbuckle dolomite at 4,792 feet. The well was completed at a total depth of 4,865 feet. No important shows of oil or gas were found. A test well was drilled 3 miles south of Sun City by the Auto Ordnance Corporation on land owned by

TABLE 6.—*Oil and gas pools of Barber county*

Pool and location	Discovery year	Area, acres	1943 production	Cumulative production to end of 1943	Number of wells	Producing zone	Depth to producing zone, feet
			barrels				
Bear Creek 30-31-15W	1942	40	2,550	2,550	1	Douglas	4,235
Deerhead 22-32-15W	1942	80	4,450	4,450	2	Viola	4,950
Lake City 7-31-13W	1937	160	33,900	113,450	2 1	Simpson Arbuckle	4,530 4,607
Medicine Lodge 15-33-13W	1937	80	none	45,700	2	Misener	4,845
Skinner 29-31-14W	1943	40	none	none	1	Viola	4,626
Sun City 35-30-15W	1941	240	73,250	111,250	6	K.C.-Lans.	4,344
Turkey Creek 20-30-15W	1943	40	none	none	1	Simpson	4,438
Whelan 32-31-11W	1934	700	190,650	891,350	1 17	Elgin "Chat"	3,313 4,355
			million cubic feet				
Deerhead (gas) 26-32-15W	1942	160			2	Viola	4,931
Medicine Lodge (gas) 13-33-13W	1927	6,000	13,721	74,821	36	"Chat"	4,455

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the National Gypsum Corporation, in sec. 10, T. 31 S., R. 15 W. No Mississippian rocks were found in this well; the drill went from Pennsylvanian basal conglomerate directly into Viola limestone at 4,630 feet. Below the Viola, the Simpson was encountered at 4,784 feet and the Arbuckle dolomite at 4,856 feet. The test was drilled 50 feet deeper and then plugged back to 4,645 feet in the Viola limestone where it was tested but no production was found. The Phillips Petroleum Company drilled an interesting test well on the Weimer farm in sec. 3, T. 35 S., R. 15 W. In this test, Mississippian rocks were encountered at 4,900 feet and were 432 feet thick. The basal Misener sand was 6 feet thick and lies directly on the Viola limestone. The coarsely crystalline limestone of the Viola was found at 5,498 feet, and the Simpson group was encountered at 5,517 feet. A porous sand in the Simpson from 5,542 to 5,575 feet failed to produce oil. The Arbuckle dolomite was found at 5,700 feet, and the well was drilled to a total depth of 5,743 feet.

Barton County

During 1943, drilling activity in Barton county was maintained at a high peak and at least 200 test wells were drilled. This figure is exceeded only in Russell county where 216 test wells were drilled. Slightly more than half of the test wells were dry holes and the remaining 96 were oil wells. A large number of new test wells must be considered as wildcat wells even though they were drilled less than 2 miles from production. Among these, eight were successful in finding new oil pools,—the Ainsworth Southeast, Ames, Bahr, Barrett, Eveleigh, Millard, Roesler, and Silica Northwest pools.

The largest pool in Barton county is the **Kraft-Prusa** pool which takes in most of the western half of T. 16 S., R. 11 W. and parts of adjacent townships. Fifty-three new oil wells and 22 dry holes were completed in this pool.

In T. 16 S., R. 12 W., there are four oil pools, the **Beaver, Beaver North, Beaver Northwest,** and **Feltes.** In the Feltes pool three new producers and two dry holes were completed in 1943. In the Beaver pool only one test well was a commercial producer and three other test holes were dry.

In T. 16 S., R. 13 W., there are two pools, the Ainsworth pool and the Trapp pool. The **Trapp** pool seems to be well defined and the central part of the pool has been almost completely drilled.

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Therefore, activity was on a reduced scale in that area during 1943. Only one new oil well and one dry hole were drilled. A number of dry holes were drilled some distance from the pool in an effort to extend its limits. The **Ainsworth** pool was united with the **Ainsworth West** pool during 1943. Nine test wells were completed in the enlarged area; of these, five were oil wells and four were dry holes.

In T. 16 S., R. 14 W., two new pools were discovered during 1943. One of these, the **Barrett** pool, was found by the Vernon Oil and Gas Company when the first well on the Barrett lease in section 36 was successfully completed in March. The Arbuckle dolomite is the producing horizon in this well, and the pay zone extends

FIG. 3.—Barton county map showing oil and gas pools and dry rank wildcat wells drilled in 1943.

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from 3,463 to 3,465 feet. The porous zone was found 35 feet below the top of the dolomite. An offset well drilled to the north by the Phillips Petroleum Company failed to find oil in the Arbuckle, and was completed as a salt-water disposal well. The discovery well of the other pool in this township, the **Millard** pool, was drilled by the Phillips Petroleum Company on the Brack farm in section 29. The pay zone in this well also lies in the Arbuckle dolomite, and extends from 3,462 to 3,480 feet. The discovery well is rated as a minimum well.

In the next row of townships, the most valuable pools are in T. 17 S., R. 11 W. In addition to the large southern part of the Kraft-Prusa pool, the **Breford** pool, which is described under Ellsworth county, was extended into Barton county by the addition of four producing wells. The **Bloomer** pool was not enlarged during 1943, although several promising test wells were drilled toward the west. The other pools in this row of townships,—the **Hoisington, Odin,** and **Pospishel,**—were not enlarged. All possible extension wells which were drilled proved to be dry holes. During 1943, one new pool was discovered in T. 17 S., R. 13 W. It is the **Ainsworth Southeast** pool found by Black and Marshall on the Hitchman farm in section 11. In this well, the Arbuckle dolomite proved to be the producing zone; it was productive between depths of 3,358 and 3,360 feet. The well is rated at approximately 200 barrels per day.

Much drilling was done during 1943 in the third row of townships, heretofore the most barren territory in the county. Wildcat exploration resulted in four new pools, two of which lie in T. 18 S., R. 11 W. One of these, the **Roesler** pool, was discovered by Helmerich and Payne when they completed a test well on the Roesler farm in section 14. In this well, the Arbuckle dolomite was found to be porous between depths of 3,291 and 3,298 feet, and on a test the well proved capable of yielding 150 barrels of oil per day. Two dry holes were drilled near the discovery well. The second pool found in T. 18 S., R. 11 W., the **Ames** pool, was discovered by Edouard Jonas on the Ames farm in section 22. This test well was drilled into the Arbuckle dolomite which was barren. The well was then plugged back to a good show of oil in the Kansas City-Lansing limestone from 3,042 to 3,048 feet, where a potential of 287 barrels per day was established. One offset well was completed by the Alco Valve Company on the Robl farm in

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section 27 before the end of the year. This well had a potential of 334 barrels per day.

In sec. 11, T. 18 S., R. 14 W., the Cities Service Oil Company drilled a wildcat well which opened an important pool, the **Eveleigh** pool. The discovery well is located on the Eveleigh farm and has a potential capacity of 425 barrels of oil per day. The producing zone in this well is the Sooy conglomerate at the base of the Pennsylvanian. An offset well drilled by the Ohio Oil Company was completed as a producer in the Arbuckle dolomite, a zone which was absent in the discovery well. In the discovery well the conglomerate was found to lie immediately above the pre-Cambrian quartzite, and it is possible that some of the oil comes from the pre-Cambrian rock. This new pool is only a short distance southeast of the older **Boyd** pool.

In sec. 26, T. 18 S., R. 15 W., a few miles southeast of the large Otis gas pool, Shirley Clum drilled a well in August, 1943, on the Bahr farm which discovered a new pool, the **Bahr** pool. The pay zone in this well is in the Reagan sandstone of Cambrian age and extends from a depth of 3,495 to 3,506 feet. The top of the Reagan was found at 3,470 feet, and some gas was encountered between depths of 3,484 and 3,495 feet. The **Albert** oil pool in the extreme western part of the same township was extended by one oil well drilled by the Aylward Producing Company on the Wissman farm in section 31.

In T. 19 S., R. 11 W., there are five oil pools in addition to part of the large Silica pool. One dry hole was drilled in the **Rick** pool. One producer and one dry hole were drilled in the **Eberhardt** pool. The **Lanterman** pool also has one new oil well and an additional dry hole as a result of drilling in 1943. The new pool in this township, the **Silica Northwest** pool, was discovered by the Texas Company on the Lanterman farm in section 27. In this well the producing zone is at the top of the Arbuckle dolomite, which was porous from 3,331 to 3,361 feet. Farther west, in sec. 3, T. 19 S., R. 15 W., one additional well was completed in the **Merten** pool by the Vickers Petroleum Company on the Sayler farm.

The large **Silica** pool, which lies mostly in T. 20 S., R. 11 W., was extended by the drilling of five new oil wells. Eight dry holes were drilled in this pool or closely adjacent to it. In an attempt to extend the **Harrison** pool, in T. 20 S., R. 13 W., the Vickers Petroleum Company drilled a dry hole on the Nicholet farm in section 6.

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Three dry holes were also drilled by different operators in an effort to extend the **Hiss** pool. In T. 20 S., R. 15 W., two dry holes were drilled in an attempt to find new production near the **Pawnee Rock East** pool.

Table 7 gives information on the oil pools of Barton county. These pools and the rank wildcat wells drilled in 1943 are shown on figure 3.

TABLE 7.—*Oil pools of Barton county*

Pool and location	Discovery year	Area, acres	1943 production	Cumulative production to end of 1943, bbls.	Number of wells	Producing zone	Depth to producing zone, feet
Ainsworth 26-16-13W	1936	5,000	561,340	3,183,670	1	Shawnee	2,925
					1	K.C.-Lans.	3,250
					63	Arbuckle	3,390
Ainsworth Southeast, 11-17-13W	1943	40	none	none	1	Arbuckle	3,358
Albert 30-18-15W	1935	1,600	170,200	968,160	16	Reagan	3,601
Ames 22-18-11W	1943	80	5,300	5,300	2	K.C.-Lans.	3,042
Bahr 26-18-15W	1943	40	2,850	2,850	1	Reagan	3,495
Barrett 36-16-14W	1943	80	9,350	9,350	2	Arbuckle	3,463
Beaver 16-16-12W	1934	1,200	325,970	1,626,700	7	Oread	2,885
					25	Arbuckle	3,348
					1	Reagan	3,335
Beaver North 4-16-12W	1937	160	16,950	251,900	3	Arbuckle	3,316
Beaver Northwest, 6-16-12W	1942	80	16,500	17,500	1	Shawnee	
					1	K.C.-Lans.	3,066
Bird 33-18-15W	1940	40	2,800	12,250	1	Reagan	3,508
Bloomer 36-17-11W	1936	5,000	2,275,100	14,094,850	39	K.C.-Lans.	3,044
					213	Arbuckle	3,257
Breford Southwest, 23-17-11W	1942	40	5,960	9,250	1	Arbuckle	3,311
Davidson 4-16-11W	1928	300	52,320	193,150	2	K.C.-Lans.	3,016
					2	Sooy	3,317
					4	Arbuckle	3,314
Eberhardt 14-19-11W	1935	320	73,000	416,450	1	K.C.-Lans.	3,194
					7	Arbuckle	3,311
Ellinwood North 33-19-11W	1937	80	4,650	55,550	1	Arbuckle	3,328
Eveleigh 11-18-14W	1943	40	700	700	1	Sooy	3,300
Feist 29-18-11W	1936	40	300	53,950	1	Arbuckle	3,430
Feltes 14-16-12W	1939	1,000	249,400	674,300	1	K.C.-Lans.	
					18	Sooy	3,342
					1	Arbuckle	3,350

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TABLE 7.—*Oil pools of Barton county, concluded*

Pool and location	Discovery year	Area, acres	1943 production	Cumulative production to end of 1943, bbls.	Number of wells	Producing zone	Depth to producing zone, feet
Hagan 20-20-11W	1938	160	37,800	107,400	4	Arbuckle	3,323
Hammer 35-19-12W	1940	40	2,200	11,200	1	Arbuckle	3,348
Harrison 18-20-13W	1942	40	700	700	1	Arbuckle	3,498
Heiser 16-19-14W	1935	40	3,000	28,400	1	K.C.-Lans.	3,228
Hiss 31-20-13W	1936	200	49,850	387,800	5	K.C.-Lans.	3,270
Hoisington 21-17-13W	1938	160	28,870	140,900	1 2	K.C.-Lans. Arbuckle	3,222 3,440
Kowalsky 32-20-11W	1941	40	300	2,540	1	Arbuckle	3,378
Kraft-Prusa 10-17-11W	1937	8,000	4,331,000	9,875,500	9 22 110 168 2	Shawnee K.C.-Lans. Gorham Arbuckle Reagan	2,885 3,160 3,335 3,281 3,310
Lanterman 15-19-11W	1935	500	120,150	547,100	7 5	K.C.-Lans. Arbuckle	3,109 3,235
Merten 10-19-15W	1942	160	11,000	18,250	4	Reagan	3,551
Millard 29-16-14W	1943	40	none	none	1	Arbuckle	3,462
Mue-Tam 35-20-11W	1942	40	6,200	11,050	1	Arbuckle	3,312
Odin 10-17-12W	1941	40	1,200	19,200	1	Arbuckle	3,340
Pawnee Rock East, 17-20-15W	1941	40	2,300	11,400	1	Arbuckle	3,814
Pospishel 20-17-15W	1939	40	1,200	17,800	1	Arbuckle	3,548
Rick 1-19-11W	1936	400	60,300	406,250	7 2	K.C.-Lans. Arbuckle	3,106 3,355
Roesler 14-18-11W	1943	40	6,200	6,200	1	Arbuckle	3,291
Silica 12-20-11W	1931	32,000	8,890,000	53,905,000	16	K.C.-Lans. Arbuckle	2,955 3,328
Silica Northwest, 27-19-11W	1943	40	none	none	1	Arbuckle	3,331

CLARK COUNTY

Only one test well was drilled in Clark county (fig. 4) during 1943. This well was drilled by the Sinclair Prairie-Olson Oil Company on Central Life Assurance land in sec. 23, T. 32 S., R. 24 W. The Cimarron anhydrite was encountered in this well at 1,199

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feet, the Topeka limestone at 3,701 feet, the Kansas City-Lansing limestone at 4,506 feet, the Mississippian strata at 5,569 feet, the Viola limestone at 6,626 feet, the Simpson group at 6,761 feet, and the Arbuckle dolomite at 6,940 feet. The well was drilled to a total depth of 7,082 feet.

Information on the **Morrison** oil pool and the **Morrison** gas pool, the only producing pools in Clark county, is given in table 8.

TABLE 8.—*Oil and gas pools of Clark county*

Pool and location	Discovery year	Area, acres	1943 production	Cumulative production to end of 1943, bbls.	Number of wells	Producing zone	Depth to producing zone, feet
Morrison (oil) 17-32-21W	1936	160	5,423	140,880	2	Viola	6,467
Morrison (gas) 21-32-21W	1926	1,000	none	small	1	Sooy	5,443

EDWARDS COUNTY

During 1943 ten test wells were drilled in Edwards county (fig. 5). Of these only two wells proved to be producers. The two new oil wells are located in the **Belpre** pool and were drilled by the Cities Service Oil Company. One, in sec. 4, T. 25 S., R. 16 W. on the Wilson "B" lease, was rated as capable of producing 132 barrels of oil and about 60 barrels of water per day. The oil comes from a porous zone in the lower portion of the Kansas City-Lansing limestone. The second producer was drilled on the Breitenbach farm in sec. 5, T. 25 S., R. 16 W. It proved to be a large gas well and is capable of yielding more than 32 million cubic feet of gas per day. This well was drilled deep enough to test the lower oil zones but no oil was found and the well was plugged back to the porous zone in the Kansas City-Lansing limestone at 3,861 feet.

Information on the Belpre oil pool and the **McCarty** gas pool, the only producing pools in Edwards county, is given in table 9.

Exploratory wells.—Eight wildcats were drilled in Edwards county during 1943. The Eason Oil Company No. 1 Ploger well, in sec. 9, T. 23 S., R. 19 W., found the top of the Kansas City-Lansing limestone at 3,946 feet, the top of the Mississippian rocks at 4,720 feet, the top of the Viola at 4,775 feet, and the top of the Arbuckle

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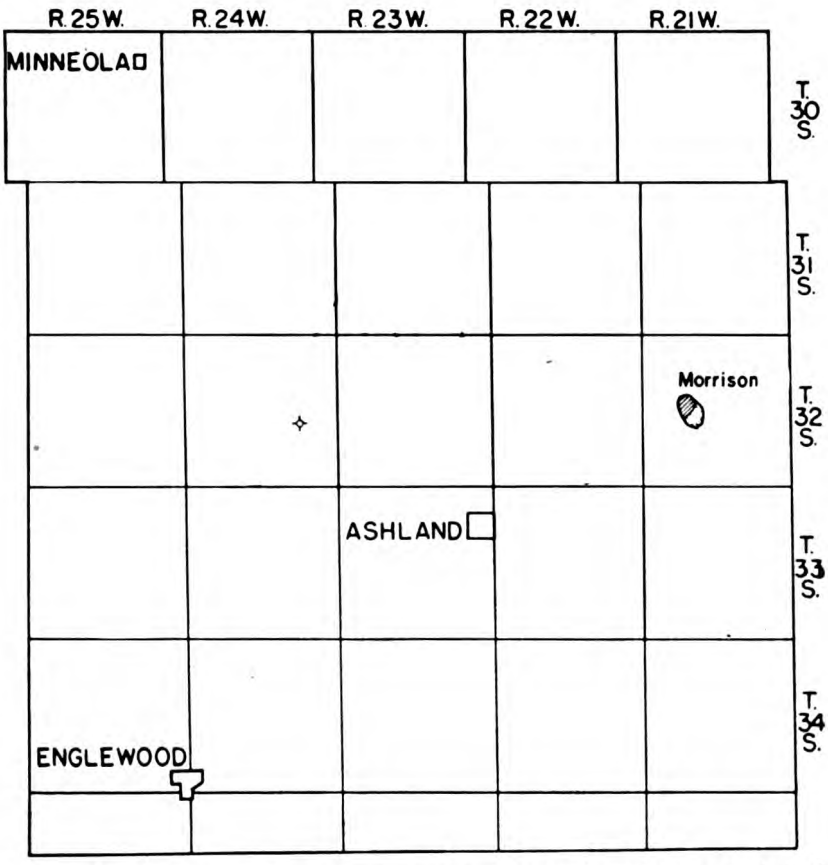

FIG. 4.—Clark county map showing oil and gas pools and dry hole drilled in 1943.

at 4,929 feet; the total depth was 5,028 feet. The Stanolind Oil and Gas Company No. 1 Ramsey well in sec. 3, T. 24 S., R. 16 W., encountered the Kansas City-Lansing limestone at 3,730 feet, the Sooy conglomerate at 4,145 feet, and the Arbuckle at 4,236 feet; the total depth was 4,249 feet. The J. H. Hershey et al. No. 1 Hawley well, sec. 13, T. 24 S., R. 17 W., found the Kansas City-Lansing at 3,845 feet, the Sooy conglomerate at 4,290 feet, the Mississippian rocks at 4,306 feet, the Viola at 4,425 feet, and the Arbuckle at 4,661 feet; the total depth was 4,686½ feet. The Broderick and Gordon No. 1 Wolfe well, sec. 11, T. 24 S., R. 18 W., which was drilled to a depth of 4,860 feet, encountered Kansas City-Lansing

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at 3,930 feet, Sooy conglomerate at 4,434 feet, Viola at 4,583 feet, and Arbuckle at 4,837 feet. The Broderick and Gordon No. 1 Smith well, in sec. 17, T. 24 S., R. 20 W., was drilled to 5,110 feet, and found the Kansas City-Lansing at 4,070 feet, the Sooy conglomerate at 4,645 feet, the Mississippian rocks at 4,780 feet, the Viola at 4,939 feet, and the Arbuckle at 5,066 feet. The Broderick and Gordon No. 1 Miller well, in sec. 5, T. 26 S., R. 18 W., was drilled to 5,086 feet and encountered the Kansas City-Lansing at 4,052 feet, the Sooy conglomerate at 4,628 feet, the Mississippian rocks at 4,748 feet, the Viola at 4,805 feet, and the Arbuckle at 5,059 feet. The Stanolind Oil and Gas No. 1 Newsom well, sec. 11, T. 26 S., R. 18 W., found the top of the Kansas City-Lansing at 4,032 feet, the top of the conglomerate at 4,534 feet, the top of the Viola at 4,615 feet, and the top of the Arbuckle at 4,805 feet; the total depth was 4,845 feet. The important tops in the Broderick and Gordon No. 1 Cross well, in sec. 6, T. 24 S., R. 17 W., are: top of the Kansas City-Lansing, 3,865 feet; top of the conglomerate,

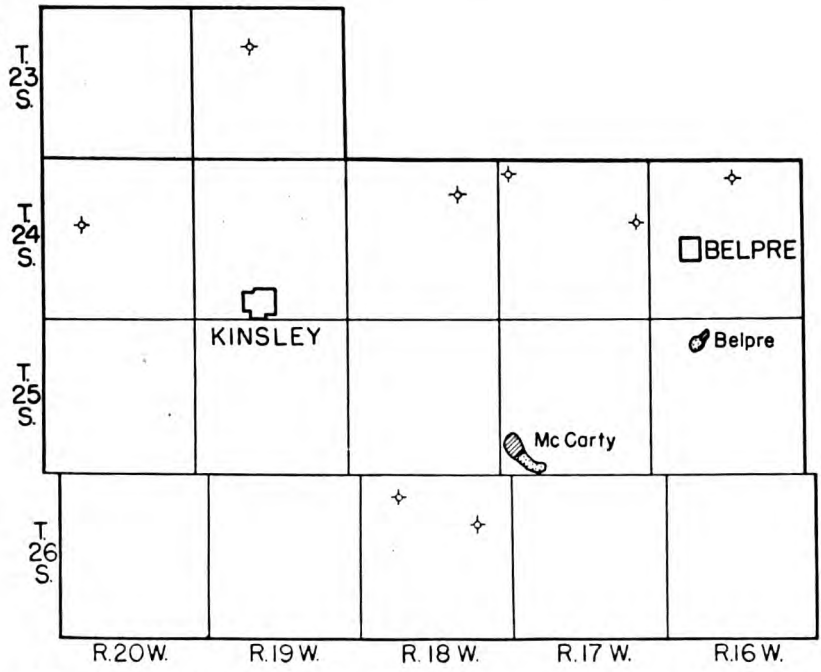

FIG. 5.—Edwards county map showing oil and gas pools and dry holes drilled in 1943.

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4,325 feet; top of the Viola, 4,480 feet; top of the Simpson, 4,615 feet; and top of the Arbuckle, 4,686 feet; the total depth is 4,721 feet.

TABLE 9.—*Oil and gas pools of Edwards county*

Pool and location	Discovery year	Area, acres	1943 production	Cumulative production to end of 1943	Number of wells	Producing zone	Depth to producing zone, feet
			barrels				
Belpre 8-25-16W	1942	160	1,400	1,400	2	K.C.-Lans.	3,807
			thousand cubic feet				
McCarty (gas) 31-25-17W	1929	160	20,701	158,000	1	Sooy	4,545

ELLIS COUNTY

During 1943, 75 test wells were drilled in Ellis county (fig. 6). Of these 37 were oil wells and 38 were dry holes. The drilling activity was fairly well distributed over the entire county. Wildcat operations uncovered a large reserve of new oil when five new pools were added to the list. They are the Beeching, Beeching West, Glathart, Leiker, and Riverview pools.

As in former years, a large part of the drilling activity was in and near the large **Bemis-Shutts** pool in the northeastern part of the county. Only 5 of a total of 19 test wells drilled in that pool and on the edges of the pool were oil wells; thus the percentage of dry holes in this area was very high. In the **Burnett** pool two test wells were drilled and both were dry. In the **Marshall** pool, which was joined to the Bemis-Shutts pool during 1943, one new oil well was completed.

Offsetting these somewhat unfavorable results was the discovery of a very promising pool 5 miles southwest of the Burnett pool. The discovery well of this new pool, called the **Riverview** pool, was drilled by Nate Appleman on the Richards farm in sec. 19, T. 11 S., R. 18 W. The oil was encountered in a porous zone extending from 3,610 to 3,619 feet in the Arbuckle dolomite, the top of which was found at 3,609 feet. A test of this well revealed

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a pressure sufficient to yield 1,332 barrels of oil per day. This good yield resulted in the drilling of a large number of offset wells so that by the end of the year there were five good producing wells. Four other tests were failures.

Drilling activity in the second row of townships was on a somewhat smaller scale. One well was added to the list of producers in the **Bemis South** pool. Two dry holes were drilled on the edge of the **Walters** pool. In sec. 16, T. 12 S., R. 19 W., a new pool, the **Glathart** pool, was discovered by the Coralena Oil Company on the Glathart farm. Oil in this pool is produced from porous zones in the Kansas City-Lansing limestone. In the discovery well, this limestone was encountered at 3,500 feet and the porous zone found

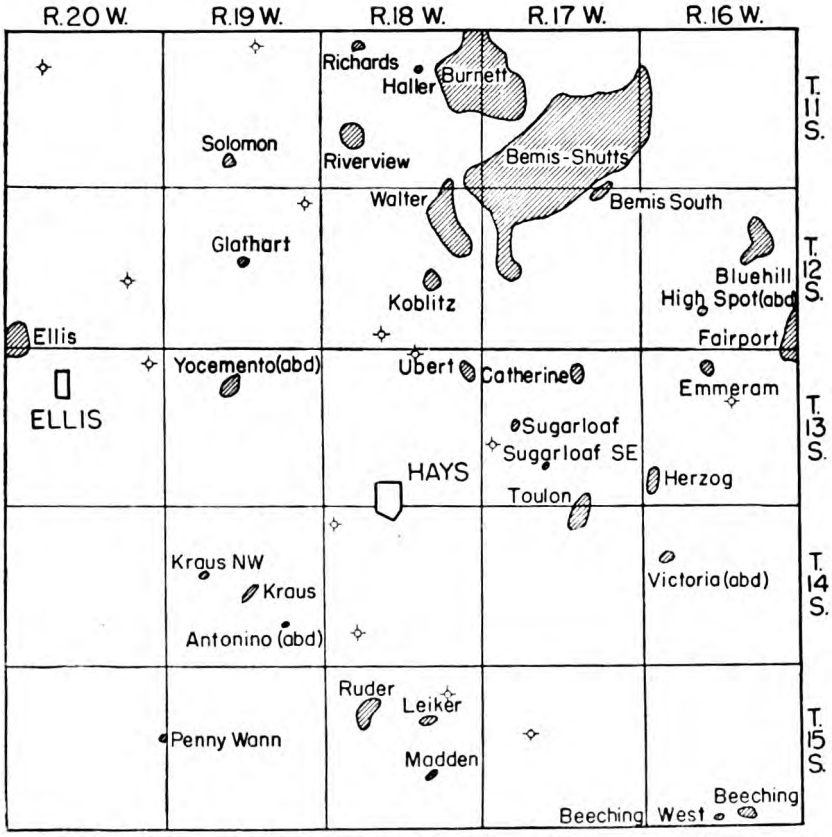

FIG. 6.—Ellis county map showing oil pools and dry rank wildcat wells drilled in 1943.

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from 3,504 to 3,514 feet. Oil was also found lower in a second zone at 3,556 feet. One offset well drilled in section 22 proved to be a dry hole. The **Ellis** pool, in sec. 31, T. 12 S., R. 20 W., was discovered in 1942 by the Darby Petroleum Corporation and has proved to be an important pool. During 1943 at least nine additional producers were completed in the pool and no dry holes were drilled. The wells average about 500 barrels capacity per day.

Drilling activity was also on a small scale in the third row of townships. One small producer was completed in the **Herzog** pool. One dry hole was completed near the **Kraus Northwest** pool. No wells were drilled in the fourth row of townships.

There was much drilling during 1943 in the southernmost row of townships. Two new pools were found close together in T. 15 S., R. 16 W. The discovery well of one of these, the **Beeching** pool, was drilled by the Coralena Oil Company on the Beeching farm in section 34. In this well oil occurs in the Kansas City-Lansing limestone at a depth of 3,156 to 3,160 feet. This porous zone lies 7 feet below the top of the Kansas City-Lansing limestone. Three additional producers were completed in the pool before the close of the year. One mile west of the Beeching pool, in section 33, the Coralena Oil Company found oil on the Urban farm. This oil is also produced from the Kansas City-Lansing limestone at a depth of about 3,292 to 3,326 feet. This pool has been named the **Beeching West** pool.

Farther west, in T. 15 S., R. 18 W., another new oil pool, the **Leiker** pool, was discovered in June, 1943, by the B & R Drilling Company on the Leiker farm in section 14. This well found oil in the Kansas City-Lansing limestone from 3,292 to 3,298 feet. It was drilled down to the Arbuckle dolomite, which was barren, and was plugged back to the good show in the Kansas City-Lansing limestone. One additional producer was drilled by the Phillips Petroleum Company on the Wasinger farm in section 15. A near-by test well on the Stecklein farm and a test well on the Wolf farm in section 16 were dry. Near the **Madden** pool, about 3 miles south of the new Leiker pool, one dry hole was completed on the Madden farm in section 26. Nine miles farther west in sec. 14, T. 15 S., R. 20 W., one dry hole was completed near the **Penny Wann** pool.

Information on the production of oil in Ellis county is given by pools in table 10.

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Exploratory wells.—A number of wildcat wells were drilled in Ellis county during 1943. One of these, the No. 1 Fischer well in sec. 8, T. 11 S., R. 20 W., found the Viola limestone at 3,628 feet and the Simpson group at 3,645 feet. The Arbuckle dolomite was encountered at 3,662 feet and the well was drilled to a total depth of 3,686 feet before it was abandoned as a dry hole. An interesting wildcat test was drilled by the Phillips Petroleum Company on the Harman farm, in sec. 1, T. 12 S., R. 19 W. In this well, the Simpson group was found below the Pennsylvanian conglomerate at a depth of 3,772 feet and the Arbuckle was found at 3,850 feet. In sec. 1, T. 13 S., R. 20 W., a deep test was drilled by the Darby Petroleum Corporation on the Spilker farm. This location is about midway between the Ellis pool discovered in 1942 by the Darby Petroleum Corporation and the much older **Yocemento** pool. On the land belonging to the Kansas State Teachers College in sec 6, T. 14 S., R. 18 W., the Continental Oil Company drilled a deep stratigraphic test to a depth of 3,753 feet. No shows of oil or gas were found in this test. The Arbuckle dolomite was encountered at 3,732 feet. In sec. 29, T. 14 S., R. 18 W., the Darby Petroleum Corporation drilled a dry hole on the Penney land. The well was abandoned at a total depth of 3,714 feet after finding the Arbuckle dolomite, topped at 3,675 feet, devoid of oil or gas shows.

TABLE 10.—*Oil pools of Ellis county*

Pool and location	Discovery year	Area, acres	1943 production	Cumulative production to end of 1943, bbls.	Number of wells	Producing zone	Depth to producing zone, feet
Beeching 34-15-16W	1943	200	8,000	8,000	5	K.C.-Lans.	3,156
Beeching West 33-15-16W	1943	40	none	none	1	K.C.-Lans.	3,292
Bemis-Shutts 16-11-17W	1935	13,000	5,066,100	26,309,100	451	Arbuckle	3,380
Bemis South 2-12-17W	1938	40	11,400	47,050	1	Arbuckle	3,592
Blue Hill 14-12-16W	1937	700	185,000	732,420	3 14 2	Topeka K.C.-Lans. Arbuckle	3,039 3,072 3,360
Burnett 1-11-18W	1937	5,000	5,531,400	14,959,650	2 207	K.C.-Lans. Arbuckle	3,093 3,570
Catherine 3-13-17W	1936	160	6,600	137,650	1	K.C.-Lans.	3,262
Ellis 31-12-20W	1942	700	59,750	59,750	15	Arbuckle	3,832

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TABLE 10.—*Oil pools of Ellis county, concluded*

Pool and location	Discovery year	Area, acres	1943 production	Cumulative production to end of 1943, bbls.	Number of wells	Producing zone	Depth to producing zone, feet
Emmeram 4-13-16W	1937	160	33,100	138,450	4	K.C.-Lans.	3,262
Glathart 16-12-19W	1943	40	2,350	2,350	1	K.C.-Lans.	3,504
Hadley 20-11-17W	Joined to Burnett						
Haller 10-11-18W	1936	40	2,740	18,350	1	Topeka	3,045
Herzog 30-13-16W	1940	160	57,030	152,450	4	Arbuckle	3,450
High Spot 28-12-16W	1941	40		6,083	1	Arbuckle	3,620
Koblitz 23-12-18W	1937	800	89,500	306,700	9	Arbuckle	3,694
Kraus 22-14-19W	1936	100	4,700	68,600	2	Sooy	3,735
Kraus Northwest 17-14-19W	1942	40	1,300	1,300	1	Gorham	3,798
Leiker 14-15-18W	1943	80	4,950	4,950	1 1	K.C.-Lans. Arbuckle	3,292
Marshall 36-11-18W	1936	1,000	398,050	1,298,300	25	Arbuckle	3,638
Penny Wann 13-15-20W	1936	40	10,070	51,280	1	Sooy	3,653
Richards 5-11-18W	1938	120	8,170	102,400	2	K.C.-Lans.	3,332
Riverview 19-11-18W	1943	250	16,470	16,470	5	Arbuckle	3,610
Ruder 17-15-18W	1935	700	40,200	785,300	9 2	K.C.-Lans. Arbuckle	3,422 3,572
Solomon 28-11-19W	1936	160	3,300	104,600	3	Arbuckle	3,629
Sugar Loaf 17-13-17W	1941	80	41,600	66,900	2	Arbuckle	3,645
Sugar Loaf Southeast, 28-13-17W	1941	40	8,470	20,000	1	K.C.-Lans.	3,312
Toulon 3-14-17W	1935	200	20,820	216,300	3 1	K.C.-Lans. Arbuckle	3,298 3,512
Ubert 12-13-18W	1936	160	15,200	192,350	3	Arbuckle	3,707
Walters 2-12-18W	1936	1,400	542,800	2,469,250	1 37	Topeka Arbuckle	3,160 3,619

ELLSWORTH COUNTY

Of the 53 test wells drilled in Ellsworth county (fig. 7) in 1943, 27 were dry holes and 26 were oil wells. Most of the drilling activity was centered around the **Stoltenberg** pool in the southwestern part of the county. In that pool, 21 new oil wells were completed

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and 10 wells were failures. In the **Wilkens** pool, which is separated from the Stoltenberg pool by a very narrow belt, one new oil well and one dry hole were completed. A dry hole was also drilled in the **Wilkens Southeast** pool. The **Bloomer** pool, in the southwestern corner of the county, witnessed a revival of interest, but the results of drilling were disappointing. Four dry holes and only two producers were completed.

Information about oil production in Ellsworth county is given in table 11.

Exploratory wells.—Four important wildcat wells were drilled in Ellsworth county during 1943. One of these, in the extreme eastern part of the county, was drilled by Helmerich and Payne on the Millikin farm in sec. 13, T. 16 S., R. 6 W. Below the Pennsylvanian conglomerate the top of the Mississippian was encountered at 3,286 feet, the Viola limestone at 3,664 feet, the Simpson group at 3,737 feet, and the Arbuckle dolomite at 3,787 feet. In the central part of the county, the Cities Service Oil Company drilled

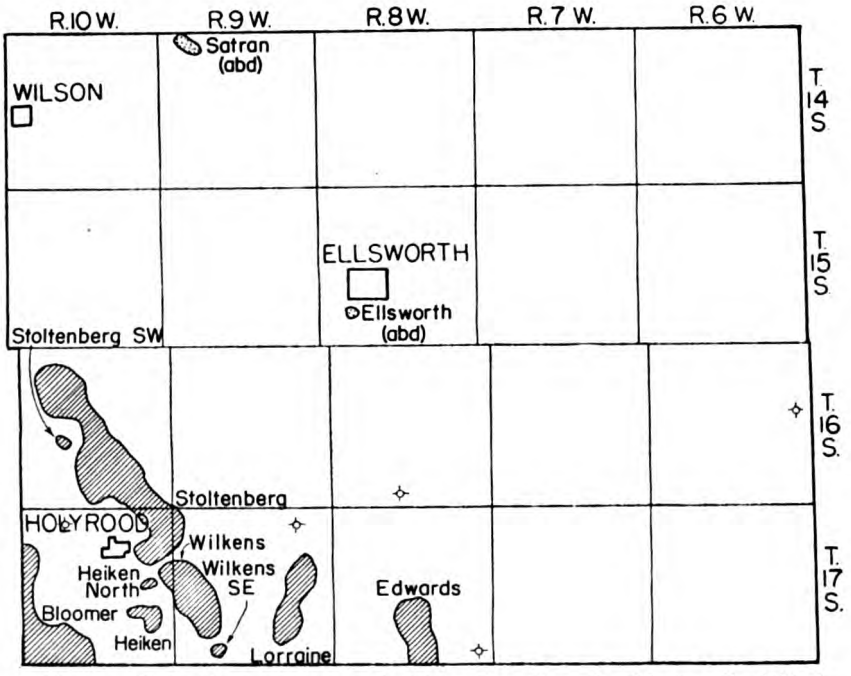

FIG. 7.—Ellsworth county map showing oil pools and wildcat wells drilled in 1943.

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an unsuccessful test on the Hysell farm in sec. 33, T. 16 S., R. 8 W. In this test the Viola was found at 3,143 feet, the Simpson at 3,192 feet, and the Arbuckle dolomite at 3,316 feet. In an effort to extend the **Lorraine** pool northeastward, Bradley Brothers drilled a dry hole on the Becker farm in sec. 2, T. 17 S., R. 9 W. In sec. 36, T. 17 S., R. 8 W., a few miles east of the **Edwards** pool, a test well drilled by the Vickers Petroleum Company proved to be a failure at a total depth of 3,437 feet. In this test, the Viola was found at 3,323 feet, the Simpson at 3,373 feet, and the Arbuckle dolomite at 3,433 feet.

TABLE 11.—*Oil pools of Ellsworth county*

Pool and location	Discovery year	Area, acres	1943 production	Cumulative production to end of 1943, bbls.	Number of wells	Producing zone	Depth to producing zone, feet
Breford 7-17-10W	1932	1,200	308,050	1,848,000	8	K.C.-Lans.	3,140
(now combined with Bloomer pool)					21	Arbuckle	3,368
Heiken 25-17-10W	1930	160	4,690	368,800	2	Arbuckle	3,269
Heiken North 24-17-10W	1942	80	18,975	32,775	2	Arbuckle	3,212
Lorraine 13-17-9W	1934	5,500	395,290	9,136,400	30	K.C.-Lans.	3,060
					55	Arbuckle	3,200
Stoltenberg 22-16-10W	1931	6,200	2,204,100	10,698,900	1	K.C.-Lans.	
					180	Arbuckle	3,333
Stoltenberg Southwest, 20-16-10W	1940	320	27,550	57,600	3	Arbuckle	3,349
Wilkens 13-17-10W	1934	3,600	865,700	3,134,600	67	Arbuckle	3,260
Wilkens Southeast, 32-17-9W	1942	120	53,500	73,500	3	Arbuckle	3,220

FINNEY COUNTY

Both oil and gas have been found in Finney county (fig. 8) in previous years. The gas wells in the county are now included in the large Hugoton gas field. There were seven gas wells in this county at the close of 1942. The first oil pool in the county, the **Nunn** pool, was discovered in June, 1938, by the Atlantic Refining Company. There were two wells producing from the Mississippian limestone at a depth of 4,654 feet at the close of 1942, and during 1943 one small producer was added. This well, drilled by the At-

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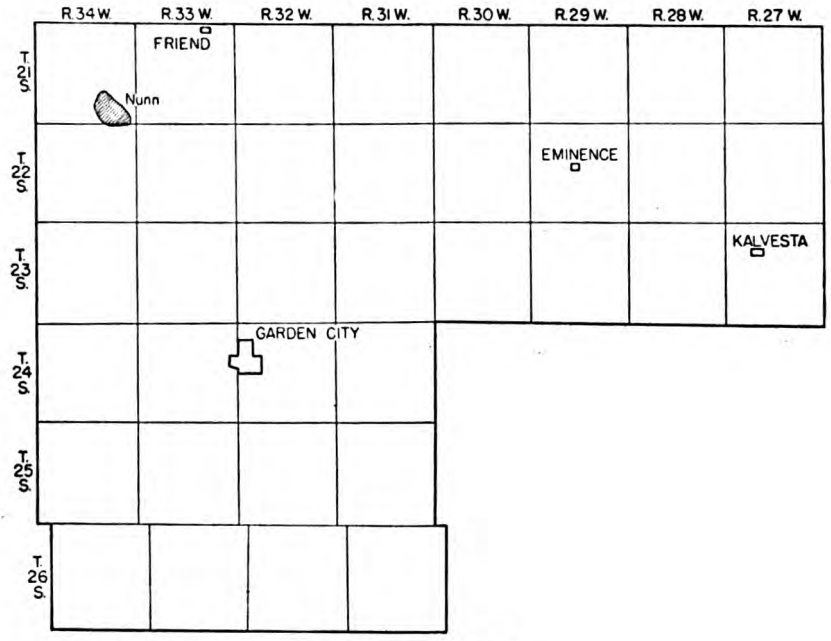

FIG. 8.—Finney county map showing oil pool.

lantic Refining Company on the Gobleman "B" lease in sec. 35, T. 21 S., R. 34 W., was completed for a production of 10 barrels per day from a sandstone in the Pennsylvanian. Production from the Nunn pool during 1943 was 27,900 barrels; the cumulative total to the end of 1943 was 173,500 barrels. The pool now includes 800 acres.

HUGOTON GAS FIELD

Drilling in the Hugoton gas field (fig. 9) was greatly reduced during 1943. Only 10 new gas wells were completed compared with 21 completions in 1942. Six of the new wells are in Kearny county and four are in Stevens county; for discussions of these wells see sections on Kearny and Stevens counties.

There were 342 producing wells in the field at the end of 1943. Information from the Conservation Division of the Kansas Corporation Commission reveals that total gas production from the field in 1943 was 63,354 million cubic feet, which exceeds the 1942 production by 21,936 million cubic feet and sets a new record for the field. The total combined open flow from all the wells with pipe-

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line connections is approximately 4,200 million cubic feet daily. The market demand, however, is 238 million cubic feet daily. Total production to date is more than 350,000 million cubic feet from 217,600 acres. The estimated proved acreage of this area is 1,500,000 acres. Since 1936 all drilling has been done on a basis of one well to 360 acres, although previously a few wells were drilled on a basis of one well to 160 acres. The original pressure of the gas was approximately 435 pounds, but at the present time it is as low as 371 pounds in some wells. The pipe-line pressures are maintained at 80 percent of the average field pressure.

Gas is found in porous limestone and dolomite of Permian age encountered at depths varying from about 2,700 to 2,800 feet. The gas is produced from three to five zones often separated by impervious shale bodies. It is evident, however, that the gas-producing formations are interconnected and therefore constitute one common source of supply.

Graham County

During 1943, 16 rank wildcat wells and 20 pool wells were drilled in Graham county (fig. 10). The 16 wildcat tests were all failures although they were fairly well scattered over the entire county. Of the 20 pool wells, all drilled near or within the Morel pool, 11 were new oil producers and 9 were dry holes.

The **Morel** pool, which was discovered by the Continental Oil Company in 1938, was extended toward the southeast by the successful completion of a number of wells. Two new oil wells were drilled by the Continental Oil Company on the Morel farm in sec. 15, T. 9 S., R. 21 W. Five large producers were completed by the Cities Service Oil Company on the Darnell lease in section 22 of the same township. One of these new wells, located in the southeast quarter of the section, produced about 50 percent water, and may mark the limits of the pool in that direction. In section 23 the Gulf Oil Corporation completed two oil wells on the Hinman farm, one having a capacity of 275 barrels per day and the other having an initial production of 3,000 barrels per day. In section 24, the British-American Oil Producing Company completed one well on the Barry farm having an initial production of 194 barrels per day. Two new oil wells were drilled in section 25, one by the Bridgeport Oil Company and one by the Hollow Drilling Company. Near these two wells, both of which have rather large production, four dry holes were drilled. Attempts to extend the pool toward the

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west and northwest also met with failure. Three dry holes were completed on that side of the pool.

The other two pools of Graham county are the **Penokee** and the **Gettysburg** pools located about 6 miles west of Hill City. The Cities Service Oil Company drilled one test well between these two pools, but failed to find oil. Therefore, these two producing districts will remain separate pools for some time longer.

Oil production information for the three oil pools in Graham county is given in table 12.

Exploratory wells.—Two test wells were drilled in the northern row of townships during 1943. One was drilled by Nadel and Gussman on the Pennington farm in sec. 34, T. 6 S., R. 21 W. It was

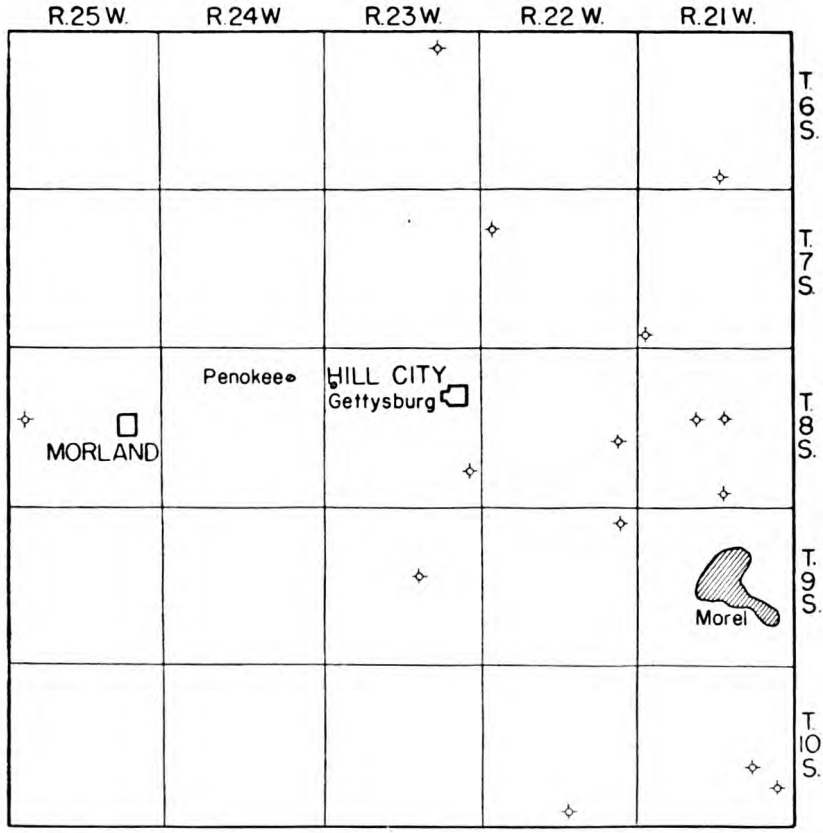

FIG. 10.—Graham county map showing oil pools and wildcat wells drilled in 1943.

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completed in the Arbuckle dolomite which was found at a depth of 3,812 feet (1,550 feet below sea level) immediately below the Pennsylvanian conglomerate. The other test well was drilled by the Skelly Oil Company on the Mills ranch in sec. 2, T. 6 S., R. 23 W. In this well the Arbuckle dolomite was found at a depth of 3,966 feet (1,582 feet below sea level) immediately below the Pennsylvanian basal conglomerate.

Two wildcat wells were drilled in the second row of townships. One of these was drilled by the Hollow Drilling Company on the Wiesner farm in sec. 31, T. 7 S., R. 21 W. In this well, the Arbuckle dolomite lies beneath the Pennsylvanian basal conglomerate at a depth of 3,733 feet. The other well was drilled by the Davis and Child Motor Company on the Scott ranch in sec. 7, T. 7 S., R. 22 W. It was abandoned at a total depth of 4,000 feet.

Six wildcat wells were completed during 1943 in the third row of townships. Three of these are located in T. 8 S., R. 21 W. Two of them were drilled by the Bridgeport Oil Company, one in section 15 and the other in section 34. The test well in section 15 is on the Benoit ranch; in it the Arbuckle dolomite was found at a depth of 3,600 feet (1,530 feet below sea level). The test well in section 34 is on the Balthazor ranch. In this well the residual Arbuckle dolomite was found at a depth of 3,693 feet (1,548 feet below sea level). The third test was drilled by the Hollow Drilling company on the Alexander Sayers ranch in section 16. In that well the Arbuckle dolomite was found at a depth of 3,678 feet (1,586 feet below sea level).

In sec. 24, T. 8 S., R. 22 W., one test well was drilled by W. S. Broderick on the Benoit ranch. In this test the Simpson group was found at 3,672 feet and was only 3 feet thick. The Arbuckle dolomite was encountered at a depth of 3,675 feet (1,550 feet below sea level). Some geologists believe that the Arbuckle is likely to be oil bearing when it occurs under a thin cover of the Simpson but such was not the case in this well. The well was abandoned at a total depth of 3,750 feet. Broderick also drilled a test well 6 miles farther west on the Rice Estate in sec. 25, T. 8 S., R. 23 W. This well found the Arbuckle relatively low at a depth of 3,900 feet (1,720 feet below sea level). In the extreme western part of the county, a dry hole was drilled by the Mid-Continent Petroleum Corporation on the Hazen ranch in sec. 18, T. 8 S., R. 25 W. It was abandoned at a total depth of 4,457 feet.

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Four miles northwest of the Morel pool, Nate Appleman drilled a test well on the Buss farm in sec. 1, T. 9 S., R. 22 W. In that well, the residual Arbuckle dolomite was found at a depth of 3,807 feet (1,596 feet below sea level). About 9 miles south of Hill City, W. S. Broderick drilled a deep test well on the Sharp farm in sec. 15, T. 9 S., R. 23 W.

In the southernmost tier of townships three dry holes were completed. Two of these were drilled in T. 10 S., R. 21 W., one in section 23 and the other in section 25. The test in section 23 was originally a stratigraphic test by the Continental Oil Company on the Steinke farm; it found the Arbuckle at 3,748 feet (1,591 feet below sea level). The test in section 25 was drilled by the Bridgeport Oil Company to a total depth of 3,852 feet. In sec. 34, T. 10 S., R. 22 W., 7 miles southwest of the two tests just described, a dry hole was completed on the Webster ranch by J. J. Lynn. It was abandoned at a total depth of 4,101 feet after being plugged back to a small showing of oil at 3,627 feet.

TABLE 12.—*Oil pools of Graham county*

Pool and location	Discovery year	Area, acres	1943 production	Cumulative production to end of 1943, bbls.	Number of wells	Producing zone	Depth to producing zone, feet
Gettysburg 7-8-23W	1941	40	6,110	15,025	1	K.C.-Lans.	3,725
Morel 15-9-21W	1938	4,000	547,350	1,066,000	31	Arbuckle	3,718
Penokee 11-8-24W	1940	40	8,350	37,150	1	K.C.-Lans.	3,750

GRANT COUNTY

There were no additional wells drilled in Grant county in 1943. Information about gas production in the Hugoton gas field, which includes part of Grant county, is given under Finney county. Also, the part of Grant county included in the proved territory of the Hugoton gas field is shown in figure 9.

HARVEY COUNTY

In Harvey county (fig. 11), only ten test wells were drilled during 1943. Two of these were gas wells, two were combination gas and oil wells, one was a small oil well, and five were dry holes.

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One of the dry holes was drilled on the Krehbiel farm, sec. 2, T. 23 S., R. 2 W., in the old **Halstead** gas pool. One of the new gas wells was drilled by H. M. Williams east of the **Stuckey** pool which was discovered in 1942. This new gas well is on the Siemens farm in sec. 2, T. 23 S., R. 3 W., and is capable of producing 6 million cubic feet of gas per day.

In the **Burrton** pool, J. J. Lynn drilled a combination well estimated as capable of producing 3 million cubic feet of gas and 100 barrels of oil per day. This is the No. 1 Havely well in sec. 17, T. 23 S., R. 3 W. A second gas well, with an initial production of more than 3 million cubic feet, was drilled by R. E. Moore on the Saylor farm in the same section. A small oil well, the No. 2 Havely, was also drilled by J. J. Lynn in this section. The fourth new well in this pool was drilled by the National Association Petroleum Company on the Hullman farm, in sec. 20, T. 23 S., R. 3 W. It is rated as capable of producing about 5 barrels of oil and 1 million cubic feet of gas.

One new pool, which has been named **Burrton Northeast,** was discovered in Harvey county in 1943. The discovery well was drilled by Branine on the Lagree farm in sec. 9, T. 23 S., R. 3 W. The pay zone was found to be 10 feet thick in the Mississippian

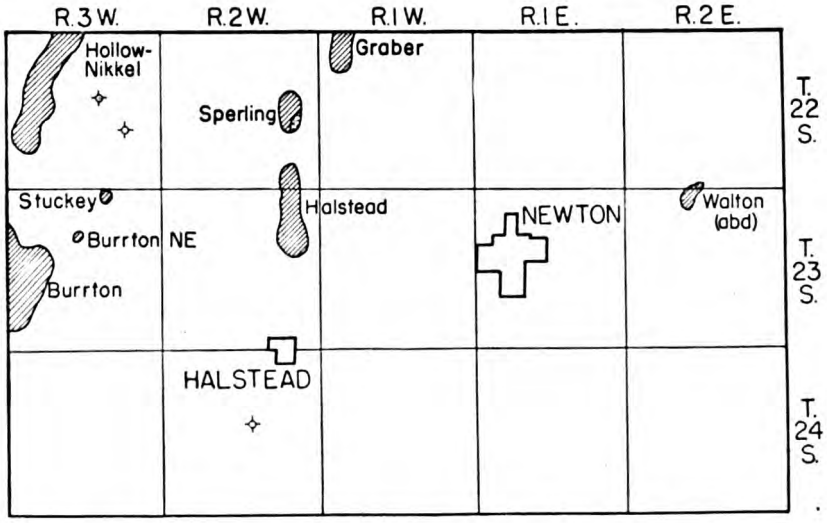

FIG. 11.—Harvey county map showing oil and gas pools and dry rank wildcat wells drilled in 1943.

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rocks. The initial production of the first well was 200 barrels per day.

The present oil and gas pools of Harvey county are shown in figure 11 and pertinent data on those pools are given in table 13.

Exploratory wells.—Three rank wildcat wells were completed in this county in addition to the No. 1 Lagree. One was drilled by the Atlantic Oil Corporation in sec. 23, T. 22 S., R. 3 W., on the Randall "C" lease. It penetrated all formations down to the Arbuckle dolomite, the top of which was found at 3,778 feet. The test was abandoned as a dry hole at 3,860 feet.

Another wildcat test was drilled 4 miles east of the **Hollow-Nikkel** pool, in sec. 15, T. 22 S., R. 3 W., by the Falcon Seaboard Drilling Company on the Neufeld farm. In this well the full sequence of beds was also found beneath the Pennsylvanian strata, the Mississippian at 3,232 feet, the Hunton (Devonian) at 3,573 feet, the Sylvan (Ordovician) at 3,655 feet, and the Arbuckle dolomite at 3,800 feet (2,366 feet below sea level).

The Derby Oil Company drilled an important test well, the No. 1 Webster, in sec. 15, T. 24 S., R. 2 W. In this well the Kansas City-Lansing limestone was found at 2,474 feet and the Mississip-

TABLE 13.—*Oil and gas pools of Harvey county*

Pool and location	Discovery year	Area, acres	1943 production	Cumulative production to end of 1943	Number of wells	Producing zone	Depth to producing zone, feet
			barrels				
Burrton Northeast, 9-23-3W	1943	40	none	none	1	"Chat"	3,305
Halstead 36-22-2W	1929	1,200	76,200	1,464,450	19	"Chat"	3,005
Hollow-Nikkel 30-22-3W	1931	1,500	279,950	19,433,700	68	"Chat" Hunton Simpson	3,195 3,507 3,500
Sperling 23-22-2W	1935	500	49,900	441,200	5	Hunton	3,279
Stuckey 3-23-3W	1942	40	450	450	1	"Mississippi lime"	3,224
			thousand cubic feet				
Sperling (gas) 23-22-2W	1935	600	21,110	6,228,110	2	"Chat"	2,955

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pian at 3,322 feet. The Viola formation was encountered at 3,842 feet, the Simpson at 3,857 feet, and the Arbuckle dolomite at 3,942 feet (2,548 feet below sea level). There were no shows of oil or gas in this test and it was abandoned at a total depth of 3,995 feet.

Haskell County

No additional wells were drilled in Haskell county during 1943. Information on the gas production in the Hugoton gas field, of which Haskell county is a part, is given under Finney county. Also, the part of Haskell county included in the proved territory of the Hugoton gas field is shown in figure 9.

Kearny County

Seven test wells were drilled in Kearny county during 1943. Of these, six were successful in finding new gas supplies, and one was a dry hole. Four of the new gas wells were drilled by the Fin-Ker Oil and Gas Producing Company in T. 24 S., R. 35 W. They range in capacity from 3 million to 23 million cubic feet per day. The other two gas wells are located in T. 25 S., R. 35 W., and were drilled by Ross Beach and associates. They are capable of producing about 24 million cubic feet of gas per day each. All these new gas wells are producing from the limestones in the upper part of the Wolfcampian series of the Permian system.

The dry hole was drilled in sec. 16, T. 21 S., R. 35 W., on the Thornbrough ranch by the Atlantic Refining Company. It was drilled to a total depth of 4,927 feet, ending in the Mississippian strata. The top of the Mississippian rocks was found at 4,835 feet (1,705 feet below sea level). The accompanying map (fig. 12) shows the location of the **Patterson** oil pool, the only oil pool in Kearny county. No additional wells were drilled in this pool during 1943. The production of the pool, which includes 120 acres, was 42,830 barrels in 1943; the cumulative production to the end of 1943 was 83,100 barrels. The pool, located in sec. 23, T. 22 S., R. 38 W., includes three wells producing from the Patterson sand which is encountered at about 4,740 feet. The pool was discovered in 1941.

Information concerning the gas production in the Hugoton gas field, which includes part of Kearny county, is given under Finney county. Also, the part of Kearny county included in the proved territory of the Hugoton gas field is shown in figure 9.

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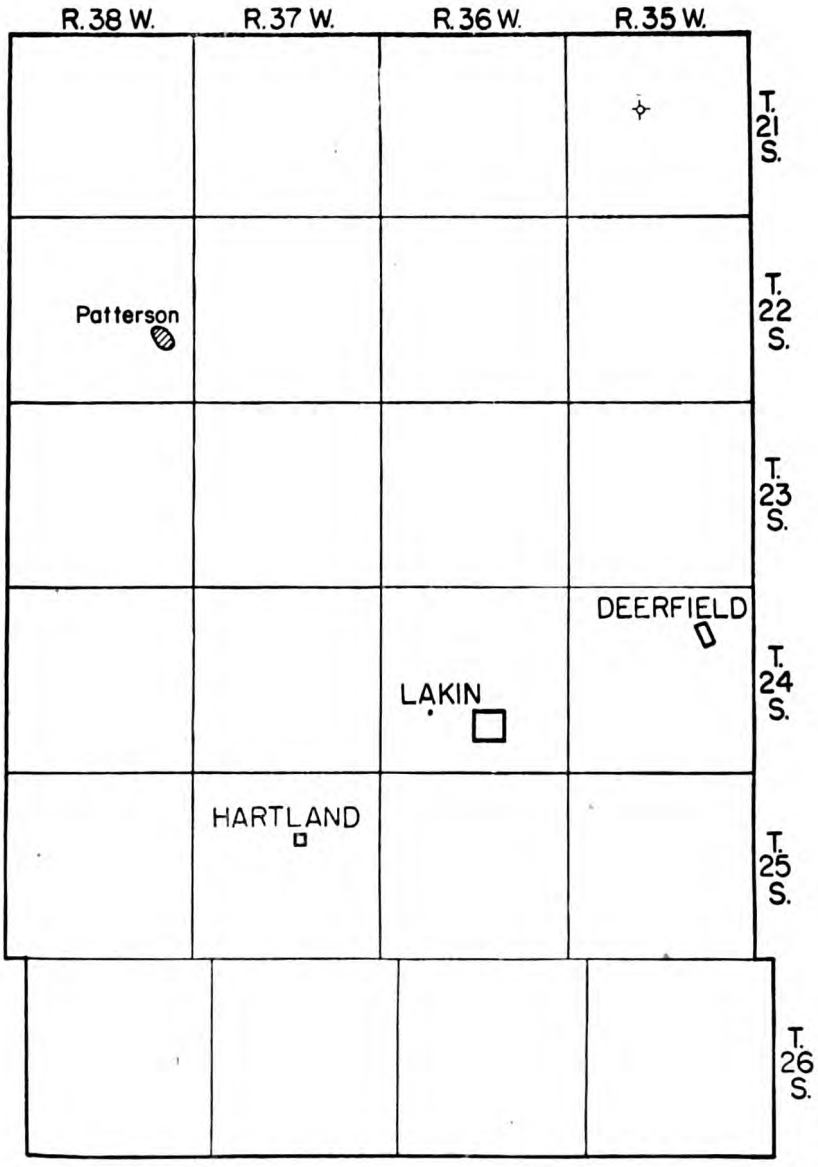

FIG. 12.—Kearny county map showing oil pool and dry hole drilled in 1943.

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Kingman County

In Kingman county (fig. 13) there is only one pool, the Cunningham pool which produces both oil and gas. This pool extends into Pratt county where some active development took place; this development is described under Pratt county. No wells were drilled in or near this pool in Kingman county. Only six test wells, all of which were dry holes, were drilled in Kingman county.

Production of oil in the **Cunningham** pool, located in sec. 30, T. 27 S., R. 10 W., was 689,750 barrels in 1943. Cumulative production to the end of 1943 was 4,135,150 barrels. The pool, which was discovered in 1931 and now includes 1,400 acres, has 98 wells producing from the Kansas City-Lansing at about 3,390 feet and 7 wells producing from the Viola at about 3,925 feet.

Exploratory wells.—On the Gerber farm, in sec. 28, T. 27 S., R. 7 W., the Falcon Seaboard Drilling Company drilled a well to a total depth of 4,440 feet without finding any shows of oil or gas. The Kansas City-Lansing limestone was encountered at 3,242 feet and the Arbuckle dolomite at 4,388 feet (2,790 feet below sea level). The Standard Parts Corporation drilled a well to a total depth of 4,710 feet on the McKenna farm in sec. 34, T. 28 S., R. 9

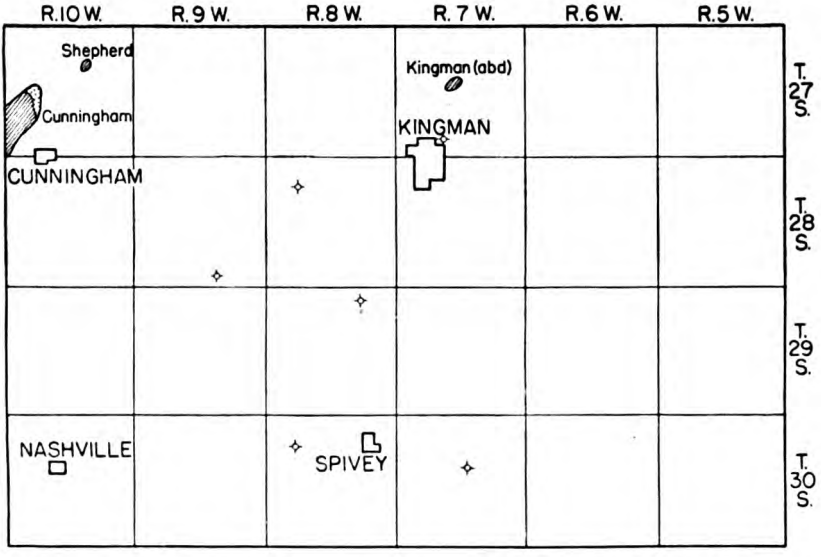

Fig. 13.—Kingman county map showing oil and gas pools and dry holes drilled in 1943.

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W., but no shows of oil or gas were found. The Kansas City-Lansing limestone was encountered at 3,569 feet and the Arbuckle dolomite at 4,685 feet (2,980 feet below sea level). On the Sample farm, in sec. 2, T. 29 S., R. 8 W., the Stanolind Oil and Gas Company drilled a test well to a total depth of 4,709 feet. The Kansas City-Lansing limestone was found at 3,440 feet and the Arbuckle dolomite at 4,634 feet (2,970 feet below sea level). An interesting test well was drilled by the Vickers Petroleum Company on the Ralls farm in sec. 8, T. 30 S., R. 8 W. In this well the Arbuckle dolomite was encountered at a depth of 4,648 feet (3,117 feet below sea level). The H. F. Wilcox Oil and Gas Company drilled a dry hole on the S. F. Kinert farm, sec. 15, T. 30 S., R. 7 W. In this well, which was drilled to 4,807 feet, the Kansas City-Lansing was found at 3,321 feet and the Arbuckle at 4,674 feet. In the Derby Oil Company No. 1 Comanche well in sec. 8, T. 28 S., R. 8 W., which was dry at 4,470 feet, the top of the Kansas City-Lansing was found at 3,294 feet and the top of the Arbuckle at 4,440 feet.

McPherson County

There was much drilling activity in McPherson county in 1943. This was due partly to the excellent results obtained during the previous year in the Lindsborg pool and partly to the continued success of wildcat drilling in the northeastern part of the county where two new pools were discovered in 1943. It is not surprising, therefore, to find that McPherson county stood fourth among all counties in the state in the number of tests drilled during the year. Of the 129 tests drilled in McPherson county, 78 produced oil and 51 were failures. Most of the rank wildcat wells were drilled in the western two tiers of townships in Rs. 4 and 5 W. The many wildcat wells drilled in R. 1 W. are not considered rank wildcat tests inasmuch as they were drilled less than 2 miles from present production.

In the **Roxbury** pool, located in T. 17 S., R. 1 W., only one well was completed. It was drilled by the Stelbar Oil Corporation on the Nilson farm in section 18 and was completed as a salt-water disposal well. The producing zone of the pool, the Mississippian "chat," was found at 2,657 feet (1,331 feet below sea level). The test was then drilled into the Arbuckle dolomite which was found at 3,345 feet (2,020 feet below sea level). In the **Henne** pool, also in T. 17 S., R. 1 W., six new oil wells, one gas well, and one dry hole

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were drilled. Three of the new oil wells were rated at 3,000 barrels or more per day which greatly stimulated new drilling in this township. One new pool, the **Roxbury Southeast,** was found between the Henne and the Roxbury South pools. This pool was discovered by the Shallow Water Refining Company when the first test on the Boyd farm in the SW¼ sec. 20, T. 17 S., R. 1 W., was completed in June. This well is capable of producing 66 barrels of oil per day from the Mississippian "chat" in which the pay zone extends from 2,665 to 2,674 feet. The pay zone was found 5 feet below the top of the "chat." The first offset well to this producer, Adair and Morton No. 1 Pratt, proved to be a failure; a second offset in section 21, H & M Drilling Company No. 1 R. Anderson, was also a dry hole. A test well drilled on the Crowther farm in section 22 about 1 mile west of the producer was also a failure.

In the **Roxbury South** pool, in sec. 30, T. 17 S., R. 1 W., two additional oil wells and two dry holes were drilled. The Tuesday Oil Company drilled a well on the Tinkler farm that is capable of producing 200 barrels per day. The Westgate-Greenland Oil Company drilled one minimum producer on the Bishop farm. Both of the dry holes were drilled in section 29. In the **Crowther** pool 11 additional oil wells and one dry hole were completed. Three of these producing wells are maximum producers.

The **Lindsborg** pool, in T. 17 S., R. 3 W., was the site of much active drilling. At least 42 test wells were drilled, only one of which failed to make a good oil well. A number of the new wells are rated as maximum producers. Several new wells in sec. 5, T. 17 S., R. 3 W., and one well in sec. 36, T. 17 S., R. 4 W., produced some water with the oil. This pool now has 81 wells producing from the Viola limestone and 12 wells producing from the Simpson sandstone. In an effort to extend this pool, the Texas Company drilled one failure on the N. A. Nelson farm in sec. 1, T. 18 S., R. 4 W. Another failure was drilled by the Globe Oil Company on the Nelson farm in sec. 13, T. 18 S., R. 4 W. Still farther south on a possible extension of the main trend of the structure, the Auto Ordnance Corporation drilled one dry hole on the Larson farm in sec. 22, T. 18 S., R. 4 W. This well encountered the Arbuckle dolomite at 3,776 feet and was abandoned in the Arbuckle at 3,813 feet. The upper Viola (often referred to as the Maquoketa), which

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is a producing zone in the Lindsborg pool, was found at 3,609 feet and the coarsely crystalline Viola was found at 3,661 feet.

As a consequence of the successful drilling in T. 17 S., R. 1 W., there was much activity in the next township south. A number of test wells were drilled and one new oil pool, the **Paden** pool, was found. The discovery well in this pool was drilled by Adair and Morton on the Paden farm in sec. 10, T. 18 S., R. 1 W. It is capable of producing 550 barrels of oil per day from a depth of 2,732 to 2,770 feet in the "chat." Two additional producing wells were completed by the Phillips Petroleum Company on the Wining farm in the same section. Two offset wells drilled in section 11 and one in section 14 proved to be dry holes. Four test wells drilled to the

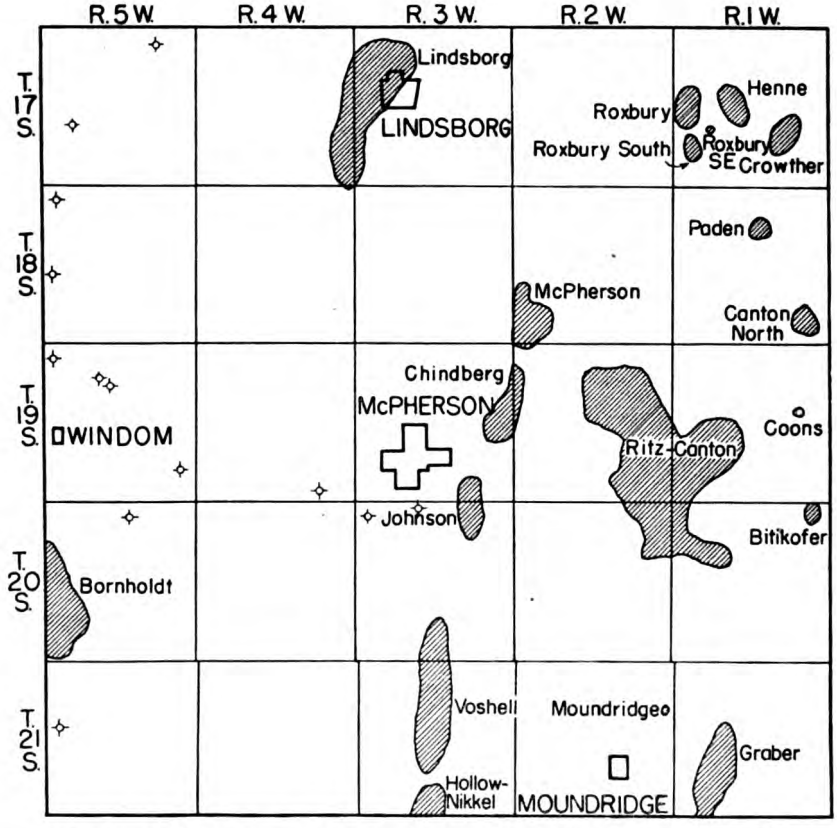

FIG. 14.—McPherson county map showing oil pools and dry rank wildcat wells drilled in 1943.

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north, east, and west of the new producer also proved to be dry holes. Thus the new pool seems to be fairly well defined in its first year of operation. In the same township two dry holes and one small oil well were completed in the **Canton North** pool.

In the **Ritz-Canton** pool, which covers a large area, one small producer was drilled by J. H. Hershey on the Dresher farm in sec. 19, T. 19 S., R. 1 W. This well came in producing about 50 percent water, and it does not seem to add much to the future productivity of the pool.

The **Bitikofer** pool lies southeast of the Ritz-Canton pool in T. 20 S., R. 1 W. In that pool three new oil wells were completed by the Stelbar Oil Company, two on the Voth farm and one on the Weaver farm. A test well drilled by the same operator on the Diener farm in section 1 was a dry hole.

One dry hole was completed in the **Voshell** pool in T. 21 S., R. 3 W., by R. K. Sturm on the Flemming farm in section 16.

Table 14 gives information on the McPherson county oil pools. These pools and the dry rank wildcat wells drilled in 1943 are shown on figure 14.

Exploratory wells.—The favorable results obtained by operators in various parts of the county led to a very thorough wildcat drilling campaign in 1943. At least 13 tests drilled in the western part of the county were more than 2' miles from present production and are therefore entitled to be considered as rank wildcat tests. Two of these were drilled in the northwesternmost township (17 S., R. 5 W.). One, on the Ingemanson farm in section 2, was drilled into the Simpson group (2,273 feet below sea level) and the other, drilled by David-Child Motor Company on the Douglas farm in section 20, encountered the Arbuckle dolomite at 3,760 feet (2,244 feet below sea level) and was abandoned at 3,786 feet.

In T. 18 S., R. 5 W., the Auto Ordnance Corporation drilled one failure on the Kumli farm in section 6. A test well drilled by the Mid-Plains Oil Corporation on the Elble farm in section 19 also failed to produce oil.

In T. 19 S., R. 5 W., four failures were completed. One of these is the Auto Ordnance Corporation-Helmerich and Payne, Inc. test on the Palmquist farm in section 6, and another is the D. J. Marshall et al. No. 1 Neel well in section 25. Two dry holes were drilled in section 9 by R. E. Day on the Campbell and Wade farms. Four miles southwest of the townsite of McPherson, one dry hole was

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completed by the Falcon Seaboard Drilling Company on the Krehbiel farm in sec. 35, T. 19 S., R. 4 W.

Two miles farther southeast, two failures were completed in T. 20 S., R. 3 W. One well was drilled by the Globe Oil and Refining Company on the Strouse farm in section 4; the other was drilled by the Olson Oil Company on the Janssen farm in section 6. Three miles northeast of the Bornholdt pool, one outpost test

TABLE 14.—*Oil pools of McPherson county*

Pool and location	Discovery year	Area, acres	1943 production	Cumulative production to end of 1943, bbls.	Number of wells	Producing zone	Depth to producing zone, feet
Bitikofer 1-20-1W	1940	180	31,830	52,900	5	"Chat"	2,885
Bornholdt 30-20-5W	1937	2,600	1,750,000	6,132,100	145	"Chat"	3,292
Canton North 26-18-1W	1936	120	19,450	102,300	3	"Chat"	2,803
Chinberg 18-19-2W	1929	700	59,850	1,440,450	5 22	K.C.-Lans. "Chat"	2,363 3,007
Crowther 26-17-1W	1942	900	192,900	197,150	16	"Chat"	2,778
Graber 32-21-1W	1934	2,800	602,200	7,545,250	2 130	Misener "Hunton"	3,323 3,274
Henne 21-17-1W	1940	800	263,250	421,900	20	"Chat"	2,658
Johnson 35-19-3W	1932	1,200	88,250	2,806,500	14	"Chat"	3,032
Lindsborg 8-17-3W	1938	4,800	903,469	1,177,200	81 12	Viola Simpson	3,352 3,360
McPherson 29-18-2W	1926	2,000	43,710	1,017,230	23	"Chat" Viola	2,967 3,140
Paden 10-18-1W	1943	160	2,620	2,620	4	"Chat"	2,752
Ritz-Canton 1-20-2W	1929	13,000	954,000	37,011,400	224	K.C.-Lans. "Chat" Viola Simpson	2,360 2,935 3,412 3,440
Roxbury 18-17-1W	1938	2,500	456,900	1,387,680	37	"Chat"	2,684
Roxbury South 30-17-1W	1942	160	74,550	83,570	4	"Chat"	2,658
Roxbury Southeast, 20-17-1W	1943	40	1,790	1,790	1	"Chat"	2,665
Voshell 9-21-3W	1929	3,500	639,000	24,704,000	90	"Chat" Viola Simpson Arbuckle	3,095 3,301 3,322 3,394

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was drilled by the Marshall interests on the Eash farm in sec. 3, T. 20 S., R. 5 W. It was completed as a dry hole at a total depth of 3,468 feet.

South of the Bornholdt pool Helmerich and Payne drilled one dry hole on the Newfield farm in sec. 18, T. 21 S., R. 5 W. It was abandoned at a total depth of 4,023 feet.

Morton County

One dry hole was drilled in Morton county during 1943. The Eason Oil Company drilled a test well on the Craver farm in sec. 32, T. 34 S., R. 42 W. to a depth of 3,770 feet before abandoning it. The top of the Kansas City-Lansing was found at 3,095 feet.

Information about gas production in the Hugoton gas field, which includes part of Morton county, is given under Finney county. Also, the part of Morton county included in the proved territory of the Hugoton gas field is shown in figure 9.

Ness County

Many test wells have been drilled in Ness county in the hope of finding new oil reserves. During 1943 one new oil pool, the **Arnold** pool, was discovered by Falcon Seaboard-Sohio on the Frevelle farm in sec. 22, T. 16 S., R. 25 W. This well encountered the Kansas City-Lansing at 3,920 feet and the top of the Mississippian limestone was found at 4,538 feet. The oil is produced from the Mississippian limestone and the total depth of the well is 4,564 feet. The initial production was 142 barrels of oil per day.

The only other pool in Ness county, the **Aldrich** pool, was found in October, 1929, by the Continental Oil Company in sec. 7, T. 18 S., R. 25 W. This pool, which includes 4,000 acres, produced 143,350 barrels of oil in 1943 from 13 wells in the "Mississippi lime" which is found at a depth of 4,428 feet. The cumulative production to the end of 1943 is 653,000 barrels of oil.

Four test wells were drilled in this county during 1943 by the Magnolia Petroleum Company. Two of these wells were drilled on the Olson farm in sec. 33, T. 17 S., R. 25 W. One well is capable of producing 800 barrels of oil and the other is rated at 80 barrels per day. The Aldrich pool has been extended north to include these wells. To the northwest of these producers, Magnolia drilled a deep test on the Reed "A" lease in section 27 to a depth of 4,790 feet. The elevation of this test is 2,428 feet. The Stone Corral

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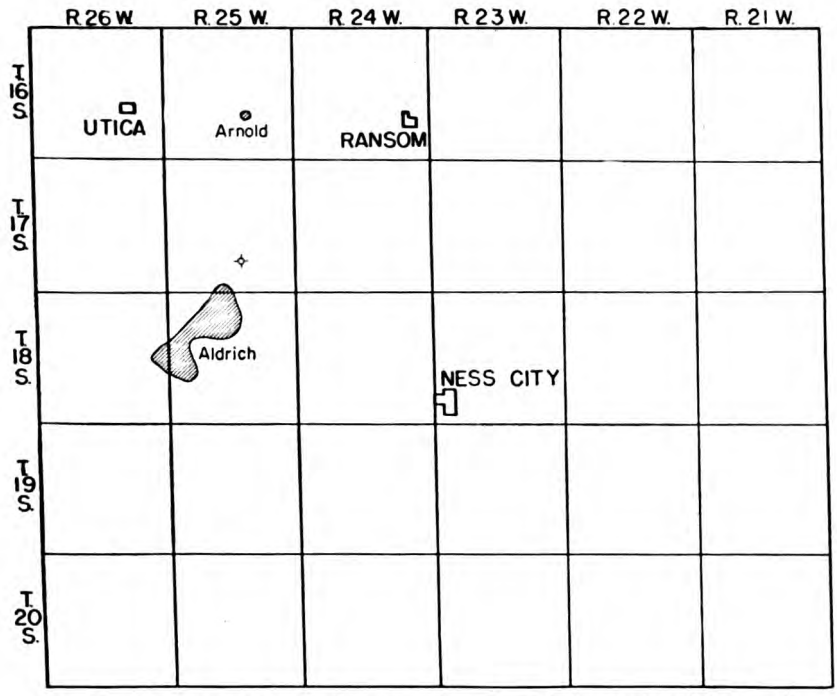

FIG. 15.—Ness county map showing oil pools and dry rank wildcat well drilled in 1943.

anhydrite was encountered at 1,692 feet, the Kansas City-Lansing limestone at 3,805 feet, the Mississippian rocks at 4,406 feet, and the Viola dolomite at 4,774 feet. The fourth test well, also a dry hole, was drilled on the Reed "B" lease, in sec. 4, T. 18 S., R. 25 W. The Mississippian was encountered at 4,292 feet, and a show of oil was found from 4,301 to 4,304 feet. The total depth of the well is 4,311 feet.

The two oil pools in Ness county are shown on figure 15.

NORTON COUNTY

Drilling in Norton county (fig. 16) was on a very much reduced scale during 1943. The four test wells drilled were failures. The **Hewitt** oil pool, the only active pool in Norton county, produced 9,360 barrels of oil in 1943 from two wells in the Kansas City-Lansing at 3,404 feet. This pool, in sec. 11, T. 4 S., R. 21 W., includes 80 acres. Cumulative production from 1941 when the pool was discovered to the end of 1943 was 20,230 barrels of oil.

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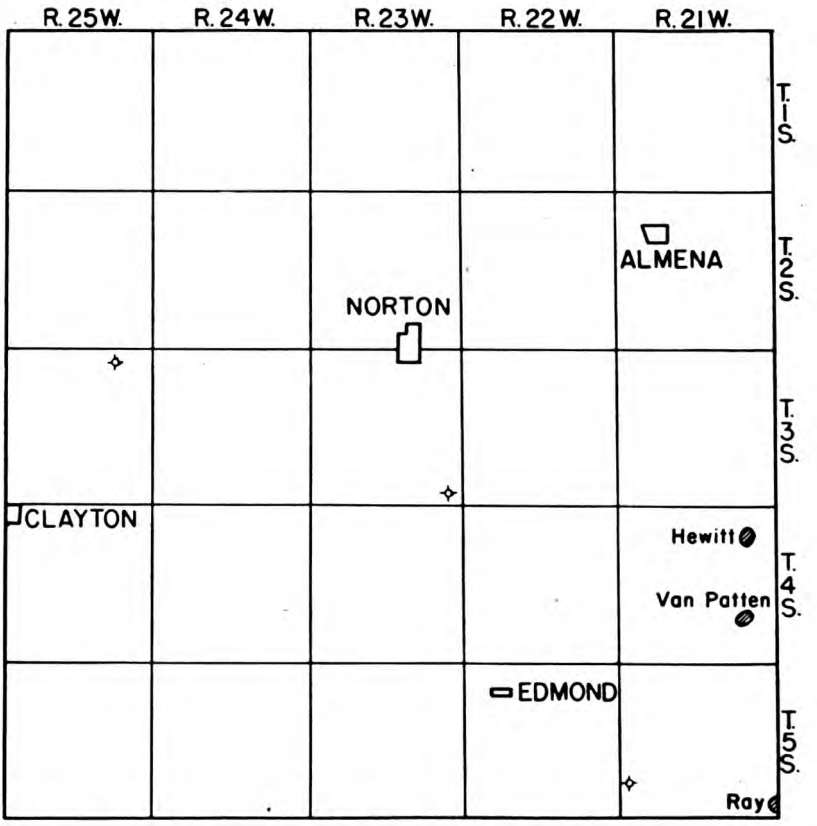

FIG. 16.—Norton county map showing oil pools and wildcat wells drilled in 1943.

The Hewitt pool and the wildcat wells drilled in 1943 are shown on figure 16.

Exploratory wells.—A test well drilled by Helmerich and Payne in sec. 36, T. 3 S., R. 23 W., found the base of the Kansas City-Lansing limestone at 3,666 feet and the top of the Cambrian basal sandstone at 3,714 feet. The well ended in pre-Cambrian granite at a total depth of 3,772 feet. R. W. Shields drilled one dry hole in sec. 2, T. 3 S., R. 25 W. on the Hicks ranch. This test found the base of the Kansas City-Lansing limestone at 3,650 feet (1,168 feet below sea level), the basal sandstone at 3,756 feet, and granite at 3,829 feet. Nadel and Gussman drilled a deep test on the Smith ranch in sec. 22, T. 4 S., R. 21 W. in which the Arbuckle dolomite

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was found at 3,625 feet (1,486 feet below sea level). It was abandoned as a dry hole at 3,680 feet. The fourth test was drilled by the Phillips Petroleum Company on the Irma ranch in sec. 30, T. 5 S., R. 21 W. In this test the base of the Kansas City-Lansing limestone was found at 3,689 feet and the top of the basal Cambrian sandstone at 3,738 feet (1,440 feet below sea level).

Pawnee County

In Pawnee county (fig. 17) there are at present only two oil pools. Table 15 gives information on these pools. Oil was found in the **Pawnee Rock** pool, in the extreme northeastern part of the county, in 1936. During 1937 a great many wildcat tests were drilled in the county and in near-by parts of adjacent counties. A small revival of drilling occurred in 1942 just after the **Zook** pool was discovered.

Exploratory wells.—During 1943 only three test wells were drilled in Pawnee county. One of these was drilled by the Stanolind Oil and Gas Company on the Holman ranch in sec. 22, T. 20 S., R. 19 W. This well is 18 miles west of the Pawnee Rock pool and is thus a rank wildcat well. It has an elevation of 2,222 feet above sea level. The Stone Corral anhydrite was found at 1,336 feet, the Topeka limestone at 3,405 feet, the Kansas City-Lansing limestone

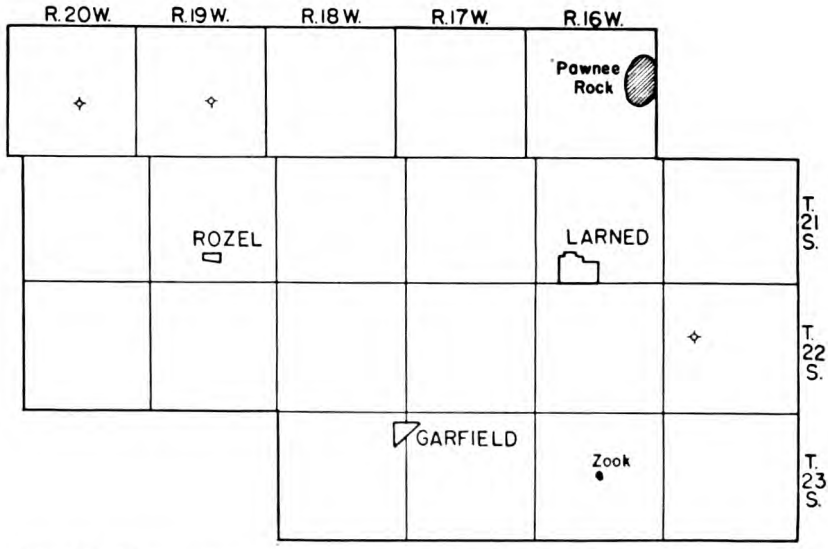

Fig. 17.—Pawnee county map showing oil pools and dry holes drilled in 1943.

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TABLE 15.—*Oil pools of Pawnee county*

Pool and location	Discovery year	Area, acres	1943 production	Cumulative production to end of 1943, bbls.	Number of wells	Producing zone	Depth to producing zone, feet
Pawnee Rock 13-20-16W	1936	2,400	361,100	977,700	24	Arbuckle	3,825
Zook 16-23-16W	1941	80	1,200	7,450	2	Arbuckle	4,066

at 3,730 feet, and the basal Pennsylvanian conglomerate at 4,199 feet. The conglomerate was underlain by the Viola limestone which was encountered at 4,352 feet. The Simpson group was found at 4,391 feet and the Arbuckle dolomite at 4,412 feet. The test was abandoned as a dry hole at 4,478 feet.

A wildcat well drilled by the Gulf Oil Corporation on the Shockey farm, in sec. 22, T. 20 S., R. 20 W., has an interesting sequence of beds. The Cimarron anhydrite was found at 1,348 feet, the Topeka limestone at 3,400 feet, the Kansas City-Lansing limestone at 3,742 feet, and the Sooy (Pennsylvanian basal conglomerate) at 4,266 feet. The Warsaw dolomite (Mississippian) was encountered at 4,348 feet and was succeeded by the Keokuk, Burlington, and Fern Glen chert at 4,370 feet. The flaky white limestones and oölites of the St. Joe formation were found at 4,458 feet and the formation had as a basal member 15 feet of white sandstone which may be the Misener equivalent. The finely crystalline white and pink dolomites of the Viola appeared at 4,542 feet, and were succeeded by the Viola cherts at 4,585 feet and a lower dolomitic zone at 4,660 feet. The Simpson dolomite was found at 4,705 feet and the Simpson shale containing imbedded sandstone and phosphate at 4,740 feet. The top of the Arbuckle dolomite was found at 4,772 feet and showed some staining by oil. The well was abandoned at a total depth of 4,828 feet.

The Vickers Petroleum Company drilled a test well on the Ashworth ranch in sec. 17, T. 22 S., R. 15 W., 10 miles southeast of Larned. This test was abandoned at a total depth of 4,030 feet.

PHILLIPS COUNTY

There are now five oil pools in Phillips county (fig. 18). The first pool to be discovered was the **Bow Creek** pool in the southern part

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of the county, which was found in May, 1939. About a year later, the Cities Service Oil Company discovered the very prolific Ray pool in the southwestern part of the county. In 1941 the Dayton pool, 10 miles northwest of Phillipsburg, was found. During 1943 two additional pools were added to the list, the Dayton North and the Hansen pools. Both of these are located near major pools and may in time become extensions of those pools.

Of the 40 tests drilled in Phillips county during 1943, 25 were new oil wells and 15 were dry holes. Three of the new oil wells are in the new **Dayton North** pool which was discovered by the Cooperative group under the leadership of Tom Allan. The first well was located on the Skelton farm in sec. 13, T. 2 S., R. 19 W. It found porosity in the Kansas City-Lansing limestone between depths of 3,406 and 3,422 feet, and also between 3,488 and 3,500 feet. The well was drilled into the Arbuckle dolomite, which was found at 3,701 feet, but was plugged back to the Kansas City-Lansing. The initial capacity of the well was 109 barrels of oil with a gravity of 37°. Two offset wells were immediately completed by the Phillips Petroleum Company on the Argan farm in section 12. One of these produced 250 barrels per day and the other 370 barrels per day. Another offset well in section 12 was drilled by the Magnolia Petroleum Company on the Morgan farm. The initial production of this well was 223 barrels per day. A second well drilled by the Cooperative interests on the Culbertson lease proved to be a small well.

In an attempt to extend the **Dayton** pool, the Coralena Oil Company drilled one dry hole in sec. 24, T. 2 S., R. 19 W. No other tests were drilled in that vicinity during the year.

In the southwestern corner of the county a second pool, the **Hansen** pool, was discovered when the Cities Service Oil Company completed the first well on the Hansen farm in sec. 14, T. 5 S., R. 20 W. This well found production in the Kansas City-Lansing limestone between 3,363 and 3,371 feet. It also had some oil in the Pennsylvanian basal sandstone from 3,545 to 3,549 feet. Before plugging back to the good show in the Kansas City-Lansing limestone the test was drilled to the Arbuckle which was found at 3,595 feet and into the pre-Cambrian granite which was found at 3,789 feet. Although this well did not have a good show of oil in the Arbuckle dolomite, some of the adjoining wells drilled later found good production in that zone. The Cities Service Oil Com-

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pany now has three wells in this pool. One dry hole was drilled in section 16 in an effort to connect this new pool with the older Ray pool.

In the **Ray** pool, 16 additional wells were drilled during 1943; 14 of these proved to be oil wells. Two of the new wells were drilled by the Skelly Oil Company and the remainder by the Cities Service Oil Company. These wells extend the pool northeastward and eastward into sections 22 and 27. One dry hole was drilled in section 21 by D. G. Hansen and the other was drilled on the Demuth farm by the Phillips Petroleum Company in section 22.

Table 16 gives information on the Phillips county oil pools. These pools and the wildcat wells drilled in 1943 are shown on figure 18.

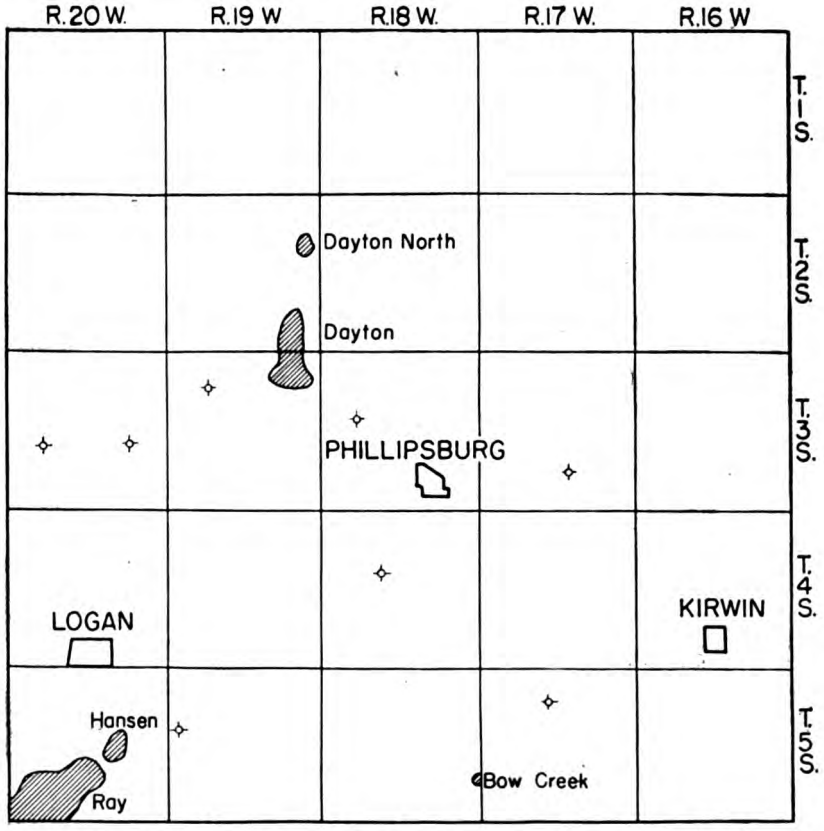

FIG. 18.—Phillips county map showing oil pools and dry rank wildcat wells drilled in 1943.

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TABLE 16.—*Oil pools of Phillips county*

Pool and location	Discovery year	Area, acres	1943 production	Cumulative production to end of 1943, bbls.	Number of wells	Producing zone	Depth to producing zone, feet
Bow Creek 25-5-18W	1939	40	3,950	26,180	1	K.C.-Lans.	3,111
Dayton 36-2-19W	1941	1,200	220,880	357,650	22	K.C.-Lans.	3,430
Dayton North 13-2-19W	1943	200	17,800	17,800	5	K.C.-Lans.	3,406
Hansen 14-5-20W	1943	360	27,500	27,500	1 6	K.C.-Lans. Arbuckle	3,363
Ray 32-5-20W	1940	3,000	1,139,725	2,083,950	9 65	Arbuckle Reagan	3,575 3,540

Exploratory wells.—Because of the good showing made in the Ray pool, operators were encouraged to try for new oil reserves in other parts of Phillips county. The southern half of the county was explored in a fairly regular pattern. Six miles east of Phillipsburg, the Northern Ordnance Corporation drilled one test well on the Roland ranch in sec. 27, T. 3 S., R. 17 W. In this well the Arbuckle dolomite was found at 3,697 feet (1,846 feet below sea level). Four miles northwest of Phillipsburg a test drilled by the Davis and Child Motor Company on the Beyerlein ranch in sec. 17, T. 3 S., R. 18 W. also proved to be dry. In this well the Arbuckle dolomite was found at 3,606 feet (1,646 feet below sea level). Seven miles farther northwest, the Phillips Petroleum Company drilled a dry hole on the Merklein farm in sec. 8, T. 3 S., R. 19 W. In this well the Arbuckle dolomite was found somewhat higher at a depth of 1,596 feet below sea level. Two dry holes were completed in T. 3 S., R. 20 W. One of these was drilled in section 20 by the Northern Ordnance Corporation on the Perry ranch; it found the Arbuckle dolomite at 3,739 feet (1,544 feet below sea level). The other failure was drilled by the same operator on the Ruys ranch in section 23; in this well the Arbuckle dolomite was found at 3,690 feet.

Only one well was drilled in the next row of townships. It is the Coats Oil Company No. 1 Murray well in sec. 16, T. 4 S., R. 18 W. This test found the Arbuckle dolomite at 3,558 feet (1,615 feet below sea level). About 10 miles southeast of this test a well was

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drilled by the Vickers Petroleum Company on the Wheaton farm in sec. 9, T. 5 S., R. 17 W. Underlying the Pennsylvanian rocks in this well, a thin cover of Simpson shale was found above the Arbuckle. The Arbuckle dolomite was encountered at a depth of 3,560 feet (1,654 feet below sea level). The other wildcat well was drilled by the Barnett Drilling Company 4 miles northeast of the Ray pool on the Rundle ranch in sec. 18, T. 5 S., R. 19 W. The Arbuckle dolomite was found at 3,655 feet (1,558 feet below sea level).

Pratt County

The most interesting county in the state from the standpoint of important discoveries during 1943 was Pratt county, although it was outranked by Russell, Barton, Stafford, and McPherson counties in the total number of wells drilled. One reason for this importance was the extension of a number of small pools by large wells in several directions. Another reason was the discovery of oil on the southern flank of the large Cairo gas pool.

In the northeastern township of the county, T. 26 S., R. 11 W., five new oil wells were added to the **Stark** pool. Several of these were wells with a maximum rating of productive capacity. One dry hole was drilled on the edge of the pool. In the **Ward** pool, which was combined with the Stark pool during the year, a number of very large wells were also completed. In this pool, ten tests were drilled, of which five were good oil producers and five were dry holes. At the time the Stark pool was found in April, 1941, it was thought to be a gas pool and development was practically stopped. During 1943, an offset well was drilled by the Lion Oil Refining Company on the Ford ranch in sec. 12, T. 26 S., R. 12 W. For a time this well was regarded as opening a new oil pool, but was later included in the Stark pool.

More than half of the wells drilled in Pratt county during 1943 were in the **Carmi** pool. As one maximum well after another was completed, the drilling activity increased. This pool was discovered late in December, 1942, when the Hollow Drilling Company completed the first well, the No. 1 "B" Brown well, in sec. 29, T. 26 S., R. 12 W., for a production of 6,400 barrels per day from the Arbuckle dolomite. During 1943, the pool was extended to the west into T. 26 S., R. 13 W., and to the east into secs. 28, 32, and 33, T. 26 S., R. 12 W. It thus covers an area of nearly 3,000 acres and has practically merged with the Iuka pool to the southwest. One

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dry hole in section 17 and another in section 19 seem to delimit the pool to the northeast and the northwest. The total number of producing wells in the pool at the close of 1943 was 69, of which one was producing from the Simpson and 68 from the Arbuckle dolomite.

The **Iuka** pool was discovered in August, 1937. It was developed slowly, but by the close of 1942 was producing from both the Simpson and Arbuckle dolomites. Drilling in the near-by Carmi pool caused considerable revival of interest in the vicinity of the Iuka pool. In 1943 three producing wells were completed in sec. 7, T. 27 S., R. 12 W. on the east side of the pool. One of the new wells is large. One dry hole in section 6 and another in section 7, T. 27 S., R. 12 W. now separate the Carmi and Iuka pools, but it is to be expected that they may connect across section 5 in the future. On the north side of the Iuka pool a dry hole was drilled in sec. 2, T. 27 S., R. 13 W. and another in sec. 3, T. 27 S., R. 13 W. These dry

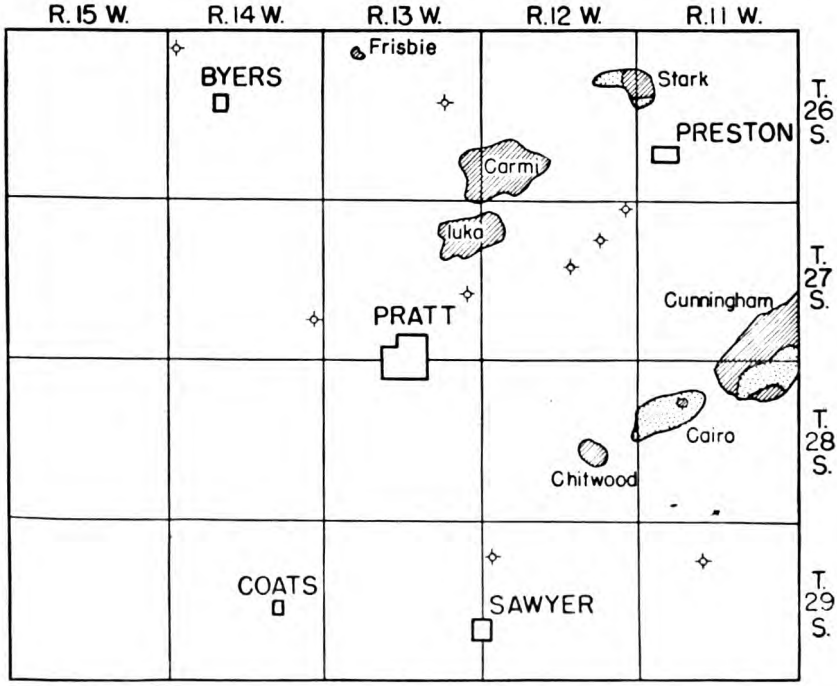

FIG. 19.—Pratt county map showing oil and gas pools and dry rank wildcat wells drilled in 1943.

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holes seem to separate the pool from the western part of the Carmi pool.

The **Cunningham** pool was discovered in January, 1931, and was later extended into Pratt county by oil and gas wells. It is now almost connected with the Cairo gas pool. During 1943 five additional oil wells were added to the Pratt county part of the Cunningham pool. North of the **Cairo** gas pool two oil wells were completed during 1943, both in sec. 3, T. 28 S., R. 11 W. Probably the Cairo and the Cunningham areas will eventually prove to be one pool. Production information for the Cunningham pool is given under Kingman county.

The most important discovery of the year in Pratt county, the **Chitwood** pool, was made when the Lion Oil and Refining Company completed the first well on the Chitwood farm southwest of the Cairo gas pool. This well is in sec. 23, T. 28 S., R. 12 W. and found production in the Simpson dolomite between 4,396 and 4,399 feet. The porous zone lies 3 feet below the top of the Simpson. The Lion Oil and Refining Company later completed six other large wells. The Cities Service Oil Company, drilling in the NE¼ of section 23, found a flow of gas measuring more than 3 million cubic feet per day, which seems to indicate that the Chitwood pool is a continuation of the Cairo gas pool.

The second oil pool to be discovered in Pratt county during 1943 was the **Frisbie** pool in T. 26 S., R. 13 W., approximately 7 miles northwest of the Carmi pool and 12 miles west of the Ward pool. The discovery well was drilled by the Stanolind Oil and Gas Company on the Frisbie farm in section 5. It produces from a depth of 3,947 to 3,955 feet in the Kansas City-Lansing limestone, although the test was drilled to 4,455 feet to determine the possibilities in the Viola (found at 4,232 feet) and the Arbuckle dolomite (found at 4,404 feet). The well is capable of yielding 500 barrels of oil per day. Two additional oil wells and three dry holes were drilled near the discovery well.

Table 17 gives information on the Pratt county oil and gas pools. These pools and the dry rank wildcat wells drilled in 1943 are shown on figure 19.

Exploratory wells.—Considering the excitement caused by the large wells in the extensions to the Carmi and the Chitwood pools, it is somewhat surprising to find that the number of rank wildcat wells in Pratt county is small. Omitting the two discovery wells

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TABLE 17.—*Oil and gas pools of Pratt county*

Pool and location	Discovery year	Area, acres	1943 production	Cumulative production to end of 1943	Number of wells	Producing zone	Depth to producing zone, feet
			barrels				
Cairo 7-28-11W	1939	160	13,900	76,350	3	Viola	4,267
Carmi 29-26-12W	1942	3,000	537,900	537,900	1 68	Simpson Arbuckle	4,271
Chitwood 23-28-12W	1943	360	14,800	14,800	7	Simpson	4,396
Frisbie 5-26-13W	1943	120	18,650	18,650	3	K.C.-Lans.	3,947
Iuka 11-27-13W	1937	2,000	627,700	849,500	50 2	Simpson Arbuckle	4,292 4,354
Stark 18-26-11W	1941	500	81,000	81,000	12	Viola	4,121
			thousand cubic feet				
Cairo (gas) 7-28-11W	1935	20,000	494,135	41,500,000	39	Viola	4,278

of the Frisbie and Chitwood pools, only ten wildcat wells were completed in the county during 1943. One of these was drilled by the Shell Oil Company on the Gerecke farm in sec. 6, T. 26 S., R. 14 W. Three dry holes were drilled southeast of the Carmi and Iuka pools, in T. 27 S., R. 12 W. South of the Iuka pool, in sec. 24, T. 27 S., R. 13 W., one dry hole was drilled on the McGuire farm by the Cities Service Oil company. A rank wildcat was drilled by the Pryor and Lockhart Oil Corporation on the Barnes lease in sec. 25, T. 27 S., R. 14 W. Six miles south of the Cairo gas pool a dry hole was drilled by the Zephyr Drilling Company on the Larabee farm in sec. 9, T. 29 S., R. 11 W. About 7 miles farther west the Shell Oil Company drilled a test well on the Stoops farm in sec. 7, T. 29 S., R. 12 W. This well found the Viola limestone at 4,446 feet, the Simpson sandstone at 4,537 feet, and the Arbuckle dolomite at 4,680 feet (2,770 feet below sea level).

RENO COUNTY

The addition of the Hilger North pool in 1943 brought the total number of oil and gas pools in Reno county to 11. Of the 71 test

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wells drilled, 49 were oil wells and 22 were dry holes. The largest amount of drilling took place in the area of the Peace Creek pool and especially in the territory intervening between that pool and the Zenith pool.

In the **Peace Creek** pool, nine new oil wells and five dry holes were drilled on the margin of the producing territory. Most of the new oil wells were drilled by the Cities Service Oil Company. Twenty new oil wells were completed and only one dry hole was recorded in the area between the Peace Creek pool and the **Zenith** pool. Furthermore, the new oil wells are nearly all large producers and many of them are rated as maximum wells. Most of these new wells were drilled by Cities Service, Magnolia, Skelly, and Shell oil companies. Several large wells were also drilled by Carpenter and Lay. An important development was the discovery of good production in the Arbuckle dolomite by the Texas Company in their No. 2 Hornbaker well in sec. 32, T. 23 S., R. 10 W. The Zenith and Peace Creek pools have now been combined to form the **Zenith-Peace Creek** pool. The area of production in these combined pools now exceeds 11,000 acres, making it one of the large pools of the state.

Production figures for the Peace Creek part of the Zenith-Peace Creek pool are given in table 18. The Zenith part is given in table 25.

The only new pool found in Reno county during 1943 was the **Hilger North** pool in T. 25 S., R. 4 W. This pool was discovered by the Phillips Petroleum Company when it completed the first well on the Manning farm in section 34 for 2,600 barrels of oil per day. The porous rock containing the oil was found between 4,099 and 4,102 feet in the Viola limestone. Three additional producers were completed before the close of the year. Four offset wells were failures.

Only one test well was drilled in the **Lerado** pool in the southwestern part of the county. This test was drilled by the Superior Oil Company of California on the Reese farm, in sec. 2, T. 26 S., R. 9 W., to a depth of 4,440 feet but failed to obtain any showing of oil.

The present oil and gas pools of Reno county are shown on figure 20, and production information is given in table 18.

Exploratory wells.—The rank wildcat wells drilled in Reno county during 1943 were very well distributed over the western

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half of the county. Only one rank wildcat test was drilled in the eastern half of the county—the Nelson Drilling Company No. 1 Bacon well in sec. 36, T. 23 S., R. 5 W. In this well an interesting sequence of formations was found, including the Mississippian, Hunton, Sylvan, Viola, and Simpson rocks. The test ended in the Simpson at a depth of 3,896 feet.

Three dry holes were drilled west of the townsite of Nickerson. One drilled by the Phillips Petroleum Company on the Gossage farm in sec. 17, T. 22 S., R. 7 W. ended in the Arbuckle dolomite at 3,945 feet. The Arbuckle was found at 3,915 feet (2,310 feet below sea level). The Falcon-Seaboard Drilling Company drilled a dry hole on the Stevens farm in sec. 10, T. 22 S., R. 8 W. The Kansas City-Lansing was found at 3,059 feet, the top of the Mississippian at 3,510 feet, the Viola at 3,784 feet, the Simpson at 3,820 feet, and the Arbuckle at 3,891 feet; the total depth was 3,900 feet. The third test, drilled by the Herndon Drilling Company on the Wilkey farm in sec. 34, T. 22 S., R. 8 W., was dry at 4,057 feet. The Mississippian rocks were encountered at 3,614 feet, the Viola at 3,915 feet, the Simpson at 3,936 feet, and the Arbuckle at 4,020 feet.

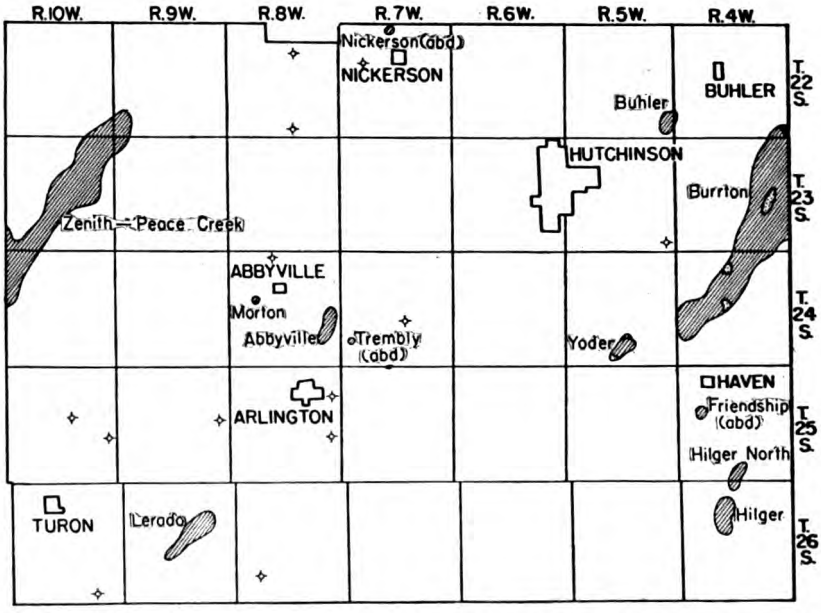

FIG. 29.—Reno county map showing oil and gas pools and dry rank wildcat wells drilled in 1943.

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The Continental Oil Company drilled a dry hole on the Dunn farm in sec. 4, T. 24 S., R. 8 W., northwest of the old Abbyville pool. East of the same pool, in sec. 22, T. 24 S., R. 7 W., the Kingwood Oil Company drilled a dry hole on the Kuhns ranch. Two dry holes were drilled south of the Abbyville pool in T. 25 S., R. 8 W. One of these was drilled by Lauck and Moncrief on the Witt farm in section 12 and the other by Adair and Morton on the Long farm in section 24. About 6 miles farther west the Texas Company failed to find oil in a well drilled on the Moore farm in sec. 13, T. 25 S., R. 9 W. In T. 25 S., R. 10 W. one dry hole was completed by the Midstates Oil Corporation on the John Neis farm in section 15, and another by the Falcon-Seaboard Drilling Company on the McCalla farm in section 24.

TABLE 18.—*Oil and gas pools of Reno county*

Pool and location	Discovery year	Area, acres	1943 production	Cumulative production to end of 1943	Number of wells	Producing zone	Depth to producing zone, feet
			barrels				
Abbyville 24-24-8W	1927	1,200	23,800	481,160	9	K.C.-Lans.	3,540
Buhler 25-22-5W	1938	500	56,050	450,100	8	Simpson	3,897
Burrton 23-23-4W	1931	5,000	1,732,550	36,913,200	396	"Chat" "Hunton"	3,266 3,583
Hilger 16-26-4W	1934	600	377,600	2,750,700	32	Viola	4,062
Hilger North 34-25-4W	1943	250	13,000	13,000	6	Viola	4,099
Lerado 11-26-9W	1935	1,800	35,950	2,524,860	26	Viola	4,128
Morton 17-24-8W	1942	40	5,200	10,400	1	K.C.-Lans.	3,180
Peace Creek 21-23-10W	1941	6,000	3,672,100	4,636,700	139 1	Viola Arbuckle	3,773
Yoder 34-24-5W	1935	500	3,500	80,825	5	"Chat"	3,450
			million cubic feet				
Burrton (gas) 23-23-4W	1930	5,000	6,441	56,448	52	"Chat"	3,298
Yoder (gas) 34-24-5W	1936	800	487		4	"Chat"	3,402

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Southeast of the Lerado pool, in sec. 29, T. 26 S., R. 8 W., the Skelly Oil Company tried unsuccessfully to find oil on the Potter farm. Southwest of the Lerado pool, the Continental Oil Company drilled an unsuccessful test on the Amerine farm in sec. 35, T. 26 S., R. 10 W.

Rice County

Of the 125 test wells drilled in Rice county in 1943, 69 were new oil wells and 56 were dry holes. Most of the new oil wells are located in the Silica and Chase pools. The others are for the most part scattered among the many small pools of the northwestern corner of the county.

One of the new pools discovered in Rice county in 1943 is the **Click** pool, in T. 18 S., R. 7 W. The discovery well of this pool was drilled by the Phillips Petroleum Company on the Click farm in section 3. This well found oil in a porous zone in the Misener sandstone between 3,182 and 3,187 feet. Unfortunately, there was much water with the oil, and the future of this pool is therefore somewhat doubtful. In the near-by **Geneseo** pool, two new oil wells and three dry holes were completed. One of the dry holes was drilled more than a mile west of the pool on the Turner farm in sec. 16, T. 18 S., R. 8 W. Another was drilled in section 34 of the same township, also some distance west of the producing area. The third dry hole was drilled on thhe Sangster farm in sec. 13, T. 19 S., R. 8 W., about three-quarters of a mile south of the producing area.

In T. 18 S., R. 9 W., there are at present five oil pools, one of which was discovered during 1943. This new pool is the **Volkland** pool in which the discovery well is the No. 1 Volkland in the SW¼ of section 27. This well was drilled by the Phillips Petroleum Company and found oil in the Arbuckle dolomite between 3,234 and 3,256 feet. It had a potential production of 2,350 barrels which encouraged the drilling of other near-by holes. As a result, there were five wells in the pool before the close of the year even though the original well was not completed until September. Five dry holes were completed in the vicinity of the producers. The producing wells are owned by the Phillips Petroleum Company and the Texas Company. In the same township, two test wells were drilled near the **Bredfelt** pool. One of these was a small oil well and the other was a dry hole.

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There are at present four oil pools in T. 18 S., R. 10 W. Only one of these, the **Orth** pool, received any attention during the year. There three small oil wells and three dry holes were completed. One well drilled in sec. 19, T. 18 S., R. 9 W., 1½ miles east of the **Orth East** pool, failed to find oil.

In T. 19 S., R. 10 W., there are six oil pools varying from small size to the large Silica pool. One test drilled in an effort to extend the **Brandenstein** pool, resulted in a dry hole. In the **Doran** pool one new oil well was completed by the Atlantic Refining Company in section 13 on the Doran lease. A dry hole was drilled in the same section by B. F. Stapleton on the Katterjohn farm. Two small producers were added to the **Bowman** pool, which lies just north of the Silica pool, in 1943. Both were drilled by the Stanolind Oil and Gas Company. One new oil well was completed in the **Pioneer** pool, which lies between the Silica and the Chase pools. Also, there were two test wells drilled in an attempt to connect the Silica and the Chase pools. One of these test wells is located on the Proffitt farm in section 25 and the other on the Flora farm in section 26. Both were dry holes.

Eight new oil wells and seven dry holes were completed in the **Silica** pool in 1943. Four of these new wells were drilled in section 35 on the eastern edge of the pool. One small producer and two dry holes were drilled on the south side of the pool.

The Haferman, Chase, and the new Keller pools are in T. 19 S., R. 9 W. The **Keller** pool was discovered by Ackley and Quinlan in section 3 when the first well was completed on the Keller farm. The oil was found in the Pennsylvanian basal conglomerate, sometimes called the Sooy. The pay zone extends from 3,240 to 3,243 feet. Two dry holes were completed in the **Haferman** pool, one on the Schoonover farm in sec. 31, T. 18 S., R. 9 W. and the other on the Weins farm in sec. 9, T. 19 S., R. 9 W. Of the 46 additional wells completed in the **Chase** pool, 36 were new oil wells and 10 were dry holes. Most of the dry holes were on the edges of present production and serve to outline the probable ultimate limits of the producing area.

There was some activity in the **Smyres** pool on the eastern border of the county. Shade and Berry completed two new oil wells and the Texas Company completed one. On the northwest side of the pool, a dry hole was drilled by the Alco Valve Company on the Schneider farm in sec. 26, T. 19 S., R. 6 W. Six miles farther

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south one small well and two dry holes were completed in the **Welch** pool. One dry hole, the Weber Dental Manufacturing Company No. 2 Evans well, was completed in sec. 34, T. 20 S., R. 8 W., just west of the **Wherry** pool.

South of the Silica pool on the western border of the county, three producers were completed by the Vickers Petroleum Company on the Rose lease in sec. 19, T. 20 S., R. 10 W. In the same section one dry hole was drilled by the Herndon Drilling Company on the Lola farm. A few miles farther east and on the north side of the **Raymond** pool, Hyde and Stormfeltz completed one small well on the Warner lease. Branine and Holl completed one dry hole on the Warner farm in sec. 15, T. 20 S., R. 10 W.

Oil and gas production information for Rice county is given in table 19. The oil and gas pools are shown on figure 21.

Exploratory wells.—A total of 22 wildcat wells were drilled at a distance of more than 2 miles from present production in Rice county. Three of these were successful in finding new oil pools.

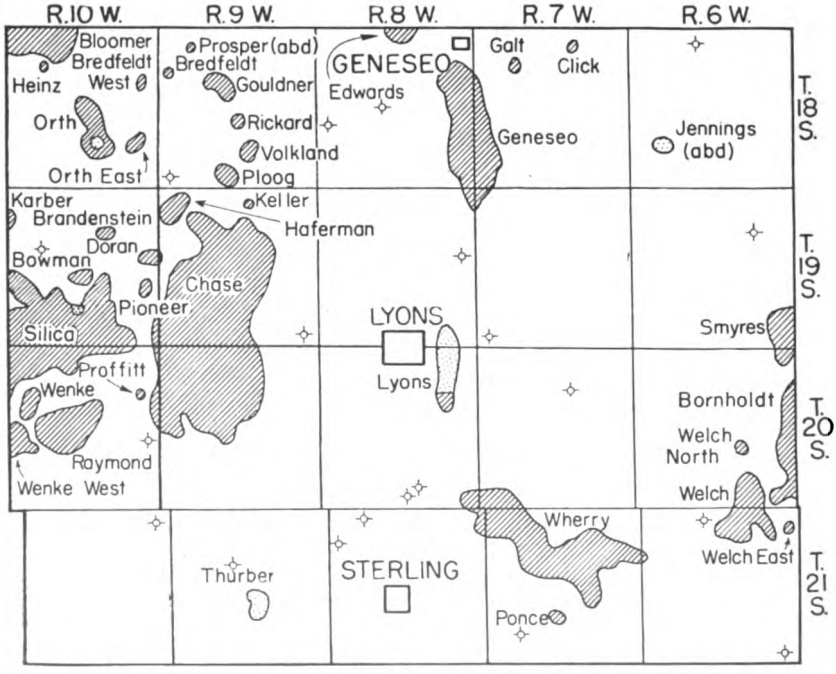

FIG. 21.—Rice county map showing oil and gas pools and dry rank wildcat wells drilled in 1943.

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The others are listed as dry holes. These wildcat wells are scattered over the entire county and in no case were more than two drilled in any one township.

TABLE 19.—*Oil and gas pools of Rice county*

Pool and location	Discovery year	Area, acres	1943 production	Cumulative production to end of 1943	Number of wells	Producing zone	Depth to producing zone, feet
			barrels				
Bowman 21-19-10W	1936	250	60,421	138,350	4 2	K.C.-Lans. Arbuckle	3,032 3,272
Brandenstein 10-19-10W	1933	160	20,400	410,400	2	K.C.-Lans.	3,014
Bredfeldt West 12-18-10W	1939	80	3,200	34,000	2	Arbuckle	3,260
Chase 32-19-9W	1931	8,000	7,496,300	33,653,700	23 388	K.C.-Lans. Arbuckle	2,942 3,246
Click 3-18-7W	1943	40	none	none	1	Misener	3,182
Doran 13-19-10W	1936	300	55,770	228,925	7	Arbuckle	3,291
Edwards 3-18-8W	1936	2,600	1,068,100	5,041,725	88	Arbuckle	3,278
Geneseo 25-18-8W	1934	5,600	2,803,400	12,594,925	195	Arbuckle	3,132
Haferman 6-19-9W	1936	800	88,140	665,460	1 9	K.C.-Lans. Arbuckle	2,810 3,192
Heinz 8-18-10W	1938	80	8,825	60,330	1 1	K.C.-Lans. Arbuckle	3,000 3,254
Karber 7-19-10W	1940	120	31,860	79,050	3	Arbuckle	3,343
Keller 3-19-9W	1943	40	4,050	4,050	1	Sooy	3,240
Lyons 14-20-8W	1939	40	650	11,550	1	Simpson	3,274
Orth 27-18-10W	1932	1,000	142,160	1,033,000	1 1 15	Shawnee K.C.-Lans. Pre-Camb.	 2,915 3,240
Pioneer 25-19-10W	1942	40	12,640	16,100	2	Arbuckle	3,281
Ploog 33-18-9W	1930	500	52,160	1,365,200	9	Arbuckle	3,252
Ponce 28-21-7W	1936	40	3,300	36,275	1	Sooy	3,388
Raymond 21-20-10W	1929	1,200	772,330	7,775,100	24 39	K.C.-Lans. Arbuckle	3,130 3,330
Rickard 22-18-9W	1935	160	15,640	101,300	4	Arbuckle	3,324
Smyres 36-19-6W	1942	1,000	271,750	404,800	23	"Chat"	3,339

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TABLE 19.—*Oil and gas pools of Rice county, concluded*

Pool and location	Discovery year	Area, acres	1943 production	Cumulative production to end of 1943	Number of wells	Producing zone	Depth to producing zone, feet
			barrels				
Volkland 27-18-9W	1943	300	6,775	6,775	5	Arbuckle	3,234
Welch 2-21-6W	1924	1,500	73,700	4,441,850	22	"Chat"	3,370
Welch East 1-21-6W	1941	80	3,120	9,950	2	"Chat"	3,341
Welch North 23-20-6W	1937	160	6,100	57,100	3	"Chat"	3,334
Wenke 7-20-10W	1935	500	125,900	600,900	11	Arbuckle	3,360
Wenke West 18-20-10W	1938	80	19,465	81,385	2	Arbuckle	3,292
Wherry 11-21-7W	1933	7,200	431,000	8,947,450	131	Sooy	3,358
			million cubic feet				
Lyons (gas) 35-19-8W	1936	1,500	399	11,395	1	Simpson	3,290
Orth (gas) 27-18-10W	1933	640	539		11	Arbuckle	3,277
					3	K.C.-Lans.	2,906
Thurber (gas) 22-21-9W	1937	400	2,116	10,336	7	Misener	3,317

ROOKS COUNTY

One of the most actively explored counties in the state during 1943 was Rooks county. The excellent results obtained in the **Ray** pool which extends into the northwestern part of the county seem to be the reason for this unusual activity, for the other pools of the county have not had very prolific production. Three of the 33 rank wildcat wells drilled in Rooks county were successful in finding new oil pools. The new pools are the Kriley, Marcotte, and Palco pools. At the present time the value of these new pools cannot be estimated. In addition to the rank wildcat wells, 22 additional oil wells and some dry holes were drilled in old pools. The map, figure 22, shows the location of the present pools and table 20 records the pertinent data with regard to each pool.

One small well and two dry holes were completed in the **Stockton** pool in T. 7 S., R. 17 W. during 1943. All were drilled by Allan and the Cooperative Society.

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One dry hole was drilled in the **Dopita** pool by the Bishop Oil Company on the Hazen ranch in sec. 26, T. 8 S., R. 18 W. The Kansas City-Lansing was encountered at 3,151 feet and the Arbuckle at 3,443 feet; the total depth is 3,460 feet.

The new **Kriley** pool is located several miles northwest of the Dopita pool in sec. 22, T. 8 S., R. 18 W. It was discovered by the Continental Oil Company when a well drilled on the Kriley farm was completed. The pay zone is in the Arbuckle dolomite between 3,331 and 3,355 feet. The test was originally drilled to a total depth of 3,374 feet and was then plugged back to 3,355 feet.

In the **Laton** pool in Ts. 8 and 9 S., R. 16 W., seven new oil wells were drilled by the Cities Service Oil Company, the Bay Petroleum Company, and the Vickers Petroleum Company. Two of the

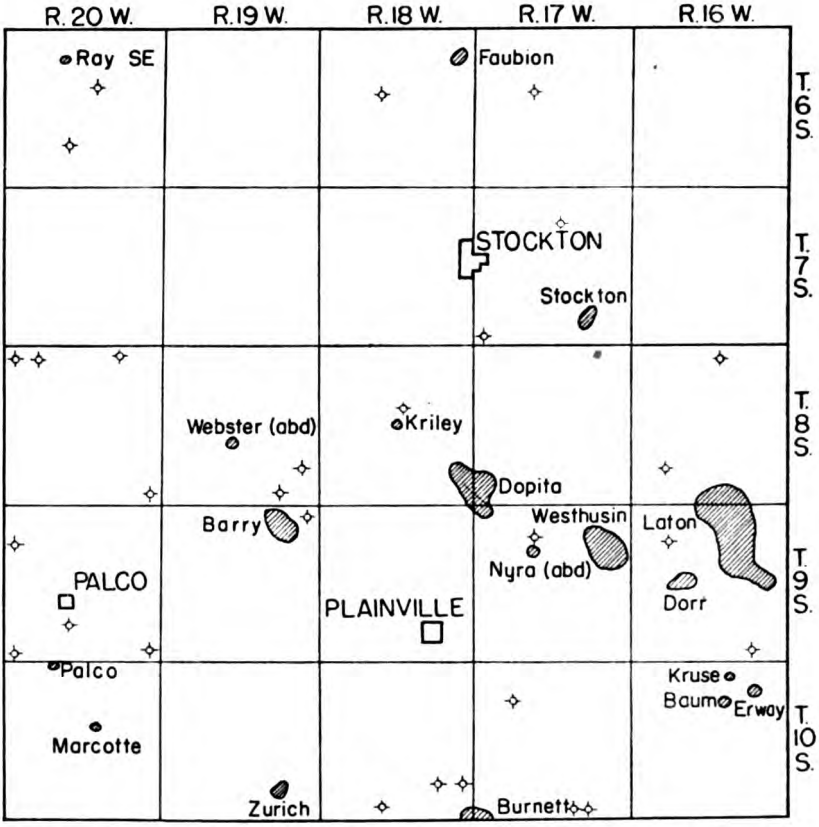

FIG. 22.—Rooks county map showing oil pools and dry rank wildcat wells drilled in 1943.

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wells yield water with the oil and the others are relatively small producers. In the **Dorr** pool, located 4 miles southwest of the Laton pool, the Cities Service Oil Company drilled one additional producing well, but this well also produces a large amount of water with the oil. This well is on the Bessey farm in sec. 21, T. 9 S., R. 16 W.

In the **Westhusin** pool in T. 9 S., R. 17 W., 4 miles northwest of the Dorr pool, one good oil well was completed in section 11. One dry hole was drilled in this area by the Phillips Petroleum Company on the Thompson farm in section 9. Total depth of this well was 3,506 feet.

One of the most active areas in the county was the **Barry** pool, in T. 9 S., R. 19 W. It was extended into section 2 where the Continental Oil Company completed four maximum wells on the Dan Barry "A" lease and one on the Dan Barry "B" lease. The same company also drilled one maximum well and one smaller well on the Slansky farm in the same section. The Continental Oil Company also drilled a moderately good well on the Barry ranch in section 11 and a maximum well on the Hederharsh farm. They also drilled two tests on the Jelmek farm in section 12, one of which produced 170 barrels of oil per day; the other was a dry hole drilled to 3,588 feet.

Two new oil pools were discovered during the year in the southwestern township of Rooks county. One of these is the **Palco** pool found by the Continental Oil Company on the Brueggeman farm in sec. 5, T. 10 S., R. 20 W. The pay zone extends from 3,824 to 3,843 feet and lies in the Arbuckle dolomite. One foot of caprock is present and porosity begins immediately below it. The discovery well was completed in December, although the original stratigraphic test was drilled some 10 months earlier. The **Marcotte** pool was also discovered in December. The discovery well was drilled by the Champlin Refining Company on the Marcotte farm in sec. 15, T. 10 S., R. 20 W. The pay zone in this well is in the Arbuckle dolomite and extends from the top of the dolomite at 3,752 feet to 3,758 feet.

Exploratory wells.—All but 8 of the 25 townships in Rooks county were tested for oil by one to four wildcat wells during 1943. In the northern row of townships one test was drilled in sec. 16, T. 6 S., R. 17 W. on the Riley farm. About 6 miles west, another test was drilled by the Texas Company on the McQueen farm in sec.

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TABLE 20.—*Oil pools of Rooks county*

Pool and location	Discovery year	Area, acres	1943 production	Cumulative production to end of 1943, bbls.	Number of wells	Producing zone	Depth to producing zone, feet
Barry 11-9-19W	1941	700	104,200	104,200	12	Arbuckle	3,435
Baum 10-10-16W	1941	40	2,430	4,880	1	K.C.-Lans.	3,057
Dopita 31-8-17W	1934	500	63,200	284,550	2 8	K.C.-Lans. Arbuckle	3,212 3,409
Dorr 20-9-16W	1941	160	21,000	24,275	3	K.C.-Lans.	3,230
Erway 2-10-16W	1941	40	9,200	19,790	1	K.C.-Lans.	3,136
Faubion 12-6-18W	1936	80	2,175	46,880	1	K.C.-Lans.	3,128
Kriley 22-8-18W	1943	40	1,130	1,130	1	Arbuckle	3,331
Kruse 3-10-16W	1928	40	1,550	10,335	1	K.C.-Lans.	3,115
Laton 11-9-16W	1927	1,300	410,000	2,136,300	87	K.C.-Lans.	3,228
Marcotte 15-10-20W	1943	40	none	none	1	Arbuckle	3,752
Palco 5-10-20W	1943	40	none	none	1	Arbuckle	3,824
Ray Southeast 9-6-20W	1941	40	10,400	18,775	1	Reagan	3,600
Stockton 35-7-17W	1937	80		26,400	1	K.C.-Lans.	3,180
Webster 21-8-19W	1930	40		56,369	1	Arbuckle	3,434
Westhusin 11-9-17W	1936	700	143,000	667,700	15	K.C.-Lans.	3,231
Zurich 26-10-19W	1934	200	12,600	141,050	3	K.C.-Lans.	3,340

16, T. 6 S., R. 18 W. South of the Ray pool, one dry hole was drilled on the Hansen farm in sec. 15, T. 6 S., R. 20 W., and another dry hole was drilled on the Mathews farm in sec. 28, T. 6 S., R. 20 W.

In the second row of townships two dry holes were drilled in T. 7 S., R. 17 W., one by the Standard Oil Company of Ohio on the Moore farm in section 10 and the other by the Three-Way Drilling Company on the Roelfs farm in section 31. Two miles northwest of the townsite of Stockton, the Carter Oil Company drilled one dry hole on the Bigge farm in sec. 10, T. 7 S., R. 18 W.

Ten test wells were drilled in the third row of townships. One of these found oil and opened the Kriley pool, while the remaining

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nine were dry. Two of the wells are located in T. 8 S., R. 16 W., one in section 3 and the other in section 29. Two miles north of the new Kriley pool, the Continental Oil Company drilled one dry hole on the Kriley "A" lease in sec. 15, T. 8 S., R. 18 W. In T. 8 S., R. 19 W., one dry hole was completed by the Lotus Oil Company on the Young farm in section 25 and another by Nate Appleman on the Slansky farm in section 35.

Four test wells were drilled in T. 8 S., R. 20 W.; three of them were in the first row of sections and one was in section 36. The Bridgeport Oil Company drilled the dry holes in sections 5 and 6 and one dry hole was drilled in section 2 by the National Associated Petroleum Company. The failure in section 36 was drilled on the Shaw farm by the Harber Drilling Company.

Four unsuccessful wildcats were drilled in T. 9 S., R. 20 W. Two of these were drilled by the Bridgeport Oil Company, one on the Desmarteau farm in section 7 and the other on the Renner "B" lease in section 31. The Continental Oil Company drilled a test on the Sutor farm in section 28, and Herbert Gussman and Helmerich and Payne, Inc. drilled a test on the Pywell farm in section 36.

Six dry holes were drilled north of the **Burnett** pool, three in T. 10 S., R. 17 W. (secs. 8, 34, and 35) and three in T. 10 S., R. 18 W. (secs. 25, 26, and 33). In one of these, the Gulf No. 1 Prummitt in sec. 34, T. 10 S., R. 17 W., the Viola residual rock was found to be 22 feet thick and the Simpson group underlying it was 37 feet thick.

Rush County

Two of the 14 test wells drilled in scattered parts of Rush county (fig. 23) were new oil wells. These two new wells were drilled in the western part of the Albert oil pool which is part of the large Otis area.

One dry hole was completed in T. 16 S., R. 16 W. in an effort to extend the **Winget** pool. This test was drilled by the Falcon-Seaboard Drilling Company on the Winget ranch in section 15. In the same township, one dry hole was completed on the Allen ranch in section 32 by the Bird and Hanley interests. About 7 miles farther west, the Falcon-Seaboard Drilling Company drilled an unsuccessful well on the Urban farm in sec. 19, T. 16 S., R. 17 W. One mile farther west, another dry hole was drilled by the Davis and Child Motor Company on the Honderick farm in sec. 25, T. 16 S., R. 18 W.

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In the **Albert** oil pool, one new well having an initial production of 107 barrels was completed by the Ohio Oil Company on the Brack farm in sec. 24, T. 18 S., R. 16 W. In section 23 of the same township the Morgan and Flynn interests drilled a good producer on the Schroeder "B" lease. About 3 miles west of the **Otis** gas field, a dry hole was drilled on the Rose Pechanee farm in section 18; 3 miles farther south a dry hole was drilled by the Elbar Corporation on the Schneider farm in section 31.

Figure 23 shows the oil and gas pools of Rush county and the wildcat wells drilled during 1943. Table 21 gives the production information for the county.

Exploratory wells.—About 1 mile east of LaCrosse, the Falcon-Seaboard Drilling Company drilled a dry hole on the Baker farm in sec. 35, T. 17 S., R. 18 W. Four miles west of LaCrosse the same interests drilled a dry hole on the Wilson farm in sec. 36, T. 17 S., R. 19 W. One mile southwest of LaCrosse, a dry hole was completed by J. J. Lynn on the Laughlin farm in sec. 4, T. 18 S., R. 18 W.

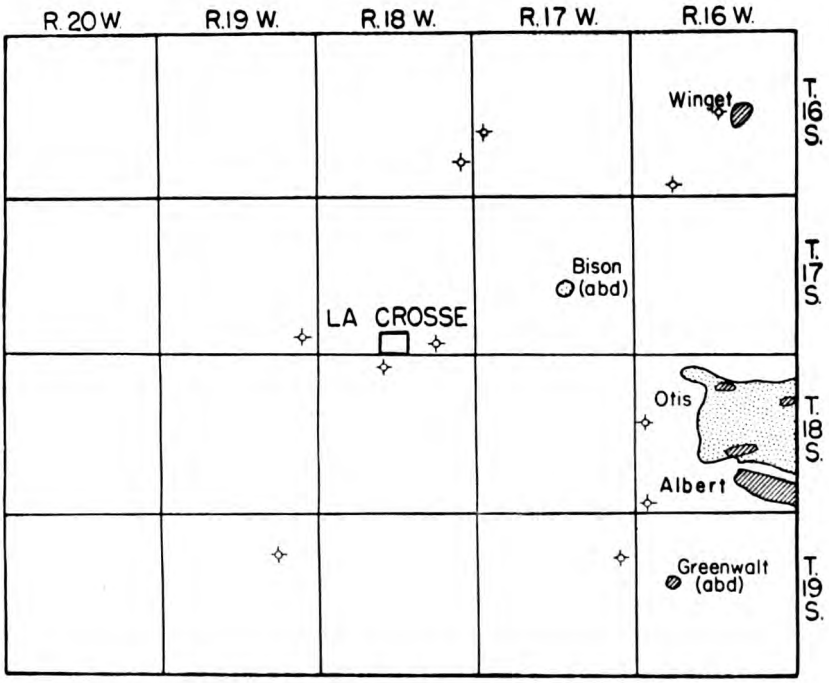

FIG. 23.—Rush county map showing oil and gas pools and dry holes drilled in 1943.

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TABLE 21.—*Oil and gas pools of Rush county*

Pool and location	Discovery year	Area, acres	1943 production	Cumulative production to end of 1943	Number of wells	Producing zone	Depth to producing zone, feet
			barrels				
Otis 10-18-16W	1934	1,200	326,100	2,232,775	24	Reagan	3,527
Winget 15-16-16W	1936	120	1,200	50,200	1	K.C.-Lans.	3,243
			million cubic feet				
Otis (gas) 11-18-16W	1930	15,000	13,340	87,530	60	Reagan	3,507

Only two test wells were drilled in the southernmost row of townships during 1943. One of these was drilled by the Appleman interests on the Waggoner farm in sec. 12, T. 19 S., R. 17 W. It was a dry hole at a total depth of 3,881 feet. A very interesting test well was drilled by the Stanolind Oil and Gas Company on the Tammen farm in sec. 11, T. 19 S., R. 19 W. In this test well the Stone Corral dolomite was found at 1,320 feet, and the Topeka limestone at 3,310 feet. The top of the Kansas City-Lansing limestone was found at 3,655 feet and the base at 3, 890 feet. Below the Kansas City-Lansing limestone, the Viola limestone was encountered at 4,093 feet (1,933 feet below sea level) and the Simpson group at 4,184 feet, indicating a thickness of nearly 100 feet for the Viola. Below the Simpson the Arbuckle dolomite was found at 4,211 feet (2,051 feet below sea level). The test was abandoned as a dry hole at a total depth of 4,246 feet.

RUSSELL COUNTY

Russell county is still the bright spot in the oil picture in western Kansas. Nearly one-third of its area seems to be productive. This is indicated by the fact that 139 of a total of 216 test wells drilled in that county during 1943 were new oil wells. Five new pools were found by rank wildcat tests and a number of the older pools were extended.

One additional oil well and two dry holes were completed in the **Fairport** pool, the oldest pool of the county. Farther south in T. 13

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S., R. 14 W., one dry hole was drilled in the **Russell North** pool, one small well in the **Atherton** pool, and a salt-water disposal well in the **Russell** pool.

There was much drilling activity in the next row of townships, especially near recently opened pools. In the **Greenvale** pool in T. 14 S., R. 12 W., 19 new oil wells and 8 dry holes were completed. This pool was extended northeast and northwest as well as to the west, and has now been combined with the large Hall-Gurney pool. In the **Hall-Gurney** pool, 14 new oil wells were completed while 10 dry holes around the edge of the pool serve to delimit its probable future boundaries. One dry hole was drilled by the Vernon Oil and Gas Company in the **Mohl** pool, which is separated by a

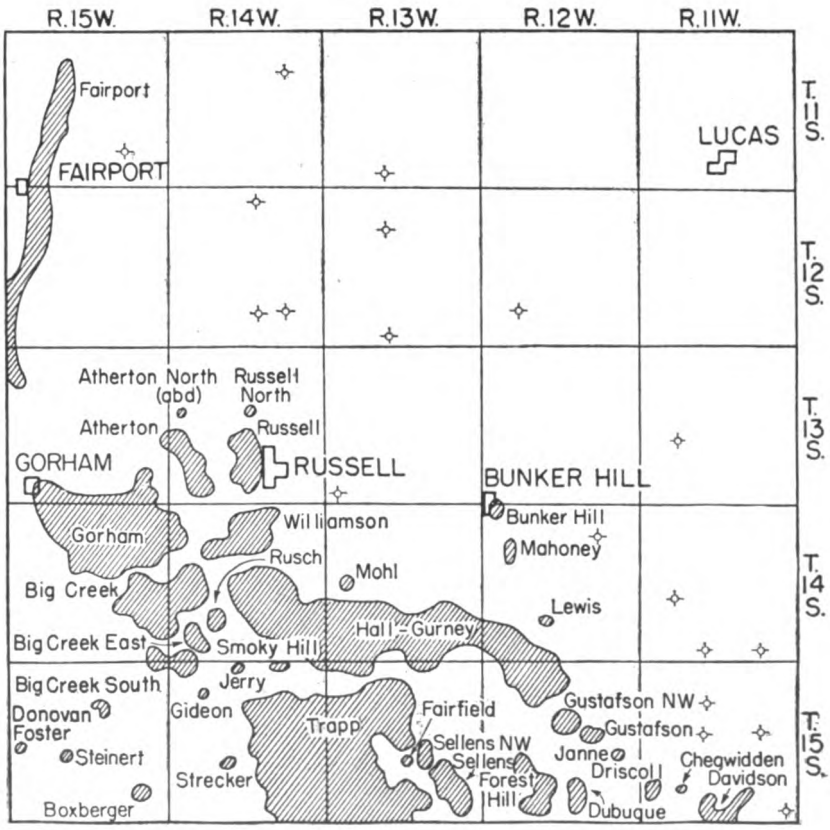

FIG. 24.—Russell county map showing oil pools and dry rank wildcat wells drilled in 1943.

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narrow strip of unproductive territory from the Hall-Gurney pool.

Many wells were completed in the **Witt** and the **Williamson** pools in T. 14 S., R. 14 W. At least 13 new wells were completed in each the Witt and the Williamson pools. One dry hole was drilled in the Witt pool, and two dry holes were drilled in the Williamson pool. These two pools were merged during the year. Four new oil wells and one dry hole were completed in the near-by **Vaughn** pool. In the large **Gorham** pool, which lies mostly in the next township, five new oil wells and one dry hole were completed during 1943.

Oil operators were active in the southernmost row of townships during 1943. Of eight rank wildcat tests drilled in that area, five discovered new oil or gas pools. The first of these is the **Chegwidden** pool in T. 15 S., R. 11 W. This pool was discovered when the Mid-Plains Oil Company drilled a successful gas producer on the Chegwidden farm in section 29 almost midway between the Davidson and the Driscoll pools. The new pool derives its gas from the Kansas City-Lansing limestone which was found to be porous between 2,998 and 3,007 feet. In the **Driscoll** pool one new oil well was completed, and in the **Davidson** pool the Texas Company drilled a good producer on the Borrell farm in sec. 33, T. 15 S., R. 11 W. Three wildcat ventures in the northern part of this township resulted in dry holes—one in section 9, one in section 14, and one in section 16.

Two new oil pools were found in T. 15 S., R. 12 W. One of these, the **Gustafson Northwest** pool, was discovered by Harry Gore when drilling on the Kastrup farm in section 15. The producing zone is the Kansas City-Lansing limestone; the pay zone lies between 3,021 and 3,027 feet. Two offset wells were drilled immediately in adjoining sections and both were producers. The second pool in the township was found by Nadel and Gussman in section 24. It has been named the **Janne** pool for the farm on which the discovery well was drilled. In this well, the Arbuckle dolomite is the producing rock and the porous zone extends from 3,319 to 3,329 feet. The well was completed late in December. In the **Dubuque** pool, located several miles to the west, 10 new oil wells and six dry holes were completed.

The **Trapp** pool, which still has some undrilled inside locations and also some undrilled fringe territory, is one of the largest pools

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in the state. During 1943, 22 new oil wells and six dry holes were completed in that pool. North of the old **Sellens** pool, a wildcat test drilled by the Mid-Plains Oil Company on the Sellens farm in sec. 22, T. 15 S., R. 13 W. found a new oil pool, which was later named the **Sellens Northwest** pool. The oil was found in the Kansas-City Lansing limestone between 3,039 and 3,050 feet. Two additional oil wells and two dry holes were drilled around this producer before the close of the year.

A new oil pool was discovered by the Ohio Oil Company in sec. 21, T. 15 S., R. 14 W. Because the discovery well is located on the Strecker farm, the new pool was called the **Strecker** pool. In this well, the pay zone lies in the Arbuckle dolomite which was productive from 3,342 to 3,345 feet and also from 3,353 to 3,356 feet. The well is capable of yielding 280 barrels of oil per day. Unfortunately, two offset wells drilled on adjoining leases by the Ohio Oil Company proved to be dry.

The present oil pools of Russell county and the wildcat tests drilled in that county during 1943 are shown on figure 24. Table 22 gives oil production information for Russell county.

Exploratory wells.—A fairly large number of exploratory wells were drilled in Russell county during 1943. They extend in a northwesterly direction from the southeastern township across the entire county. Three dry holes were drilled in secs. 20, 33, and 35, T. 14 S., R. 11 W.; one was drilled in sec. 20, T. 13 S., R. 11 W. and one in sec. 11, T. 14 S., R. 12 W. One was drilled in sec. 29, T. 12 S., R. 12 W. by the Northern Ordnance Corporation on the Colliver farm. Two were drilled in T. 12 S., R. 13 W., one by the Phil-Han Oil Company in section 9 on the Beatty farm and the other by the Bell Oil and Gas Company in section 33 on the Grass farm. Three dry holes were drilled in T. 12 S., R. 14 W.—one on the Roda ranch in section 3, the second on the Funk farm in section 26, and the third on the Clawson farm in section 27. Three dry holes were completed in the northernmost row of townships. One of these was drilled by Duwe and Farris on the Boxberger ranch in sec. 33, T. 11 S., R. 13 W. The second was drilled by the Northern Ordnance Corporation on the Beverly ranch in sec. 11, T. 11 S., R. 14 W. The third was drilled by the Dickey Oil Company on the Eulert farm in sec. 26, T. 11 S., R. 15 W., 3 miles east of the old Fairport pool.

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TABLE 22.—*Oil pools of Russell county*

Pool and location	Discovery year	Area, acres	1943 production	Cumulative production to end of 1943, bbls.	Number of wells	Producing zone	Depth to producing zone, feet
Atherton 30-13-14W	1935	1,900	179,850	1,461,275	7 28	K.C.-Lans. Arbuckle	3,008 3,284
Big Creek 36-14-15W	1935	2,600	437,000	3,993,350	4 40 21	K.C.-Lans. Gorham Arbuckle	2,908 3,152 3,171
Big Creek East 31-14-14W	1938	700	91,800	392,820	7 4	K.C.-Lans. Arbuckle	3,180 3,149
Boxberger 36-15-15W	1935	160	11,000	165,750	3	K.C.-Lans.	3,147
Bunker Hill 31-13-12W	1935	200	1,000	74,825	3	K.C.-Lans.	2,965
Chegwidden 29-15-11W	1943	40	none	none	1	K.C.-Lans.	2,998
Donovan 10-15-15W	1935	200	22,800	105,600	4	K.C.-Lans.	3,193
Driscoll 30-15-11W	1940	160	7,700	31,775	3	Arbuckle	3,255
Dubuque 34-15-12W	1935	300	52,700	283,800	2 4	K.C.-Lans. Arbuckle	3,275 3,330
Eichman 34-15-13W (now part of the Trapp pool)	1935	800	16,000	695,100	7	Arbuckle	3,316
Fairfield 22-15-13W	1938	40	2,500	12,650	1	Arbuckle	3,352
Fairport 8-12-15W	1923	3,600	636,100	16,265,200	143	K.C.-Lans. Gorham	2,950 3,211
Forest Hill 29-15-12W	1941	800	97,000	155,400	16	Arbuckle	3,320
Gideon 8-15-14W	1930	40	2,400	44,800	1	Sooy	3,266
Gorham 5-14-15W	1926	8,500	1,558,200	24,718,875	1 8 125 11 169	Tarkio Topeka K.C.-Lans. Arbuckle Reagan	2,525 2,765 3,027 3,289 3,299
Gustafson 14-15-12W	1941	160	19,520	33,820	3 1	K.C.-Lans. Arbuckle	3,050 3,344
Gustafson Northwest, 15-15-12W	1943	160	15,000	15,000	2 2	K.C.-Lans. Arbuckle	3,021 3,322
Hall-Gurney 30-14-13W	1931	25,000	4,472,300	18,963,950	1 4 406 24 79 18 2	Wabaunsee Topeka K.C.-Lans. Gorham Arbuckle Reagan Pre-Cambrian	 2,675 2,985 3,165 3,192 3,129 3,156

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TABLE 22.—*Oil pools of Russell county, concluded.*

Pool and location	Discovery year	Area, acres	1943 production	Cumulative production to end of 1943, bbls.	Number of wells	Producing zone	Depth to producing zone, feet
Janne 24-15-12W	1943	40	none	none	1	Arbuckle	3,319
Jerry 4-15-14W	1942	40	10,600	10,600	1	K.C.-Lans.	2,985
Lewis 28-14-12W	1940	40	1,600	10,283	1	Wabaunsee	2,317
Mahoney 8-14-12W	1940	120	4,700	36,380	3	K.C.-Lans.	2,977
Mohl 18-14-13W	1941	40	1,900	5,520	1	Reagan	3,253
Rusch 29-14-14W	1941	250	74,500	168,800	2 5	K.C.-Lans. Arbuckle	3,071 3,216
Russell 22-13-14W	1934	1,200	382,800	5,619,300	3 45	K.C.-Lans. Arbuckle	3,195 3,280
Russell North 15-13-14W	1942	40	10,660	13,780	1	K.C.-Lans.	2,978
Sellens 26-15-13W	1929	1,300	198,900	2,959,475	1 15 15	Shawnee K.C.-Lans. Arbuckle	 3,088 3,352
Sellens Northwest, 22-15-13W	1943				3	K.C.-Lans.	3,039
Steinert 21-15-15W	1936	40			1	K.C.-Lans.	3,060
Strecker 21-15-14W	1943	40	5,050	5,050	1	Arbuckle	3,342
Trapp 23-15-14W	1939	32,000	10,895,350	46,116,275	4 137 762	Shawnee K.C.-Lans. Arbuckle	2,889 3,062 3,252
Vaughn 17-14-14W (now combined with Big Creek pool)	1937	1,100	344,900	1,664,790	26 1 8	K.C.-Lans. Gorham Arbuckle	3,004 3,282 3,341
Williamson 9-14-14W	1936	1,200	166,500	233,170	2 29	Tarkio K.C.-Lans.	2,522 3,009

SALINE COUNTY

Saline county was the scene of a sudden increase in drilling during 1943. The principal reason for this increase was the discovery of oil in the Hunter pool in February, where the first well had a production of 1,500 barrels per day. Many wildcats were begun almost immediately; as a result a second pool, the Salina pool, was found in March, and a third pool, the Pliny pool, was found in July.

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The new **Hunter** pool is located in T. 16 S., R. 1 W., about 10 miles east of the much older Olsson pool. The discovery well was drilled by the Deep Rock Oil Corporation on the Hunter farm in section 20. The oil-bearing zone in this well lies in the Mississippian strata at a depth of 2,681 to 2,683 feet, 5 feet below the top of the Mississippian. The large production of 1,500 barrels of oil per day encouraged the Deep Rock Oil Corporation to drill tests on near-by farms. As a result, 12 other oil wells were completed in the pool before the close of the year. All producers were drilled by the same company. One offset well drilled by the Phil-Han Oil Company on the Redden farm in section 20 proved to be the only failure.

The second oil pool to be opened in Saline county during 1943 was the **Salina** pool in T. 14 S., R. 2 W. This pool was found by the Westgate-Greenland Oil Company on the Sudendorf farm in the NWc SE¼ section 30, about 1 mile south of Salina. The pay zone in this well is the Viola limestone found from 3,223 to 3,232 feet. The well produced 125 barrels of oil and 225 barrels of water per day. This seems to indicate that the new pool may have its higher and better parts elsewhere. A dry hole drilled by the same interests in the NWc. SW¼ section 30 suggests that the higher portion of the reservoir lies east of the discovery well, although the sea level elevations of the producing rocks in the two wells differ by only 2 or 3 feet.

The **Pliny** pool was the third pool to be discovered in Saline county in 1943. It lies in the same township as the Hunter pool and only a few miles to the northeast. This pool was discovered by the Wolf Creek Oil Company when the first well was completed on the Karber farm in sec. 9, T. 16 S., R. 1 W. The oil in this well was found in the Kansas City-Lansing limestone; the pay zone lies at depths from 1,989 to 1,998 feet. The initial production of 290 barrels, however, indicates that a worthwhile oil reserve has been tapped. Nevertheless, three dry holes were drilled in rapid succession on adjacent farms, one in section 9 and two in section 16.

The Margay Oil Corporation drilled one producer in the old **Olsson** pool, thus officially reviving the name. The new well is located on the Mary Anderson farm in sec. 3, T. 16 S., R. 3 W. In the same township, one dry hole was drilled by the Standard Oil Company of Ohio on the Applequist farm in section 5, and another

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dry hole was drilled by the Margay Oil Corporation on the Johnson farm in section 9.

Production information for the four oil pools in Saline county is given in table 23. These pools and the dry rank wildcat wells drilled in Saline county in 1943 are shown in figure 25.

Exploratory wells.—At least 13 wildcat tests in addition to the three which found oil pools were drilled in Saline county during 1943. They are fairly well scattered over the entire county. One was drilled in sec. 20, T. 13 S., R. 1 W. by the Bay Petroleum Corporation on the Rockhold farm. Four were drilled in T. 15 S., R. 1 W., three by the Phil-Han Oil Company in secs. 10, 17, and 26, and one by A. R. Jones in section 12. One dry hole was drilled in sec. 10, T. 15 S., R. 2 W. on the Reiff farm by Ingling and Parker. This well was drilled into the Arbuckle dolomite, the top of which was encountered at 3,612 feet. Another deep dry hole was drilled by the Northern Ordnance Corporation on the Warner farm in sec. 10, T. 15 S., R. 3 W. In this well the Hunton limestone was found at

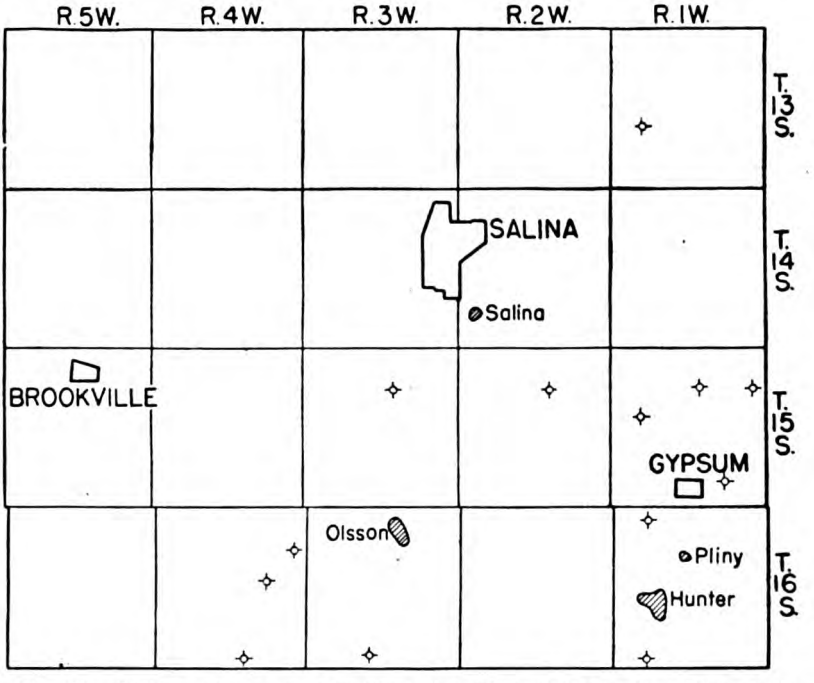

FIG. 25.—Saline county map showing oil pools and dry rank wildcat wells drilled in 1943.

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3,155 feet (1,880 feet below sea level) and the Arbuckle dolomite was penetrated from 3,510 feet to the total depth of 3,583 feet.

In T. 16 S., R. 1 W., the same township in which the two new pools were found, one dry hole was completed on the Hesher farm in section 5 and another on the Peterson farm in section 32. In sec. 33, T. 16 S., R. 3 W. a dry hole was completed on the Morris farm by the Falcon-Seaboard Drilling Company. In that well the Arbuckle dolomite was found at 3,525 feet (2,204 feet below sea level). Three dry holes were drilled in an effort to find oil in T. 16 S., R. 4 W. One was on the Blomberg farm in section 12, the second on the Frank Sjo farm in section 14, and the third on the Linscheid farm in section 34. All three wells tested the Arbuckle dolomite but did not find any important shows of oil or gas.

TABLE 23.—*Oil pools of Saline county*

Pool and location	Discovery year	Area, acres	1943 production	Cumulative production to end of 1943, bbls.	Number of wells	Producing zone	Depth to producing zone, feet
Hunter 20-16-1W	1943	600	62,850	62,850	14	"Chat"	2,681
Olsson 10-16-3W	1929	80	650	2,050	1	Maquoketa	3,303
Pliny 9-16-1W	1943	40	4,150	4,150	1	K.C.-Lans.	1,989
Salina 30-14-2W	1943	40	7,100	7,100	1	Viola	3,223

SCOTT COUNTY

At the present time the **Shallow Water** pool is the only pool in Scott county. No drilling was done in or near this pool during 1943. There are nine wells producing from the "Mississippi lime" at a depth of 4,670 feet. Production from the 600 acres which the pool includes was 274,050 barrels of oil in 1943. Production from 1934 when the pool was discovered to the end of 1943 was 1,426,625 barrels. The pool, in sec. 15, T. 20 S., R. 33 W., and the wildcat well drilled in 1943 are shown on figure 26.

Exploratory wells.—The only test well drilled in Scott county was a test by the Stanolind Oil and Gas Company in sec. 16, T. 19 S., R. 31 W. on the Hattie Turpin ranch. This dry hole furnished some very interesting geological information. The Dakota sand-

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stone was found at 975 feet and the Stone Corral dolomite and anhydrite at 2,260 feet. In the Pennsylvanian sequence, the Topeka was found at 3,745 feet and the Kansas City-Lansing limestone at 4,000 feet. The Mississippian rocks were encountered at 4,594 feet, below which the Viola limestone was found at 4,983 feet and the Arbuckle dolomite at 5,144 feet. The test was abandoned as a dry hole at 5,164 feet; there were no important shows of oil or gas.

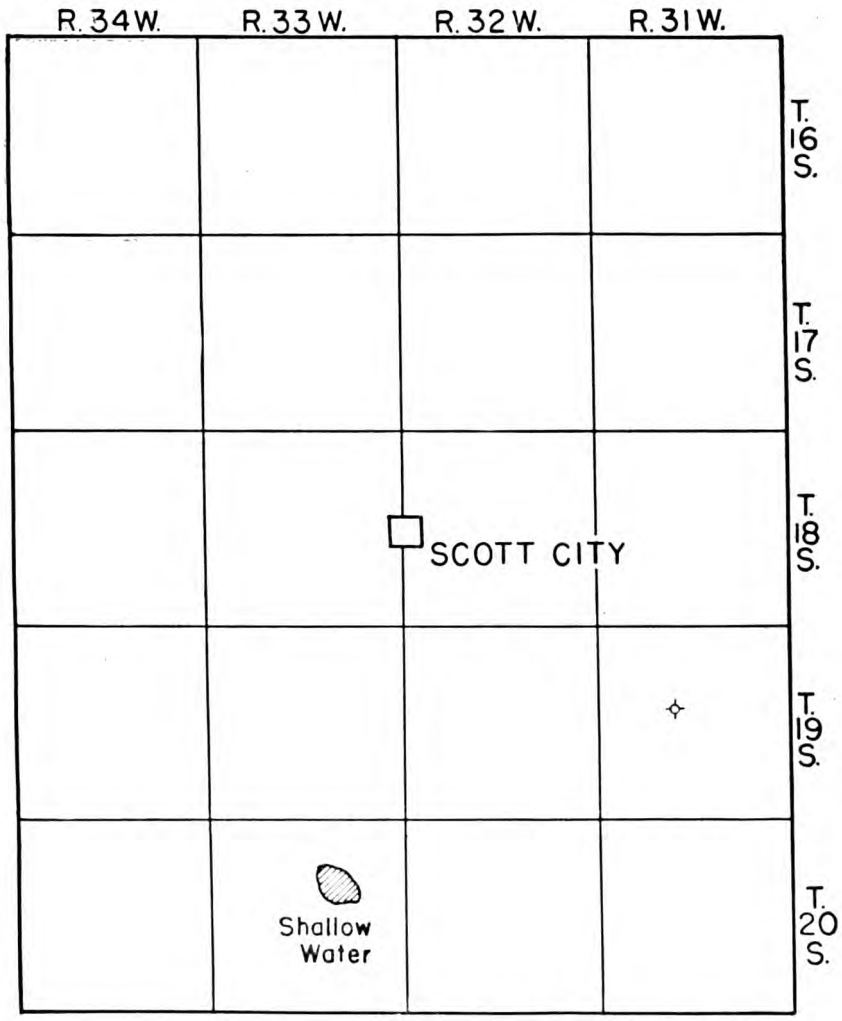

FIG. 23.—Scott county map showing oil pool and dry hole drilled in 1943.

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Sedgwick County

There was increased activity in Sedgwick county (fig. 27) during 1943. Three new oil wells, one gas well, and 11 dry holes were completed. The three new oil wells are located in the **Valley Center** pool and are very small producers. Much more water than oil is produced.

Two exploratory wells were drilled in T. 25 S., R. 2 W., not far from the **Bentley** pool. One well, the Lion Oil Refining Company No. 1 Creasser in section 14, tested the Simpson sandstone, and the other well, the C. C. Nelson Drilling Company No. 1 Harrow in section 24, tested only the Kansas City-Lansing limestone. About 5 miles southwest, in sec. 16, T. 26 S., R. 2 W., the Continental Oil Company drilled an unsuccessful test on the Manneback farm. This test found the Arbuckle dolomite at 4,051 feet (2,662 feet below sea level) and was drilled to a total depth of 4,068 feet.

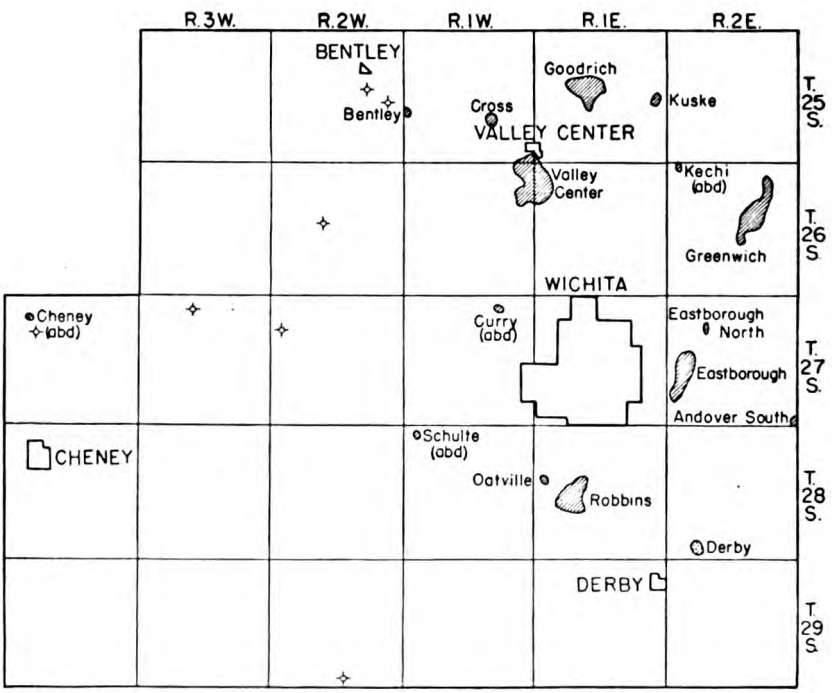

Fig. 27.—Sedgwick county map showing oil pools and dry rank wildcat wells drilled in 1943.

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TABLE 24.—*Oil pools of Sedgwick county*

Pool and location	Discovery year	Area, acres	1943 production	Cumulative production to end of 1943, bbls.	Number of wells	Producing zone	Depth to producing zone, feet
Cross 29-25-1W	1929	160	4,500	55,900	2	K.C.-Lans.	2,690
Eastborough 19-27-2E	1929	1,000	130,000	8,338,700	39	"Chat" Viola	2,956 3,238
Goodrich 16-25-1E	1928	640	272,266	3,469,625	31	K.C.-Lans. "Chat" Misener	2,614 3,010 3,334
Greenwich 14-26-2E	1929	700	190,000	9,715,690	41	"Chat" Viola Simpson	2,885 3,321 3,350
Kuske 24-25-1E	1929	40	2,200	143,680	1	Sooy	3,013
Robbins 20-28-1E	1929	420	73,650	3,114,450	50	"Mississippi lime"	3,090
Valley Center 1-26-1W	1923	1,500	274,950	20,820,000	65	Misener Viola	3,368 3,366

Near the abandoned **Cheney** pool, the Stanolind Oil and Gas Company drilled a dry hole on the Bartholemew "B" lease in sec. 8, T. 27 S., R. 4 W. In this well, the Arbuckle dolomite was found at 4,159 feet (2,780 feet below sea level). Seven miles farther east, the Nelson Drilling Company completed a dry hole on the Seiwert farm in sec. 4, T. 27 S., R. 3 W. The Arbuckle dolomite was encountered at a depth of 4,274 feet (2,771 feet below sea level). About 5 miles east of the Seiwert well, the Dickey Oil Company drilled a dry hole on the Friess farm in sec. 7, T. 27 S., R. 2 W. This well ended in the "Mississippi lime" at a total depth of 3,655 feet.

A rank wildcat well was drilled in sec. 34, T. 29 S., R. 2 W. by the Atlantic Refining Company on the Janet Draper farm. In this well, the Arbuckle dolomite was found at 4,092 feet (2,834 feet below sea level).

The oil pools and wildcat wells drilled in Sedgwick county in 1943 are shown on figure 27. The oil production information for Sedgwick county is given in table 24.

SEWARD COUNTY

There were no wells drilled in Seward county during 1943. Information about gas production in the Hugoton gas field, which

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includes part of this county, is given under Finney county. Also, the part of Seward county included in the proved territory of the Hugoton gas field is shown in figure 9.

Sheridan County

In 1943, Sheridan county entered the list of producing counties. It has been some time since oil was discovered in a previously unlisted county in western Kansas. The Union Oil Company of California began its No. 1 test on the Pratt ranch on January 16, 1943. This test is located in the NW¼ NE¼ SW¼ sec. 23, T. 8 S., R. 26 W. In this test the Pennsylvanian conglomerate was found at 4,170 feet and the top of the Mississippian, consisting of detrital chert from the Keokuk, Burlington, and Fern Glen formations, was found at 4,204 feet. This chert rests on the St. Joe oölitic limestone at 4,238 feet. Directly beneath the St. Joe limestone, the Arbuckle dolomite was encountered at 4,305 feet. The well was completed in the Arbuckle at a total depth of 4,444 feet. No shows of oil were found in the Mississippian or the Ordovician rocks, and the test was then plugged back to good showings in the Kansas City-Lansing limestone. Perforations were made in the pipe from 3,810 to 3,817 feet and the hole filled with oil to a height of 2,000 feet in 40 minutes. It started to flow in 1 hour and 15 minutes. Additional perforations were made at the same depth and thereafter the hole was swabbed at the rate of 60 barrels an hour. In final tests made during May, the well swabbed as much as 70 barrels an hour and pumped 25 barrels an hour in an 8-hour test. A potential of 689 barrels per day was assigned to the well. The gravity of the oil is 41.1° A.P.I.; the oil is being sold to the Continental Oil Company who is shipping it to Winnipeg, Canada, by tank car.

Before the close of the year, the Union Oil Company drilled five additional test holes in this pool, called the **Studley** pool, three of which are producers. The No. 3 well, in the SE¼ of section 23, is capable of yielding 325 barrels per day; the No. 4 well, in the SW¼, is capable of yielding 350 barrels per day; and the No. 7 well, also in the SW¼, is capable of yielding 317 barrels per day. Wells No. 5 and 6 were abandoned as dry holes at 3,884 feet and 3,769 feet, respectively, and did not test the lower strata. No other tests were drilled in Sheridan county in 1943.

Figure 28 shows the location of this new pool. The pool produced 30,090 barrels of oil during 1943.

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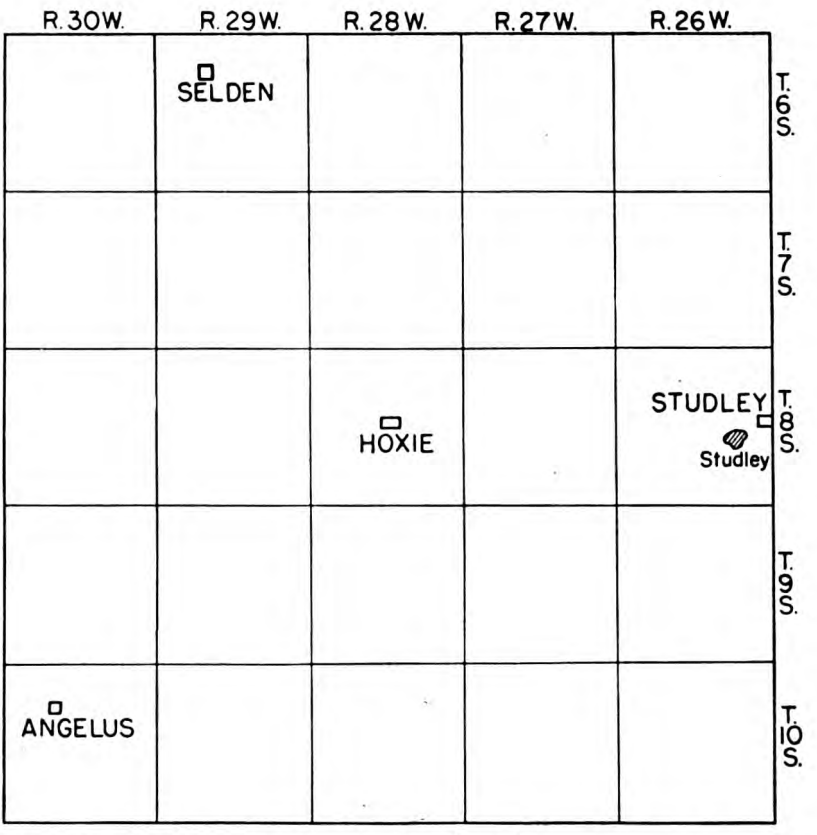

FIG. 28.—Sheridan county map showing oil pool.

In a dry hole drilled in 1940 by the Cities Service Oil Company on the McGinnis ranch, in sec. 10, T. 9 S., R. 27 W., the top of the St. Joe limestone was found at a depth of 4,495 feet. Beneath the St. Joe, the Simpson dolomite was found at 4,586 feet, the Simpson shale at 4,595 feet, and the Arbuckle dolomite at 4,600 feet. The well continued in the Arbuckle to a total depth of 4,865 feet, indicating that this dolomite is at least 265 feet thick in Sheridan county. A peculiar variant of the usually coarsely rhombohedral dolomite was found at 4,718 feet where finely crystalline dolomite appeared and continued to about 4,795 feet.

In the Naylor, De Costa, et al. No. 2 St. John well, in sec. 27, T. 8 S., R. 25 W., just east of Sheridan county in Graham county, the St. Joe oölitic limestone is very thin and rests upon the Simpson

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dolomite at 4,460 feet. The Simpson shale was found in this well from 4,557 to 4,580 feet where the Arbuckle dolomite was encountered. This was completely penetrated at a depth of 4,964 feet where the Reagan sandstone was encountered. The Arbuckle in this well is 384 feet thick.

Stafford County

A large number of tests were drilled in Stafford county during 1943. Of a total of 144 tests drilled, exactly half were new oil wells and half were dry holes. Of the test wells, 43 can be called rank wildcats as they are located more than 2 miles from present production. These wildcat wells discovered 11 new oil pools.

No test wells were drilled in the northeastern township of the county where there are now two pools. In the next township west, T. 21 S., R. 12 W., five wildcat wells were drilled and three of these were successful in locating new oil pools. One of these new pools is the **Byron** pool in section 4 where the first well was drilled by the Stanolind Oil and Gas Company on the Fred Hewitt "A" lease. The pay zone was found in the Arbuckle dolomite which was porous from the top at 3,460 to 3,463 feet. This thin pay zone was capable of yielding nearly 400 barrels of oil per day. Two offset wells drilled in this pool were dry. The second new pool in this township was also discovered by the Stanolind Oil and Gas Company. It is called the **Syms** pool for the name of the farm in section 20 where the first successful well was completed. In this pool, also, the producing zone is the Arbuckle dolomite and porosity was found from the top of the rocks at 3,580 feet to 3,594 feet. The initial production from this thicker porous zone was disappointing, for the original well yielded only 25 barrels of oil per day. An offset well drilled by the Virginia Drilling Company on the Mueller "B" lease proved to be a failure. The third new pool in the township was discovered by the Faulkner interests when they drilled their first test on the Welsh farm in section 18. This has been named the **James** pool. The producing zone is the Arbuckle dolomite which was found porous from the top at 3,554 feet to 3,563 feet. One rank wildcat test in the northeastern corner of this township drilled by E. H. Isern et al. to a total depth of 3,511 feet failed to find oil. In the **Mueller** pool, also located in the same township, three new oil wells and two dry holes were completed. No drilling was done in or near the other pools of this township.

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One of the two wildcat tests drilled in T. 21 S., R. 13 W. opened a new pool, the **Rothgarn** pool. The discovery well was drilled by the Faulkner interests on the Rothgarn farm in section 10. Production was found in the Arbuckle dolomite in which the porous zone extends from 3,569 to 3,588 feet. The initial capacity of 880 barrels per day encouraged the drilling of four additional tests, two of which were dry.

Two additional oil wells were drilled in the **Hazel** pool, also in T. 21 S., R. 13 W., one on the Sipes "B" lease in section 21 and the other on the Hoffman farm in section 22. A test well between the Hazel and the Gates pools drilled by the Phillips Petroleum Company on the Schartz farm in section 27 was a failure. These two pools thus remain separate. Drilling around the edges of the

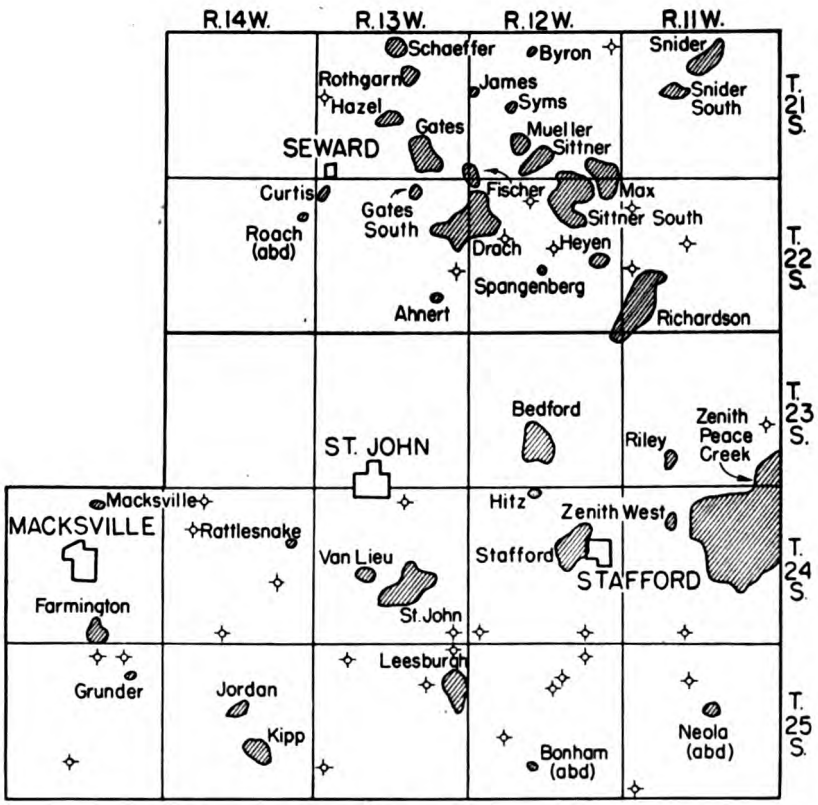

FIG. 29.—Stafford county map showing oil pools and dry rank wildcat wells drilled in 1943.

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Gates pool resulted in two good producers and two dry holes. A rank wildcat was drilled by the Faulkner interests on the Walter farm in section 18. This well was drilled to a total depth of 3,777 feet and was a dry hole.

There was much drilling activity in the second row of townships. In T. 22 S., R. 11 W. three rather widely scattered dry holes were drilled north of the old **Richardson** pool. One was drilled on the Wolf farm in section 7, the second on the Sheppard farm in section 16, and the third on the Riley farm in section 19.

Two of the four rank wildcat tests drilled in T. 22 S., R. 12 W. found new oil pools. One was drilled by the Stanolind Oil Company on the Krankenberg farm in section 6. This well found the Kansas City-Lansing at 3,320 feet and the Arbuckle at 3,656 feet. This discovery encouraged additional drilling in sections 6, 7, and 8; as a result 17 new oil wells and one dry hole were completed. This pool was at first called the **Drach North** pool, but was later merged with the Drach pool, thus greatly increasing its size. The second new pool discovered in this township was the **Spangenberg** pool in section 21. It was discovered by the Falcon-Seaboard Drilling Company on the Spangenberg farm. The producing zone in this well is the Arbuckle dolomite which was found to be porous from the top at 3,691 feet to 3,697 feet. Initial production was 230 barrels of oil with 10 percent water. Both of the two offset wells drilled were dry. A test drilled 1 mile farther east by D. R. Buchanan on the Lanterman farm in section 23 was also dry. One mile still farther east a new pool, the **Heyen** pool, was opened by Hirshfield when he completed a test on the Heyen farm in the NW¼ of section 24, not far from the Richardson pool. This well produced 25 barrels, half of which was water. The pay zone is in the Arbuckle dolomite.

In T. 22 S., R. 13 W., three rank wildcat tests were drilled, one of which was successful in finding the new **Gates South** pool. The discovery well was drilled by Bartlett and Crum on the Kisner farm in section 3. It found the pay zone in the Arbuckle dolomite from 3,704 to 3,711 feet. Four new oil wells and four dry holes were completed in that part of the **Drach** pool which extends into this township. These new wells plus those drilled in the same pool in T. 22 S., R. 12 W. give 21 new oil wells that were added to the Drach pool in 1943. In T. 22 S., R. 13 W., one dry hole was drilled by the Black-Marshall Oil Company on the Geisler farm in sec-

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tion 24 and another by the B and R Drilling Company on the Hammeke farm in section 25. This was an offset well to the only producer in the **Ahnert** pool.

There was much drilling activity in the fourth row of townships in 1943. In this row lies the large **Zenith** pool which has now been merged with the **Peace Creek** pool into one of the largest producing areas in the state. Seventeen new oil wells were drilled around the edges of this pool, now called the **Zenith-Peace Creek** pool, in sec. 36, T. 23 S., R. 11 W., and secs. 1, 3, and 4, T. 24 S., R. 11 W. The western limit of this pool has not yet been defined. A few wells also were completed on the southwest flank of the pool. Two wildcat tests in this township resulted in the discovery of the **Zenith West** pool. This new pool was found by the Plains Exploration Company while drilling on the Kelly farm in sec. 8, T. 24 S., R. 11 W. The oil was found in the Viola limestone between 3,798 and 3,803 feet. The initial production of this well was 270 barrels of oil per day.

Five miles south of the town of St. John, a new pool, the **Van Lieu,** was found by the Stanolind Oil and Gas Company while drilling on the Van Lieu farm in sec. 20, T. 24 S., R. 13 W. In this test the oil occurs in the Arbuckle dolomite between depths of 4,069 and 4,080 feet. The first well produced 1,400 barrels a day and encouraged the drilling of other near-by tests. Two of these in section 21 were large producers and the other two were dry holes. In the **St. John** pool, one new oil well, the Atlantic Refining Company No. 2 Toland well, was drilled in sec. 22, T. 24 S., R. 13 W. Three deep dry holes and one very shallow well were drilled in T. 24 S., R. 14 W. One of these deep wells was on the Redetzke farm in section 5, the second on the Eldred farm in section 8, and the third on the Koelsch farm in section 23. Five miles south of the **Macksville** pool a new pool, the **Farmington** pool, was found by the Skelly Oil Company on the Campbell farm in sec. 34, T. 24 S., R. 15 W. The new pool secures its production from the Arbuckle dolomite between 4,417 and 4,433 feet. The large initial production of the first well (3,000 barrels per day) resulted in the drilling of four other wells before the close of the year. All are owned by the Skelly Oil Company.

In the southernmost row of townships, 13 rank wildcat wells were drilled; of this number only one was successful in finding new oil reserves. This new pool has been named the **Grunder** pool. The

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TABLE 25.—*Oil pools of Stafford county*

Pool and location	Discovery year	Area, acres	1943 production	Cumulative production to end of 1943, bbls.	Number of wells	Producing zone	Depth to producing zone, feet
Ahnert 26-22-13W	1941	40	1,300	15,700	1	Arbuckle	3,784
Bedford 21-23-12W	1940	850	229,700	704,675	21	Arbuckle	3,859
Byron 4-21-12W	1943	40	2,000	2,000	1	Arbuckle	3,460
Curtis 6-22-13W	1942	80	32,900	36,100	2	Arbuckle	3,693
Drach 12-22-13W	1937	2,200	314,160	728,660	38	Arbuckle	3,693
Farmington 34-24-15W	1943	160	24,375	24,375	5	Arbuckle	4,417
Fischer 31-21-12W	1938	120	33,400	174,250	3	Arbuckle	3,641
Gates 27-21-13W	1933	700	135,150	947,000	13	Arbuckle	3,679
Gates South 3-22-13W	1943	40	435	435	1	Arbuckle	3,704
Grunder 11-25-15W	1943	40	3,550	3,550	1	K.C.-Lans.	3,945
Hazel 21-21-13W	1942	160	44,300	59,050	4	Arbuckle	3,692
Heyen 24-22-12W	1943	40	none	none	1	Arbuckle	3,652
James 18-21-12W	1943	40	none	none	1	Arbuckle	3,554
Jordan 15-25-14W	1936	260	68,050	428,460	7	K.C.-Lans.	3,722
Kipp 27-25-14W	1937	300	99,450	326,425	11	K.C.-Lans.	3,827
Leesburgh 12-25-13W	1938	600	437,600	1,013,950	16	Arbuckle	4,153
Macksville 3-24-15W	1941	80	3,000	29,430	2	K.C.-Lans.	3,811
Max 35-21-12W	1938	500	149,100	399,060	2 9	K.C.-Lans. Arbuckle	3,356 3,570
Mueller 29-21-12W	1938	80	35,443	218,203	5	Arbuckle	3,594
Rattlesnake 13-24-14W	1938	40	9,290	51,550	1	K.C.-Lans.	3,608
Richardson 36-22-12W	1930	1,200	724,100	5,781,200	59	Arbuckle	3,537
Riley 28-23-11W	1940	120	13,850	38,250	3	K.C.-Lans.	3,323
Rothgarn 10-21-13W	1943	120	12,670	12,670	3	Arbuckle	3,569
Schaeffer 3-21-13W	1941	300	52,500	176,714	5 1	K.C.-Lans. Arbuckle	3,404 3,546
St. John 23-24-13W	1935	1,200	281,200	1,546,100	15 10	K.C.-Lans. Arbuckle	3,588 4,075

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TABLE 25.—*Oil pools of Stafford county, concluded*

Pool and location	Discovery year	Area, acres	1943 production	Cumulative production to end of 1943	Number of wells	Producing zone	Depth to producing zone, feet
Sittner 33-21-12W	1937	800	25,640	425,556	2 6	K.C.-Lans. Arbuckle	3,278 3,600
Sittner South 3-22-12W	1938	650	203,100	778,550	19	Arbuckle	3,501
Snider 3-21-11W	1936	320	27,600	249,800	4 1 1	K.C.-Lans. Simpson Arbuckle	3,111 3,362 3,324
Snider South 16-21-11W	1938	360	98,775	321,725	8	Simpson	3,402
Spangenberg 21-22-12W	1943	40	8,900	8,900	1	Arbuckle	3,691
Stafford 15-24-12W	1940	600	501,420	1,106,300	20 1	Viola Arbuckle	3,836 3,945
Syms 20-21-12W	1943	40	none	none	1	Arbuckle	3,580
Van Lieu 20-24-13W	1943	120	41,050	41,050	3	Arbuckle	4,069
Zenith 23-24-11W	1937	5,600	3,790,900	14,137,150	352 1	Misener Viola Arbuckle	3,304 3,860
Zenith West 8-24-11W	1943	40	6,760	6,760	1	Viola	3,798

discovery well was drilled by the Cities Service Oil Company on the Grunder farm in sec. 11, T. 25 S., R. 15 W. The test was drilled into the Arbuckle dolomite and was then plugged back to a good show in the Kansas City-Lansing limestone where a daily potential of 50 barrels per day was registered. The producing zone extends from 3,945 to 3,960 feet. One dry hole was later drilled a half mile north of the discovery well. In the **Leesburgh** pool, in T. 25 S., R. 13 W., three additional oil wells and two dry holes were completed. Two dry holes were drilled near the **Jordan** pool, one on the Toland farm in sec. 10, T. 25 S., R. 14 W. and the other on the Kachelmann farm in sec. 15, T. 25 S., R. 14 W. In the **Kipp** pool, also in T. 25 S., R. 14 W., three new oil wells were completed by the Skelly Oil Company, two on the Kipp "F" lease and one on the Toland lease. All are good average producers.

Production information for the Peace Creek portion of the Zenith-Peace Creek pool is given in table 18. Production informa-

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tion for the Zenith part of the Zenith-Peace Creek pool and other pools in Stafford county is given in table 25. The oil pools of Stafford county and the dry rank wildcat wells drilled there in 1943 are shown on figure 29.

Stevens County

Stevens county is important because a large part of the Hugoton gas field is located within its borders. By the close of 1942, 226 gas wells had been completed in Stevens county and during 1943 four additional wells were drilled. The new wells range in productive capacity from 5 to 35 million cubic feet of gas per day. The wells were drilled by the Northern Natural Gas Company. One is located in sec. 21, T. 32 S., R. 36 W. on the Kenoyer ranch, one in sec. 11, T. 33 S., R. 37 W. on the Albert ranch, one in section 14, also on the Albert ranch, and one in section 24 on the Paden farm. Information about gas production in the Hugoton gas field, which includes most of Stevens county, is given under Finney county. Also, the part of Stevens county included in the proved territory of the Hugoton gas field is shown in figure 9.

Sumner County

Drilling activity was on a very much reduced scale in Sumner county during 1943. Seven test wells were completed, of which one was a gas well and six were dry holes. One of the interesting test wells was drilled on the Rowan farm in sec. 3, T. 30 S., R. 4 W. by the Magnolia Petroleum Company. In this test the Kansas City-Lansing limestone was found at 3,358 feet, the Mississippian "chat" at 3,969 feet, the top of the Kinderhook at 4,320 feet, the top of the Simpson sandstone at 4,406 feet, and the Arbuckle dolomite at 4,505 feet (3,092 feet below sea level). The test was completed at a total depth of 4,542 feet.

Another interesting test well was drilled on the Essie farm in sec. 27, T. 33 S., R. 3 W. by the Phillips Petroleum Company. In this well the Kansas City-Lansing was encountered at 3,390 feet, the Mississippian chert at 4,084 feet, the Kinderhook at 4,412 feet, immediately below it the Simpson shale at 4,529 feet, the Wilcox sandstone at 4,535 feet, and the Arbuckle dolomite at 4,701 feet (3,528 feet below sea level). The Stalnaker sand, which produces oil in parts of Sumner county, was found at 3,064 feet but was barren in this well. The other dry holes in Sumner county in 1943 were the Barnsdall Oil Company No. 1 Gilbert in sec. 35, T. 30 S.,

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R. 1 E., which was drilled to 4,156 feet and found the Arbuckle at 3,683 feet; the Barnsdall No. 1 Lena Edwards in sec. 16, T. 31 S., R. 1 E., which was drilled to 4,060 feet and found the Arbuckle at 4,011 feet; the Alco Valve Company No. 1 Union Central in sec. 14, T. 35 S., R. 2 E., which found the "Mississippi lime" at 3,537 feet, the Kinderhook at 3,768 feet, and the Simpson at 3,825 feet before being abandoned at 3,844 feet; and the Continental Oil Company No. 1 R. E. Burks in sec. 16, T. 35 S., R. 2 E., which was drilled to a total depth of 3,437 feet after encountering the Mississippian "chat" at 3,377 feet.

The oil and gas pools of Sumner county are shown on figure 30. The production of these pools is given in table 26.

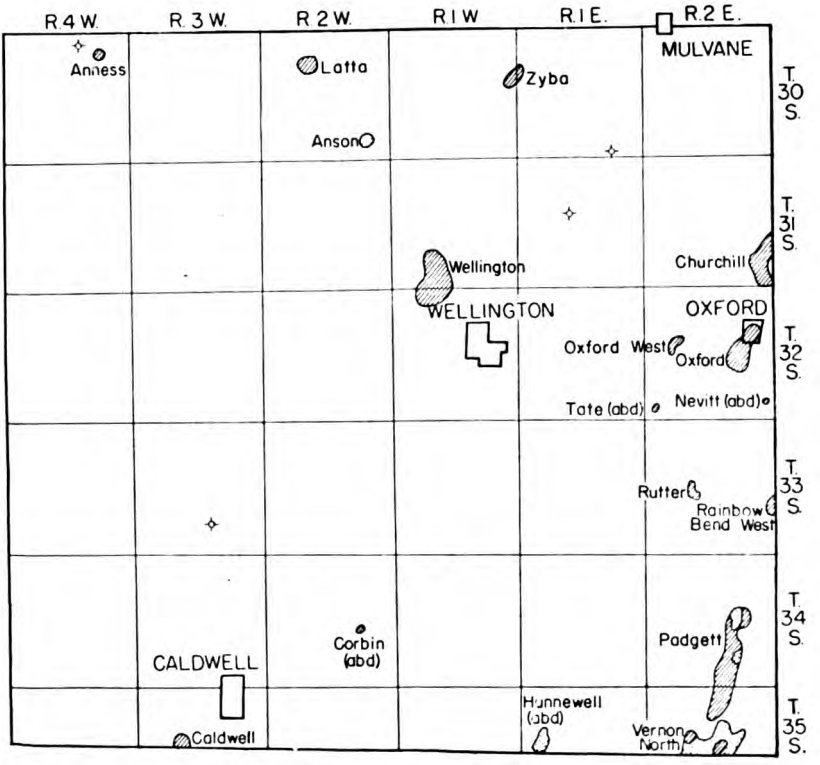

FIG. 30.—Sumner county map showing oil and gas pools and dry rank wildcat wells drilled in 1943.

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TABLE 26.—*Oil and gas pools of Sumner county*

Pool and location	Discovery year	Area, acres	1943 production	Cumulative production to end of 1943	Number of wells	Producing zone	Depth to producing zone, feet
			barrels				
Anness 2-30-4W	1937	40	13,250	67,100	1	Simpson	4,394
Caldwell 17-35-3W	1929	200	53,800	1,134,500	4	Simpson	4,765
Churchill 25-31-2E	1926	1,000	116,200	18,732,500	59	Stalnaker	1,820
Latta 9-30-2W	1927	400	85,000	839,800	12	K.C.-Lans.	3,042
Oxford 23-32-2E	1927	800	175,800	14,866,500	43	Stalnaker Layton Arbuckle	2,020 2,510 2,890
Oxford West 17-32-2E	1926	160	11,850	524,725	3	Arbuckle	
Padgett 23-34-2E	1924	1,800	75,000	2,076,000	20	"Mississippi lime"	3,474
Rainbow Bend West 24-33-2E	1926	160	10,000	420,800	1 1	Burbank Arbuckle	
Rutter 21-33-2E	1926	80	7,200	74,700	2	"Mississippi lime"	3,315
Vernon North 15-35-2E	1915	500			11	"Mississippi lime"	3,443
Wellington 33-31-1W	1929	1,200	206,600	5,264,350	96	"Chat"	3,655
Zyba 7-30-1E	1937	80	6,300	32,600	1	Simpson	3,866
			thousand cubic feet				
Wellington (gas) 33-31-1W	1929	1,200	310,125		45	"Chat"	3,655

TREGO COUNTY

There was very little drilling activity in Trego county during 1943. Only one of the seven test wells completed was a rank wildcat. Two test wells drilled on the outer periphery of the **Wakeeney** pool were failures. One, the No. 3 well on the Rhoades farm, was drilled by the Watchorn Oil and Gas Company in sec. 14, T. 11 S., R. 23 W. to a total depth of 4,075 feet. The other was drilled by Max Cohen on the Howett farm in sec. 26, T. 11 S., R. 23 W. to a total depth of 4,078 feet.

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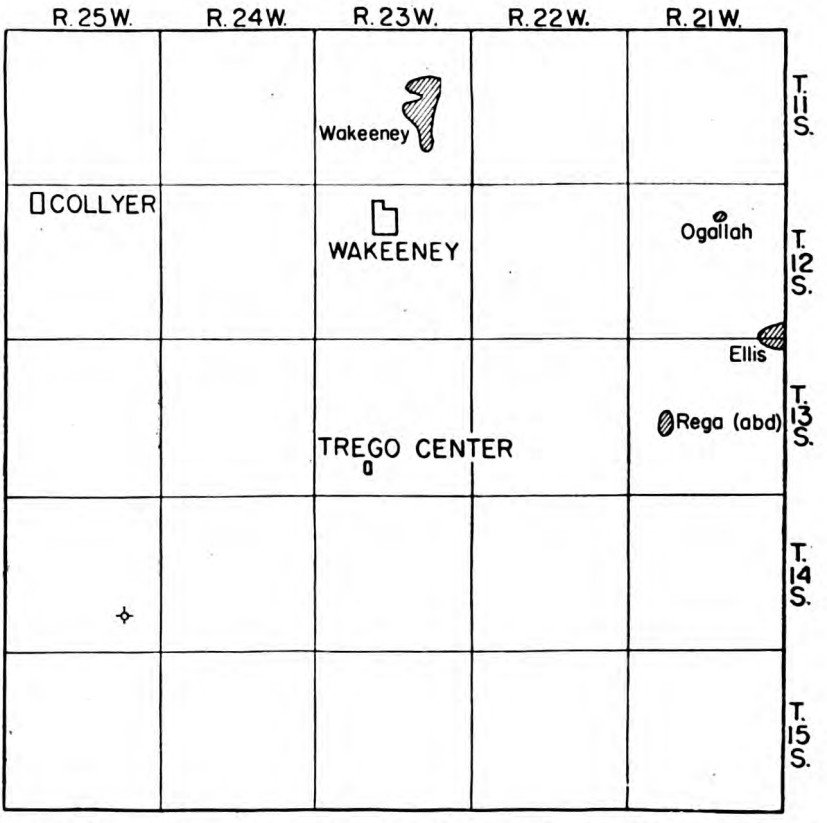

FIG. 31.—Trego county map showing oil pools and rank wildcat well drilled in 1943.

The Bridgeport Oil Company drilled three new oil wells in sec. 36, T. 12 S., R. 21 W. The Stanolind Oil and Gas Company drilled a well, the No. 1 A. I. Cromb, in sec. 1, T. 13 S., R. 21 W. This well was completed in December, and the initial production was 40 barrels of oil per day. These wells are in the **Ellis** pool which extends into this county from Ellis county.

The only other test in the county was drilled by the Sinclair Prairie Oil Company on the O'Toole ranch in sec. 26, T. 14 S., R. 25 W., in the southwestern part of the county and a considerable distance from any production. In this interesting wildcat test, the Kansas City-Lansing limestone was found at 3,780 feet, the Mississippian rocks at 4,230 feet, and the top of the Ordovician strata

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at 4,451 feet. The possible producing zone, the Arbuckle dolomite, was entered at 4,522 feet (2,180 feet below sea level). The well was drilled to a total depth of 4,660 feet.

The Wakeeney oil pool, the only oil pool in Trego county, is shown on figure 31. This pool, which has produced 513,220 barrels of oil since its discovery in 1934, now has six wells producing from the Kansas City-Lansing at 3,619 feet. Oil production in 1943 was 42,000 barrels.

EXPLORATORY WILDCAT WELLS

During 1943, 22 tests were drilled in the nonproductive counties of western Kansas. While none of these found oil or gas, the geological information provided by them will be of value in further exploratory efforts.

Four such test wells were drilled in **Decatur County** in 1943. The Stanolind Oil and Gas Company drilled one test on the David McCue farm in sec. 29, T. 1 S., R. 26 W. The well encountered the Cimarron anhydrite at 2,010 feet, the Kansas City-Lansing limestone at 3,330 feet, and the pre-Cambrian rocks at 3,632 feet. The Arbuckle dolomite, which is the most widespread producing zone in Kansas, was absent, as was also the Reagan sandstone. The three other tests in this county were drilled by Helmerich and Payne for various interests. One test was drilled on the Sauvage farm in sec. 3, T. 1 S., R. 27 W. This well encountered the Cimarron anhydrite at 2,005 feet, the Topeka limestone at 3,154 feet, and the Kansas City-Lansing limestone at 3,307 feet. The older strata of Mississippian and Ordovician age were absent, and the pre-Cambrian granite was entered at a depth of 3,676 feet (1,064 feet below sea level). A second test was drilled in the same township on the Harger lease in section 29. The Cimarron anhydrite was encountered at 1,962 feet, the Topeka limestone at 3,126 feet, and the Kansas City-Lansing limestone at 3,274 feet. The Pennsylvanian strata were found immediately above the pre-Cambrian granite wash which was found at 3,648 feet. Solid granite was found at 3,683 feet. The fourth test well in Decatur county was drilled on the Penn ranch in sec. 16, T. 2 S., R. 29 W. In this test, Cimarron anhydrite was encountered at a depth of 2,435 feet, the Topeka limestone was found at 3,621 feet, the Kansas City-Lansing at 3,752 feet, the Marmaton shales at 3,951 feet, and the Mississippian strata immediately below the Marmaton at 4,174

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feet. The Arbuckle dolomite was entered at 4,207 feet (1,510 feet below sea level) and the test was completed at a total depth of 4,302 feet.

Two test wells which furnish valuable information for future exploration were drilled in **Gove County**. One of these was drilled by the Barnsdall Oil Company on the Inloe lease in sec. 11, T. 11 S., R. 26 W. This test found the Kansas City-Lansing limestone at 3,782 feet and the Mississippian strata at 4,353 feet. The Arbuckle dolomite, which was barren, was encountered at 4,535 feet, and the test was abandoned at 4,600 feet. The second test was drilled by the Globe Oil and Refining Company on the Snyder farm in sec. 8, T. 14 S., R. 29 W. It found the Kansas City-Lansing limestone at 3,730 feet, the Warsaw dolomite at 4,347 feet, the Keokuk chert at 4,412 feet, and the St. Joe limestone at 4,535 feet. The top of the Arbuckle dolomite was encountered at 4,598 feet, but this formation did not contain commercial quantities of oil. The test was abandoned at 4,628 feet.

In **Greeley County** one test well was drilled by Helmerich and Payne, Inc., on the McCormack farm in sec. 23, T. 16 S., R. 40 W. In this test, the Cimarron anhydrite was encountered at 2,670 feet, the Topeka limestone at 4,010 feet, the Kansas City-Lansing limestone at 4,457 feet, the Mississippian limestones at 4,545 feet, the Simpson dolomite at 5,649 feet, and the Arbuckle dolomite at 5,740 feet. The test was completed at a total depth of 5,785 feet.

Two test wells were drilled in **Kiowa County** during 1943. One of these was drilled by the Olson Oil Company on the C. C. Price farm in sec. 22, T. 28 S., R. 20 W. to a total depth of 5,030 feet. In this well the Topeka limestone was encountered at 3,492 feet, the Kansas City-Lansing limestones at 4,315 feet, and the top of the Mississippian at 4,925 feet. The other test was drilled by the Superior Oil Company of California on the Wright farm in sec. 14, T. 30 S., R. 16 W., to a total depth of 4,915 feet. The Cimarron anhydrite was encountered at 1,700 feet, the Kansas City-Lansing limestone at 3,938 feet, the Mississippian at 4,495 feet, the Viola limestone at 4,590 feet, the Simpson dolomite at 4,735 feet, and the Arbuckle dolomite at 4,805 feet.

One test well was drilled in **Lincoln County** by the Bird-Hanley-Sheedy interests on the Paull farm in sec. 36, T. 13 S., R. 7 W. In this test the Topeka limestone was found at 2,470 feet, the Kansas City-Lansing limestone at 2,910 feet, the Mississippian strata

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at 3,469 feet, the Hunton at 3,657 feet, the Sylvan at 3,755 feet, the Viola at 3,834 feet, and the Arbuckle dolomite at 4,058 feet (2,282 feet below sea level).

In **Logan County** the Texas Company drilled an important test well on the Smith ranch in sec. 30, T. 11 S., R. 36 W. In this test the Kansas City-Lansing limestone was found at 4,262 feet, the Spergen at 4,815 feet, the Warsaw at 4,868 feet, the Keokuk at 4,955 feet, the St. Joe limestone at 5,030 feet, and the Arbuckle dolomite at 5,185 feet. The test did not find any valuable shows of oil or gas and was abandoned at a total depth of 5,360 feet.

Two deep tests were completed in **Mitchell County** during 1943. One of these was drilled by the Chas. M. Coats Company on the Black farm in sec. 1, T. 6 S., R. 7 W. In this test the Kansas City-Lansing limestone was found at 2,490 feet, the Mississippian limestone at 3,166 feet, the Hunton at 3,395 feet, the Maquoketa shale at 3,575 feet, the Viola cherty limestone at 3,586 feet, the Simpson shale at 3,860 feet, and the Arbuckle dolomite at 3,930 feet (2,370 feet below sea level). The second test was drilled by the Northern Ordnance Corporation on the Mary Burr farm in sec. 35, T. 8 S., R. 9 W. In this test the Kansas City-Lansing limestone was encountered at 2,685 feet, the Marmaton shale at 3,030 feet, the Mississippian at 3,308 feet, the Hunton at 3,527 feet, the Maquoketa at 3,597 feet, the Viola at 3,634 feet, the Simpson at 3,905 feet, and the Arbuckle dolomite at 3,954 feet (2,361 feet below sea level).

Three deep test wells were completed in **Osborne County** during 1943. One of these was drilled by the Carter Oil Company on the Neuschwanger farm in sec. 15, T. 8 S., R. 14 W. In this test the Topeka limestone was found at a depth of 2,798 feet, the Kansas City-Lansing limestone at 3,060 feet, the Viola limestone at 3,566 feet, the Simpson at 3,673 feet, and the Arbuckle dolomite at 3,728 feet. The second test was drilled on the Vandament farm by the Northern Ordnance Corporation in sec. 3, T. 9 S., R. 13 W. This well encountered the Kansas City-Lansing limestone at 3,092 feet, the Mississippian at 3,632 feet, the Kinderhook at 3,722 feet, the Hunton at 3,751 feet, the Maquoketa at 3,773 feet, the Viola at 3,776 feet, the Simpson at 4,014 feet, and the Arbuckle dolomite at 4,070 feet (2,303 feet below sea level). The third test well was drilled by Paul McIntyre on the Applegate farm in sec. 11, T. 10 S., R. 12 W. In this test, the Kansas City-Lansing limestone was found

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at 3,980 feet, the Mississippian at 3,644 feet, and the Kinderhook at 3,728 feet. Below the Kinderhook shale, the Viola was encountered at 3,791 feet, the Simpson at 3,910 feet, and the Arbuckle dolomite at 3,969 feet (2,234 feet below sea level).

In **Ottawa County** three interesting test wells were drilled during 1943. The Auto Ordnance Corporation drilled a test on the Gawith farm in sec. 27, T. 11 S., R. 5 W. This test found the Kansas City-Lansing limestone at 2,515 feet, the Mississippian at 3,186 feet, and the Kinderhook shale at 3,495 feet. Below this shale the Hunton was encountered at 3,579 feet, the Maquoketa at 3,699 feet, the Viola at 3,792 feet, the Simpson at 3,914 feet, and the Arbuckle dolomite at 3,999 feet (2,540 feet below sea level). A second test in Ottawa county was completed by the Stanolind Oil and Gas Company on the Duggan lease in sec. 12, T. 12 S., R. 1 W. In this well the Kansas City-Lansing limestone was found at 1,905 feet, the Mississippian at 2,550 feet, and the Kinderhook shale at 2,710 feet. Below the Kinderhook, the Hunton was encountered at 2,900 feet, the Maquoketa at 3,015 feet, the Viola at 3,168 feet, the Simpson at 3,276 feet, and the Arbuckle dolomite at 3,360 feet (2,042 feet below sea level). The third test was drilled by the Auto Ordnance Corporation on the Gekler farm in sec. 20, T. 12 S., R. 2 W. Here the Kansas City-Lansing limestone was found at 2,190 feet, the Mississippian at 2,685 feet, the Kinderhook shale at 2,905 feet, immediately below the Kinderhook the Hunton at 3,050 feet, the Maquoketa at 3,186 feet, the Viola at 3,286 feet, the Simpson at 3,397 feet, and the Arbuckle dolomite at 3,479 feet (2,269 feet below sea level).

One test well was completed in **Thomas County.** It was drilled by the Texas Company on the Dougherty farm in sec. 23, T. 6 S., R. 33 W. The Dakota sandstone was found at 1,502 feet and the Cimarron anhydrite at 2,645 feet. The top of the Kansas City-Lansing limestone was not definitely located but it may occur at 3,950 feet. The Warsaw (Mississippian) dolomite was encountered at 4,526 feet, the Keokuk chert at 4,575 feet, and the St. Joe lithographic and oölitic limestone at 4,630 feet. The Simpson dolomite was found below the basal Mississippian limestone at 4,722 feet, and the Arbuckle dolomite at 4,750 feet. The test was abandoned at a total depth of 5,023 feet.

Two very interesting test wells were completed in **Wallace County** during 1943. One of these was drilled by the Sinclair

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Prairie Oil Company on the Wallace Investment Company land in sec. 28, T. 11 S., R. 39 W. In this test, the Dakota was encountered at a depth of 1,490 feet, the Kansas City- Lansing limestone at 4,040 feet, the Spergen (Mississippian) limestone at 4,835 feet, and the Warsaw buff dolomite at 4,955 feet. The Keokuk, Burlington, and Fern Glen cherts extend from 5,005 to 5,095 feet. The St. Joe limestone in this well is lithographic from 5,095 to 5,155 feet and mostly oölitic white limestone from 5,155 to 5,238 feet. It has a basal member which is coarsely crystalline, crinoidal, and very dark in color. This layer seems to rest directly on the Arbuckle dolomite at 5,245 feet. The Arbuckle becomes very glauconitic below 5,400 feet and contains large rounded sand grains at 5,470 feet. The Reagan sandstone was encountered at 5,495 feet; this sandstone is micaceous from 5,505 to 5,515 feet and contains a red shale zone from 5,515 to 5,525 feet. The top of the pre-Cambrian was found at 5,525 feet where traces of granite wash appeared. The cuttings consist of arkosic granite to the total depth of 5,579 feet. A second well in Wallace county was drilled by Broderick and Gordon on the Goodrich farm in sec. 9, T. 14 S., R. 42 W. According to the scout report the Dakota sandstone was encountered at 1,670 feet, the Cimarron anhydrite at 2,860 feet, the Topeka limestone at 4,200 feet, and the Kansas City-Lansing limestone at 4,635 feet. The Mississippian was found at 5,106 feet, the Warsaw dolomite at 5,280 feet, the Keokuk chert at 5,355 feet, the St. Joe lithographic and oölitic limestones at 5,445 feet, the Simpson dolomite at 5,590 feet, the Simpson sandy zone at 5,615 feet, and the Arbuckle dolomite at 5,620 feet (1,775 feet below sea level).

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