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BULLETIN 68

EXPLORATION FOR OIL AND GAS IN WESTERN KANSAS DURING 1946

BY WALTER A. VER WIEBE

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EXPLORATION FOR OIL AND GAS IN WESTERN KANSAS DURING 1946

By
Walter A. Ver Wiebe

ABSTRACT

The total number of wells completed in western Kansas (as defined in this report) was 1,637, of which 795 are oil wells, 322 are gas wells, and 520 are dry holes. The total production of oil in the State during 1946 was 96,624,272 barrels, which is roughly 1,806,000 barrels more than the 1945 production. The total production of gas for the State amounted to 143,005,164 thousand cubic feet. The western part of the State accounts for all of this with the exception of about 2½ million cubic feet.

The amount of geophysical work done in 1946 was considerably less than for the previous year. However, a great deal of core drilling was done, some of which was carried to such depths that the holes might be classed as stratigraphic tests. Exploratory tests were successful in finding 36 new oil pools and 3 new gas pools. Before the end of the year two of the new oil pools were merged with other pools, thus reducing the number of new finds.

The most actively prospected county in western Kansas was Rooks County, where five new pools were found and important extensions to many of the older pools were developed. The most promising of the new pools in this county is the Barry Southeast pool. In Ellis County seven new pools were found. Of these the Irvin and Pleasant North pools are likely to prove to be extensions of the Pleasant pool. Similarly, the new Burnett Southwest and Burnett Northwest pools may later prove to be extensions of the older Burnett pool. Two new pools in Barber County, the Boggs and the Boggs South pools, hold promise of having found important new reserves of oil. Here the producing zone is the Wilcox sandstone of the Simpson which elsewhere (especially toward the south) has furnished much oil when measured on a per acre basis. The pool which was accorded the most attention by the operators is the new Pat Creek pool in Kingman County. This pool, which is located on a very favorable structure, acted like an old-time gusher area when the first well came in.

The Hugoton area received more attention during 1946 than in any previous year. Both the large market for gas now existing in the eastern part of the United States and the possibility of making gasoline from natural gas served to accentuate drilling activity.

Counties in which more than 50 new oil wells were drilled are Barton (233), Russell (107), Rice (69), Ellis (57), McPherson (56), and Ellsworth (55). The Kraft-Prusa and Trapp pools again lead in the number of successful new completions. Among the nonproducing counties, one or more tests were completed in Clark, Decatur, Ford, Gove, Gray, Harper, Hodgeman, Kiowa, Mitchell, Ottawa, and Wichita Counties.

INTRODUCTION

Previous publications.—The State Geological Survey of Kansas has issued 12 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. A second report, published in 1933 as Mineral Resources Circular 2, describes developments during 1928, 1929, and 1930; Mineral Resources Circular 3, published in 1934, describes developments in 1931 and 1932; and Mineral Resources Circular 10, a cumulative report issued in 1938, gives information on the areal geology, stratigraphy, and structure of each county producing oil or gas at that time. The history of development during succeeding years may be found in Mineral Resources Circular 13 and in Bulletins 28, 36, 42, 48, 54, 56, and 62. For information on oil and gas history and developments in eastern Kansas, the reader is referred to Bulletin 57, published in 1945 by the State Geological Survey.

Oil production.—The amount of oil produced in Kansas during 1946 was 96,624,272 barrels which is about 1,806,000 barrels more than the production in 1945 (Fig. 1). Most of the new oil wells were drilled in Barton (233), Russell (107), Rice (69), Ellis (57), McPherson (56), Ellsworth (55), Rooks (34), Pratt (34), Stafford (33), Sumner (24), and Phillips (25) Counties. Table 1 shows the number of tests drilled in each county in western Kansas during 1946. Among the pools in this area the Kraft-Prusa and the Trapp again lead in the number of successful new completions.

During the year the Kansas Nomenclature Committee declared that some adjoining pools draw from common reservoirs and therefore combined the pools. Among these is the large Chase area in Rice County which now includes the Proffitt pool revived during 1946. In the same county the Raymond pool now includes the Wenke and Wenke West pools. In the large area in the northern part of Barber County from which both oil and gas are produced the Marjorie, Hargis, and Skinner pools were united in 1946 under the name of Skinner and later divided into Skinner and Skinner North pools. The Pawnee Rock Northeast pool of Barton County has been joined to the Pawnee Rock pool of northeastern Pawnee County. In Stafford County the Mueller pool was enlarged rapidly during the year, joining the James pool to the

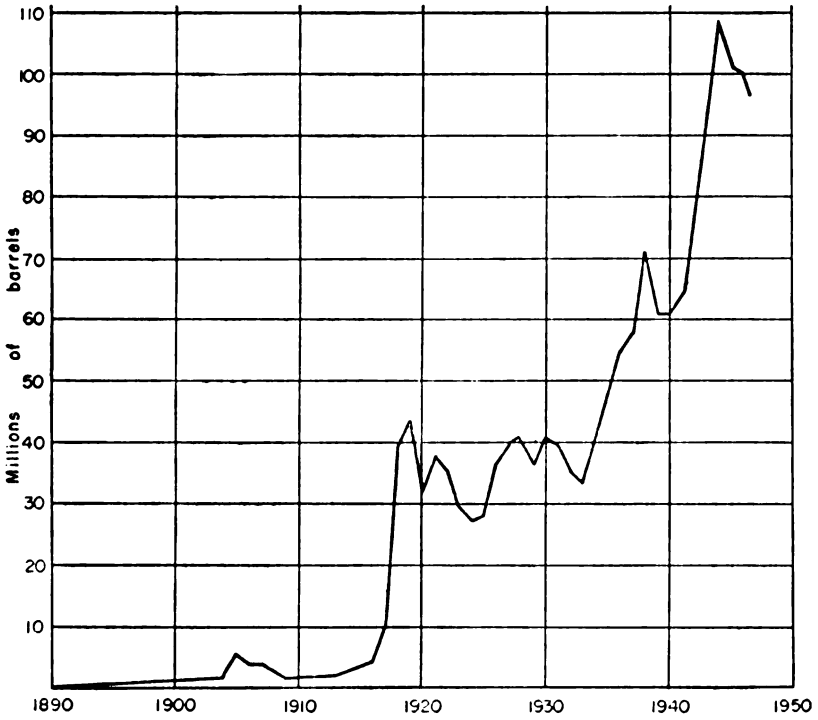

FIG. 1.—Annual oil production in Kansas from 1890 to 1946.

northwest; these two are now combined under the name of Mueller.

In Barton County a new producing area west of the Merten pool was for a time called a new pool. Later drilling between the main Merten pool and the one on the west proved them to be one underground reservoir. In Ellis County the Herzog and Herzog North pools were united, the combined area now being called the Herzog pool.

Gas production.—A new high figure for gas production was attained during 1946. The State Corporation Commission reports that slightly more than 143 billion cubic feet were produced in Kansas (Table 2). This compares with 124 billion cubic feet during 1945 and 134 billion cubic feet during 1944. More new gas wells were added during 1946 than in any previous year. Therefore, the production for the coming year should exceed 143 billion cubic feet. It is interesting to note that the production of 143 bil-

lion cubic feet was not sufficient to meet the total needs of the State of Kansas. The actual consumption in Kansas in 1946 was slightly more than 150 billion cubic feet. Therefore, while 87 billion cubic feet were exported to other states, 94 billion cubic feet

TABLE 1.—*Wells drilled in western Kansas in 1946, by counties*

County	Oil	Gas	Dry	Total
Barber	11	24	19	54
Barton	233	3	101	337
Clark			1	1
Decatur			2	2
Edwards			2	2
Ellis	57		44	101
Ellsworth	55		21	76
Finney	1	9		10
Ford			1	1
Gove			2	2
Graham	14		10	24
Grant		94		94
Gray			1	1
Hamilton		1	2	3
Harper			3	3
Harvey	2		3	5
Haskell		24	1	25
Hodgeman			1	1
Kearny		28	3	31
Kingman	1		5	6
Kiowa			1	1
McPherson	56	3	24	83
Meade			3	3
Mitchell			1	1
Morton		11		11
Ness	5		3	8
Norton	3		9	12
Ottawa			2	2
Pawnee	12	3	14	29
Phillips	25		8	33
Pratt	34		16	50
Reno	1		4	5
Rice	69		41	110
Rooks	34		32	66
Rush	6	1	12	19
Russell	107	1	41	149
Saline	7		5	12
Scott			3	3
Sedgwick	2	1	12	15
Seward		5	2	7
Sheridan	3		7	10
Stafford	33		27	60
Stanton		40		40
Stevens		74		74
Sumner	24		21	45
Trego			8	8
Wichita			2	2
TOTALS	795	322	520	1637

had to be imported from Texas and Oklahoma to meet the local deficit. Several years ago J. H. Page of the State Corporation Commission estimated the total gas reserve of the Hugoton field at 13,000 billion cubic feet. A comparison of the present figure on consumption and this estimate of reserves suggests that the field will continue to produce gas for many years to come even with increased sales to eastern cities.

The Hugoton area produced more than 10 times as much gas as any other pool in Kansas. The nearest competitor was the Med-

TABLE 2.—*Kansas natural gas production in 1945 and 1946*
(From records of the Conservation Division, Kansas Corporation Commission)

Field	1945 M cu. ft.	1946 M cu. ft.
Aetna	101,888	115,472
Alden	615,428	374,308
Belpre	2,368,835	672,283
Burrton	1,535,664	1,199,217
Cairo (Viola)	157,740	58,101
Carmi	24,279	28,258
Chegwidden	110,631	
Chitwood	1,428,131	981,838
Cowley County, Miscellaneous	754,527	454,431
Cunningham (Arbuckle)	403,242	206,397
Cunningham (Viola)	3,020,241	2,314,480
Deerhead		890,850
Eastern Kansas, Miscellaneous*	5,130,000	1,750,000
Hollow (Nikkel)	4,712	
Hugoton	80,704,992	106,872,109
Krier (Kraft-Prusa)	168,151	4,411
Lake City—See Skinner North.		
Lyons	244,245	142,748
McLouth	228,593	
McPherson County	921,071	717,476
Medicine Lodge	13,655,523	7,485,652
Merten	80,363	24,136
Orth	295,177	245,700
Otis	6,021,592	6,280,383
Otis (Neva)		138,661
Pawnee Rock-Behrens-Ryan Area		56,818
Schraeder	314,104	453,691
Silica (Rick)	134,382	192,467
Skinner North (Form. Lake City)	457,189	5,815,242
Sperling	14,308	36,854
Unruh		905,839
Wellington	131,840	
Whelan	289,367	420,510
Yoder	574,631	482,918
Zenith-Peace Creek	1,576,867	1,554,225
Zook	2,632,506	2,129,689
TOTALS	124,100,219	143,005,164

* Estimated

icine Lodge pool in Barber County which produced 7½ billion cubic feet of gas during 1946. It was closely paced by the Otis pool in Barton and Rush Counties which produced 6¼ billion cubic feet. The production data on these and other pools will be found in the tables under each county. Other important gas producing pools are the Skinner North (Lake City) in Barber County, Cunningham in Kingman and Pratt Counties, Zook in Pawnee County, Zenith-Peace Creek in Stafford and Reno Counties, and Burrton in Reno and Harvey Counties. All these together produce about one-fourth as much as the Hugoton field.

New pools.—Table 3 gives data on the 39 new pools discovered during 1946, three of which are new gas pools. It is not now possible to predict which one of these will supply the largest reserves. Two oil pools in Barber County, the Boggs and the Boggs South, hold considerable promise because both produce from the

TABLE 3.—*Oil and gas pools discovered in western Kansas during 1946*

County, field, and location of discovery well	Discovery well	Producing zone	Depth, feet	Month of discovery	Initial production per day, bbls
Barber County					
Boggs 17-33-12W	Skelly No. 1 Boggs "C"	Simpson	4,806-4,810	July	45
Boggs South 21-33-12W	Continental No. 1 Smith	Simpson	4,849-4,893	December	1,400
Donald (gas) 33-31-15W	Continental No. 1 Skinner	"Mississippi lime"	4,697-4,720	March	2,500 M cu ft. gas
Barton County					
Klug 28-17-13W	Black-Marshall No. 1 Klug	Arbuckle	3,414-3,421	June	52
Merten Northeast 36-18-15W	Virginia Drlg. No. 1 Howell	Arbuckle	3,494-3,501	February	100
Merten West 8-19-15W	Crown No. 1 Schultz	Reagan	3,575-3,585	March	200
	This pool now part of Merten pool				
Ellis County					
Burnett Northwest 3-11-18W	Continental No. 1 Warren	Arbuckle	3,617-3,624	December	3,000
Burnett Southwest 22-11-18W	Mazda No. 1 Henderson	Arbuckle	3,633-3,635	June	205
Catharine South 15-13-17W	Texas No. 1 Dreiling	Arbuckle	3,555-3,583	November	560
Irvin 6-14-19W	Stanolind No. 1 Irvin	Arbuckle	3,860-3,874	December	142
Pleasant North 26-13-20W	Farley No. 1 Wiesner	Arbuckle	3,798-3,815	August	small
Schoenchen 21-15-18W	Bartlett No. 1 Engel	Arbuckle	3,569-3,574	June	250
Solomon Northeast 22-11-19W	Skelly No. 1 Allen	Arbuckle	3,639	December	290
Ellsworth County					
Unnamed Pool 16-17-9W	Bennett & Roberts No. 1 Dobrinski	Lansing	2,906	December	50

Harvey County					
Brandenberger **12-24-3W**	Stanolind No. 1 Brandenberger	Viola	3,875-3,879	December	25
Kingman County					
Pat Creek **20-28-9W**	Plains Explor. Co. No.1 Swander	Viola	4,407-4,412	December	1,600
McPherson County					
Bitikofer North **25-19-1W**	J. M. Huber No. 1 Sinclair	Mississippian	2,892-2,922	May	25
Pawnee County					
Benson Southeast (gas) **32-23-15W**	Cities Service No. 1 Becker	Arbuckle	4,048-4,138	December	24,000 M cu. ft. gas
Rutherford **8-20-16W**	Brack & Huber No. 1 Rutherford	Arbuckle	3,815-3,823	August	130
Pratt County					
Chance **4-27-13W**	Lion No. 1 Chance	Arbuckle	4,432-4,440	July	200
Stoops **7-29-12W**	Bridgeport No. 1 Stoops	Viola	4,446-4,452	July	175
Stoops Southwest **24-29-13W**	Bridgeport No. 1 Pride "C"	Viola	4,483-4,490	September	160
Rice County					
Cow Creek **28-18-9W**	Phil-Han No. 1 Chase	Arbuckle	3,249-3,252	September	100
Proffitt **(old name revived)** **12-20-10W**	Lauck & Moncrief No. 1 Logan-Shonyo This pool is now part of the Chase Pool	Arbuckle	3,287-3,294	January	100
Rooks County					
Alcona **14-7-20W**	Republic Nat. Gas No. 1 Cooper	Arbuckle	3,499-3,508	March	25
Barry Southeast **13-9-19W**	H. H. & B. Drlg. No. 1 Hilgers	Arbuckle	3,479-3,484	September	2,735
Nyra **(old name revived)** **16-9-17W**	Atlantic No. 1 Carmichael	Lansing	3,429-3,435	March	35
Webster **(old name revived)** **27-8-19W**	Bird & Boreing No. 1 Veverka	Arbuckle	3,403-3,409	February	2,550
Webster Northwest **21-8-19W**	Shell Oil Co. No. 1 Veverka	Arbuckle	3,443-3,450	September	220
Rush County					
Albert West **28-18-16W**	Darby & Bothwell No. 1 Wagner	Reagan	3,628-3,643	April	25
Ryan West **33-19-16W**	Magnolia No. 1 Tammen	Arbuckle	3,734-3,758	September	30
Saline County					
Salina South **32-14-2W**	Page No. 1 Hagg	Viola	3,246-3,252	April	90
Sedgwick County					
Bartholomew (gas) **30-27-4W**	Kingwick No. 1 Bartholomew	Mississippian	3,732-3,737	June	5,000 M cu. ft. gas
Hinkle **1-27-1E**	Beech Aircraft No. 2 Hinkle	Burgess	2,980-2,983	April	800
Stafford County					
Gray **11-24-13W**	Alkay No. 1 Gray	Lansing	3,762-3,767	April	480
Kipp Northeast **23-25-14W**	Cities Service No. 1 Kipp	Lansing	3,844-3,863	May	1,260
Saundra **14-21-12W**	Virginia Drlg. No. 2 Roberts	Arbuckle	3,546-3,602	August	70
Saundra South **22-21-12W**	Virginia Drlg. No. 1 Rose	Arbuckle	3,586-3,604	December	100
Sumner County					
Margaret **36-32-2E**	Ashland No. 1 James	Arbuckle	3,474-3,477	February	45

Wilcox sandstone (part of the Simpson) of Ordovician age. This sandstone is thick and has a good record as a producing zone in Oklahoma. It has also produced substantially in Pratt County and in the Caldwell pool of southern Sumner County. The two new pools near the Pleasant pool of Ellis County suggest that there may be a rather large producing area in this part of the State. The Pat Creek pool of Kingman County created more of a stir than any other pool in recent years because the oil shows a high back pressure and also because the first well in the pool had a large initial production. The pool was found late in 1946, and its full value should be apparent before the end of 1947. The Rutherford pool in Pawnee County is likely to be a good producer because it lies close to the Ryan and Pawnee Rock pools, both of which have a good performance record. All these may eventually be merged into one producing area. In Rooks County the most promising pool is the Barry Southeast. It lies close to the main Barry pool which has the best producing record of any in the county.

Abandoned pools.—During 1946 several pools which had not been producing for some time were officially declared abandoned. Among them are the Millard, Peach, and Silica Northwest pools in Barton County, the Morrison pool in Clark County, the Cromb pool in Ellis County, the Kruse pool in Rooks County, and the Bentley pool in Sedgwick County.

Abandoned wells.—Each year the number of oil wells abandoned as unprofitable may be expected to rise. During 1946 the total number of such wells in the State was 963. In addition to these, 146 gas wells were also plugged. In January 1946, 66 oil wells were abandoned and in December there were 133, which suggests that a period of somewhat accelerated abandonments lies ahead.

Highlights of 1946.—Other interesting developments which may be called highlights of 1946 may be grouped together. In the Stoltenberg area of Ellsworth County good producing wells were found at the northern end which accounts for a rather active drilling campaign there. At another locality in Ellsworth County a sudden spurt in drilling followed upon the completion of a very good edge well on the northern flank of the old Edwards pool. A number of wells with maximum potential production were subsequently completed here.

In McPherson County considerable excitement followed the discovery of a new producing zone in the old Paden pool. Here

the Anderson-Prichard Oil Company found good production in the Viola dolomite below the usual production in the Mississippian "chat" zone.

The discovery of oil in the Topeka limestone in the Stockton pool of Rooks County is interesting even though the yield of the two wells which produce from this zone may not be high. In the same county, the Vohs pool was considerably enlarged and now promises to be one of the good producers in this general area.

Wildcat exploration.—Exploration in widely separated localities of western Kansas continued during 1946. Numerous tests were drilled far away from any known oil or gas pool. Some of these are extremely interesting on account of the information they yield regarding the underlying strata. Two test wells in Decatur County had good shows of oil which coincide with the findings in test wells previously drilled in that county.

The record of the wildcat test drilled in Ford County is given in the last chapter. It reveals a very interesting sequence of beds in that part of the State. Gove County still attracts much attention on account of the very favorable structural conditions existing there. In the past good shows of oil have been found in some wells. Two wildcat tests were drilled in this county during 1946. Another test hole that was drilled on good geological data was a wildcat in Gray County. Deep core testing which preceded the actual drilling gave very encouraging information. The test was carried down into the Arbuckle dolomite where oil stains were found in the samples. Harper County, lying between two oil-producing counties along the southern border of the State, also attracts attention each year. It has been reported that several strong structural trends have been worked out there by core drilling and geophysical work, and it is hoped that one or more pools will eventually be found on these trends. None of the three holes drilled during 1946 was successful in finding a pool, however.

Hodgeman County lies on the northeastern side of the deep basin of southwestern Kansas and in the area where this basin suddenly deepens. Thus, there is a chance that stratigraphic traps of considerable magnitude may be present here. A deep dry test well was drilled in this county about 15 miles north of the Pleasant Valley pool which has produced some oil and also some gas. Two very interesting test holes were drilled in far western Kansas in Wichita County. One of these was drilled about 25 miles north

of the Patterson pool, the other in the southeastern part of the county not far from the Nunn pool.

In this bulletin, pains have been taken to give full information on the important wildcat wells drilled in 1946. Extension wildcats—that is, wells that were drilled outside of known pools but within 2 miles of production—are very numerous and have in most cases been omitted from the maps in this bulletin. The ordinary wildcats, however—those located from 2 to 10 miles from known pools—and the rank wildcats—those located 10 miles or more from known pools—are shown on the county maps and usually are referred to in the text.

Acknowledgments.—This report on developments in western Kansas would not have been possible without the generous cooperation of many individuals in Wichita. Foremost in importance are the records of the Conservation Division of the State Corporation Commission. Mr. T. A. Morgan, Director of this division, has at all times been willing to furnish data which otherwise might have been difficult to obtain. Many geologists of Wichita contributed information needed in parts of the report. I wish to mention particularly Robert Carmody of the Gulf Oil Corporation, Harold Smedley of the Skelly Oil Company, Leroy Riley of the Carter Oil Company, Delbert Costa of the Superior Oil Company, Walter Wilkinson of the Sohio Oil Company, and Lee Cornell of the Stanolind Oil and Gas Company. The cards prepared by the Kansas Well Log Bureau have proved to be most helpful.

OIL AND GAS DEVELOPMENT IN WESTERN KANSAS COUNTIES

Barber County

A total of 54 test wells were drilled in Barber County (Fig. 2) of which 11 were oil wells, 24 were gas wells, and 19 were dry holes. One of the wildcat tests was far enough removed from present production to be classed as the discovery well of the new Donald gas pool. The discovery well was drilled by the Continental Oil Company on the Skinner ranch in the SE¼ SE¼ NE¼ sec. 33, T. 31 S., R. 15 W. The gas was found near the top of the Mississippian limestone between depths of 4,697 and 4,720 feet. The initial production of the new well was somewhat more than 2 million cubic feet of gas per day.

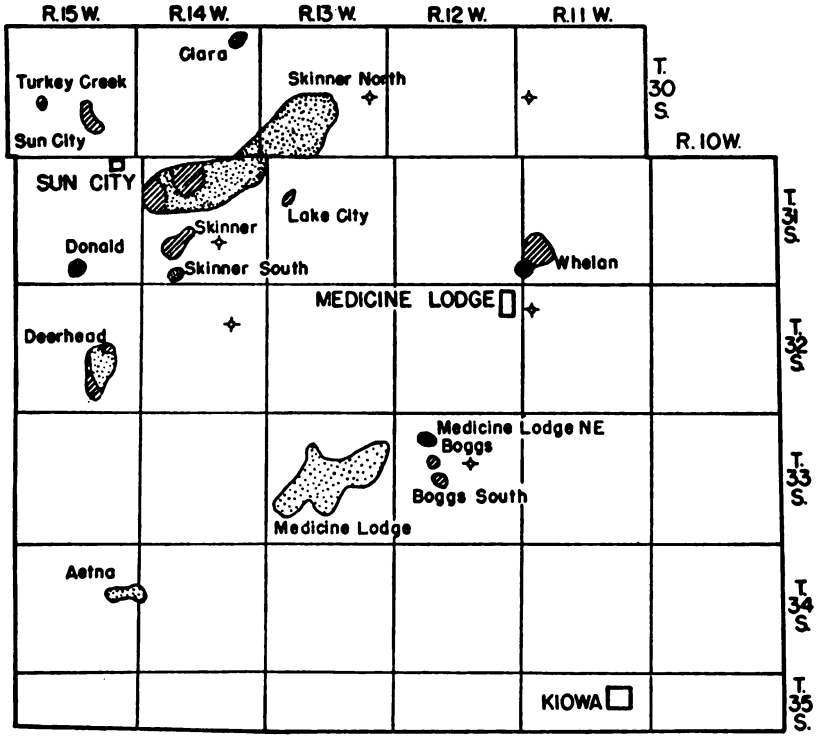

FIG. 2.—Barber County map showing oil and gas pools and dry wildcat wells drilled during 1946. (Gas, dots; oil, diagonal lines.)

A second successful wildcat test was drilled by the Skelly Oil Company on the Boggs ranch several miles south of the Medicine Lodge Northeast pool, opening the new **Boggs** pool. The discovery well, No. 1 "C" Boggs, is located in the SW¼ NE¼ NE¼ sec. 17, T. 33 S., R. 12 W. The discovery well, which was completed in July, produces oil from Simpson sandstone, the top of which was encountered at a depth of 4,806 feet. The well was drilled to a total depth of 4,842 feet, and the best production seems to come from the interval from 4,824 to 4,842 feet. With an initial production of 45 barrels per day and no water showing with the oil, this well seems to open up good possibilities of an extensive area of production along the trend northeast toward the Whelan pool.

This possibility is confirmed by a later discovery made by the Continental Oil Company on the Smith ranch in sec. 21 where, during December, a test well was completed at a total depth of

4,895 feet. Oil came into the hole from the Simpson sandstone between depths of 4,849 and 4,893 feet. This well has a potential capacity of more than 1,000 barrels per day. The gravity of the oil is approximately 27° A.P.I. Some gas is being produced with the oil. The new pool has been named the **Boggs South** pool.

Enough drilling was done between the **Marjorie, Hargis,** and Skinner pools to indicate that they are part of a common underground reservoir. These three were then combined during 1946 and the new enlarged pool was called **Skinner.** Later in the year it was divided into the Skinner and **Skinner North** pools. In the Marjorie portion, five gas wells and three dry holes were completed during the year. In the Skinner portion, seven gas wells, four oil wells, and three dry holes were completed. The gas in these wells comes from the upper part of the Viola cherty dolomite, but the oil comes mainly from the lower Simpson sandstone. In wells drilled previously, oil had been found both in the upper Viola dolomite and also in the Arbuckle dolomite. During 1946 the Sinclair-Prairie Oil Company discovered oil in the Simpson sandstone in the No. 1 Oldfather test in sec. 7, T. 31 S., R. 14 W. A final test showed that this well is capable of producing more than 3,000 barrels of oil per day from sandstone between depths of 4,422 and 4,426 feet.

In the **Sun City** pool located in the northwesternmost township of Barber County, oil is being produced from the so-called Massey zone in the lower part of the Pennsylvanian. During the year two additional oil wells, one gas well, and three dry holes were drilled in this pool. In the **Whelan** pool, located a few miles northeast of the town of Medicine Lodge, four new gas wells and one new oil well were added. Except in one well the gas comes from the top of the Mississippian System. The one exception is the new well drilled by the Olson Drilling Company on the Regnier ranch in the Cen. NE¼ SW¼ sec. 31, T. 31 S., R. 11 W. Here gas was found unexpectedly in a sandstone lens at the shallow depth of 3,315 to 3,330 feet in the middle part of the Pennsylvanian sequence. The initial capacity of the well is about 6 million cubic feet of gas per day.

In the **Deerhead** pool, located about 6 miles southwest of the Skinner pool, four new gas wells and two new oil wells were completed during 1946. All these wells produce from the upper Viola dolomite although the depth of this dolomite below sea

TABLE 4.—*Oil and gas pools of Barber County*

Fool and location of discovery well	Discovery year	Area, acres	1946 production	Cumulative production to end of 1946	Producing wells	Producing zone	Depth to producing zone, feet
			barrels				
Boggs 17-33-12W	1946	40	none	none	1	Simpson	4,806
Boggs South 21-33-12W	1946	40	none	none	1	Simpson	4,849
Deerhead 22-32-15W	1943	240	19,820	60,025	6	Viola	4,950
Hargis 9-31-14W	1945	combined with Skinner North					
Lake City 7-31-13W	1937	320	27,165	207,690	3	Viola Simpson Arbuckle	4,435 4,530 4,607
Marjorie 28-30-13W	1944	200	52,920	60,630	5	Viola	4,515
		combined with Skinner North					
Medicine Lodge 13-33-13W	1937		none	45,700		Misener	4,845
Skinner 29-31-14W	1943	800	59,805	142,940	3	Viola Simpson	4,626 4,422
Skinner North 29-31-14W		800	included with Skinner			Viola Arbuckle	
Sun City 35-30-15W	1941	450	271,755	800,205	11	K.C.-Lans.	4,344
Turkey Creek 20-30-15W	1943	40	3,405	16,660	1	Simpson	4,438
Whelan 32-31-11W	1934	1,000	176,450	1,514,365	20	"Chat"	4,355
			thousand cubic feet				
Aetna 13-34-15W	1935	160	115,472	500,000 estimated	2	Viola	5,215
Clara 2-30-14W	1944	160			1 1 1	Simpson Viola Arbuckle	4,435 4,509 4,540
Deerhead (gas) 26-32-15W	1942	1,000	890,850		3	Viola	4,931
Donald 33-31-15W	1946	640	none	none	1	"Mississippi lime"	4,697
Hargis (gas) 3-31-14W	1944	combined with Skinner North					
Lake City 7-31-13W	1945	no longer produces gas					
Marjorie (gas) 31-30-13W	1944	combined with Skinner North					
Medicine Lodge (gas) 13-33-13W	1927	6,400	7,485,652	110,318,177	38	"Chat"	4,455
Medicine Lodge Northeast 8-33-12W	1945	included with Medicine Lodge				"Chat"	4,472
Skinner North (gas) 17-31-14W		8,000	5,815,242	6,272,431	10	Viola	4,630
Skinner South 32-31-14W	1944	320	included with Skinner North		1	"Douglas sand"	4,023
Whelan (gas) 32-31-11W	1934	640	420,510	709,877	3	"Chat"	4,355

level varies more than 125 feet. The well which reached the Viola dolomite at the lowest altitude (3,026 feet below sea level) is the one which produces the oil. Here the top of the Viola was found at 4,936 feet and perforations between 4,952 and 4,956 allowed the oil to come into the hole. After using 500 gallons of acid the well flowed 35 barrels of oil per hour. This well, the Champlin Refining Company No. 2 Baird, located in the Cen. S. line NE¼ SE¼ sec. 27, T. 32 S., R. 15 W., was originally drilled to a total depth of 5,282 feet in order to test the Simpson sandstone and the Arbuckle dolomite. The Simpson here is 76 feet thick, and the well was drilled 40 feet into the Arbuckle.

In the **Medicine Lodge Northeast** pool only one test, a dry hole, was completed during the year. In the **Medicine Lodge** pool one new gas well and one dry hole were completed.

Table 4 gives information on the oil and gas pools in Barber County. These pools and the dry wildcat wells drilled in 1946 are shown in Fig. 2.

Exploratory wells.—Relatively few exploratory wells were drilled in Barber County during 1946. In a test well drilled in sec. 27, T. 31 S., R. 14 W., about 2 miles east of the Skinner pool, the Drillers Gas Company found the Viola dolomite at 4,511 feet, the Simpson sandstone at 4,635 feet, and the Arbuckle dolomite at 4,728 feet (3,049 feet below sea level). The total depth of the test is 4,755 feet.

An interesting test well was drilled by the Continental Oil Company on the Lake ranch in sec. 11, T. 32 S., R. 14 W. Here the Viola dolomite was found at 4,692 feet, the Simpson dolomite at 4,830 feet, and the Arbuckle dolomite at 4,909 feet (3,187 feet below sea level). This test is located about 3 miles southeast of the Skinner South pool. One test hole was drilled about 1½ miles south of the Whelan gas pool on the Smith farm by the J. M. Huber Corporation, in sec. 7, T. 32 S., R. 11 W. It found the top of the Mississippian limestone at 4,509 feet and the top of the Arbuckle dolomite at 4,739 feet. An important test well was drilled by the Skelly Oil Company on the Harbaugh ranch in sec. 15, T. 33 S., R. 12 W. With an altitude of 1,452 feet, the well encountered the Mississippian rocks at 4,390 feet and Viola limestone at 4,686 feet; the total depth was 4,950 feet. A very slight show of oil was found from 3,728 to 3,742 feet some distance above the Lansing limestone.

Barton County

As usual Barton County accounted for the largest number of test holes drilled during 1946. Of 337 test holes completed, 233 are new oil wells, 3 are new gas wells, and 101 are dry holes. Most of the latter were drilled within or on the edges of producing fields. Only 18 can be classed as wildcat tests. These are listed in Table 6, and are also shown on the map (Fig. 3). Information on the producing pools is given in Table 5.

In the large **Kraft-Prusa** pool 64 new oil wells and 17 dry holes were completed. In one of the new wells, the Sinclair-Prairie Oil Company No. 6 Schmidt well in sec. 20, T. 16 S., R. 11 W., the oil is reported as coming from the Sooy conglomerate.

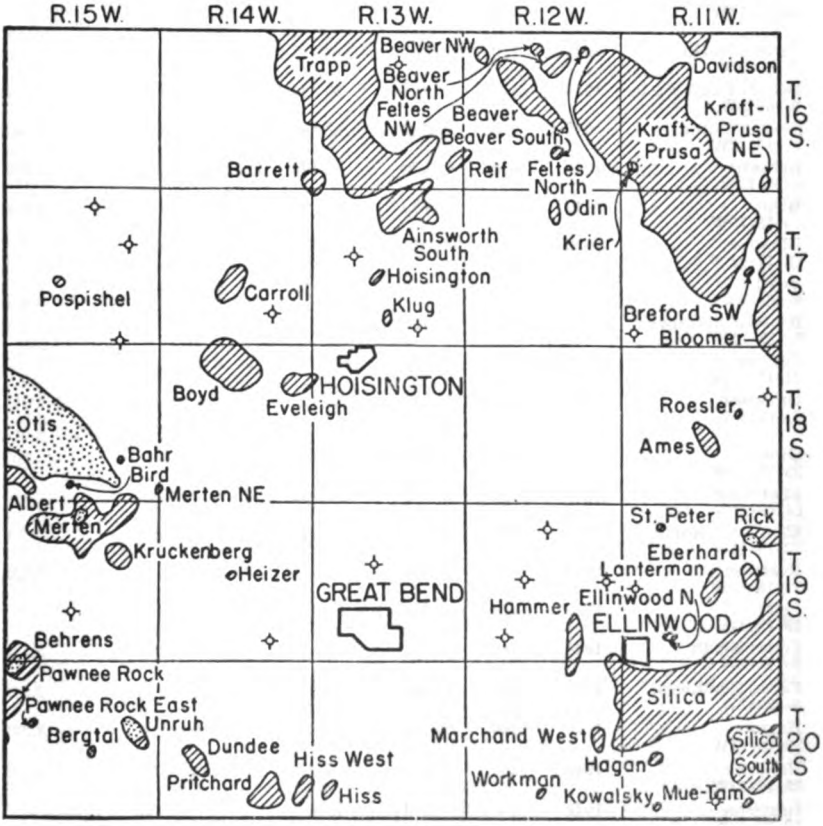

Fig. 3.—Barton County map showing oil and gas pools and dry wildcat wells drilled during 1946. (Gas, dots; oil, diagonal lines.)

TABLE 5.—*Oil and gas pools of Barton County*

Pool and location of discovery well	Discovery year	Area, acres	1946 production	Cumulative production to end of 1946	Producing wells	Producing zone	Depth to producing zone, feet
			barrels				
Ainsworth South 26-16-13W	1936	2,140	8,672	26,504	48	Arbuckle	3,390
Ainsworth Southeast 11-17-13W	1943	combined with Ainsworth South					
Albert 30-18-15W	1935	1,600	99,485	1,315,110	22	Reagan	3,601
Ames 22-18-11W	1943	300	58,505	184,760	10	K.C.-Lans. Arbuckle	3,042 3,348
Bahr 26-18-15W	1943	80	192	35,607	2	Reagan	3,495
Barrett 36-16-14W	1943	150	17,024	59,804	3	Arbuckle	3,463
Beaver 16-16-12W	1934	1,200	160,815	2,151,155	30	Oread Arbuckle Reagan	2,885 3,348 3,335
Beaver North 4-16-12W	1937	160	19,825	302,235	3	Arbuckle	3,316
Beaver Northwest 6-16-12W	1942	160	8,175	53,285	2	K.C.-Lans.	3,066
Beaver South 27-16-12W	1945	160	17,140	22,610	3	Arbuckle	3,359
Behrens 6-20-15W	1944	600	64,770	86,190	11	Arbuckle	3,719
Bird 33-18-15W	1940	80	10,670	30,405	2	Reagan	3,508
Bloomer 36-17-11W	1936	5,000	2,749,150	24,309,720	274	K.C.-Lans. Arbuckle	3,044 3,257
Boyd 4-18-14W	1942	900	322,040	740,925	29	K.C.-Lans. Arbuckle	3,438
Breford Southwest 23-17-11W	1942	40	153	17,333	1	Arbuckle	3,299
Carroll 21-17-14W	1944	900	134,990	175,260	16	Arbuckle	3,356
Davidson 4-16-11W	1928	400	34,630	314,125	11	K.C.Lans. Sooy Arbuckle	3,016 3,317 3,314
Dundee 29-20-14W	1945	40	1,275	1,275	1	Arbuckle	3,507
Eberhardt 14-19-11W	1935	320	34,495	299,245	7	K.C.-Lans. Arbuckle	3,194 3,311
Ellinwood North 33-19-11W	1937	40	4,410	68,040	1	Arbuckle	3,328
Eveleigh 11-18-14W	1943	350	72,431	171,170	8 1	Arbuckle Pre-Cambrian	3,339
Feist 29-18-11W	1936	abandoned during 1946					
Feltes North 2-16-12W	1944	160			1	Arbuckle	3,338
Feltes Northwest 3-16-12W	1945	300	51,465	59,675	7	Arbuckle	3,342
Hagan 20-20-11W	1938	160	36,380	216,955	4	Arbuckle	3,323
Hammer 35-19-12W	1940	200	59,150	97,040	7	Arbuckle	3,348
Harrison 18-20-13W	1942	abandoned during 1946					
Heizer 16-19-14W	1935	40	3,315	31,840	1	K.C.-Lans.	3,228

Hiss 31-20-13W	1936	800	147,805	663,895	5	K.C.-Lans.	3,270
Hiss West 25-20-14W	1945	400	included with Hiss		8	K.C.-Lans.	
Hoisington 21-17-13W	1938	200	30,370	219,270	4	K.C.-Lans. Arbuckle	3,222 3,440
Klug 28-17-13W	1946	80	4,824	4,824	2	Arbuckle	3,414
Kowalsky 32-20-11W	1941	40	none	2,540	1	Arbuckle	3,378
Kraft-Prusa 10-17-11W	1937	18,000	5,312,335	24,854,010	491	Shawnee K.C.-Lans. Gorham Arbuckle Reagan	2,885 3,160 3,335 3,281 3,310
Kraft-Prusa Northeast 36-16-11W	1941	160	19,675	139,165	3	Arbuckle	3,351
Kruckenberg 14-19-15W	1939	40	1,150	15,615	1	Arbuckle	3,580
Lanterman 15-19-11W	1935	500	46,090	752,740	11	K.C.-Lans. Arbuckle	3,109 3,235
Marchand West 24-20-12W	1939	included with Silica					
Merten 10-19-15W	1942	2,300	239,635	390,265	36	Reagan	3,551
Merten West 8-19-15W	1946	combined with Merten					
Merten Northeast 36-18-15W	1946	40	5,388	5,388	1	Arbuckle	3,494
Millard 29-16-14W	1943	abandoned during 1946					
Mue-Tam 35-20-11W	1942	40	905	17,730	1	Arbuckle	3,312
Odin 10-17-12W	1941	40	785	24,415	1	Arbuckle	3,340
Otis		no oil produced in Barton County part					
Pawnee Rock		see Pawnee County					
Pawnee Rock East 17-20-15W	1941	40	included with Pawnee Rock		1	Arbuckle	3,814
Pawnee Rock Northeast 7-20-15W	1944	200	36,020	77,485	6	Arbuckle	3,753
		now combined with Pawnee Rock					
Peach 25-16-14W	1944	abandoned during 1946					
Pospishel 20-17-15W	1939	40			1	Arbuckle	3,548
Pritchard 34-20-14W	1944	700	128,725	268,400	12	Arbuckle	3,455
Reif 30-16-12W	1944	160	10,125	26,705	3	K.C.-Lans. Arbuckle	3,253 3,399
Rick 1-19-11W	1936	500	59,610	680,310	12	K.C.-Lans. Arbuckle	3,106 3,355
Roesler 14-18-11W	1943	40	4,090	22,460	1	Arbuckle	3,291
St. Peter 5-19-11W	1944	40	10,685	29,795	1	Arbuckle	3,387
Silica 12-20-11W	1931	25,000	5,180,640	72,155,570	713	K.C.-Lans. Arbuckle	2,955 3,328
Silica Northwest 27-19-11W	1943	abandoned during 1946					
Silica South 24-20-11W	1935	3,680	included with Silica			K.C.-Lans. Arbuckle	3,035 3,268
Trapp		see Russell County					
Unruh 24-20-15W	1945	80	20,460	26,865	2	Arbuckle	3,641
Workman 33-20-12W	1944	40	3,599	9,680	1	Arbuckle	3,407

TABLE 5.—*Oil and gas pools of Barton County (continued)*

Pool and location of discovery well	Discovery year	Area, acres	1946 production	Cumulative production to end of 1946	Producing wells	Producing zone	Depth to producing zone, feet
			thousand cubic feet				
Behrens (gas) 6-20-15W	1944	incl. with Pawnee Rock, see Pawnee County					
Bergtal 22-20-15W	1941				1	Arbuckle	3,689
Krier 30-16-11W	1944	400	4,411	within Kraft-Prusa pool	2		
Merten (gas) 10-19-15W	1945	160	24,136	104,499	1	Reagan	3,551
Otis (gas)		see Rush County					
Rick (Silica) (gas) 11-19-11W	1941	400	192,467	326,849	2	Arbuckle	3,355
Unruh (gas) 24-20-15W	1945	1,000	905,839	905,839	4	Arbuckle	3,641

There are eight oil pools in T. 16 S., R. 12 W. In the **Beaver** pool four new oil wells and four dry holes were completed. In the **Beaver South** pool the record shows one dry hole and one new oil well. In the **Feltes Northwest** pool five new oil wells and five dry holes were added. In the **Reif** pool one producer and two dry holes were completed. In the Barton County part of the very extensive **Trapp** pool, 70 new oil wells and 17 dry holes were completed during the year.

Two new oil wells were completed in the **Bloomer** pool along the eastern side of the county in T. 17 S., R. 11 W. Concentrated drilling activity was noted in the vicinity of the **Ainsworth** pool in T. 17 S., R. 13 W. Enough wells were drilled to show that the **Ainsworth South** and the **Ainsworth Southeast** pools are drawing from a common reservoir. Therefore, these two were combined and called Ainsworth South. Here 24 new oil wells and 8 dry holes were completed.

One new oil well was added to the **Hoisington** pool. Southeast of the Hoisington pool the Black & Marshall Oil Company found a new oil pool, called **Klug**, on the Klug lease in the SE cor. sec. 28, T. 17 S., R. 13 W. The discovery well produces from the Arbuckle dolomite between 3,414 and 3,421 feet. It has been assigned a potential capacity of 52 barrels per day. One additional oil well was completed in the pool. Three dry holes on the fringes of the pool limit it in several directions. They are all tests drilled during

1946. In the **Carroll** pool, farther west, 7 new oil wells were completed.

In T. 18 S., R. 14 W. one new oil well and one dry hole were completed in the **Boyd** pool, two oil wells in the **Eveleigh** pool, and one dry hole in the **Roesler** pool in T. 18 S., R. 11 W. A new pool, the **Merten Northeast**, was found near the Merten pool when the Virginia Drilling Company completed the first well on the Howell lease in the SE¼ SE¼ NE¼ sec. 36, T. 18 S., R. 15 W. Oil comes from the Arbuckle dolomite in contrast with the near-by Merten pool which produces from the Reagan sandstone. Three dry holes later drilled around the discovery well limit the size of the pool.

In the **Albert** pool, one new oil well was completed during 1946. Four small oil wells and three dry holes were drilled in the Barton

TABLE 6.—*Dry wildcat tests drilled in Barton County during 1946*

Company and farm	Location	Depth to top of Lansing, feet	Depth to top of Arbuckle, feet	Total depth, feet
Sohio et al. No. 1 Ochs	NE cor. NW¼ 10-16-13W	3,098	3,378	3,400
Sohio Petroleum No. 1 Schneweis	SW cor. NE¼ 31-17-11W	3,059	3,362	3,385
Magnolia No. 1 Putnam	NW cor. SE¼ 17-17-13W	3,212	3,444	3,464
Ash No. 1 "B" Moses	SW cor. NW¼ 35-17-13W	3,155	3,386	3,410
Republic Natural Gas No. 1 Logan	SE cor. SW¼ 26-17-14W	3,145	3,357	3,390
Ohio Oil Co. No. 1 Porter	Cen. SE¼ SW¼ 3-17-15W	3,303	3,585	3,615
B & R Drilling No. 1 Axman	NE cor. NE¼ 14-17-15W	3,210	3,480	3,505
Sunray et al. No. 1 Schenk	Cen. S½ SE¼ SW¼ 35-17-15W	3,335	3,638	3,679
Sohio et al. No. 1 Hertach	SW cor. SE¼ 12-18-11W	3,009	3,335	3,385
Biddle & Le Bosquet No. 1 Isern	NE cor. NW¼ 19-19-11W	3,103	3,391	3,418
J. M. Huber et al. No. 1 Rusco	SW cor. SW¼ 3-19-12W	3,118	3,387	3,461
Ira Keith No. 1 Hammake	SE cor. SW¼ 13-19-12W	3,100	3,358	3,386
Texas Company No. 1 Fish	SW cor. SW¼ 16-19-12W	3,200	3,496	3,567
Continental No. 1 Stark	NE¼ NW¼ NW¼ 32-19-12W	3,150	3,395	3,463
Royer & Farris No. 1 Jurgenson	SE cor. NW¼ 16-19-13W	3,210	3,446	3,523
Potash of America No. 1 Weber	NE¼ SE¼ NW¼ 35-19-14W	3,218	3,516	3,551
Jones et al. No. 1 Oetken	NW cor. NE¼ 28-19-15W	3,295	3,658	3,710
Keyes Drilling No. 1 Hagen	Cen. S½ SW¼ NE¼ 34-20-11W	3,069	3,320	3,351

County portion of the large **Silica** pool and two new oil wells were completed in the **Hammer** pool.

The **Merten** area, a recent discovery, was actively prospected during 1946. Enough wells—18 new oil wells and 6 dry holes—were drilled in and between the main pool and the **Merten West** pool to establish the continuity of the two. Another area which received attention is the **Behrens** pool where 8 new oil wells and two dry holes were added. The interesting **Unruh** gas pool near by was enlarged by four additional gas or gas-and-oil wells which were drilled some distance apart. About 9 miles farther east, in the **Hiss West** pool, two new oil wells and one dry hole were completed during the year.

Clark County

Up to the present time only one pool, the **Morrison,** has been found in Clark County. This pool was discovered in 1926 and has since produced approximately 150,000 barrels of oil and a small amount of gas. Production was found in the cherty limestone of the Viola formation. During 1946 the pool was abandoned.

One deep test was completed during the year. It is the Helmerich and Payne No. 1 Yeoman test in sec. 3, T. 31 S., R. 21 W. The Lansing limestone was encountered at a depth of 4,460 feet and the top of the Mississippian strata at 5,172 feet. A considerable amount of gas but not enough to make a commercial well, was found in the upper part of the Mississippian strata. After setting pipe, the operators continued drilling and found a variety of materials in Meramecian rocks. The well cuttings are so excellent that the lithologic record below 5,230 feet is almost as good as might be obtained from a set of cable tool cuttings. The Meramecian contains thin oölitic limestone alternating with thin lithographic limestone and thin dolomites. A thin sandy oölitic limestone which may later be correlated with the Ste. Genevieve limestone was found at 5,320 feet. The Warsaw formation, found at 5,470 feet, consists of thin dolomite layers interbedded with thicker layers of crinoidal limestone, some of which are glauconitic. The Osagian rocks, found at 5,610 feet, are not nearly as cherty in this well as is commonly the case in western Kansas. They consist of alternating layers of cherty dolomite, crinoidal limestone, dolomitic limestone, and buff crinoidal dolomite. The Cowley formation, found at 5,730

feet, is very thin in this well. The St. Joe limestone was encountered at 5,765 feet. The upper portion consists of alternating layers of white crinoidal limestone and pale brown lithographic limestone. The lower portion is mostly white crinoidal dolomite. A good marker bed at the base is composed of red and green shaly limestone full of crinoid fragments. The Chouteau formation, found at 5,980 feet, consists of alternating layers of finely crystalline limestone and very cherty lithographic limestone. The typical blue chalcedonic chert is found at many levels as well as the less typical black chert and the stony gray chert. The base of the Mississippian System is marked by a thin layer of sandy limestone.

The Ordovician Viola, which was found at 6,080 feet, consists of a variety of lithologic units, the upper half being predominantly cherty dolomite. The lower half contains three zones of coarsely crystalline limestone which alternate with dolomite and cherty dolomite layers. Several of the coarsely crystalline limestone beds are sandy at the base. From 6,240 to 6,270 feet the samples reveal a very unusual dolomitic limestone which contains large ostracodes. This set of beds may belong to the Simpson formation. Below 6,270 feet typical green shales and thin interstratified beds of sandstone were found. The sandstone is impure and phosphatic while some of the shale is brown instead of green. The Arbuckle dolomite, found at a depth of 6,375 feet, was penetrated to a total depth of 6,430 feet before the hole was abandoned as dry.

Edwards County

At the present time there is only one small pool, the **Belpre,** in Edwards County. The discovery well in this pool was drilled in 1942 in sec. 8, T. 25 S., R. 16 W. Two wells which derive gas from the Kansas City-Lansing zone at 3,807 feet produced 672,283 thousand cubic feet of gas in 1946. Oil production in the pool was abandoned during 1946. This pool is shown in Figure 4.

During 1946 two very interesting test wells were drilled in Edwards County (Fig. 4). Both wells reveal unusual stratigraphic information which may guide later exploratory efforts. The Cities Service Oil Company drilled a dry hole on the Blattler farm in the SW cor. sec. 13, T. 25 S., R. 16 W. According to information released by the operator, this test found the Stone Corral dolomite at 1,050 feet, the Topeka limestone at 3,335 feet, and

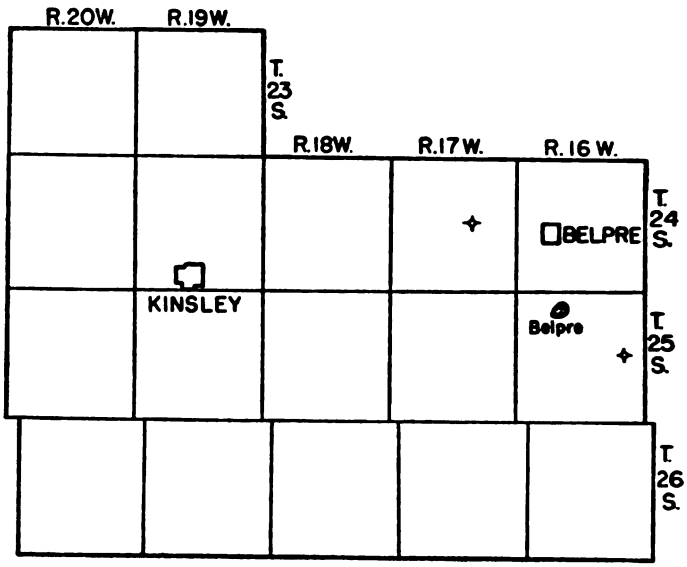

FIG. 4.—Edwards County map showing the Belpre gas pool and dry wildcat wells drilling during 1946.

the Lansing limestone at 3,858 feet. A study of the samples from the test shows that the Marmaton group of Pennsylvanian age rests upon a very thin remnant of eroded and weathered Osagian strata. The underlying Misener sandstone is present from 4,315 to 4,360 feet. As usual it consists of white well-cemeted sandstone with some opalescent chert. Below it the lower part of the Kinderhookian shale is present from 4,360 to 4,410 feet. It consists of dark and bluish-gray shale with abundant fragments of macerated plant remains. The underlying Viola, of Ordovician age, was evidently weathered and eroded to great depth as only chert remains from 4,410 to 4,460 feet. Below 4,460 feet the samples show that some of the original white flaky limestone which accompanied the chert is still present. Between 4,560 and 4,590 feet there is much green shale, which is unusual for the Viola formation. The typical coarsely crystalline basal limestone of the Viola is found in the samples between 4,590 and 4,607 feet. A fairly normal section of Simpson green shale with thin layers of impure and uneven-grained sandstone comprises the interval between 4,607 and 4,683 feet. The Arbuckle dolomite in this test shows no abnormalities, extending to the bottom of the hole at 4,717 feet.

During the last few days of the year a test hole was completed by the Skelly Oil Company on the Miller farm in the SE cor. sec. 15, T. 24 S., R. 17 W. According to information released by the operator, the Lansing limestone was found at 3,835 feet and Mississippian strata at 4,305 feet. A study of the well cuttings reveals two prominent zones indicating prolonged periods of erosion, one at the top of the Mississippian and the other at the top of the Ordovician. The detrital Osagian chert is present between 4,303 and 4,345 feet. Below it there is a thin layer of the St. Joe limestone called Fern Glen by some microscopic lithologists of Kansas. The St. Joe consists of white and pink medium-crystalline flaky limestone. The Misener sandstone fills the interval between 4,355 and 4,400 feet. It is white, rather even-grained, and, as usual, well cemented. The lower Kinderhookian shale in this well consists of green and red waxy shales. It rests upon the eroded Viola at 4,420 feet, the upper part of which consists of much chert with some white and red limestone, all probably detrital or reworked material. A prominent layer of coarsely crystalline white limestone with pink spots occupies the interval between 4,480 and 4,500 feet. Below it the samples show weathered chert with small amounts of limestone and some dolomite down to 4,550 feet, where the coarsely crystalline basal limestone of the Viola which extends down to 4,600 feet was encountered. Some of the layers of limestone in this interval are dense or lithographic brown limestone. The usual Simpson green shales with some thin sandstone layers occupy the interval between 4,600 and 4,670 feet. The Arbuckle dolomite is pink at the top but brown and finely crystalline farther down. Some of the dolomite is dolocastic, and there is also some unusual white chert with large oölites near the bottom of the hole at 4,720 feet.

Two other test holes drilled previous to 1946 in the same township as the Skelly No. 1 Miller well reveal similar evidence of deep erosion both at the top of the Mississippian and also at the top of the Viola formation. The thickness of the individual units varies considerably and the lithologic sequences both in the Mississippian and in the Viola show striking variations.

In T. 25 S., R. 16 W. four wildcat tests were drilled in previous years. They also reveal great variations in the lithology of the Mississippian and in the Viola formation. The Misener sandstone appears to be particularly variable, being entirely absent in one

test and reaching a thickness of 30 to 40 feet elsewhere. The Viola beds show deep penetration by weathering and erosion agents resulting in variable sequences of chert, limestone, and dolomite, making correlation from well to well practically impossible. In some of the earlier test wells there is an unusual dark brown resinous dolomite present at the top of the Simpson formation. Furthermore, the Simpson is much more sandy in this township than in the township southeast in which the Blattler test was drilled.

Ellis County

Ellis County received much attention from oil operators during 1946. Of the 101 test wells completed there, 57 are new oil wells. Approximately 16 of the dry holes should be classed as wildcat wells since they were drilled 2 miles or more from producing areas.

Ellis County with seven new oil pools discovered during the year, led western Kansas in the number of new pools. One of these, the **Burnett Northwest,** was found by the Continental Oil Company on the Warren Mortgage lease in sec. 3, T. 11 S., R. 18 W. This well produces oil from the Arbuckle dolomite between 3,617 and 3,624 feet.

Another new discovery was made near the old Burnett pool when the Mazda Oil Company completed the first well on the Henderson lease in sec. 22, T. 11 S., R. 18 W. Production is from the Arbuckle dolomite between 3,633 and 3,635 feet. The well has a capacity of 205 barrels per day. The new pool has been called **Burnett Southwest.**

In T. 13 S., R. 17 W., a new pool was found by the Texas Company on the Dreiling lease in sec. 15. It is located near the older Catharine pool, and was therefore named **Catharine South.** Oil was found in the Arbuckle dolomite between 3,555 and 3,583 feet. The discovery well has a capacity of 560 barrels per day.

Another new pool, the **Irvin,** was named for the farm on which the Stanolind Oil and Gas Company drilled the first successful well in the SE cor. sec. 6, T. 14 S., R. 19 W. Oil comes from the Arbuckle dolomite between 3,860 and 3,874 feet. This well was completed on the last day of the year.

On the north side of the Pleasant pool a test well drilled by Farley on the Wiesner lease in the SE cor. sec. 26, T. 13 S., R. 20 W.

opened the new **Pleasant North** pool. Oil comes from the Arbuckle dolomite between 3,798 and 3,815 feet and has a gravity between 38° and 40° A.P.I. The well is a light producer.

The sixth new pool for the year is the **Schoenchen** in the south-central part of the county. Here Bartlett completed the No. 1 Engel well in the NE cor. SE¼ sec. 21, T. 15 S., R. 18 W. in June. Oil is derived from the Arbuckle dolomite between depths of 3,569 and 3,574 feet. An official test showed that the well is capable of producing 250 barrels per day. The oil has a gravity of 32° A.P.I.

The seventh new pool, located in sec. 22, T. 11 S., R. 18 W. was named the **Solomon Northeast.** Skelly No. 1 Allen, the discovery

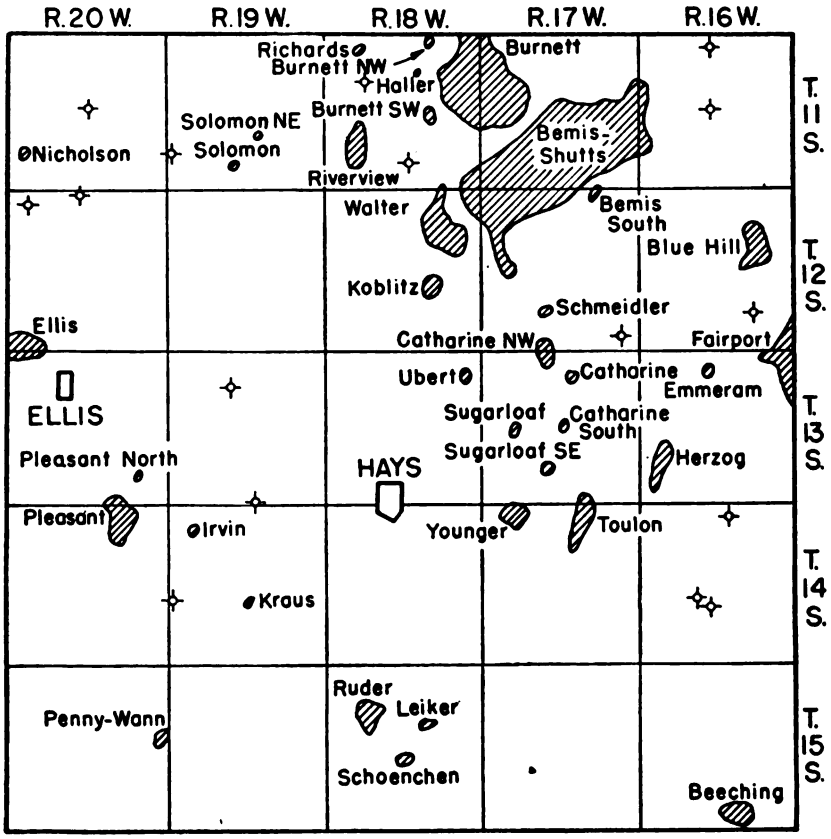

FIG. 5.—Ellis County map showing oil pools and dry wildcat wells drilled during 1946.

well, is rated at 320 barrels of oil per day, and produces from the Arbuckle dolomite which was found at a depth of 3,637 feet.

Drilling in the older pools resulted in some very good extensions to existing areas. In the **Bemis-Shutts** pool 20 new oil wells

TABLE 7.—*Oil pools of Ellis County*

Pool and location of discovery well	Discovery year	Area, acres	1946 production bbls.	Cumulative production to end of 1946 bbls.	Producing wells	Producing zone	Depth to producing zone, feet
Beeching 34-15-16W	1943	300	34,080	143,595	6	K.C.-Lans.	3,156
Bemis-Shutts 16-11-17W	1935	14,000	5,364,720	43,043,375	486	Arbuckle	3,380
Bemis South 2-12-17W	1938	80	10,160	77,655	1	Arbuckle	3,592
Blue Hill 14-12-16W	1937	900	124,970	1,099,670	16	Topeka K.C.-Lans. Arbuckle	3,030 3,072 3,360
Burnett 1-11-18W	1937	5,000	2,882,260	24,775,710	2 208	K.C.-Lans. Arbuckle	3,093 3,570
Burnett Northwest 3-11-18W	1946	40	none	none	1	Arbuckle	3,617
Burnett Southwest 22-11-18W	1946	200	18,580	18,580	5	K.C.-Lans. Arbuckle	3,207 3,633
Catharine 3-13-17W	1936	160	4,860	148,455	1	K.C.-Lans.	3,262
Catharine Northwest 4-13-17W	1944	800	66,140	77,740	9	K.C.-Lans. Arbuckle	3,590
Catharine South 15-13-17W	1946	40	836	836	1	Arbuckle	3,555
Cromb 22-11-20W	1945	abandoned during 1946					
Ellis 31-12-20W	1942	700	157,438	540,880	15	Arbuckle	3,832
Emmeram 4-13-16W	1937	160	11,080	183,235	4	K.C.-Lans.	3,262
Fairport		see Russell County					
Haller 10-11-18W	1936	40	215	21,615	1	Topeka	3,045
Herzog 30-13-16W	1940	360	101,235	366,965	13	Arbuckle	3,450
Herzog North 19-13-16W	1945	combined with Herzog					
Irvin 6-14-19W	1946	40	none	none	1	Arbuckle	3,860
Koblitz 23-12-18W	1937	840	70,725	533,850	10	Arbuckle	3,694
Kraus 22-14-19W	1936	100	3,370	78,820	1	Sooy	3,735
Kraus Northwest 17-14-19W	1942	abandoned during 1946					
Leiker 14-15-18W	1943	80	13,745	49,390	1 1	K.C.-Lans. Arbuckle	3,292
Nicholson 30-11-20W	1945	250	44,410	45,960	6	Arbuckle	3,842
Penny-Wann 13-15-20W	1936	120	21,210	97,865	3	Sooy	3,653
Pleasant 2-14-20W	1944	1,000	169,995	261,845	3 14	Arbuckle Reagan	3,833 3,877
Pleasant North 26-13-20W	1946	40	none	none	1	Arbuckle	3,798

Richards 5-11-18W	1938	120	none	106,785	2	K.C.-Lans.	3,332
Riverview 19-11-18W	1943	900	215,970	647,490	19	Arbuckle	3,610
Ruder 17-15-18W	1935	750	48,245	916,120	14	K.C.-Lans. Arbuckle	3,422 3,572
Schmeidler 28-12-17W	1944	400	27,700	44,390	4	Arbuckle	3,625
Schoenchen 21-15-18W	1946	160	12,532	12,532	4	Arbuckle	3,569
Solomon 28-11-19W	1936	160			2	Arbuckle	3,629
Solomon Northeast 22-11-19W	1946	40	none	none	1	Arbuckle	3,639
Sugarloaf 17-13-17W	1941	180	21,640	144,620	2	Arbuckle	3,645
Sugarloaf Southeast 28-13-17W	1941	80	17,350	48,790	2	K.C.-Lans.	3,312
Toulon 3-14-17W	1935	200	35,395	318,255	7	K.C.-Lans. Arbuckle	3,298 3,512
Ubert 12-13-18W	1936	160	9,440	231,310	2	Arbuckle	3,707
Walter 2-12-18W	1936	1,500	327,595	3,514,825	1 39	Topeka Arbuckle	3,160 3,619
Younger 6-14-17W	1944	200	35,330	52,895	5	Arbuckle	3,574

TABLE 8.—*Dry wildcat tests drilled in Ellis County during 1946*

Company and farm	Location	Depth to top of Lansing, feet	Depth to top of Arbuckle, feet	Total depth, feet
C. E. Ash No. 1 Craig "A"	SE cor. NE¼ 4-11-16W	3,165	3,651	3,685
Westgate-Greenland No. 1 Lundy	SE cor. SE¼ 16-11-16W	3,028	3,403	3,455
Veeder Supply et al. No. 1 Richards	SW cor. SE¼ 8-11-18W	3,210	3,580	3,612
Mazda Oil No. 1 Henderson "D"	SW cor. SW¼ 27-11-18W	3,361	3,702	3,735
Darby-Bothwell No. 1 Glass	NW cor. SW¼ 30-11-19W	3,376	3,723	3,758
Keyes Drlg. No. 1 King	SE cor. SE¼ 16-11-20W	3,376	3,680	3,730
J. M. Huber & Baco No. 1 Furthmeyer	NW cor. SE¼ 26-12-16W	3,220	3,485	3,520
Aylward Prod. et al. No. 1 Denning	SE cor. NW¼ 36-12-17W	3,366	3,719	3,750
Phil-Han et al. No. 1 Homburg	NW cor. NE¼ 4-12-20W	3,481	3,879	3,887
Aylward Prod. et al. No. 1 Skaggs	NW cor. SE¼ 6-12-20W	3,567	3,935	3,965
Ingling No. 1 Johnson	NW¼ SE¼ NW¼ 9-13-19W	3,472	did not reach	3,790
Tom Allan No. 1 Pfeifer	SW cor. SE¼ 34-13-19W	3,530	3,895	4,013
Sohio No. 1 Herman	Cen. E½ SE¼ NW¼ 3-14-16W	3,188	3,478	3,510
Manning No. 1 Dreiling	NW cor. SW¼ 21-14-16W	3,127	3,400	3,452
Manning No. 1 Dreiling	SW cor. SE¼ 21-14-16W	3,136	3,380	3,448
Western Petroleum No. 1 Moore	SW cor. NW¼ 19-14-19W	3,476	3,844	3,874

were completed. Most of these were drilled in the south part of the pool especially in secs. 28 and 33, T. 11 S., R. 17 W.

The **Burnett** pool received three new oil wells. In the **Nicholson** pool five new oil wells and three dry holes were added. Three new oil wells were drilled along the east side of the **Walter** pool in an effort to connect this pool with the area of the Bemis-Shutts production. Five dry holes were drilled in the area of the Walter pool. Three dry holes and one additional oil well were drilled in the **Ellis** pool in the extreme western part of the county.

Enough wells were drilled between the **Herzog** and the **Herzog North** pools to justify combining them into one producing area which will be called the Herzog pool. The total of new completions is three oil wells and three dry holes. One new oil well was completed in the **Younger** pool. In the **Pleasant** pool two oil wells and one dry hole were completed.

Information on the oil pools of Ellis County is given in Table 7. The dry wildcat wells drilled in the county during the year are tabulated in Table 8. The locations of these wells and the oil pools are shown in Figure 5.

Ellsworth County

Most of the activity in Ellsworth County during 1946 was centered on extending the Stoltenberg and the Edwards pools. In both cases remarkably good results were obtained. The total number of test wells drilled in the county was 76, of which 56 were new oil wells. Among the 20 dry holes five are wildcat tests. These and the oil pools in the county are shown in Figure 6.

A new pool in Ellsworth County, as yet unnamed, was opened by the Bennett and Roberts No. 1 Dobrinski well which had an initial production of 50 barrels of oil per day with 50 barrels of water. The well is about 2 miles northeast of the Stoltenberg pool and 2 miles northwest of the **Lorraine** pool in the NE cor. NW¼ sec. 16, T. 17 S., R. 9W. Production is reported to come from the Lansing between 2,970 and 2,980 feet.

In the **Vacek** pool, which closely adjoins the Stoltenberg pool on the north, two oil wells and one dry hole were completed during the year. In the main **Stoltenberg** pool 28 oil wells and 9 dry holes were completed. Most of the new wells are located at the northern end of the pool.

The **Edwards** pool staged a most remarkable comeback during 1946. This was due to the finding at the north end of oil wells with very high potential capacities. Twelve new oil wells were added here during the year and only three dry holes were drilled on the fringes of the area. Many of the new wells were given top ratings of 3,000 barrels per day.

In the **Bloomer** pool in the southwestern part of the county 11 new oil wells were completed. In the **Heiken** pool one new oil well was added. Additional information on the oil pools in Ellsworth County is given in Table 9.

Exploratory wells.—An interesting wildcat test was drilled by the Cities Service Oil Company on the Cook lease in the NE cor. SW¼ sec. 19, T. 14 S., R. 10 W. This test, at an altitude of 1,679 feet, found the Lansing limestone at 2,775 feet and the Arbuckle dolomite at 3,139 feet. The test was abandoned as a dry hole at a total depth of 3,178 feet.

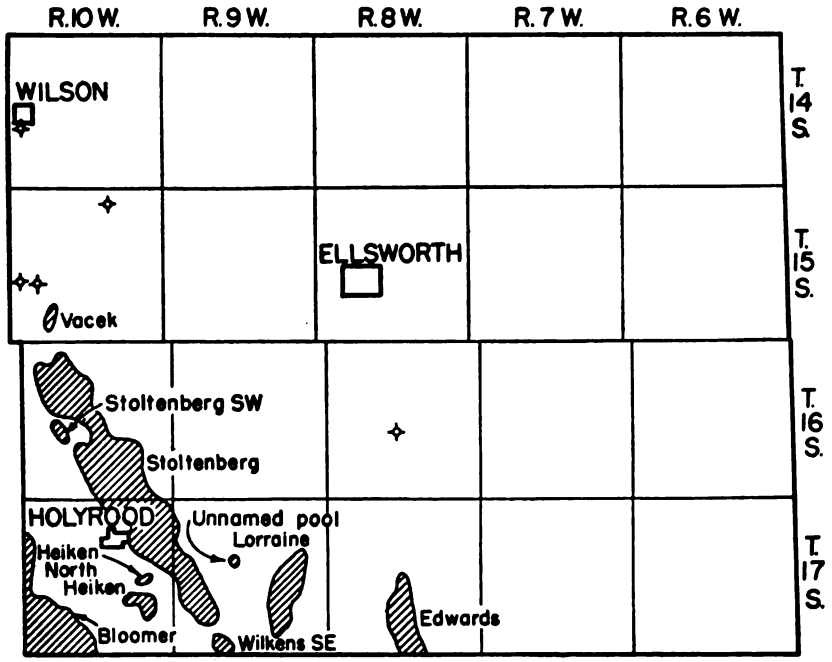

FIG. 6.—Ellsworth County map showing oil pools and dry wildcat wells drilled during 1946.

TABLE 9.—*Oil pools of Ellsworth County*

Pool and location of discovery well	Discovery year	Area, acres	1946 production bbls.	Cumulative production to end of 1946 bbls.	Producing wells	Producing zone	Depth to producing zone, feet
Bloomer		see Barton County					
Bloomer East 18-17-10W	1944	abandoned during 1946					
Edwards		see Rice County					
Heiken 25-17-10W	1930	160	2,838	42,198	2	Arbuckle	3,269
Heiken North 24-17-10W	1942	180	24,455	99,345	3	Arbuckle	3,212
Lorraine 13-17-9W	1934	5,500	158,445	9,764,315	43	K.C.-Lans. Arbuckle	3,060 3,200
Stoltenberg 22-16-10W	1931	9,500	2,730,135	22,124,890	1 301	K.C.-Lans. Arbuckle	3,333
Stoltenberg Southwest 20-16-10W	1940	360	27,835	131,760	6	Arbuckle	3,349
Vacek 32-15-10W	1944	160	13,286	18,870	4	Arbuckle	3,315
Wilkens Southeast 32-17-9W	1942	600	61,755	240,055	6	Arbuckle	3,220
Unnamed pool 16-17-9W	1946	40	none	none	1	K.C.-Lans.	2,977

Five miles north of the Vacek pool, the Stearns Drilling Company drilled a test on the Dlabal farm in the SE cor. NE¼ sec. 3, T. 15 S., R. 10 W. This test, at an altitude of 1,586 feet, found the Topeka limestone at 2,378 feet, the Lansing limestone at 2,740 feet, and the Sooy conglomerate at 3,045 feet. The Ordovician Simpson rocks were encountered at 3,280 feet, and the Arbuckle dolomite at 3,303 feet. The test was abandoned at a total depth of 4,115 feet without any showing of oil or gas.

Five miles north of the Edwards pool a wildcat test was drilled by Royer and Farris on the Rozelle lease in the SW¼ SE¼ NE¼ sec. 21, T. 16 S., R. 8 W. The altitude of this test is 1,632 feet. It found the Lansing limestone at 2,886 feet, the Sooy conglomerate at 3,078 feet, the Ordovician Viola at 3,321 feet, and the Arbuckle dolomite at 3,436 feet. The total depth was 3,450 feet.

FINNEY COUNTY

The **Nunn** oil pool, discovered by the Atlantic Refining Company in 1938, is the only one in Finney County at the present time. At the close of 1945 there were 11 wells in this pool. During 1946 one more oil well was added. This pool has produced a total of 545,125 barrels of oil since it was discovered. During the past year it produced 138,655 barrels. One well produces from the Kansas

City limestone, but the others produce from the Mississippian limestones. The new oil well was drilled by the Shallow Water Refining Company on the Gobleman lease and is the No. 4 "A" well on that lease. It has an official capacity of 420 barrels per day.

The western part of Finney County lies within the limits of the famous Hugoton gas field. During 1946 nine gas wells were completed in the part of this field that includes Finney County. They are shown on the map (Fig. 7). These wells all had small initial capacities when drilled in, but after acid was applied some produced large quantities of gas on testing. An example is the Kansas Natural Gas Company No. 1 well on the Spratt ranch in the Cen. sec. 1, T. 25 S., R. 34 W. In this well perforations were made between 2,548 and 2,700 feet and only one million cubic feet of gas came into the hole. Then the well was acidized with 47,000 gallons of acid after which it was capable of producing 29 million cubic feet of gas per day on open flow.

HUGOTON GAS FIELD

One of the largest gas fields in the world is located in southwestern Kansas. This field was discovered in 1922 when the first gas well was completed on the Boles ranch in Seward County. This well did not arouse much interest since five years elapsed before the second well was drilled. Even after that, development was rather slow. However, by the end of 1942 exploration had extended to include Stevens, Haskell, Kearny, Grant, Finney, and Morton Counties with an area of more than two million acres. The total number of wells drilled up to that time was 327. In 1943 only 10 wells were added. During 1944 activity suddenly increased and 70 new gas wells were completed. During 1945 the number of new wells was almost tripled, as 181 new gas wells were successfully completed in the field, making a total of 597 gas wells at the close of 1945.

The gas in the Hugoton field is produced from thin porous dolomitic rocks of upper Permian age. Gas has been found at five levels in the Herington, Krider, Winfield, Fort Riley, and Florence limestones. The productivity of wells ranges from a few million cubic feet to somewhat more than 25 million cubic feet per day. The actual production of each well is determined by a formula set up by the Kansas State Corporation Commission.*

*See State Geological Survey of Kansas Bulletin 48, p. 81, 1943.

During 1946, 286 new gas wells were completed in the Hugoton field. This is a considerable increase over last year and by far the largest number ever completed in any one year. The total number of wells in the field is now nearly 900. The greatest number of new wells (94) was drilled in Grant County. Stevens County ranks second with 74. In Stanton County 40 new gas wells were drilled; in Kearny County 28 gas wells and 3 dry holes were drilled. Haskell County is credited with 24 gas wells and one dry hole in 1946. Along the western side of the field 11 new gas wells were completed in Morton County. Nine gas wells and one oil well were drilled during 1946 in Finney County. In Seward County only 5 new wells were added. Hamilton was added to the list of producing counties during 1946. The first well was drilled on the Zook ranch in the Cen. sec. 12, T. 26 S., R. 39 W., by the Stanolind Oil and Gas Company. After using 17,500 gallons of acid this well tested 3,498 thousand cubic feet of gas per day.

To the end of 1945 the Hugoton field had produced 527,855,368 thousand cubic feet of gas. During 1943 the production was 63,354,000 thousand cubic feet, during 1944 it was 83,008,000 thousand cubic feet, and during 1945 it was 80,705,000 thousand cubic feet. The production of gas during 1946, according to the State Corporation Commission, was 106,872,109 thousand cubic feet, making a cumulative total to the end of 1946 of 634,727,477 thousand cubic feet.

In January 1947, 744 wells had connections with pipelines, the others still lacking these facilities. These wells had an assigned total of 431,219 acres and a calculated deliverability of 1,401 million cubic feet per day. The net allowable production from all wells as determined by the Commission was 12,232 million cubic feet for the month of December 1946, and for the month of January 1947 it was 12,224 million cubic feet.

A very large part of the total number of gas wells completed in the Hugoton field during 1946 were drilled by the Stanolind Oil and Gas Company. Their wells are concentrated along the west and north sides of the field. All the new wells in Morton and Stanton Counties were drilled by this company. The outlying wells in Hamilton County as well as those in Kearny and Finney Counties were drilled by the same operator. Figure 7 shows that the drilling during 1946 in Stanton County resulted in a closely clustered group of wells in southeastern Stanton and north-

eastern Morton Counties. All this drilling was in anticipation of the projected building of a synthol plant for the manufacture of gasoline and other products from the gas. Experimental work in the Stanolind laboratories suggests that the well-known Fischer-Tropsch process which was used by German scientists to convert coal into motor fuel, can also be used to convert natural gas into motor fuel. It is expected that the new plant will be able to produce about 6,000 barrels of gasoline daily by using 100 million cubic feet of gas. In the process of conversion it is also expected that 1,000 barrels of distillate fuel will be produced each day.

During 1946 the State Corporation Commission granted special exemption to the Quinque Oil and Gas Company from the rules ordinarily applied to wells in the Hugoton field. These wells are 6 miles away from other wells in the field and supply the City of Liberal with fuel.

In recent years there has been growing opposition to the export of gas from the rich Hugoton area to distant points. During 1946 the Wichita Chamber of Commerce, after hearing testimony, concluded that the available gas would last possibly 110 years at the present rate of use. During 1946 the total gas produced in Kansas was approximately 143 billion cubic feet. Consumption of gas within the State amounted to 150 billion cubic feet which necessitated a very substantial importation. Of this total 30 billion was used by domestic consumers; 63 billion by 11,293 industrial users; 18 billion by plants which produce carbon black; and 39 billion by others (or lost in pipelines). A summary is given in Table 10.

It was shown that the cost of transmitting gas by pipeline varies from 0.7 to 2 cents per thousand cubic feet for a distance of

TABLE 10.—*Summary of gas imports, exports, and uses in Kansas*

	billion cubic feet of gas
Gas produced in Kansas	143
Imported	94
Total	237
Used in Kansas	
Domestic	30
Industrial	63
Carbon black	18
Miscellaneous and losses	39
Exported	87
Total	237

100 miles. It was also pointed out that gas does not compete with coal at present prices, for coal which costs $7.75 a ton is equal in thermal units to $3.64 worth of gas at 14 cents per thousand cubic feet. When gas is transmitted to the coal-producing East the cost of transmission more than equalizes the difference.

In Kansas adequate amounts of gas for domestic users is assured, for large industrial users are required to maintain reserve supplies for extremely cold weather. At the present time the price of gas in the Hugoton field is 7 cents per thousand cubic feet as compared to 6 cents in the Skinner North pool and 8 cents in the Medicine Lodge pool, both of Barber County.

For details regarding the wells drilled in the various counties included in the area of the Hugoton field, the reader is referred to the chapters on Grant, Hamilton, Haskell, Kearny, Morton, Seward, Stanton, Stevens, and Finney Counties.

It should be noted that all 1946 completions, whether oil or gas wells, or dry holes, shown in Figure 7 are underscored with a bar. This same convention was used in the 1945 report to indicate wells completed during that year.

Graham County

Activity in Graham County was subdued during 1946. Of the 24 tests drilled, 14 are oil wells and 10 are dry holes. The seven wildcat tests were mostly drilled in the northwestern part of the county (Fig. 8). Six of the dry holes were rank wildcats inasmuch as they were drilled 10 miles or more from present producing areas. The one exception is the test drilled by the Pal-

Table 11.—*Oil pools of Graham County*

Pool and location of discovery well	Discovery year	Area, acres	1946 production bbls.	Cumulative production to end of 1946 bbls.	Producing wells	Producing zone	Depth to producing zone, feet
Alda 15-7-22W	1944	40	8,020	17,180	1	K.C.-Lans.	3,518
Faulkner 27-10-22W	1945	640	40,765	60,425	6	K.C.-Lans.	3,629
Gettysburg 7-8-23W	1941	40	3,760	24,390	1	K.C.-Lans.	3,725
Luck 13-8-22W	1945	40	4,876	12,610	1	K.C.-Lans.	3,418
Morel 15-9-21W	1938	4,200	1,110,730	4,117,980	2 70	Sooy Arbuckle	3,712 3,718
Penokee 11-8-21W	1940	40	6,455	52,355	1	K.C.-Lans.	3,750

mer Oil Company on the Parker farm in sec. 36, T. 6 S., R. 21 W. This test well is located about 5 miles south of the Ray pool of Phillips County. Data regarding this well and the other wildcat wells are given in the Table 12.

There was considerable activity in the **Morel** pool, where 14 new oil wells were added, most of them on the west or southwest side. One dry hole in the NW cor. sec. 27, T. 9 S., R. 21 W. seems to provide a temporary limit to expansion in that direction. This hole was drilled during 1946 by the Derby Oil Company on the Miller farm.

Additional information on the oil pools of Graham County is given in Table 11. These pools are shown in Figure 8.

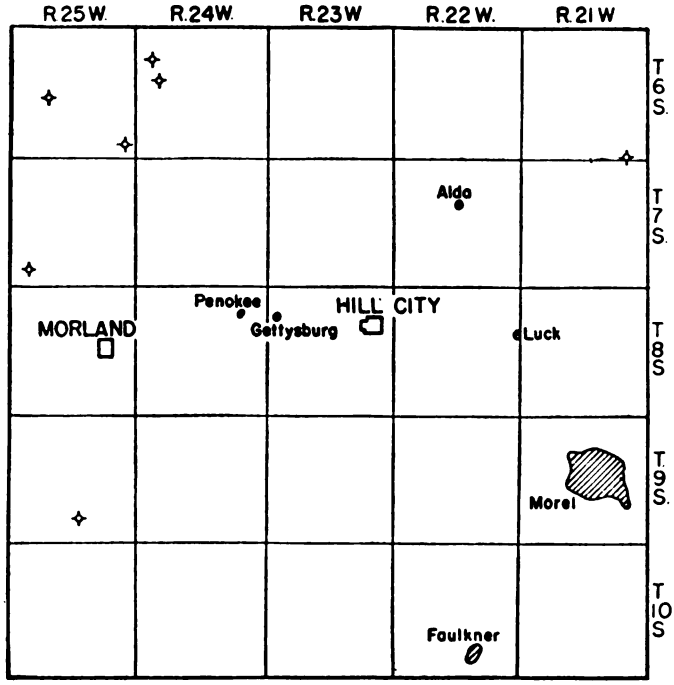

FIG. 8.—Graham County map showing oil pools and dry wildcat wells drilled during 1946.

TABLE 12.—*Dry wildcat tests drilled in Graham County during 1946*

Company and farm	Location	Depth to top of Lansing, feet	Depth to top of Arbuckle, feet	Total depth, feet
Palmer Oil Corp. No. 1 Parker	SW cor. SW¼ 36-6-21W	3,415	3,794	3,795
Potash Co. of America No. 1 Johnson	NW¼ SE¼ NE¼ 7-6-24W	3,652	4,137	4,190
Potash Co. of America No. 1 Logue	SW cor. NW¼ 17-6-24W	3,726	4,205	4,255
Continental No. 1 Jackson	NE cor. NE¼ 20-6-25W	3,692	not reached	4,214
Potash Co. of America No. 1 Waggoner	SW cor. NE¼ 36-6-25W	3,697	4,234	4,287
Continental No. 1 Harris	NE¼ SE¼ NW¼ 31-7-25W	3,742	not reached	3,974
Cities Service No. 1 Rome	SE¼ SW¼ SW¼ 27-9-25W	3,760	4,495	4,600

GRANT COUNTY

All of the 94 wells drilled in Grant County during 1946 were successful in finding gas. The largest well was drilled by the Stanolind Oil and Gas Company on the Buermacki ranch in the Cen. sec. 20, T. 29 S., R. 38 W. to a total depth of 2,585 feet. The initial production of this well was nearly 32 million cubic feet of gas per day. Most of the other wells in the county average about 14 million cubic feet per day. This county is considered part of the Hugoton gas field, and the wells drilled in Grant County are shown in Figure 7. Information concerning gas production in the Hugoton field is given under Finney County.

HAMILTON COUNTY

The first successful well in Hamilton County was completed during 1946. It was drilled by the Stanolind Oil and Gas Company on the Zook ranch in the Cen. sec. 12, T. 26 S., R. 39 W. This test, at an altitude of 3,299 feet, found gas between 2,475 and 2,621 feet as well as between 2,646 and 2,671 feet. Acid was applied to both zones, 7,500 gallons in the lower one and 10,000 gallons in the upper one, after which the rated capacity of the well was 3,498 thousand cubic feet per day.

Another test drilled during 1946 by the Stanolind Oil and Gas Company on the McDonald ranch in sec. 14, T. 25 S., R. 39 W. was a dry hole. The western boundary of the Hugoton gas field evidently passes between these two tests. A second dry hole was drilled by the same company in the Cen. sec. 23, T. 26 S., R. 40 W. on the Lahmeyer ranch.

This county is considered a part of the Hugoton gas field. The gas well and two dry holes drilled in Hamilton County are shown in Figure 7, and information concerning gas production in the Hugoton field is given under Finney County.

Harvey County

Five test holes were drilled in Harvey County during 1946. One of these is the No. 1 well on the Meetz farm drilled by Palensky in the SE¼ SW¼ SE¼ sec. 33, T. 22 S., R. 2 E. This test, at an altitude of 1,471 feet, found the Kansas City limestones at 2,225 feet. About 250 feet lower down a good show of oil was found. It was tested with 500 gallons of acid, but proved to be unimportant. The test was abandoned at 2,505 feet.

A successful test was the No. 1 Brandenberger well, drilled by the Stanolind Oil and Gas Company in the SW¼ NE¼ NW¼ sec. 12, T. 24 S., R. 3 W. This test found the Viola limestone at 3,873 feet. A drill stem test revealed the presence of oil and water between 3,872 and 3,890 feet. The test was then drilled deeper, finding the Simpson at 3,898 feet and the Arbuckle dolomite at 3,984 feet. Another drill stem test between 3,893 and 3,930 feet revealed only water. The test was then plugged back to the Viola limestone, and the casing was perforated between 3,876 and 3,881 feet. Oil and water came into the hole. Later a test showed the

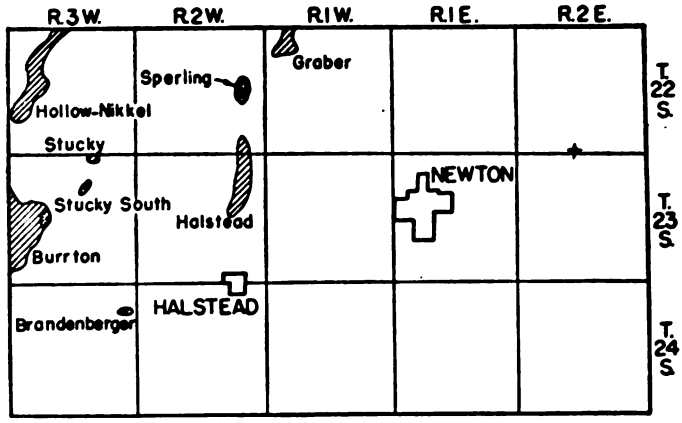

Fig. 9.—Harvey County map showing oil and gas pools and dry wildcat wells drilled during 1946. (Gas, dots; oil, diagonal lines.)

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

Pool and location of discovery well	Discovery year	Area, acres	1946 production	Cumulative production to end of 1946	Producing wells	Producing zone	Depth to producing zone, feet
			barrels				
Brandenberger 12-24-3W	1946		none	none	1	Viola	3,875-3,879
Burrton		see Reno County					
Graber		see McPherson County					
Halstead 36-22-2W	1929	1,500	71,698	1,666,020	23	"Chat"	3,005
Hollow-Nikkel 30-22-3W	1931	2,000	181,140	20,037,430	49	"Chat" Hunton Simpson	3,195 3,507 3,500
Sperling 23-22-2W	1935	500	18,690	515,845	5	Hunton	3,279
Stucky 3-23-3W	1942	40	150	1,217	1	"Chat"	3,224
			thousand cubic feet				
Burrton (gas)		see Reno County					
Sperling (gas) 23-22-2W	1935	600	36,854	6,290,908	2	"Chat"	2,955
Stucky South 10-23-3W	1944	200			1	Mississippian	3,269

well capable of making about 25 barrels of oil and 125 barrels of water per day. This new pool has been named **Brandenberger.**

Another test was drilled by J. E. Palensky as the No. 2 Meetz in the Cen. SW¼ SE¼ sec. 33, T. 22 S., R. 2 E. This test, at an altitude of 1,471 feet, found the Kansas City limestones at 2,225 feet. A good show of oil found about 250 feet lower down, between 2,484 and 2,486 feet, was tested with 500 gallons of acid, after which mostly water came into the hole. The test was, therefore, abandoned at a total depth of 2,495 feet.

Two additional wells were drilled in the county during 1946 by the Harbar Drilling Company. The No. 1 Ruth well in the SW¼ sec. 14, T. 23 S., R. 2 W. was dry and abandoned at 2,971 feet. The No. 1 Masters well in the NW¼ of the same section is given an initial production of 25 barrels of oil per day.

Further information on the oil and gas pools of Harvey County will be found in Table 13. These pools are shown in Figure 9.

HASKELL COUNTY

At the close of 1945, 83 gas wells had been completed in the Haskell County part of the Hugoton gas field. During 1946 an

additional 24 gas wells were drilled. Five of these were drilled in western Haskell County by the Stanolind Oil and Gas Company; four were drilled by Stanolind and Helmerich and Payne; four were drilled by Helmerich and Payne alone. Cities Service Oil Company drilled eight of the new gas wells; these are fairly well scattered. One gas well was drilled by the Texas Company, one by the Derby Oil Company, and two by the Trees Oil Company. One dry hole was drilled during the year. It is located on the Schuette ranch in the Cen. sec. 10, T. 28 S., R. 32 W., and seems to set a limit to the gas field on the east side.

These gas wells and dry holes are shown in Figure 7. Information concerning production in the Hugoton field is given under Finney County.

Kearny County

At the present time there is only one oil pool, the **Patterson,** in Kearny County. This pool, discovered by the Stanolind Oil and Gas Company in 1941, is shown in Figure 7. It produces oil from a sandstone near the base of the Pennsylvanian System. The three wells in the pool produced approximately 36,365 barrels of oil during 1946, making the cumulative production to the end of the year 184,220 barrels.

Kearny County also produces gas. The gas wells are a part of the large Hugoton field of southwestern Kansas. More complete information concerning this field will be found under Finney County. During 1946 an intensive drilling campaign carried on in the Hugoton field resulted in 31 additional test wells in Kearny County. All but three of these tests succeeded in finding new supplies of gas. The three exceptions are located in T. 21 S. approximately 10 miles west of the Nunn pool and about 7 miles northeast of the Patterson pool. One of the dry holes was drilled by the Skelly Oil Company on the Leighton ranch in sec. 11, T. 21 S., R. 37 W. It drilled through the usually productive layers of the Hugoton field without finding gas. Four miles south of this test the Stanolind Oil and Gas Company drilled a stratigraphic test on the Meeker ranch in sec. 36, T. 21 S., R. 37 W. This well also tested the usual gas zones without favorable results. Six miles farther east Stanolind drilled a stratigraphic test on the Kester ranch in sec. 25, T. 21 S., R. 36 W., where the usual gas zones of the field

were found to be barren. Thus it seems that the northern limits of the famous Hugoton field have been definitely established. These dry holes and the new gas wells are shown in Figure 7. This fact is further corroborated by the three outlying wells drilled a few miles south of the dry holes described. One of these was drilled in the Patterson pool by the Stanolind Oil and Gas Company on the Kenney lease in sec. 25, T. 22 S., R. 38 W. This well is capable of producing 212 thousand cubic feet of gas per day. Nine miles to the southeast, Stanolind drilled a test on the Stallman lease in sec. 24, T. 23 S., R. 37 W. which is capable of producing 128 thousand cubic feet of gas per day. Considering the fact that large amounts of acid were used in both tests, the small gas flow suggests that they are edge wells. Another edge well, actually a 1945 completion, was drilled by Smith on the Smalley ranch several miles west of Sutton in sec. 3, T. 25 S., R. 38 W. This test found the Fort Riley limestone at 2,535 feet, the Lansing limestone at 3,720 feet, and the top of the Mississippian strata at 4,600 feet. The total depth was 4,640 feet. It was plugged back to the gas zones, and, after the application of acid, was capable of producing about one million cubic feet of gas per day. Most of the other gas wells completed in Kearny County during 1946 were drilled in the townships just south of Lakin and just south of Deerfield. They are shown in Figure 7.

Kingman County

Only one Kingman County pool, the **Cunningham** oil and gas pool, was producing in 1946. This pool, found by the Skelly Oil Company in 1931, subsequently was greatly enlarged, and was combined with the Cairo pool of Pratt County in 1944. One of the remarkable features of this pool is the number of producing zones. In various wells gas was found in the Herington, Fort Riley, Kinney, Neva, Cottonwood, Glenrock, and Americus limestones of the Permian System. The amount of gas found in various wells ranges from one quarter million to 6 million cubic feet. Similar amounts of gas were found in the Wabaunsee and the Shawnee groups of the Pennsylvanian System, and much larger amounts were found in the Viola, Simpson, and Arbuckle rocks of Ordovician age. Most of the gas at the present time comes from the Viola limestone. The oil comes from three porous oölitic limestones in the Kansas City-Lansing rocks of the Pennsylvanian System.

During 1946, 438,458 barrels of oil were produced in the Cunningham pool, making a cumulative production of 5,914,938 barrels. The pool includes 1,400 acres, and production in the 122 wells is from the Kansas City-Lansing zone at 3,390 feet. Gas production in this pool is given under Pratt County.

During 1946 a second oil pool, called the **Pat Creek,** was found in Kingman County. It was discovered by the Plains Exploration Company on the Swander farm in the SW¼ SE¼ SW¼ sec. 20, T. 28 S., R. 9 W. approximately 10 miles southeast of the Cunningham pool. The test was drilled to a total depth of 4,565 feet into the Arbuckle dolomite where water came into the hole. It was then plugged back to test a good show of oil in the Viola limestone. After the casing was perforated from 4,407 to 4,411 feet, gas came into the hole and considerable oil followed later. After the bailer was run into the hole the well started flowing and, like an old-style gusher, sent fluid 75 feet into the air. These characteristics make it seem that a pool of considerable importance has been found here. There was no oil produced in 1946, however, because the pool was discovered late in December.

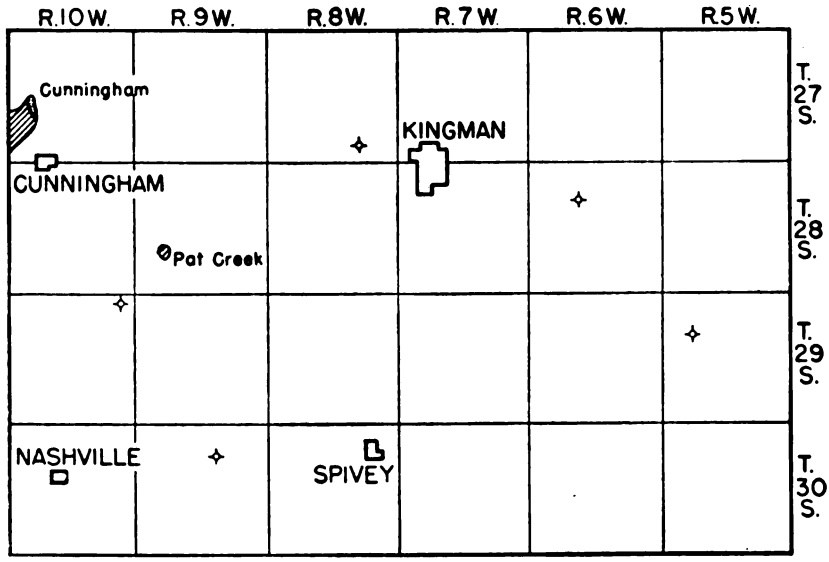

FIG. 10.—Kingman County map showing oil and gas pools and dry wildcat wells drilled during 1946. (Gas, dots; oil, diagonal lines.)

The oil and gas pools and dry wildcat wells drilled in Kingman County during 1946 are shown in Figure 10.

Exploratory wells.—During 1946 only five exploratory tests were drilled in Kingman County. One was drilled by A. G. Hill on the Wooldridge farm in sec. 35, T. 27 S., R. 8 W. In this test the Lansing was found at 3,312 feet, the Mississippian at 4,015 feet, the Kinderhookian shale at 4,144 feet, the Viola at 4,327 feet, the Simpson at 4,371 feet, and the Arbuckle dolomite at 4,466 feet. The test was abandoned at a total depth of 4,531 feet. In a second test well, drilled by the Stickle Drilling Company on the Vandeventor farm in sec. 9, T. 28 S., R. 6 W., the Lansing was found at 3,044 feet, the top of the Mississippian at 3,848 feet, the Viola at 4,232 feet, and the Arbuckle dolomite at 4,392 feet. The well was abandoned at a total depth of 4,432 feet without finding shows of oil or gas.

The Cities Service Oil Company drilled two wildcat tests in Kingman County. One of these was on the Kinkaid farm in sec. 8, T. 29 S., R. 5 W. In it the Lansing was encountered at 3,100 feet, the Mississippian at 4,002 feet, and the Arbuckle dolomite at 4,492 feet. The test was abandoned as a dry hole at 4,525 feet. In the second test, drilled on the Eck farm in sec. 1, T. 29 S., R. 10 W., the Lansing was found at 3,667 feet, the Mississippian at 4,249 feet, and the Arbuckle dolomite at 4,694 feet. About 10 miles farther southeast, the Deep Rock Oil Corporation drilled a test on the Whitmer farm in sec. 10, T. 30 S., R. 9 W. which encountered the Lansing limestone at 3,600 feet, the Mississippian at 4,295 feet, the Viola at 4,608 feet, and the Arbuckle dolomite at 4,786 feet (3,097 feet below sea level).

Kiowa County

In the report for 1944 it was stated that Kiowa County had become one of the producing counties of western Kansas. The discovery of that year was the **Alford** gas pool (Fig. 11) found by the Lion Oil Refining Company. Because of lack of marketing facilities, no gas has been produced from this pool to date.

One exploratory test well was drilled in Kiowa County during 1946. It is the Phillips No. 1 Nora test in sec. 26, T. 28 S., R. 17 W. about half way between Greensburg and Wellsford. At an altitude of 2,181 feet, this test found the Lansing limestone at 4,233

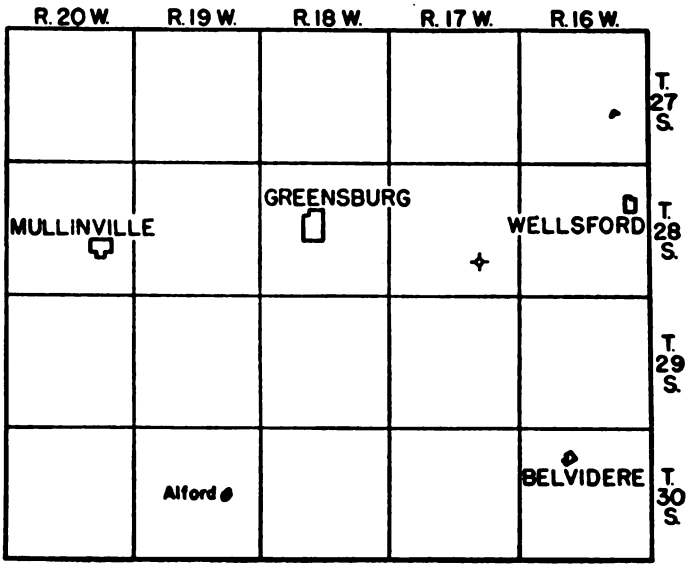

FIG. 11.—Kiowa County map showing the Alford gas pool and the dry wildcat well drilled during 1946.

feet, the Viola at 4,905 feet, the Simpson at 5,010 feet, and the Arbuckle dolomite at 5,100 feet. The hole was abandoned at 5,202 feet without any shows of either oil or gas. A study of the well cuttings reveals that the topmost rocks of Mississippian age at this location are a part of the Osagian Series and consist mainly of chert with a little limestone. The Misener sandstone, with its peculiar opaline chert, fills the interval between 4,855 and 4,905 feet. The Viola has residual chert in the top part from 4,905 to 4,920 feet, but lower down consists of the usual dolomite with chert. The basal coarsely crystalline limestone of the Viola is present between 5,000 and 5,010 feet. The first 50 feet of the Simpson consists of sandy limestone layers alternating with sandy dolomite layers, and the remaining 40 feet (down to 5,100 feet) is made up of green shale with very little sandstone. The Arbuckle dolomite was encountered between 5,100 and 5,208 feet.

McPherson County

Activity in McPherson County (Fig. 12) during 1946 was centered mostly in the northeastern townships. Only sporadic drilling took place elsewhere. Among the 83 tests completed in 1946,

56 were new oil wells and 3 were new gas wells. Of the 24 dry holes 4 were wildcat tests.

Two new pools were discovered during the year. One of these resulted from the reopening of a previously abandoned well completed as an oil well which was capable of producing 25 barrels per day. It is located on the Sinclair farm and was deepened by the J. M. Huber Corporation. The producing zone is the Mississippian limestone which yielded 7 barrels of oil per hour with 2 million cubic feet of gas after being acidized. The discovery well is located in the SW cor. SW¼ sec. 25, T. 19 S., R. 1 W. The pool has been named **Bitikofer North.** The second pool is located 1 mile north of this on the Leffler farm. Here the J. M. Huber Cor-

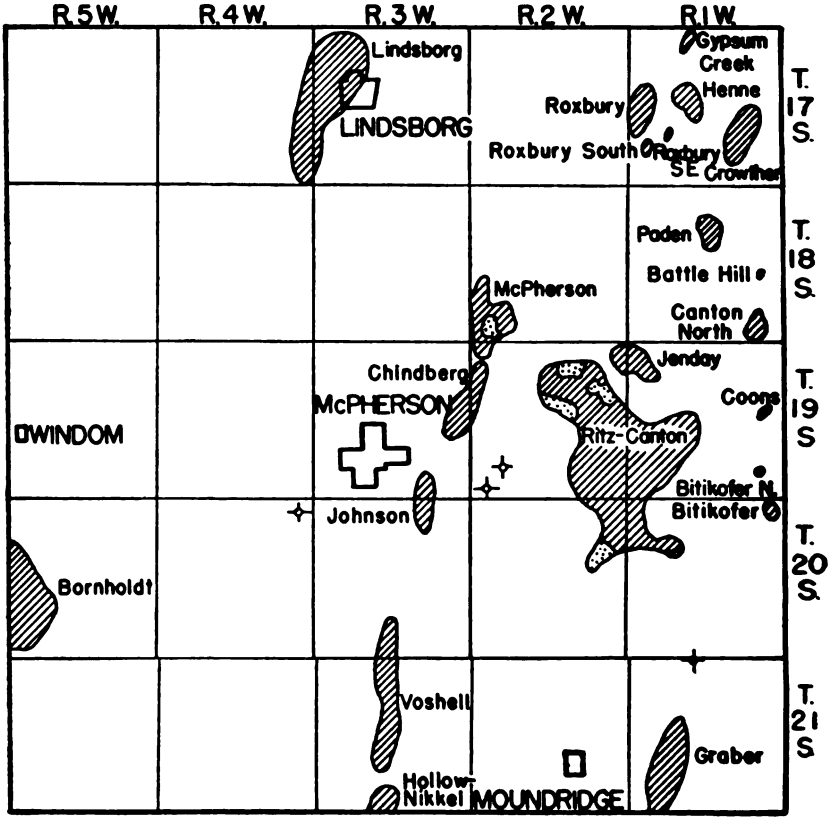

FIG. 12.—McPherson County map showing oil and gas pools and dry wildcat wells drilled during 1946. (Gas, dots; oil, diagonal lines.)

poration drilled a test in the SW cor. SW¼ sec. 24 and found oil in the Mississippian limestone between 2,880 and 2,945 feet. The Nomenclature Committee named this new pool **Canton East.** This pool was subsequently abandoned as the production of

TABLE 14.—*Oil and gas pools of McPherson County*

Pool and location of discovery well	Discovery year	Area, acres	1946 production	Cumulative production to end of 1946	Producing wells	Producing zone	Depth to producing zone, feet
			barrels				
Battle Hill 24-18-1W	1945	40	14,170	18,365	1	"Chat"	2,825
Bitikofer 1-20-1W	1940	180	26,773	154,160	5	"Chat"	2,885
Bitikofer North 25-19-1W	1946	40	none	none	1	"Mississippi lime"	2,892
Bornholdt 30-20-5W	1937	4,000	1,060,185	10,112,615	142	"Chat"	3,292
Canton North 26-18-1W	1936	400	78,265	300,400	11	"Chat"	2,803
Chindberg 18-19-2W	1929	700	51,490	1,602,770	5 22	K.C.-Lans. "Chat"	2,363 3,007
Crowther 26-17-1W	1942	1,500	409,900	1,137,820	44	"Chat"	2,778
Graber 32-21-1W	1934	2,800	245,855	8,417,640	2 121	Misener Hunton	3,323 3,274
Gypsum Creek 4-17-1W	1944	240	20,445	24,200	6	"Chat"	2,619
Henne 21-17-1W	1940	900	151,580	1,030,940	25	"Chat"	2,658
Hollow-Nikkel	see Harvey County						
Jenday 1-19-2W	1944	1,500	232,347	438,829	33	"Chat"	2,984
Johnson 25-19-3W	1932	1,000	50,785	3,037,395	12	"Chat"	3,032
Lindsborg 8-17-3W	1938	4,800	695,060	3,566,965	110	Viola Simpson	3,352 3,360
McPherson 29-18-2W	1926	2,000	48,765	1,151,190	25	"Chat" Viola	2,967 3,140
Paden 10-18-1W	1943	1,000	167,375	487,795	23	"Chat" Viola	2,752 3,153
Ritz-Canton 1-20-2W	1929	13,000	730,030	39,334,240	205	"Chat" Viola	2,935 3,412
Roxbury 18-17-1W	1938	1,500	240,680	2,276,400	37	"Chat"	2,684
Roxbury South 30-17-1W	1942	320	26,980	193,355	4	"Chat"	2,658
Roxbury Southeast 20-17-1W	1943	40	4,240	13,510	1	"Chat"	2,665
Voshell 9-21-3W	1929	3,500	514,415	26,426,515	73	"Chat" Viola	3,095 3,301
			thousand cubic feet				
Coons 13-19-1W	1940	incl. with Ritz-Canton			1	"Chat"	2,897
McPherson (gas) 29-18-2W	1926	incl. with Ritz-Canton					
Ritz-Canton (gas) 12-20-2W	1929	1,500	717,476		19	"Chat"	2,935

the discovery well failed to hold up. The most active area during 1946 was T. 17 S., R. 1 W. where 21 new oil wells were completed in the **Crowther** pool, one in the **Roxbury** pool, and three in the **Gypsum Creek** pool. Farther west in the **Lindsborg** pool seven new oil wells were completed. In T. 18 S., R. 1 W. the **Paden** pool received the most attention. Four of the nine new oil wells produce from the Viola formation, a new producing zone. The Anderson-Prichard Oil Corporation discovered oil in the Viola when the No. 5 Schultz well in the NE¼ NW¼ NW¼ sec. 15, T. 18 S., R. 1 W. was deepened to 3,153 feet. The producing zone is about 3 feet thick. Later on the same operator drilled three more wells into this new pay zone with good success. The last one of these wells is rated as capable of producing 500 barrels of oil per day, and has 6 feet of pay zone. In the **Canton North** pool three new oil wells were added.

The **Jenday** pool, discovered in 1944, was enlarged by the addition of one new oil well and one gas well. This pool is now separated from the large **Ritz-Canton** area by a very small dry zone. Five small producing wells were drilled on the fringes of the Ritz-Canton pool. In the old **Chindberg** pool one small oil well was completed. One new oil well was added in the **Bitikofer** area. In the far western part of the county, two new oil wells were completed in the **Bornholdt** pool.

Production figures for the pools in McPherson County are given in Table 14; these pools are shown in Figure 12.

Exploratory wells.—A list of the dry wildcat tests drilled in McPherson County during 1946 is given in Table 15. They are also shown in Figure 12.

TABLE 15.—*Dry wildcat tests drilled in McPherson County during 1946*

Company and farm	Location	Depth to top of Lansing, feet	Depth to top of Mississippian, feet	Total depth, feet
Galva Oil No. 2 Borth	SW cor. SW¼ 29-19-2W	2,353	3,000	3,023
Fawcett et al. No. 1 McBride	NW¼ SW¼ SE¼ 31-19-2W	2,372	3,029	3,040
Natl. Coop Ref. No. 1 Moors	SE cor. NW¼ 1-20-4W	2,506	3,163 3,843*	3,891
Ingling & Johnson No. 1 Simpson	NW cor. NE¼ 4-21-1W	2,338	2,943	3,012

* (Arbuckle)

Meade County

Meade County became one of the producing counties of western Kansans during 1945 when the first gas well of the **Adams Ranch** pool was completed. The eventual official capacity of the discovery well was 80 million cubic feet of gas per day from Mississippian limestones between depths of approximately 5,850 and 5,890 feet. When the well was first completed there was a small amount of distillate present. Six months later testing revealed that the well was capable of producing 60 barrels of distillate per day with a gravity of 57° A.P.I. The location of the Adams Ranch pool is shown in Figure 13.

During 1946 two test holes were drilled in Seward County in the township west of the producing well. Both of these tests were unsuccessful in finding commercial quantities of oil or gas. In

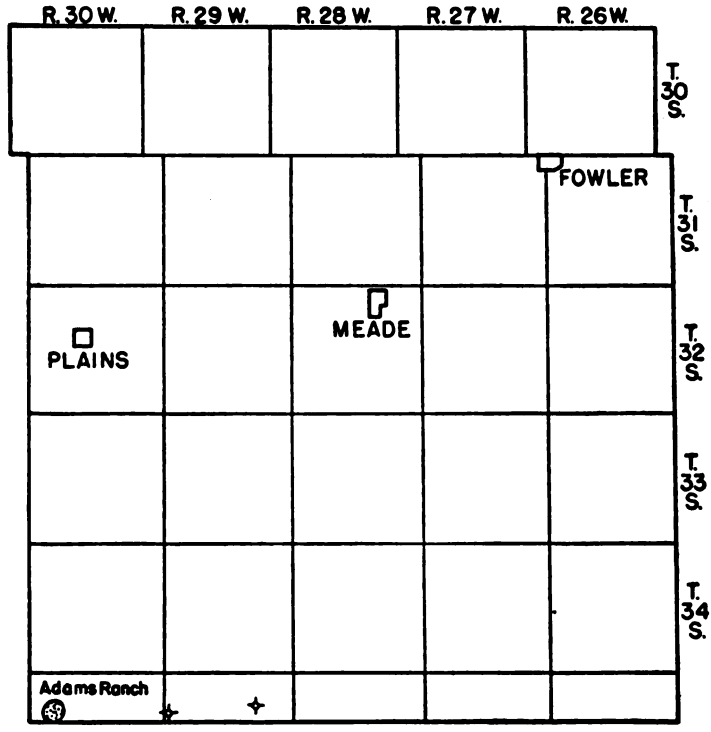

Fig. 13.—Meade County map showing the Adams Ranch gas pool and the dry wildcat wells drilled during 1946.

Meade County, also three deep tests were drilled near the Adams Ranch pool. One of these was the Stanolind Oil and Gas Company test on the H. G. Adams Ranch in sec. 7, T. 35 S., R. 29 W. approximately 6 miles east of the Adams Ranch pool. This test, at an altitude of 2,357 feet, found the Lansing limestone at 4,268 feet and the top of the Mississippian strata at 5,845 feet. Some oil and gas were found in the Mississippian limestones between 6,090 and 6,125 feet. On one test run after acid had been applied, the well pumped 52 barrels of oil and water in 8 hours. The test was abandoned in April at a total depth of 6,657 feet as a noncommercial well.

Four miles east of this hole, another test was drilled by the White Eagle Oil Company on the Raymond Adams Ranch in sec. 11. The cost of drilling this hole was shared by Adams, who contributed $40,000, the Stanolind Oil Company which contributed $15,000 dry hole money, and the White Eagle Oil Company who contributed the rest. This test, at an altitude of 2,310 feet, found the Lansing limestone at 4,305 feet and the top of the Mississippian strata at 5,866 feet. The test was abandoned as a dry hole at a total depth of 6,250 feet on November 15, without having had any important shows of oil or gas.

Another dry hole drilled in sec. 9, T. 35 S., R. 30 W., is less than 2 miles from the Adams Ranch discovery well.

This area will probably get additional deep tests in the next year or two as several large companies have taken blocks of acreage there. In January 1946 Gulf Oil Corporation obtained about 234,000 acres of leases in and near the Hugoton field. One portion of this acreage lies approximately 10 miles north of the Adams Ranch pool and includes 2,200 acres in T. 31 S., R. 28 W.; 1,500 acres in T. 31 S., R. 29 W., 3,000 acres in T. 32 S., R. 28 W.; and 4,100 acres in T. 33 S., R. 29 W.

Morton County

One of the counties producing gas in the Hugoton field is Morton County. During 1946, 11 new wells were added to the previous total of 35 wells; these are shown on the map of the field (Fig. 7). All the wells were drilled by the Stanolind Oil and Gas Company. Five are located in T. 31 S., R. 39 W.; two in the township farther west, and the remaining three in T. 32 S., R. 40 W. These three

were evidently located close to the western limits of the field as they are wells of relatively small capacity.

More detailed information on the gas production in the Hugoton field is given under Finney County.

Ness County

Activity in Ness County during 1946 was very subdued. Of the eight test wells completed, five are new oil wells and three are wildcat dry holes. One of the two new oil wells was added in the **Arnold** pool when the Sohio Oil Company finished the No. 1 Order of the Holy Cross well in sec. 23, T. 16 S., R. 25 W. This well is rated as capable of producing 1,500 barrels of oil per day. The producing zone is the Warsaw dolomite of Mississippian age. A second producer in this pool is the No. 3 Drake well in the SW cor. NW¼ sec. 26, T. 16 S., R. 25 W. This well produces from the

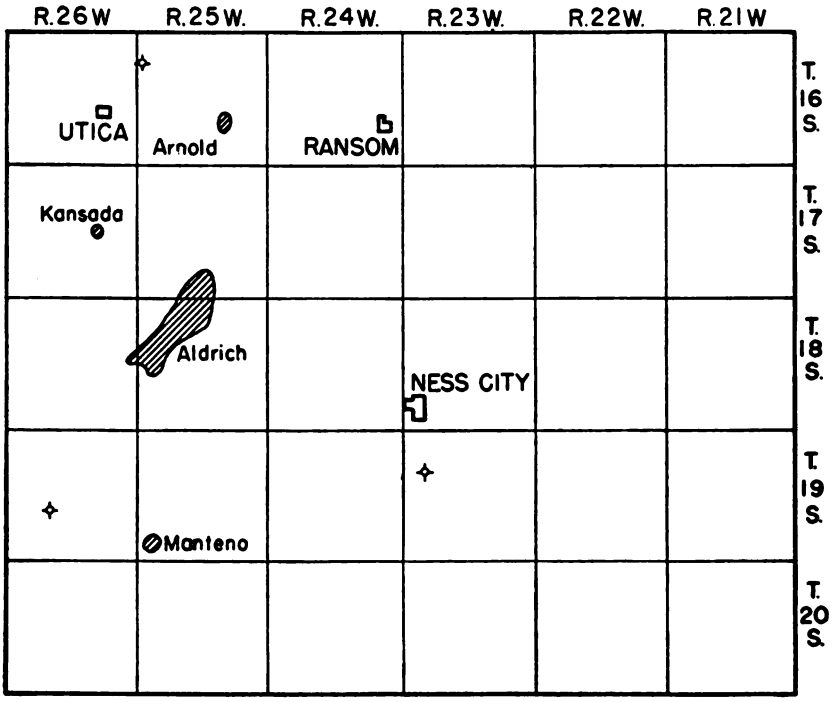

Fig. 14.—Ness County map showing oil pools and dry wildcat wells drilled during 1946.

Fort Scott limestone through perforations between 4,436 and 4,452 feet and has been assigned a daily potential capacity of 225 barrels. The gravity of the oil is 38° A.P.I. Other wells in Kansas which produce from the Fort Scott limestone include several in the southern part of the Aldrich pool of Ness County and one well, a former producer drilled in 1929, in the abandoned Riga pool of Trego County.

In the **Aldrich** pool one new oil well was added when the Bay Petroleum Company completed the No. 1 "A" Everett well in sec. 8, T. 18 S., R. 25 W. This well has a potential capacity of 90 barrels of oil per day with about 10 percent water. The producing zone is the Warsaw dolomite. Bay Petroleum Company also completed two new oil wells in the **Manteno** pool, discovered in 1945. The No. 1 Gantz well in the SE¼ NE¼ NW¼ sec. 31, T. 19 S., R. 25 W. is capable of producing 80 barrels of oil with 30 percent water. The No. 3 Bowman well in the NW¼ SW¼ NE¼ sec. 31 is rated at 120 barrels of oil with no water showing. Both wells produce from the Warsaw dolomite.

The oil pools of Ness County are shown in Figure 14 and information concerning their productivity is given in Table 16.

Exploratory wells.—Three wildcat tests were drilled in Ness County in an attempt to find new oil reserves. One of these was drilled by Jones and Shelburne, 4 miles northwest of the Arnold pool. It is located on the Evel farm in the SW cor. NW¼ sec. 7, T. 16 S., R. 25 W., where the surface altitude is 2,533 feet. This test found the Lansing limestone at 3,869 feet, the Sooy conglomerate at 4,435 feet, and the top of the Mississippian dolomite at 4,495 feet. It was drilled 28 feet into the dolomite without finding oil or gas and was abandoned at a total depth of 4,523 feet. South of Ness City the Mazda Oil Company drilled a test well on the

TABLE 16.—*Oil pools of Ness County*

Pool and location of discovery well	Discovery year	Area, acres	1946 production bbls.	Cumulative production to end of 1946 bbls.	Producing wells	Producing zone	Depth to producing zone, feet
Aldrich 7-18-25W	1929	6,000	190,980	1,253,555	19	Warsaw	4,428
Arnold 22-16-25W	1943	200	56,505	87,445	1	Ft. Scott	4,436
					4	Warsaw	4,528
Kansada 23-17-26W	1944	160	2,065	6,845	2	Warsaw	4,450
Manteno 31-19-25W	1945	160	14,125	17,875	3	Warsaw	4,549

Bowser farm in sec. 7, T. 19 S., R. 23 W. to a total depth of 4,770 feet. Here the Lansing limestone was found at 3,700 feet, the Mississippian rocks at 4,294 feet, the Viola at 4,554 feet, the Simpson at 4,702 feet, and the Arbuckle dolomite at 4,715 feet (2,492 feet below sea level). The Aladdin Petroleum Company drilled a test well about 6 miles west of the Manteno pool on the Gano farm in the SE cor. sec. 20, T. 19 S., R. 26 W. where the surface altitude is 2,627 feet. This test found the Lansing limestone at 3,955 feet, the Mississippian at 4,617 feet, the Viola at 4,966 feet, and the Arbuckle dolomite at 5,082 feet. These wells are shown in Figure 14.

Norton County

Very little drilling was done in Norton County (Fig. 15) during 1946. Only 12 test wells were drilled, of which three are oil

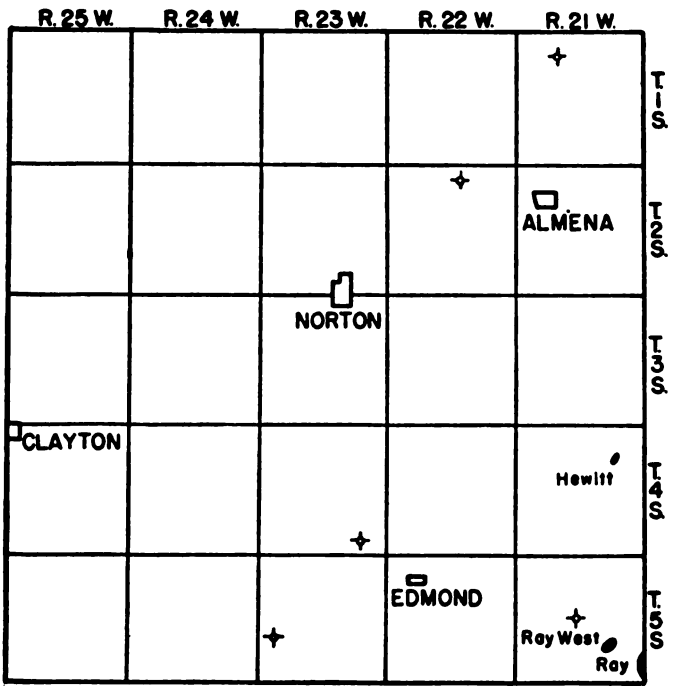

Fig. 15.—Norton County map showing oil pools and dry wildcat wells drilled during 1946.

TABLE 17.—*Oil pools of Norton County*

Pool and location of discovery well	Discovery year	Area, acres	1946 production bbls.	Cumulative production to end of 1946 bbls.	Producing wells	Producing zone	Depth to producing zone, feet
Hewitt 11-4-21W	1941	40	1,894	32,050	1	K.C.-Lans.	3,404
Ray			see Phillips County				
Ray West 26-5-21W	1945	80	17,260	23,180	2	Arbuckle	3,650

wells and 9 dry holes. The data on the wildcat wells are given in Table 18 and their locations are shown in Figure 15. All three of the new oil wells were drilled by the Cities Service Oil Company and are located in the western part of the **Ray** pool. One on the Finnigan farm is located in sec. 25, T. 5 S., R. 21 W. and the other two are located on the Veeh farm in sec. 36. All three obtain production from the Reagan or "Basal" sandstone which is here found at a depth of approximately 3,650 feet. All three wells are making considerable water with the oil. Of the nine dry wells, four are located within 2 miles of known pools, and therefore are not shown on the county map.

Production information for the oil pools of Norton County is given in Table 17.

TABLE 18.—*Dry wildcat wells drilled in Norton County during 1946*

Company and farm	Location	Depth to top of Lansing, feet	Depth to top of Arbuckle, feet	Total depth, feet
Derby No. 1 Poland	NE cor. NE¼ 8-1-21W	3,411	3,723	3,775
Sohio No. 1 Reeves	NE cor. SW¼ 3-2-22W	3,424	3,702	3,755
Cities Service No. 1 Johnson "E"	NE¼ SE¼ NE¼ 35-4-23W	3,397	absent	3,765
Helmerich & Payne No. 1 Kitzke	SE cor. SE¼ 16-5-21W	3,394	absent	3,713
Potash Co. of America No. 1 Bennett	SW¼ SE¼ SE¼ 19-5-23W	3,397	3,796	3,846

PAWNEE COUNTY

There was considerable activity in Pawnee County during 1946. This was stimulated by the good recovery of oil in the **Ryan** pool and also by the discovery of the Rutherford pool. A total of 29 tests were drilled. Of these 12 were new oil wells, three were new gas wells, and the rest were dry holes. Six of the dry holes were drilled far enough from present production to place them in

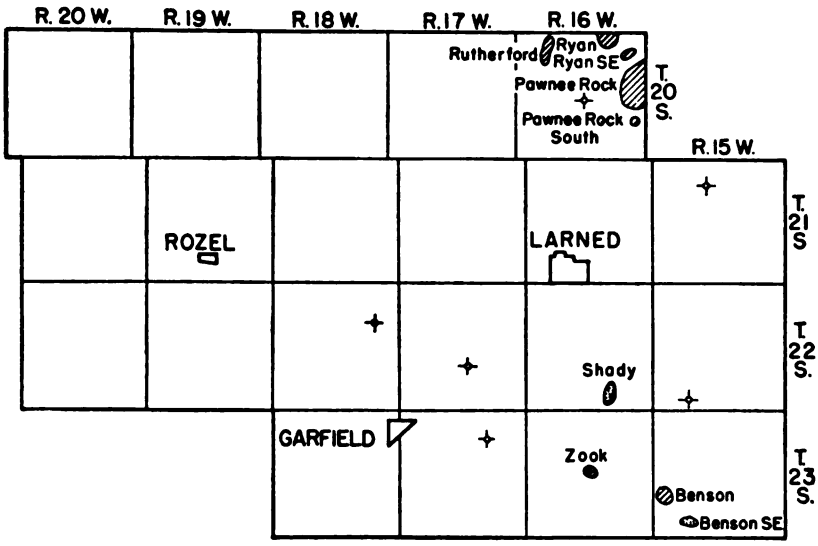

FIG. 16.—Pawnee County map showing oil and gas pools and dry wildcat wells drilled during 1946. (Gas, dots; oil, diagonal lines.)

the classification of wildcats. One was an extension wildcat, five were ordinary wildcats, and one was a rank wildcat. They are listed in Table 20 and are shown in Figure 16.

The new oil pool discovered during the year was the **Rutherford**, located a few miles west of the Pawnee Rock pool. The first well was drilled by Brack and Huber on the Rutherford farm in the SW¼ NE¼ NW¼ sec. 8, T. 20 S., R. 16 W. Oil was found in the Arbuckle dolomite between 3,815 and 3,823 feet. The initial capacity of the discovery well was 125 barrels of oil per day. Other tests were started immediately and before the end of the year there were five oil wells and four dry holes in the pool. The dry holes limit the pool on the west and south.

Another new pool for Pawnee County was discovered during the last days of the year when the Cities Service Company completed the first test well on the Becker farm in the NE¼ SE¼ NW¼ sec. 32, T. 23 S., R. 15 W. In this test a very good show of oil was found in the Lansing limestone; however, the test was deepened to the Arbuckle dolomite where a large flow of gas was encountered. Several tests were made after perforating the pipe. The final perforations were made between depths of 4,048 and 4,138 feet where a flow of approximately 24 million cubic feet of

TABLE 19.—*Oil and gas pools of Pawnee County*

Pool and location of discovery well	Discovery year	Area, acres	1946 production	Cumulative production to end of 1946	Producing wells	Producing zone	Depth to producing zone, feet
			barrels				
Benson 30-23-15W	1945	120	22,905	27,500	3	K.C.-Lans.	3,853
Pawnee Rock 13-20-16W	1936	2,400	107,310	1,508,385	25	Arbuckle	3,825
Pawnee Rock South 25-20-16W	1944	40	3,786	15,260	1	Arbuckle	3,819
Rutherford 8-20-16W	1946	200	8,455	8,455	5	Arbuckle	3,815
Ryan		see Rush County					
Ryan Southeast 12-20-16W	1945	250	45,855	46,660	6	Arbuckle	3,688
Zook 16-23-16W	1942	80	none	7,016	2	Arbuckle	4,066
			thousand cubic feet				
Benson Southeast 32-23-15W	1946				1	Arbuckle	4,048
Pawnee Rock (gas) 19 & 20-15 & 16W			56,818				
Ryan (gas) 35-19-16W			incl. with Pawnee Rock				
Shady 32-22-16W	1945	160				Arbuckle	4,063
Zook (gas) 16-23-16W	1941	640	2,129,689	4,762,195	2	Arbuckle	4,066

sour gas was obtained. This amount is the official daily potential capacity of the new well. The pool has been named **Benson Southeast** by the Nomenclature Committee.

In the older pools there was also some activity. Three new oil wells were added to the **Ryan Southeast** pool. One dry hole and one small gas well were completed in the **Pawnee Rock** pool. One new gas well and one dry hole were drilled in the **Shady** pool. In

TABLE 20.—*Dry wildcat tests drilled in Pawnee County during 1946*

Company and farm	Location	Depth to top of Lansing, feet	Depth to top of Arbuckle, feet	Total depth, feet
J. M. Huber No. 1 Smith	NW cor. NW¼ 22-20-16W	3,505	3,825	3,832
Campbell & Kuhn et al. No. 1 Keeley	NE cor. NW¼ 9-21-15W	3,414	3,750	3,781
J. M. Huber No. 1 "A" Barstow	SW cor. NE¼ 32-22-15W	3,569	4,043	4,048
Continental No. 1 McConnell	SW cor. SW¼ 22-22-17W	3,649	4,275	4,324
Continental No. 1 Radinburg	SE cor. SE¼ 11-22-18W	3,624	4,271	4,320
Sohio No. 1 Schnack	SW cor. NW¼ 11-23-17W	3,748	4,367	4,400

the **Benson** pool three new oil wells, none particularly large, were added, and one dry hole drilled.

Information on the production of the pools in Pawnee County and other pertinent data are given in Table 19.

Phillips County

Drilling activity in Phillips County during 1946 was chiefly confined to the areas within and immediately surrounding the two largest oil producing areas. Of the 33 test holes completed, 24 are new oil wells and 9 are dry holes. None of the wells was a rank wildcat, but three ordinary wildcats were drilled. They are located between the Dayton and Logan pools in T. 4 S., R. 19 W. (Fig. 17).

In the **Dayton North** pool four new oil wells were added. These wells average about 60 barrels of oil each. Two dry holes and one

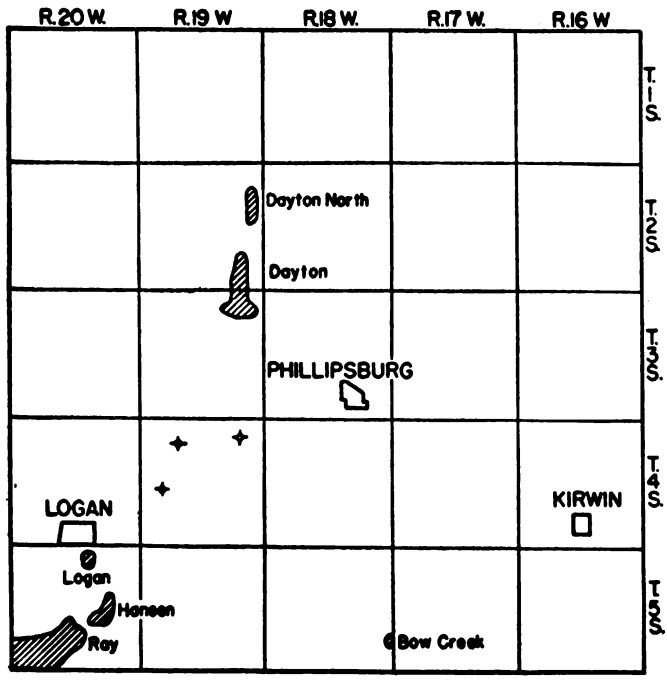

Fig. 17.—Phillips County map showing oil pools and dry wildcat wells drilled during 1946.

salt water disposal well were drilled in this pool. No new drilling was done in the **Dayton** pool.

One of the dry holes south of the Dayton pool was drilled by the Stanolind Oil and Gas Company on the Brenneke farm in sec. 2, T. 4 S., R. 19 W. In this test the Lansing was found at 3,266 feet (1,271 feet below sea level), and the pre-Cambrian quartzite was found at 3,756 feet. The hole was completed at 3,788 feet. A second test near by was drilled by Helmerich and Payne on the Baird farm in sec. 8 of the same township. In this test the Lansing was found at 3,249 feet (1,189 feet below sea level), the Arbuckle at 3,594 feet, the Reagan sandstone at 3,918 feet, and the pre-Cambrian rock at 3,938 feet. The thickness of the Arbuckle dolomite (324 feet) is somewhat surprising. A third test was drilled by Helmerich and Payne on the Kinter farm in sec. 20. Here the Lansing was found at 3,198 feet (1,253 feet below sea level), the Sooy conglomerate at 3,460 feet, the Arbuckle dolomite at 3,492 feet, the Reagan sandstone at 3,791 feet, and the pre-Cambrian rock at 3,805 feet.

In the **Logan** pool, discovered in 1945, one dry hole and three new oil wells were completed. One of the new producers is the discovery well (Tidewater No. 1 Bowman "A") which was plugged back and recompleted as a producer in the Lansing limestone. Oil was encountered between 3,149 and 3,156 feet and also between 3,172 and 3,176 feet. The other two wells found oil in the Arbuckle dolomite. The dry hole was drilled by the Stanolind Oil and Gas Company on the Wiltrout lease.

In the **Hansen** pool, which lies between the Logan and Ray pools, eight new oil wells were completed during 1946. Five of

TABLE 21.—*Oil pools of Phillips County*

Pool and location of discovery well	Discovery year	Area, acres	1946 production bbls.	Cumulative production to end of 1946 bbls.	Producing wells	Producing zone	Depth to producing zone, feet
Bow Creek 25-5-18W	1939	40	2,980	35,165	1	K.C.-Lans.	3,111
Dayton 36-2-19W	1941	1,200	86,085	676,110	22	K.C.-Lans.	3,430
Dayton North 13-2-19W	1943	800	96,850	216,320	12	K.C.-Lans.	3,406
Hansen 14-5-20W	1943	800	155,725	384,815	5 13	K.C.-Lans. Arbuckle	3,363 3,530
Logan 3-5-20W	1945	200	13,460	13,460	1 2	K.C.-Lans. Arbuckle	3,149 3,381
Ray 32-5-20W	1940	3,000	1,229,430	5,625,265	87	Arbuckle Reagan	3,575 3,540

these belong to the Cities Service Oil Company. The average production of each is nearly 500 barrels of oil per day with a very small percentage of water showing. One dry hole was drilled by the Derby Oil Company on the Demuth lease in sec. 22, T. 5 S., R. 20 W. In the **Ray** pool there were also nine new oil wells and one dry hole. All belong to the Cities Service Oil Company except two, a Hansen et al. well and one drilled by Skelly. They range in production from 15 to 400 barrels per day and most of them show no trace of water. The dry hole was drilled in sec. 33 on the Nichol lease of the Cities Service Oil Company.

Additional information on the oil pools of the county is given in Table 21. These pools and the dry wildcat wells drilled during 1946 are shown in Figure 17.

Pratt County

During 1946 there was a strong revival of interest in Pratt County (Fig. 18). This was brought about partly by the discovery of three new pools and partly by the good recovery of the wells in present pools. A total of 50 test wells were drilled in the county in 1946 and of these 34 are new oil wells. Among the dry

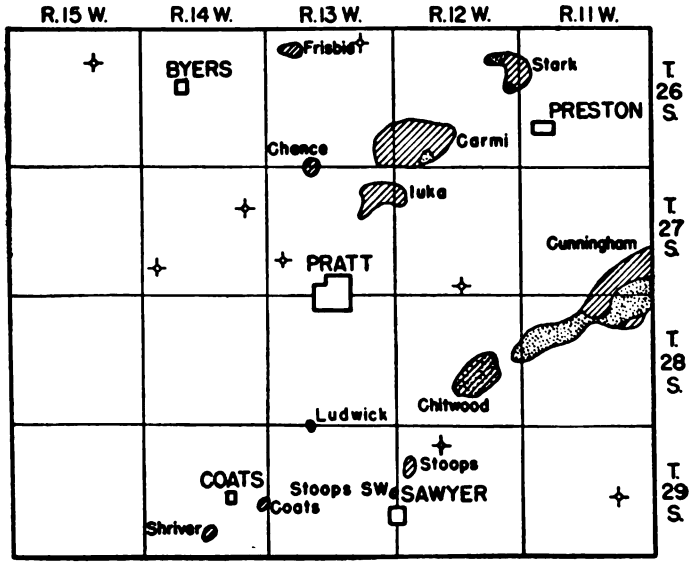

Fig. 18.—Pratt County map showing oil and gas pools and dry wildcat wells drilled during 1946. (Gas, dots; oil, diagonal lines.)

holes there are three rank wildcat tests and five ordinary wildcats. Eight dry holes are classed as pool tests.

In the northern part of the county the **Stark** pool was enlarged by the completion of two new oil wells. One dry hole was drilled northeast of the pool by Pulse and Hershfield on the Block lease in sec. 6, T. 26 S., R. 11 W. Another dry hole was drilled just southwest of the pool by the Sohio Oil Company on the Stalcup lease in sec. 15, T. 26 S., R. 12 W.

One of the new discoveries of 1946 is the **Chance** pool. It was opened by the Lion Oil Refining Company when the first well on the Chance farm in sec. 4, T. 27 S., R. 13 W. was completed in August. Oil was found in the Arbuckle dolomite between 4,432 and 4,440 feet at the rate of 200 barrels per day. A slight trace of water came in with the oil. The well was treated with 3,000 gallons of acid before the final potential was determined. Later in the year three other wells were completed on the Chance farm and three wells on the Jo farm in sec. 33, T. 26 S., R. 13 W.

In the old **Cunningham** pool of eastern Pratt County, the Drillers Gas Company completed a small well on the Fitzsimmons farm in sec. 35, T. 27 S., R. 11 W. This well produces from the Lansing limestone and is making considerable water with the oil. Two dry holes were drilled in sec. 18, T. 28 S., R. 11 W. by J. W. Beck on the Lunt lease.

In the **Chitwood** pool, 14 new oil wells were added during 1946. Two of these produce oil from the Viola and 12 from the Simpson sandstone. Several of the wells produce some gas with the oil and three also produce some water. The average productivity is high. A dry hole drilled by the Skelly Oil Company on the Edna Scott lease in sec. 32, T. 28 S., R. 13 W. seems to limit the area of the **Ludwick** pool on the southwest.

The second oil pool to be discovered in Pratt County during the year is the **Stoops** pool. An old dry hole originally drilled to a depth of 4,731 feet was reopened by the Bridgeport Oil Company after the study of well samples had revealed a strong oil stain in the Viola formation. Pipe was set to a depth of 4,582 feet and perforated opposite the Viola between 4,446 and 4,452 feet. After acid had been applied oil and some gas came into the hole. In a seven-hour test the well flowed 62 barrels of oil and about 300,000 cubic feet of gas. An official test made later gave the well a po-

tential capacity of 795 barrels of oil per day. Subsequently two other oil wells and one dry hole were drilled in the pool.

The Bridgeport Oil Company is also responsible for the discovery of the **Stoops Southwest** pool. It is located 3 miles southwest of the Stoops well and was found in September. The discovery well is the Bridgeport No. 1 Pride "C" in sec. 24, T. 29 S., R. 13 W. The producing zone is the Viola, between depths of 4,483 and 4,490 feet. The well has a potential capacity of 165 barrels per day. In the **Coats** pool, 6 miles to the west, one new oil well and also one dry hole were added. In the **Shriver** pool, which lies southwest of the Coats pool, the Skelly Oil Company completed two good oil wells. One has a potential of more than 1,200 barrels per day. The Sinclair Prairie Oil Company also completed one oil well on their Buck lease.

TABLE 22.—*Oil and gas pools of Pratt County*

Pool and location of discovery well	Discovery year	Area, acres	1946 production	Cumulative production to end of 1946	Producing wells	Producing zone	Depth to producing zone, feet
			barrels				
Carmi 29-26-12W	1942	3,000	966,890	5,154,785	1 90	Simpson Arbuckle	 4,271
Chance 4-27-13W	1946	200	5,955	5,955	1 4	Simpson Arbuckle	4,380 4,432
Chitwood 23-28-12W	1943	3,000	977,365	2,490,540	75	Viola Simpson Arbuckle	 4,396
Coats 24-29-14W	1944	300	54,985	108,350	5	Simpson Arbuckle	 4,402
Cunningham		see Kingman County					
Frisbie 5-26-13W	1943	400	41,085	135,510	4	K.C.-Lans.	3,947
Iuka 11-27-13W	1937	2,000	162,820	1,001,755	20	Simpson Arbuckle	4,292 4,354
Ludwick 4-29-13W	1944	80	6,850	21,070	2	Simpson	4,490
Shriver 33-29-14W	1944	400	81,690	128,805	7	Simpson	4,557
Stark 18-26-11W	1941	800	154,865	625,975	16	Viola	4,121
Stoops 7-29-12W	1946	160	14,735	14,735	4	Viola	4,446
Stoops Southwest 24-29-13W	1946	40	1,955	1,955	1	Viola	4,483
			thousand cubic feet				
Carmi (gas) 29-26-12W	1942	3,000	28,258	60,724	1	Viola	4,122
Chitwood (gas) 23-28-12W	1943	3,000	981,838	4,263,191	10	Viola	4,340
Cunningham (gas) 7-28-11W	1931	10,000	2,578,978 incl. Cairo pool prod.	43,919,713	40	Viola Arbuckle	4,278 4,094
Stark (gas) 13-26-12W	1941	600				Viola	4,121

TABLE 23.—*Dry wildcat tests drilled in Pratt County during 1946*

Company and farm	Location	Depth to top of Lansing, feet	Depth to top of Viola, feet	Depth to top of Arbuckle, feet	Total depth, feet
Cities Service No. 1 Long	NE cor. SW¼ 2-26-13W	3,721	4,207	4,368	4,410
Stanolind No. 1 Curtis	SE cor. NE¼ 10-26-15W	3,820	4,345	4,532	4,605
D.R.M. Co. No. 1 Barker	Cen. W½ NW¼ SW¼ 34-27-12W	3,653	4,280	4,480	4,502
J. M. Huber No. 1 Schanley	Cen. S½ NE¼ NE¼ 30-27-13W	3,853	4,343	4,534	4,585
Lion Chem. Co. No. 1 Reshke	SW cor. SW¼ 12-27-14W	3,856	4,352	4,607	4,635
Lion Chem. Co. No. 1 Verning	NE¼ SW¼ SE¼ 30-27-14W	3,982	4,542	4,735	4,785
Stanolind No. 1 Hiskett	SE cor. NW¼ 23-29-11W	3,783	4,577	4,743	4,790
Stanolind No.1 Humble	SW cor. SW¼ 4-29-12W	3,832	4,423	4,644	4,695

The oil and gas pools of Pratt County are shown in Figure 18 and data concerning them are given in Table 22. The dry wildcat wells are also shown in Figure 18 and are listed in Table 23.

RENO COUNTY

Drilling activity in this county was on a very reduced scale during 1946. Only five test wells were drilled and one old well was deepened. Only one of the tests was successful in finding oil. This was the Transwestern Oil Company No. 3 Withroder well in sec. 1, T. 23 S., R. 10 W. which is located in the large **Zenith-Peace Creek** pool. Three of the unsuccessful tests are outlying wells of the same pool. The Aladdin Petroleum Company sought to extend the pool northward by drilling a test in the SE cor. NE¼ sec. 19, T. 22 S., R. 9 W. on the Drake farm. Along the southeast side of the pool one dry hole was drilled by Hershfield on the Thompson farm in T. 24 S., R. 10 W. This test, which has a surface altitude of 1,752 feet, reached the Lansing limestone at 3,353 feet and the top of the Mississippian strata at 3,730 feet. Kinderhookian shale was found at 3,751 feet, Ordovician Viola at 3,884 feet, and Arbuckle dolomite at 4,068 feet. The test was abandoned at a total depth of 4,103 feet.

In an attempt to extend the **Abbyville** pool southward, the Drillers Gas Company drilled an unsuccessful wildcat in sec. 30, T. 24 S., R. 7 W. Here the producing sand was found at 2,068 feet

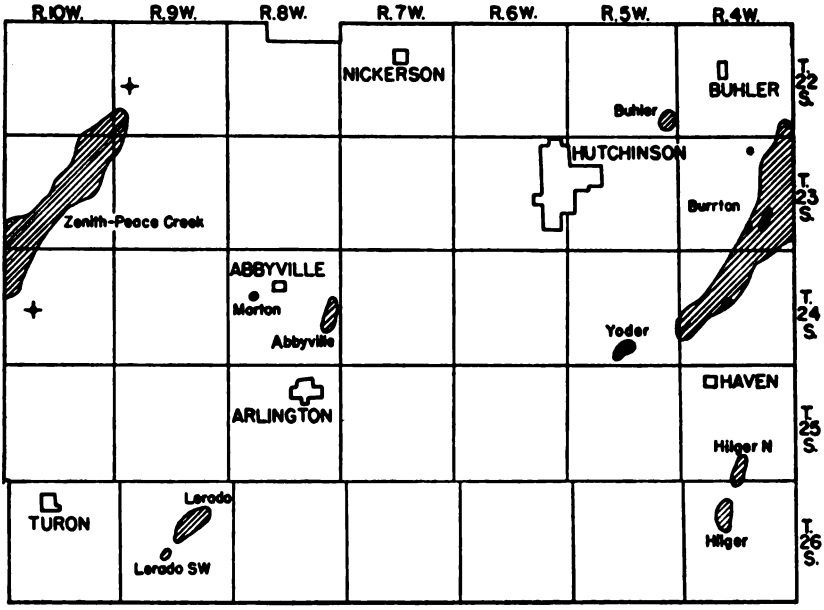

FIG. 19.—Reno County map showing oil and gas pools and dry wildcat wells drilled during 1946. (Gas, dots; oil, diagonal lines.)

but failed to show oil or gas. Therefore the test was abandoned at the shallow depth of 2,117 feet.

Additional information on the oil and gas pools of Reno County is given in Table 24. These pools and the dry wildcat wells drilled in the county during 1946 are shown in Figure 19.

TABLE 24.—*Oil and gas pools of Reno County*

Pool and location of discovery well	Discovery year	Area, acres	1946 production	Cumulative production to end of 1946	Producing wells	Producing zone	Depth to producing zone, feet
			barrels				
Abbyville 24-24-8W	1927	640	21,725	556,210	12	K.C.-Lans.	3,540
Buhler 25-22-5W	1938	500	28,334	544,690	5	Viola Simpson	3,890 3,897
Burrton 23-23-4W	1931	12,000	1,215,190	40,993,200	329	"Chat" Hunton	3,266 3,583
Hilger 16-26-4W	1934	600	70,575	3,146,225	20	Viola	4,062
Hilger North 34-25-4W	1943	500	145,970	440,565	12	Viola	4,099
Lerado 11-26-9W	1935	1,500	4,355	2,582,740	1	Viola	4,128

TABLE 24.—*Oil and gas pools of Reno County (continued)*

Pool and location of discovery well	Discovery year	Area, acres	1946 production	Cumulative production to end of 1946	Producing wells	Producing zone	Depth to producing zone, feet
			barrels				
Lerado Southwest 21-26-9W	1944	160	19,850	48,840	3	Viola	4,177
Morton 17-24-8W	1942	40	3,580	22,230	1	K.C.-Lans.	3,180
Peace Creek 21-23-10W	1941	6,000	1,414,805	9,083,600	127	Viola	3,773
	(The Reno County part of the Zenith-Peace Creek pool)						
Yoder 34-24-5W	1935	500	1,000	84,770	5	"Chat"	3,450
			thousand cubic feet				
Burrton (gas) 23-23-4W	1930	5,000	1,199,217	61,647,881	307	"Chat"	3,298
Yoder (gas) 34-24-5W	1936	800	482,918		8	"Chat"	3,402
Zenith-Peace Creek (gas)	see Stafford County						

RICE COUNTY

For many years Rice County has been one of the most actively prospected areas in the State of Kansas. The year 1946 was no exception. Of the 110 test wells drilled in Rice County, 69 are new oil wells. Among the dry holes 7 can be considered wildcat tests. These are shown in Figure 20 and are listed in Table 26.

Several test holes were successful in finding new producing areas. One of these was drilled by the Phil-Han Oil Company on the Chase farm in the NW¼ NE¼ NW¼ sec. 28, T. 18 S., R. 9 W. in the northwestern part of the county. The new pool has been named **Cow Creek**. Oil comes from the Arbuckle dolomite between depths of 3,249 to 3,252 feet. The potential capacity of the first well is approximately 100 barrels of oil per day.

The other new area discovered was on the west side of the Chase pool. The discovery well was drilled by Lauck and Moncrief on the Logan-Shonyo farm in the SE¼ SW¼ SE¼ sec. 12, T. 20 S., R. 10 W. The old name of **Proffitt** was revived for this new pool. Later, however, enough wells were drilled between the discovery well and the Chase pool to indicate that both are part of the same underground reservoir. The new area has, therefore, been incorporated with the Chase pool.

Drilling in the older pools of the county was quite active. One new oil well was completed in the **Edwards** pool and one new oil

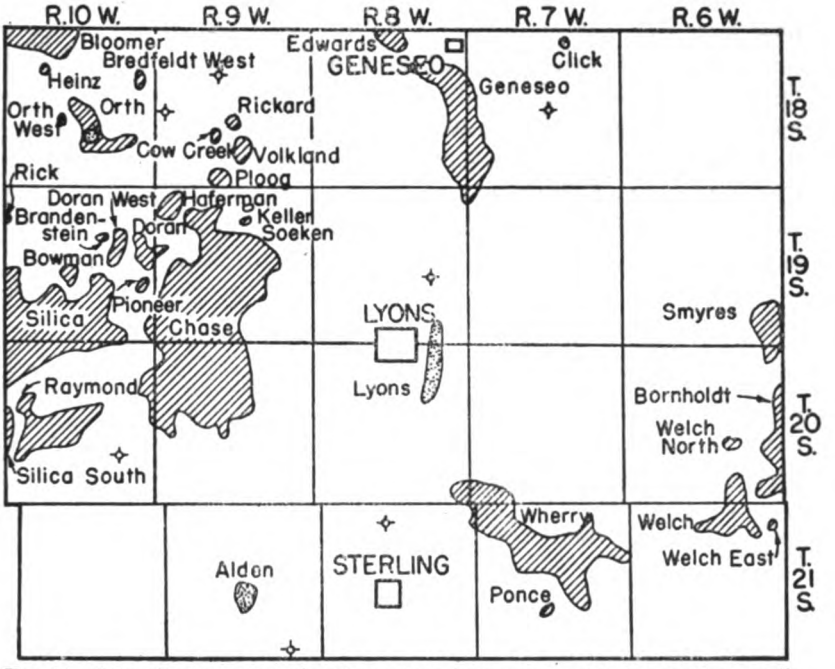

FIG. 20.—Rice County map showing oil and gas pools and dry wildcat wells drilled during 1946. (Gas, dots; oil, diagonal lines.)

well in the adjacent **Geneseo** pool. Farther west in the **Orth** and **Orth West** areas four dry holes and one new oil well were drilled. The Orth and **Orth East** pools were declared one source of supply during the year by the Nomenclature Committee. Henceforth the name Orth will be used to include both.

One new well was completed in the **Smyres** pool along the east side of the county. In the large **Chase** pool 44 new oil wells and 11 dry holes were completed during 1946. The new producing area along the west side in sec. 12, T. 20 S., R. 10 W. which for a time was called the Proffitt pool, supplied most of the new oil wells. Incidentally, these wells have large potential capacities and the new reserves added to the pool are thus important.

In the **Doran** pool, located a short distance west of the Chase pool, six new oil wells and one dry hole were drilled, and one well was deepened. In the **Doran West** pool three new oil wells were completed. The large **Silica** area seems to be fairly well defined,

for two possible extension wells drilled in an effort to enlarge the pool were dry.

In the southeastern part of the county two new oil wells and one dry hole were completed in the **Bornholdt** pool, two producers and three dry holes in the **Welch** pool, and two oil wells and one dry hole in the **Wherry** pool. The **Raymond** pool, southwest of the Chase area, has four new oil wells and three dry holes. This pool was joined to the **Wenke** and the **Wenke West** pools, and the new enlarged area will henceforth be known as the Raymond pool.

TABLE 25.—*Oil and gas pools of Rice County*

Pool and location of discovery well	Discovery year	Area, acres	1946 production	Cumulative production to end of 1946	Producing wells	Producing zone	Depth to producing zone, feet
			barrels				
Alden	1944	no longer produces oil					
Bloomer		see Barton County					
Bowman 21-19-10W	1936	250	51,026	295,420	4 2	K.C.-Lans. Arbuckle	3,032 3,272
Bornholdt		see McPherson County					
Brandenstein 10-19-10W	1933	160	17,688	468,060	3	K.C.-Lans.	3,014
Bredfeldt West 12-18-10W	1939	80	3,660	46,105	2	Arbuckle	3,260
Chase 32-19-9W	1931	16,000	2,738,600	43,128,965	20 362	K.C.-Lans. Arbuckle	2,942 3,246
Click 3-18-7W	1943	40			1	Misener	3,182
Cow Creek 28-18-9W	1946	40	569	569	1	Arbuckle	3,249
Doran 13-19-10W	1936	500	76,215	423,380	14	K.C.-Lans. Arbuckle	3,291
Doran West 14-19-10W	1944	700	103,345	176,925	11	Arbuckle	3,264
Edwards 3-18-8W	1936	3,000	1,039,780	8,022,775	97	Arbuckle	3,278
Geneseo 25-18-8W	1934	5,600	2,190,065	19,272,915	194	Arbuckle	3,132
Gouldner 16-18-19W		abandoned during 1946					
Haferman 6-19-9W	1936	700	76,765	905,255	11	Arbuckle	3,192
Heinz 8-18-10W	1938	80	3,965	76,830	1 1	K.C.-Lans. Arbuckle	3,000 3,254
Keller 3-19-9W	1943	40	5,400	26,085	1	Sooy	3,240
Orth 27-18-10W	1932	1,000	113,465	1,394,165	1 17 2	Shawnee K.C.-Lans. Pre-Cambrian	2,915 3,240
Orth East 25-18-10W		combined with Orth					
Orth West 21-18-10W	1944	40	2,580	8,630	1	Arbuckle	3,235
Pioneer 25-19-10W	1942	80	7,700	44,815	2	Arbuckle	3,281
Ploog 33-18-9W	1930	500	19,935	1,441,035	8	Arbuckle	3,252

Ponce 28-21-7W	1936	40	3,015	45,130	1	Sooy	3,388
Proffitt* 12-20-10W	1946	now combined with Chase		295,810	15	Arbuckle	3,287
Raymond 21-20-10W	1929	2,500	1,578,900	10,544,625	28 45	K.C.-Lans. Arbuckle	3,130 3,330
Rick		see Barton County					
Rickard 22-18-9W	1935	200	11,905	140,840	4	Arbuckle	3,324
Silica		see Barton County					
Silica South		see Barton County					
Smyres 36-19-6W	1942	1,000	201,750	1,047,875	23	"Chat"	3,339
Smyres North 23-19-6W	1944	abandoned during 1946					
Soeken 10-19-9W	1937	40			1	K.C.-Lans.	3,339
Volkland 27-18-9W	1943	300	83,760	267,860	7	Arbuckle	3,221
Welch 2-21-6W	1924	1,500	116,795	4,716,150	30	"Chat"	3,370
Welch East 1-21-6W	1941	80	3,890	26,075	2	"Chat"	3,341
Welch North 23-20-6W	1937	160	7,410	74,155	4	"Chat"	3,334
Wenke 7-20-10W	1935	combined with Raymond					
Wenke West 18-20-10W	1938	combined with Raymond					
Wherry 11-21-7W	1933	7,200	265,430	9,821,415	87	Sooy	3,358
		thousand cubic feet					
Alden (gas) 22-21-9W	1937	400	374,298	13,761,761	6	Misener	3,317
Lyons 35-19-8W	1888	1,500	142,748	12,091,919	1 3	Simpson Arbuckle	3,290 3,277
Orth (gas) 27-18-10W	1933	640	245,700		2	K.C.-Lans.	2,906

* Old name revived.

TABLE 26.—*Dry wildcat tests drilled in Rice County during 1946*

Company and farm	Location	Depth to top of Lansing, feet	Depth to top of Sooy, feet	Depth to top of Viola, feet	Depth to top of Arb'kle, feet	Total depth, feet
B.& R. Drilling No. 1 Adams	NE cor. NW¼ 22-18-7W	2,754	3,114	3,332	3,433	3,463
Nadel & Gussman No. 1 Guldner	SE¼ NW¼ SW¼ 9-18-9W	2,881	3,256	absent	3,280	3,285
Bridgeport No. 1 "A" Boldt	NE cor. NW¼ 19-18-9W	2,886	3,200	absent	3,220	3,255
Swearer et al. No. 1 Ross	SE cor. NW¼ 23-19-8W	2,950		3,324	3,585	3,617
Hyde & Kelly No. 1 "A" Loesch	Cen. E½ NW¼ NE¼ 26-20-10W	3,030			3,397	3,405
Royer-Farris No. 1 Wilkey	NW cor. SE¼ 4-21-8W	2,917	3,272	3,382	3,524	3,534
Sharon Drlg. No. 1 Leatherman	NE¼ SE¼ SE¼ 35-21-9W	3,016	3,394	3,653	3,761	3,788

Rooks County

No county in western Kansas received more intensive study and attention during 1946 than Rooks County. This is revealed not so much by the total number of completions as by the widely scattered operations. The number of new oil wells brought in during the year was 35 and the number of dry holes drilled was 32. Among the dry holes 14 are classed as ordinary wildcats and the rest as extension wildcat tests and dry pool wells. Figure 21 shows the locations of dry wildcat tests and the oil pools in the county, including the new pools discovered during the year.

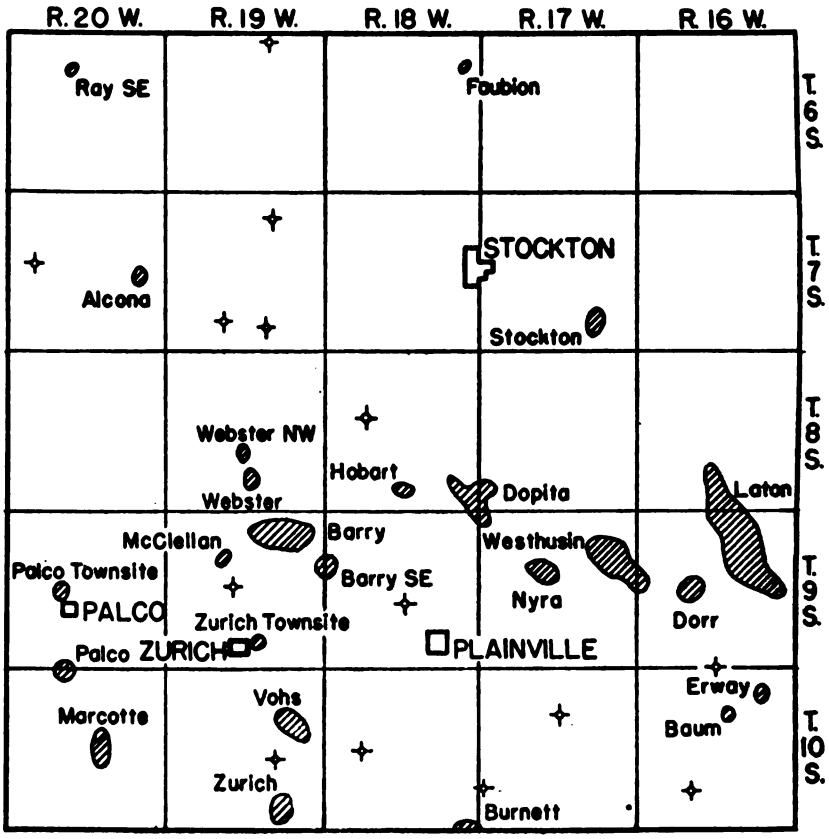

Fig. 21.—Rooks County map showing oil pools and dry wildcat wells drilled during 1946.

One of the new pools is the **Alcona**, located about 12 miles south of the Ray pool of Phillips County. This pool was discovered by the Republic Natural Gas Corporation when the first well on the Cooper farm was completed in March. Production comes from the Arbuckle dolomite between depths of 3,499 and 3,508 feet. The production is small and 90 percent water accompanied the oil. The exact location of the discovery well is the Cen. S½ SE¼ SE¼ sec. 14, T. 7 S., R. 20 W. An official potential of 25 barrels per day has been assigned to this well.

The second pool to be discovered was the **Barry Southeast.** Here the first well was drilled by the H. H. & B. Drilling Company on the Hilgers farm in the NE cor. sec. 13, T. 9 S., R. 19 W. The discovery well was completed in September with a depthograph potential of 2,735 barrels. The top of the Arbuckle dolomite was found at 3,479 feet (1,418 feet below sea level) and the oil was found between 3,479 and 3,484 feet. Three offset wells were completed later in the year; one was a maximum well, one was reported to be producing both oil and gas, and the other was a dry hole.

In addition to these two new pools, there were three other producing areas revived. These are listed as new pools in Table 3. They are the Nyra, Webster, and Webster Northwest pools. The revived **Nyra** pool was found by drilling the No. 1 Carmichael test in sec. 16, T. 9 S., R. 17 W. This well was completed as a 35-barrel producer from the Lansing limestone between 3,429 and 3,435 feet. Subsequently, the Alkay Oil Company completed an additional oil well on the Thompson farm in sec. 9. This well is capable of producing 100 barrels of oil per day with a trace of water. The same operator also completed a 30-barrel well on the Yeagy lease in sec. 16.

When Bird and Boreing completed a successful well on the Veverka farm in sec. 27, T. 8 S., R. 19 W. the old name **Webster** was revived to apply to the pool. The new well produces from the Arbuckle dolomite between depths of 3,403 and 3,409 feet and has a potential of 2,550 barrels per day. Subsequently, the Stanolind Oil and Gas Company completed two good wells on the Stice farm in sec. 27 and the Skelly Oil Company drilled a dry hole in sec. 33.

When the Shell Oil Company in 1946 completed a successful test on the Veverka farm in sec. 21, T. 8 S., R. 19 W. the name

Webster Northwest was applied to the new producing area. To explain the confusion in names the following history of the area is given. The original Webster pool was located in sec. 21 and dates from 1930 when Aylward and Silvers drilled the discovery

TABLE 27.—*Oil pools of Rooks County*

Pool and location of discovery well	Discovery year	Area, acres	1946 production bbls.	Cumulative production to end of 1946 bbls.	Producing wells	Producing zone	Depth to producing zone, feet
Alcona 14-7-20W	1946	40	2,135	2,135	1	Arbuckle	3,499
Barry 11-9-19W	1941	1,100	608,175	1,700,405	6 20	K.C.-Lans. Arbuckle	 3,435
Barry Southeast 13-9-19W	1946	120	3,425	3,425	3	Arbuckle	3,479
Baum 10-10-16W	1941	40	940	8,825	1	K.C.-Lans.	3,057
Burnett		see Ellis County					
Dopita 31-8-17W	1934	600	50,975	435,130	1 8	K.C.-Lans. Arbuckle	3,212 3,409
Dorr 20-9-16W	1941	300	39,453	143,865	5	K.C.-Lans.	3,230
Erway 2-10-16W	1941	40	7,645	41,685	1	K.C.-Lans.	3,136
Faubion 12-6-18W	1936	80		49,860	1	K.C.-Lans.	3,128
Hobart 33-8-18W	1944	100	6,415	31,260	3	K.C.-Lans.	3,209
Kriley 22-8-18W	1943	abandoned during 1946					
Kruse 3-10-16W	1928	abandoned during 1946					
Laton 11-9-16W	1927	3,600	194,600	2,830,190	92	K.C.-Lans.	3,228
Marcotte 15-10-20W	1943	400	157,730	361,400	9	Arbuckle	3,752
McClellan 9-9-19W	1945	120	15,968	17,920	2	K.C.-Lans.	3,343
Nyra* 16-9-17W	1946	200	8,155	8,155	3	K.C.-Lans.	3,429
Palco 5-10-20W	1943	200	60,675	134,855	4	Arbuckle	3,824
Palco Townsite 20-9-20W	1945	40	4,250	4,250	1	Arbuckle	3,847
Ray Southeast 9-6-20W	1941	40	9,125	45,345	1	Reagan	3,600
Stockton 35-7-17W	1937	120	6,520	41,180	3	Shawnee K.C.-Lans.	2,692 3,180
Vohs 14-10-19W	1945	900	174,778	187,745	19	K.C.-Lans.	3,365
Webster* 27-8-19W	1946	200	42,940	42,940	5	Arbuckle	3,403
Webster Northwest 21-8-19W	1946	40	none	none	1	Arbuckle	3,443
Westhusin 11-9-17W	1936	1,200	107,730	1,008,965	21	K.C.-Lans.	3,231
Zurich 26-10-19W	1934	600	19,955	196,405	7	K.C.-Lans.	3,340
Zurich Townsite 27-9-19W	1944	40	5,475	19,310	1	Arbuckle	3,647

* Old name revived.

well in the Cen. of the NW¼. The name Webster was dropped in 1938 when this well ceased producing. In July 1940, Mitchell drilled a well on the Veverka lease, also in sec. 21 finding oil in the Arbuckle dolomite between 3,428 and 3,435 feet. The initial production was 1,418 barrels of 20° gravity oil. The old name of Webster was revived for the new producing pool.

In February 1946, Bird and Boreing brought in a new well, referred to above, in the SW¼ sec. 27, T. 8 S., R. 19 W. The well had an initial production of 2,549 barrels of oil per day. The Nomenclature Committee then gave the name Webster to the new pool in sec. 27 as production had ceased in 1940 in the original Webster pool in sec. 21. Following the discovery well in sec. 27 five additional oil wells were drilled in the new Webster pool. Four of the oil wells have an initial production of about 2,500 barrels per day; the fifth produced about 250 barrels per day. Four dry holes were drilled in or near the pool area.

In August 1946, a new producer was brought in by the Shell Oil Company in sec. 21, T. 8 S., R. 19 W., in the area of the original Webster pool. The well is the No. 1 Veverka located in the NW¼ SE¼ SE¼. It produces from the Arbuckle dolomite between depths of 3,443 and 3,450 feet. The initial production of the well is given as 218 barrels of oil per day, and the new discovery accounts for calling the pool Webster Northwest. Polhamus and others, late in 1946, drilled a dry hole in sec. 21 about 0.75 mile northwest of the discovery well.

In the **Stockton** pool two new wells were added. Both wells produce from the Topeka limestone which is a new producing zone for this pool. Both were drilled by the Alkay Oil Company, one on the Stebbins farm and the other on the Hindman farm. In the old **Laton** pool only one new oil well was added. It is located in sec. 13, T. 9 S., R. 16 W. There were two dry holes drilled within the area of the pool. In the **Barry** pool two dry holes and one new oil well were completed. In the **Westhusin** pool, the record for 1946 shows one dry hole and one new oil well.

The **McClellan** pool which lies west of the Barry pool has one additional oil well and two dry holes as a result of operations carried on during the year. Two dry holes were drilled in the **Palco Townsite** pool in 1946. In the **Vohs** pool a period of sustained interest resulted in the successful completion of 13 new oil wells. The average initial production of these new wells is about 1,000

TABLE 28.—*Dry wildcat tests drilled in Rooks County during 1946*

Company and farm	Location	Depth to top of Lansing, feet	Depth to top of Arbuckle, feet	Total depth, feet
Brunson & Martin No. 1 Jones	NE cor. NE¼ 3-6-19W	3,145	3,449	3,500
Sohio & Rine Drlg. No. 1 Riseley	SW cor. SW¼ 2-7-19W	3,206	3,544	3,600
Palmer No. 1 Lorbeer	SW cor. SW¼ 28-7-19W	3,074	3,342	3,378
Palmer No. 1 Henderson	NE cor. NE¼ 34-7-19W	3,022	3,302	3,342
Goodpasture Drlg. No. 1 Le Sage	SE cor. NE¼ 18-7-20W	3,294	3,575	3,604
Cities Service No. 1 Milner	SW cor. NE¼ 17-8-18W	3,195	3,456	3,518
Swearer et al. No. 1 Haskins	SW cor. SW¼ 34-9-16W	3,176	3,560	3,575
Ingling No. 1 Amos	NW cor. SW¼ 22-9-18W	3,340	3,608	3,628
Vernon Oil Co. No. 1 Casey	SW cor. SE¼ 16-9-19W	3,285	3,549	3,581
Ash No. 1 Krueger "A"	SW¼ NW¼ SW¼ 28-10-16W	3,193	3,659	3,711
Goodpasture Drlg. No. 1 Bice	NW cor. SW¼ 10-10-17W	3,235	3,521	3,588
Skelly No. 1 Glck	NW¼ NE¼ SW¼ 30-10-17W	3,322	3,694	3,710
Ingling & Huber No. 1 Ordway	NW cor. NE¼ 20-10-18W	3,408	3,815	3,835
Doley No. 1 Henderson	SW cor. NW¼ 23-10-19W	3,331	3,679	3,700

barrels per day. Some of them make some water with the oil. In the **Marcotte** pool two new oil wells were added and two dry holes were drilled in the **Zurich** pool.

Further information on the oil pools of Rooks County is given in Table 27. The dry wildcat wells drilled during the year are listed in Table 28 and shown in Figure 21.

RUSH COUNTY

Drilling activity in Rush County during 1946 was marked by the large number of unsuccessful test wells. Figure 22 shows these wells and indicates that they are widely scattered. Details of the wildcats are given in Table 30. Of the 19 tests six are new oil wells, one is a gas well, and 12 are dry holes.

During 1945 the **Loretto** gas pool was discovered when the El Dorado Refining Company completed a gas well on the Urban farm in sec. 21, T. 16 S., R. 17 W. During June 1946, this well was plugged back to test showings in the Lansing limestone and was eventually completed as an oil well in this zone. The oil is pro-

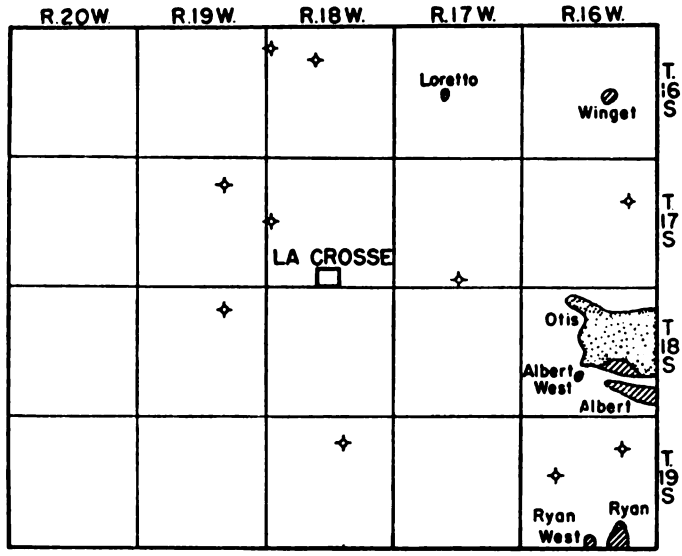

FIG. 22.—Rush County map showing oil and gas pools and dry wildcat wells drilled during 1946. (Gas, dots; oil, diagonal lines.)

duced between depths of 3,280 to 3,286 feet and tests 44° gravity A.P.I. Hereafter the Loretto pool will be carried as an oil pool instead of a gas pool.

In the **Albert** oil pool two additional oil wells were added during the year and one dry hole was drilled on the south side of the pool in sec. 1, T. 19 S., R. 16 W. Darby and Bothwell drilled a successful oil well on the Wagoner farm in the NE¼ NE¼ NW¼ sec. 28, T. 18 S., R. 16 W.; this new well is far enough removed from the wells in the main Albert pool so that the new find is classed as a separate pool, which has been named **Albert West**. Oil whose gravity is 35° was found in the Reagan sandstone between 3,628 and 3,643 feet. The potential capacity of the well has been set at 25 barrels per day with about 1 million cubic feet of gas.

In the **Ryan** pool one small gas well was completed by the Champlin Refining Company on the McKinney lease in sec. 26, T. 19 S., R. 16 W. One new oil well was completed by the Stanolind Oil and Gas Company on the Mausolf farm in sec. 35 of the same township.

Farther west the Magnolia Petroleum Company opened a new pool when the first well on the Tammen farm in the SE cor. sec.

33 came in as a producer. The well is rated as having a capacity of 30 barrels per day. The name of the new pool is **Ryan West.** Oil comes from the Arbuckle dolomite between 3,734 and 3,758 feet. Northwest of this pool a dry hole was drilled by the Magnolia

TABLE 29.—*Oil and gas pools of Rush County*

Pool and location of discovery well	Discovery year	Area, acres	1946 production	Cumulative production to end of 1946	Producing wells	Producing zone	Depth to producing zone, feet
			barrels				
Albert		see Barton County					
Albert West 28-18-16W	1946	40	3,050	3,050	1	Reagan	3,628
Loretto 21-16-17W	1945	40	none	none	1	K.C.-Lans.	3,280
Otis 10-18-16W	1934	1,200	256,760	3,069,060	29	Reagan	3,527
Ryan 35-19-16W	1945	900	230,014	405,990	25	Arbuckle	3,656
Ryan West 33-19-16W	1946	40	1,270	1,270	1	Arbuckle	3,734
Winget 15-16-16W	1936	120			2	K.C.-Lans.	3,243
			thousand cubic feet				
Loretto		no longer produces gas					
Otis (gas) 11-18-16W	1930	15,000	6,411,044	112,069,147	1 72	Neva Reagan	3,507
Ryan (gas) 35-19-16W		incl. with Pawnee Rock see Pawnee County					

TABLE 30.—*Dry wildcat tests drilled in Rush County during 1946*

Company and farm	Location	Depth to top of Lansing, feet	Depth to top of Arb'kle, feet	Depth to top of Reagan, feet	Total depth, feet
H.H. & B. Drlg. No. 1 Werth	SW cor. SW¼ 6-16-18W	3,314	absent	3,629	3,642
Sohio No. 1 Schneider	SW cor. NW¼ 9-16-18W	3,275	3,584	3,610	3,628
Sasnak No. 1 Kerbs	SE cor. SE¼ 11-17-16W	3,330	3,618		3,630
Darby-Bothwell No. 1 Ficken	NE cor. SE¼ 33-17-17W	3,288	absent	3,577 3,587*	3,596
Darby-Bothwell No. 1 Sankey	SW cor. SW¼ 18-17-18W	3,497	3,928	4,007	4,015
J. M. Huber No. 1 Pelz	NE cor. NE¼ 10-17-19W	3,510	3,997		4,044
Sohio No. 1 Mendenhall	SE cor. SE¼ 3-18-19W	3,484	3,929		3,973
Bill Cross No. 1 Oetken	NW¼ NW¼ SE¼ 11-19-16W	3,415	absent	3,770	3,775
Alkay No. 1 Greenawalt	NE¼ SW¼ SW¼ 17-19-16W	3,480	3,825		3,855
Darby-Bothwell No. 1 Thalheim	NE cor. NW¼ 10-19-18W	3,426	3,814		3,869
			* (pre-Cambrian)		

Petroleum Company on the Christianson farm in sec. 28.

Additional data on the producing pools of Rush County is given in Table 29, and they are shown in Figure 22.

Russell County

Russell County (Fig. 23) has for many years been one of the active spots in the drilling campaign of Kansas oil operators. The year 1946 was no exception. Of the 149 test wells drilled there 107 were new oil wells. There was one gas well and 43 dry holes, two of which were shallow water disposal or input wells. These 1946 wells are totaled by pools in Table 31.

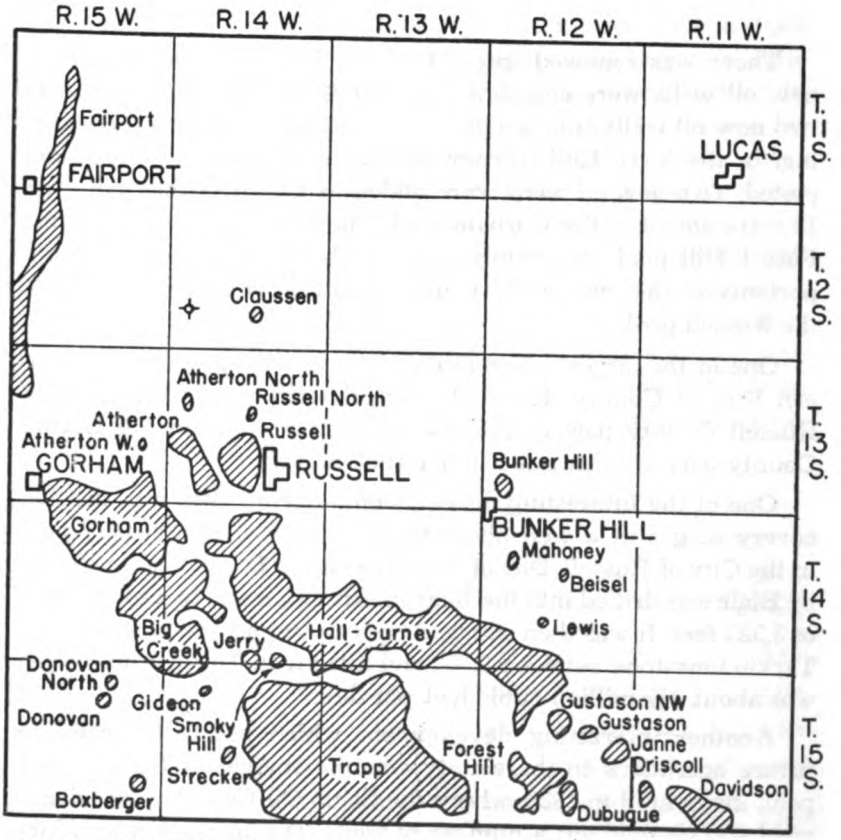

FIG. 23.—Russell County map showing oil pools and dry wildcat wells drilled during 1946.

TABLE 31.—*Test wells drilled in Russell County in 1946, by pools*

Pool	Oil	Gas	Dry	Total
Atherton	2		1	3
Big Creek	2		3	5
Davidson			2	2
Donovan North			1	1
Dubuque			3	3
Fairport	6		2	8
Forest Hill	5		6	11
Gorham	12			12
Gustason			1	1
Hall-Gurney	24		10	34
Russell	8	1		9
Smoky Hill	1		1	2
Trapp	47		10	57
Wildcat well			1	1
	107	1	41	149

There was renewed interest in the **Fairport** pool where six new oil wells were completed. In the **Atherton** pool there were two new oil wells and two dry holes, one of which was a deepening. In the large **Hall-Gurney** pool 24 new oil wells were completed. Two new oil wells were added in the **Big Creek** pool and 12 were added in the **Gorham** pool. The five new oil wells in the **Forest Hill** pool are mainly large wells and emphasize the importance of that part of the county. Eight oil wells were added to the **Russell** pool.

One of the largest pools in Kansas is the **Trapp** pool in southern Russell County. Here 49 new oil wells were added in the Russell County part of the pool. The new wells in the Barton County part are discussed under that county.

One of the interesting developments during 1946 was the discovery of gas in a well about 0.5 mile east of the Russell pool in the City of Russell. One of the wells on the Driscoll lease owned by Blair was drilled into the Reagan sandstone and to a total depth of 3,323 feet. It was then plugged back to test a show of gas in the Tarkio limestone between 2,400 and 2,410 feet. The amount of gas was about 3½ million cubic feet per day.

Another interesting development which points the way to future operations in the county was the revival of the Fairport pool, discovered in 1923, where the Sohio Oil Company has deepened and cleaned out a number of wells. The increase in production averages about 35 barrels of oil per day. This operator has

approximately 60 wells in the pool and plans to treat all in a similar fashion. In its earlier years, most of the production of this pool came from various levels in the Lansing and Kansas City limestones (Oswald lime). In 1928 one well was deepened to the Gorham sand at the base of the Pennsylvanian. Since then the Sohio Oil Company has obtained some oil from the Arbuckle dolomite and some also from the Reagan sandstone.

More complete information on the oil pools of Russell County is given in Table 32. The pools are shown in Figure 23.

Sharon Drilling Company drilled the only dry wildcat test in the county, a dry hole in sec. 30, T. 12 S., R. 14 W., about 3 miles north of the **Atherton North** pool (Fig. 23). The total depth of the test was 3,268 feet.

A special report on the problem of water disposal in Russell County was issued by the State Corporation Commission in June 1946. This report indicates that 2,044 wells have been drilled in the county and that only 163 of these are without adequate facilities for the disposal of salt water. There are 144 salt water disposal wells ranging in depth from 244 to 4,165 feet and involving formations from the Dakota sandstone to the Arbuckle and the Reagan sandstone. The report also points out that at least 140 million barrels of oil have been taken out of the county; the income from this oil is approximately 160 million dollars. Operators have spent more than 7 million dollars in drilling and plugging operations. Royalty payments have totalled more than 20 million dollars and about 4 million dollars have been paid out to landowners in lease payments.

TABLE 32.—*Oil pools of Russell County*

Pool and location of discovery well	Discovery year	Area, acres	1946 production bbls.	Cumulative production to end of 1946 bbls.	Producing wells	Producing zone	Depth to producing zone, feet
Atherton 30-13-14W	1935	1,900	112,565	1,879,170	29	Arbuckle	3,284
Atherton North 7-13-14W	1945	80	20,785	28,915	2	Arbuckle	3,195
Atherton West 23-13-15W	1945	40	630	630	1	K.C.-Lans.	3,269
Beisel 15-14-12W	1944	40	1,600	7,380	1	Arbuckle	3,266
Big Creek 36-14-15W	1935	6,800	501,910	8,807,415	135	K.C.-Lans. Gorham Arbuckle	2,908 3,152 3,171
Boxberger 36-15-15W	1935	160	7,310	192,085	3	K.C.-Lans.	3,147

TABLE 32.—*Oil pools of Russell County (continued)*

Pool and location of discovery well	Discovery year	Area, acres	1946 production bbls.	Cumulative production to end of 1946 bbls.	Producing wells	Producing zone	Depth to producing zone, feet
Bunker Hill 31-13-12W	1935	200	none	74,825	3	K.C.-Lans.	2,965
Claussen 27-12-14W	1944	40	2,097	4,607	1	K.C.-Lans.	2,855
Davidson		see Barton County					
Donovan 10-15-15W	1935	200	15,175	155,510	5	K.C.-Lans.	3,193
Donovan North 3-15-15W	1945	40			1	Arbuckle	3,216
Driscoll 30-15-11W	1940	160	3,150	65,010	2	Arbuckle	3,255
Dubuque 34-15-12W	1935	700	48,915	433,060	2 4	K.C.-Lans. Arbuckle	3,275 3,330
Fairport 8-12-15W	1923	3,600	729,090	18,540,695	152	K.C.-Lans. Gorham Arbuckle Reagan	2,950 3,211
Forest Hill 29-15-12W	1941	1,000	312,560	857,425	1 30	Shawnee Arbuckle	3,320
Gideon 8-15-14W	1930	40	1,150	49,165	1	Sooy	3,266
Gorham 32-13-15W	1926	9,000	1,890,855	30,954,065	282	Shawnee Arbuckle Reagan	2,765 3,289 3,299
Gustason 14-15-12W	1941	160	14,790	86,310	3	K.C.-Lans.	3,050
Gustason Northwest 15-15-12W	1943	400	48,000	181,645	3 4	K.C.-Lans. Arbuckle	3,021 3,322
Hall-Gurney 30-14-13W	1931	28,000	3,451,475	30,533,065	626	Wabaunsee Topeka K.C.-Lans. Gorham Arbuckle Pre-Cambrian	2,400 2,675 2,985 3,165 3,192
Janne 24-15-12W	1943	320	17,620	72,190	1 5	K.C.-Lans. Arbuckle	3,319
Jerry 4-15-14W	1942	320	5,555	38,755	1 1 1	Wabaunsee K.C.-Lans. Arbuckle	2,985
Lewis 28-14-12W	1940	40	405	12,335	1	Wabaunsee	2,317
Mahoney 8-14-12W	1940	160	2,015	44,490	1	K.C.-Lans.	2,977
Russell 22-13-14W	1934	1,500	632,860	7,046,055	12 53	K.C.-Lans. Arbuckle	3,195 3,280
Russell North 15-13-14W	1942	40	225	21,105	1	K.C.-Lans.	2,978
Smoky Hill 2-15-14W	1938	80				K.C.-Lans.	2,950
Strecker 21-15-14W	1943	80	5,960	30,065	2	Arbuckle	3,342
Trapp 23-15-14W	1936	37,000	7,915,120	83,933,800	1,174	Shawnee K.C.-Lans. Arbuckle	2,889 3,062 3,252

Saline County

Only 12 tests were drilled in Saline County during 1946. Among these there were 7 oil wells, one of which opened a new pool, called **Salina South**. It was discovered by Page when the first well on the Hagg farm, located in the NW¼ SW¼ SE¼ sec. 32, T. 14 S., R. 2 W. was completed in April. The oil comes from the Viola between depths of 3,246 and 3,252 feet. Only a short distance separates this pool from the Salina pool to the northwest. The discovery well has a capacity of 91 barrels of oil per day.

In the main **Salina** pool five new oil wells were added during the year. All produce from the Viola and two are rated as having capacities of more than 400 barrels per day. All the wells show some water with the oil. In sec. 18 on the southwest side of the pool the Lowell Drilling Company drilled a dry hole on the Swigart farm.

In the **Hunter** pool one new oil well was added. It was drilled by the Deep Rock Oil Corporation on the Hesher farm in sec. 17, T. 16 S., R. 1 W., and is rated as having a capacity of 20 barrels per day. Considerable water accompanies the oil.

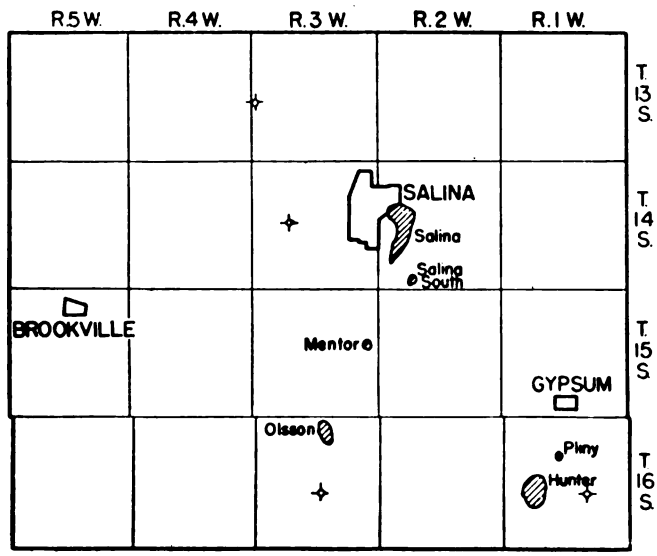

Fig. 24.—Saline County map showing oil pools and dry wildcat wells drilled during 1946.

TABLE 33.—*Oil pools of Saline County*

Pool and location of discovery well	Discovery year	Area, acres	1946 production bbls.	Cumulative production to end of 1946 bbls.	Producing wells	Producing zone	Depth to producing zone, feet
Hunter 20-16-1W	1943	850	155,305	567,110	19	"Chat"	2,681
Mentor 13-15-3W	1944	40	2,308	4,240	1	Viola	3,258
Olsson 10-16-3W	1929	160	15,720	50,415	3	Viola	3,303
Pliny 9-16-1W	1943	40	3,250	11,285	1	K.C.-Lans.	1,989
Salina 30-14-2W	1943	700	128,085	216,735	15	Viola	3,223
Salina South 32-14-2W	1946	80	4,090	4,090	1	Viola	3,246

More complete information concerning the oil pools of Saline County is given in Table 33. These pools and the dry wildcat wells drilled during 1946 are shown in Figure 24, and the dry wildcat tests are listed in Table 34.

TABLE 34.—*Dry wildcat tests drilled in Saline County during 1946*

Company and farm	Location	Depth to top of Lansing, feet	Depth to top of Miss., feet	Depth to top of Hunton, feet	Depth to top of Viola, feet	Depth to top of Arb'kle, feet	Total depth, feet
Westgate-Greenland No. 1 Baird	SW¼ NW¼ NW¼ 19-13-3W	2,360	3,026	3,458	3,680	3,870	3,888
Geary No. 1 Bell	SW¼ SE¼ SE¼ 17-14-3W	2,250	2,920	3,375	3,560	3,749	3,765
Fowler et al. No. 1 Bickel	NE cor. SE¼ 22-16-1W		2,632				2,638
Nelson Drlg. No. 1 Blair	NW cor. SW¼ 22-16-3W	2,223	2,880	3,360	3,348	3,553	3,564

SCOTT COUNTY

During 1946 only three test wells were drilled in Scott County. All were dry, but they nevertheless provided valuable geological information on the attitude of the strata below the surface. These are shown in Figure 25. Two of them were drilled as stratigraphic tests by the Gulf Oil Corporation. One of them, located 15 miles northwest of the Shallow Water pool on the Robinson ranch in the SW cor. NE¼ sec. 16, T. 19 S., R. 34 W., was drilled to a total depth of 3,142 feet. The Herington limestone was found at 2,702 feet, the Fort Riley limestone at 2,833 feet, and the Cottonwood limestone at 3,134 feet. The well was plugged back to test the gas possibilities of this location, but the test was unsuccessful.

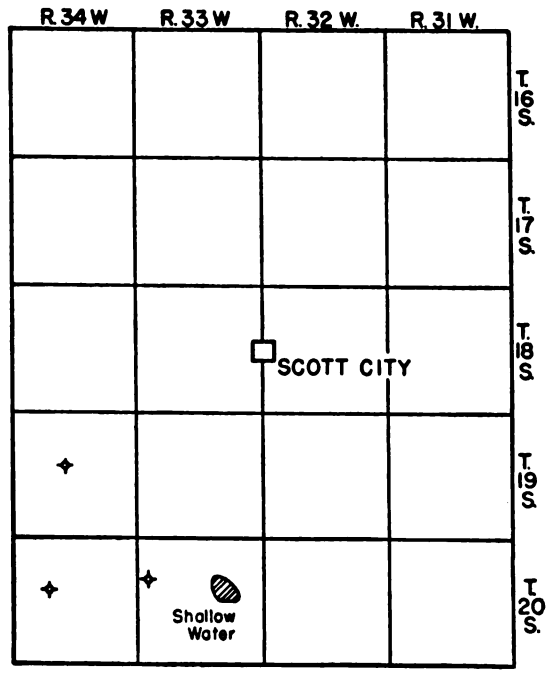

FIG. 25.—Scott County map showing the Shallow Water oil pool and the dry wildcat wells drilled during 1946.

W. A. Snyder and Sons drilled a test well on the Mark ranch in sec. 7, T. 20 S., R. 33 W., about 4 miles northwest of production in the Shallow Water pool. In this test the Lansing limestone was found at 3,900 feet and the top of the Mississippian limestone at 4,796 feet. The hole was abandoned at a total depth of 4,882 feet as it did not find encouraging indications of oil or gas.

On the Christy Ranch in the SW cor. NE¼ sec. 17, T. 20 S., R. 34 W., about 10 miles west of the Shallow Water pool the Gulf Oil Corporation drilled a second stratigraphic hole to a total depth of 3,164 feet. This test found the Herington limestone at 2,701 feet and the Fort Riley limestone at 2,847 feet. At 3,156 feet the samples indicated the top of the Cottonwood limestone. Pipe was perforated at many levels between 2,780 and 2,910 feet in order to locate gas. A small trace was found between 2,790 and 2,795 feet.

The **Shallow Water** pool produces oil from the Ste. Genevieve limestone at a depth of 4,670 feet. The 12 wells in the pool, which includes 500 acres, produced 102,530 barrels of oil in 1946, making

a cumulative total of 1,552,560 barrels. The discovery well, drilled in 1934, is in sec. 15, T. 20 S., R. 33 W.

Sedgwick County

During 1946, 15 test holes were completed in Sedgwick County. Of these one is a gas well, two are oil wells, and 12 are dry holes. The gas well is listed as the discovery well for the **Bartholomew** pool. The Kingwick Oil Company drilled a test hole on the Bartholomew farm in the SE¼ SE¼ SW¼ sec. 30, T. 27 S., R. 4 W. In this test gas was found between 3,732 and 3,737 feet near the top of the Mississippian limestone. The well is rated at a capacity of 5 million cubic feet of gas per day.

In the **Goodrich** pool north of Wichita, one new oil well was added when Max Steinbuchel completed the No. 3 well on the Warren lease in sec. 21, T. 25 S., R. 1 E. Here oil was found be-

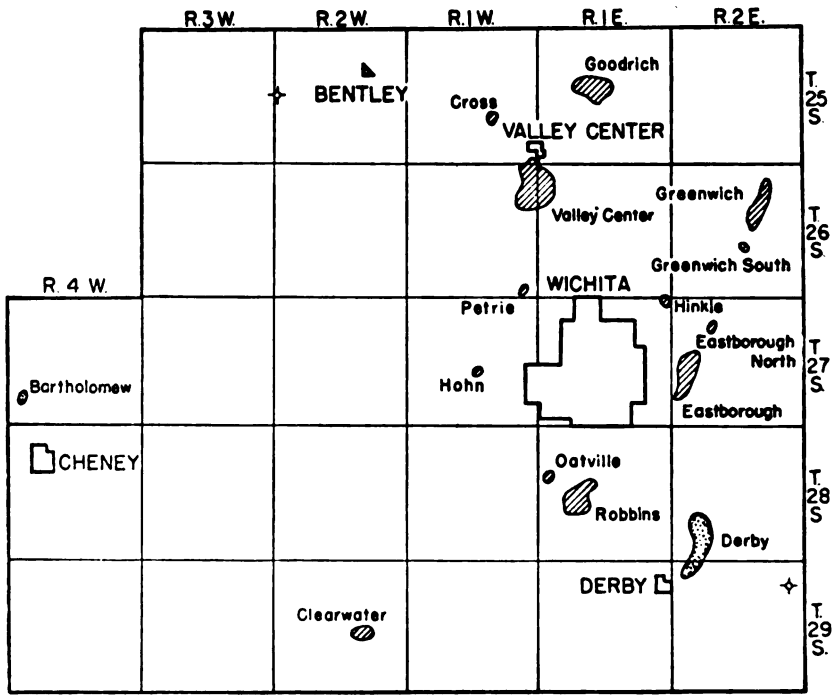

Fig. 26.—Sedgwick County map showing oil and gas pools and dry wildcat wells drilled during 1946.

tween the depths of 3,339 and 3,344 feet in the Arbuckle dolomite which is a new producing zone for this pool. There are three other producing zones in the pool.

Four dry holes were drilled in an effort to extend the **Greenwich South** pool. All were located on the south side of the pool. One was drilled in sec. 22, two in sec. 27, and one in sec. 28, T. 26 S., R. 2 E. One of them tested the Arbuckle dolomite, two the Simpson sandstone, and two only the Mississippian limestone.

A new oil pool, the **Hinkle**, was found when the Beech Aircraft Corporation completed the No. 2 well on the Hinkle farm in the SE¼ NE¼ NE¼ sec. 1, T. 27 S., R. 1 E. This test found oil in the "Burgess sand" between depths of 2,980 and 2,983 feet. The capacity assigned to the discovery well was 828 barrels per day.

TABLE 35.—*Oil and gas pools of Sedgwick County*

Pool and location of discovery well	Discovery year	Area, acres	1946 production bbls.	Cumulative production to end of 1946 bbls.	Producing wells	Producing zone	Depth to producing zone, feet
Bentley 19-25-1W	1929	abandoned during 1946					
Clearwater 22-29-2W	1944	300	21,215	45,140	5	K.C.-Lans.	2,913
Cross 29-25-1W	1929	160	3,110	66,940	2	K.C.-Lans.	2,690
Eastborough 19-27-2E	1929	1,000	86,890	8,630,890	29	"Chat" Viola	2,956 3,238
Eastborough North 8-27-2E	1938	80			2	Viola	3,258
Goodrich 16-25-1E	1928	780	148,285	4,070,960	31	K.C.-Lans. "Chat" Kinderhookian Arbuckle	2,614 3,010 3,334 3,339
Greenwich 14-26-2E	1929	700	229,955	10,344,165	38	"Chat" Viola	2,885 3,321
Greenwich South 22-26-2E	1945	80	8,190	8,600	2	"Chat"	2,896
Hinkle 1-27-1E	1946	40	5,770	5,770	1	Burgess	2,980
Hohn 22-27-1W	1945	40	2,104	4,347	1	K.C.-Lans.	2,779
Kuske 24-25-1E	1929	abandoned during 1946					
Oatville 18-28-1E	1937	80			1	Simpson	3,489
Petrie 36-26-1W	1945	40	10,710	14,535	1	Viola	3,387
Robbins 20-28-1E	1929	640	61,550	3,303,605	49	"Mississippi lime"	3090
Valley Center 1-26-1W	1928	1,500	160,685	21,379,380	56	K.C.-Lans. Kinderhookian Viola	 3,380 3,366
Bartholomew (gas) 30-27-4W	1946	40	none	none	1	"Mississippi lime"	3,732
Derby (gas) 32-28-2E	1937	1,800			7	Stalnaker Lansing	2,215 2,228

Subsequently three additional tests were drilled in the same section, but all failed to find production in the "Burgess sand." Northeast of the pool two dry holes were drilled in sec. 31, T. 26 S., R. 2 E. One of these tested the Viola limestone and the other was drilled only deep enough to test the Kansas City limestone. On the east side of the pool a dry hole was drilled in sec. 6, T. 27 S., R. 2 E. This well, the No. 3 Hinkle, was drilled to a total depth of 3,610 feet. The "Burgess sand" was found at 2,999 feet, the Mississippian limestone at 3,005 feet, the Viola limestone at 3,355 feet, and the Arbuckle dolomite at 3,490 feet.

Information concerning the oil and gas pools of Sedgwick County is given in Table 35. These pools are shown in Figure 26.

Several interesting exploratory wells were drilled in the county during 1946. They are shown on Figure 26. One is the Helmerich and Payne No. 1 Williams test in sec. 18, T. 25 S., R. 2 W. This test, at an altitude of 1,407 feet, found the Lansing limestone at 2,582 feet, the Mississippian at 3,403 feet, the Viola at 3,918 feet, the Simpson at 3,938 feet, and the Arbuckle dolomite at 4,042 feet. The test was abandoned as a dry hole at a total depth of 4,099 feet.

In the southeastern corner of the county, Brown drilled a test hole in the Cen. N½ NE¼ NW¼ sec. 12, T. 29 S., R. 2 E. This test, at an altitude of 1,295 feet, found the Lansing limestone at 2,120 feet and was abandoned at 2,250 feet.

Seward County

All producing wells in Seward County are gas wells in the Hugoton field. Up to the close of 1945 the total number of gas wells in the county was only 15. During the year 1946 five new gas wells were added to make the present total 20. One of the new wells was drilled by the Stanolind Oil and Gas Company on the Fair ranch in sec. 34, T. 31 S., R. 33 W. The other four wells were drilled by the Wood River Oil and Refining Company in T. 31 S., R. 34 W. These wells are shown in Figure 7. Information on production in the Hugoton field is given under Finney County.

Exploratory tests.—Two very important deep tests were completed in Seward County during 1946. One of these was drilled by Hunt on the Lofland lease in sec. 18, T. 35 S., R. 31 W., about 12 miles southeast of Liberal. This test, at an altitude of 2,713

feet, found the Hollenberg limestone at 2,570 feet, the Herington limestone at 2,640 feet, and the Winfield limestone at 2,685 feet. These three limestones produce some of the gas in the Hugoton area, but here they were found to be barren. The Lansing limestone was found at 4,555 feet and the top of the Mississippian strata at 6,230 feet. Samples indicate the presence of the Chesterian Series from 6,230 to 6,605 feet. This interval is composed of lithographic limestones alternating with very fossiliferous crinoidal limestones and some shales. The Meramecian materials were encountered at 6,605 feet and extend to 7,245 feet. Samples reveal much sandy limestone or calcareous sandstone between 6,605 and 6,685 feet. There is much oölitic limestone between 6,685 and 7,115 feet. Between 7,115 and 7,245 feet limestone with thin beds of dolomite is present at intervals in the sequence. The Warsaw dolomites begin at 7,245 feet and continue to 7,386 feet. Between 7,386 and 7,416 feet argillaceous dolomitic rock of the Cowley type is found in the samples. The typical cherty limestones of the Osagian Series are found between 7,416 and 7,585 feet, but lower down the Osagian consists of cherty dolomites to a depth of 7,635 feet. The St. Joe limestone of the Mississippian was encountered at 7,635 feet and consists of limestones of varying degree of crystallinity. There is some chert present in certain layers. The St. Joe rests on the Viola, of Ordovician age, at 7,795 feet. In this location the Viola has dolomite layers at the top, but it is mainly limestone lower down. There is very little chert with these calcareous rocks. The Simpson rocks, which begin at 7,980 feet, consist of sandy limestones and sandy dolomites. The test was drilled to a total depth of 8,006 feet in rocks of this type and was abandoned as a dry hole.

The second deep test was drilled 4 miles east of the Lofland test about 2 miles from the producing well in the Adams Ranch pool in Meade County. Here the Stanolind Oil and Gas Company completed a dry hole on the Adams ranch in sec. 14, T. 35 S., R. 31 W. The sequence of beds in this test is very similar to that described for the Lofland test. The top of the Mississippian strata was found at 6,196 feet and the test was abandoned at a total depth of 6,800 feet without penetrating the complete thickness of the Mississippian beds.

Sheridan County

Only 10 tests were drilled in Sheridan County during 1946. Of these three were oil wells and 7 were dry holes. All new oil wells are in the **Adell** pool and are owned by the Continental Oil Company. The average potential of these wells is 800 barrels of oil per day. One of the wells also produces a small amount of water with the oil. A dry hole was drilled in the pool by the Continental Oil Company in sec. 3. One test drilled by the Continental Oil Company on the Shaffer farm in the SE¼ sec. 29, T. 8 S., R. 26 W. just north of the **Studley Southwest** pool was a dry hole.

Information on the oil pools in the county is given in Table 36. These pools and the dry wildcat wells drilled during 1946 are shown in Figure 27.

Among the wildcat tests, one was drilled by Fred Anschutz on the Webb farm in sec. 21, T. 7 S., R. 26 W., about midway between the Adell and the **Studley** pools. This test, at an altitude of

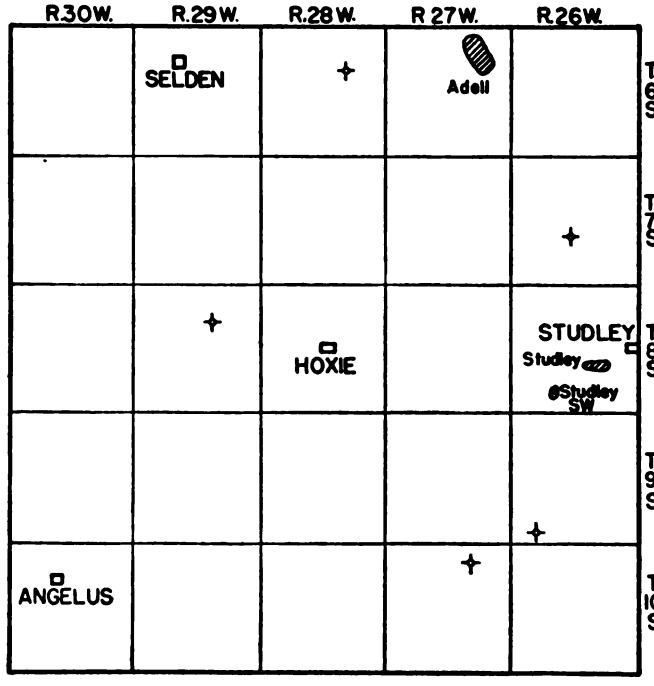

Fig. 27.—Sheridan County map showing oil pools and dry wildcat wells drilled during 1946.

TABLE 36.—*Oil pools of Sheridan County*

Pool and location of discovery well	Discovery year	Area, acres	1946 production	Cumulative production to end of 1946	Producing wells	Producing zone	Depth to producing zone, feet
Adell 11-6-27W	1944	800	202,765	413,980	22	K.C.-Lans.	3,755
Studley 23-8-26W	1943	300	34,510	205,075	6	K.C.-Lans.	3,810
Studley Southwest 32-8-26W	1945	40	9,916	11,740	1	K.C.-Lans.	3,758

2,608 feet, reached the Lansing limestone at 3,828 feet, the Mississippian rocks at 4,351 feet, and the Arbuckle dolomite at 4,518 feet. It was abandoned at 4,562 feet.

One dry hole was drilled by the H. & T. Drilling Company 6 miles west of the Adell pool on the Harold farm in sec. 11, T. 6 S., R. 28 W.

A wildcat test was drilled by the Stanolind Oil and Gas Company on the Thompson lease in sec. 10, T. 8 S., R. 29 W. This location is 6 miles northwest of the town of Hoxie and 15 miles away from any presently producing area. This test, at an altitude of 2,860 feet, reached the top of the Mississippian strata at 4,547 feet. It was abandoned at a total depth of 4,745 feet. A stratigraphic test hole was drilled by the Continental Oil Company on the McWilliams farm in sec. 32, T. 9 S., R. 26 W. This location is 6 miles south of production in the Studley Southwest pool. No data are available on the sequence of beds found in the test.

Five miles southwest of this test, the Stanolind Oil and Gas Company completed a dry test on the Wiman farm in the SE cor. SE¼ sec. 3, T. 10 S., R. 27 W. This test, at an altitude of 2,633 feet, found the Lansing limestone at 3,805 feet and the top of the Mississippian Osagian cherty limestones at 4,400 feet. The Osagian here contains dolomite as well as limestone beds. The St. Joe limestone was found from 4,500 to the top of the Viola at 4,600 feet. The lower part of the St. Joe is oölitic limestone and is often referred to as the Gilmore City for that reason. The cherty dolomites of the Viola extend down to the top of the Arbuckle dolomite at 4,640 feet. The test ended in this dolomite at 4,674 feet.

STAFFORD COUNTY

Stafford County was not entirely neglected during 1946, but the drilling activity was on a smaller scale than in previous years.

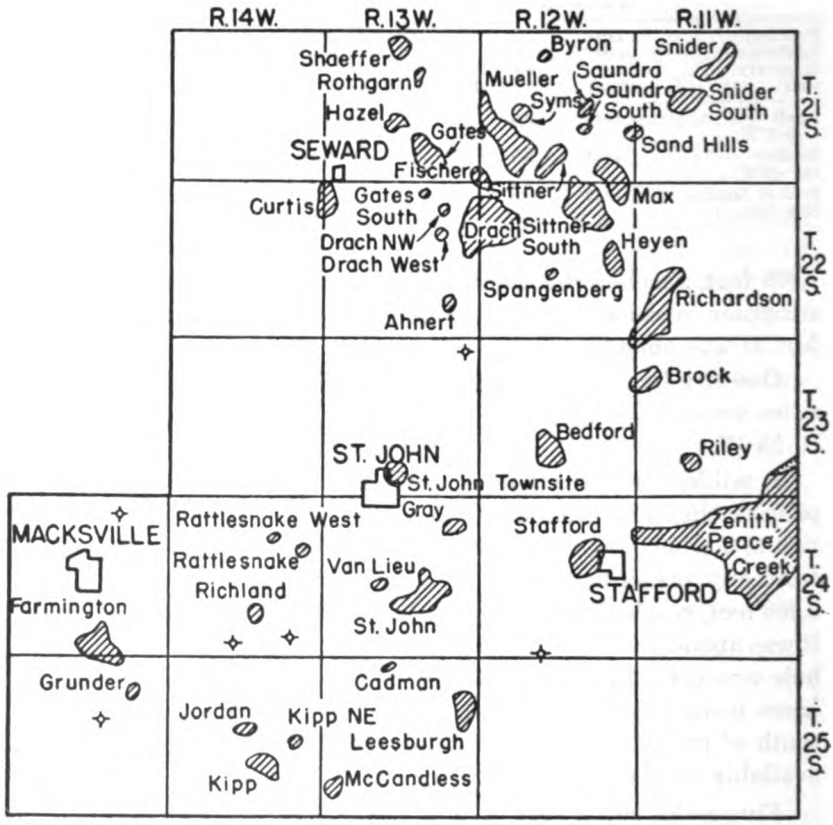

FIG. 28.—Stafford County map showing oil and gas pools and dry wildcat wells drilled during 1946. (Gas, dots; oil, diagonal lines.)

A total of 60 test wells were completed there, of which 33 are new oil wells. Of the 10 wildcat tests, four are new pool discoveries and six are dry holes. The dry holes are shown in Figure 28 and are listed in Table 39.

Four of the wildcat tests were successful in finding new sources of oil. One new pool, called **Gray,** was found in April by the Alkay Oil Company when the first well on the Gray farm was completed. This well is located in the SW¼ NE¼ NE¼ sec. 11, T. 24 S., R. 13 W. The oil was found in the Lansing limestone at a depth of 3,762 feet. The discovery well was given a rating of 480 barrels per day. It was drilled to a total depth of 3,882 feet in order to test the Viola limestone which was found at 3,842 feet, then

TABLE 37.—*Test wells drilled in Stafford County during 1946, by pools*

Pool	Oil wells	Dry holes	Total
Brock	1	1	2
Curtis	4	1	5
Drach	1	1	2
Farmington		1	1
Gray	3		3
Hazel	1		1
Heyen	1	1	2
Kipp Northeast	3	2	5
Mueller	14	5	19
Rattlesnake		1	1
Richardson		1	1
Saundra	2		2
Saundra South	1		1
Shaeffer		1	1
Sittner	2	2	4
Snider South		2	2
Spangenberg		1	1
Stafford		1	1
Wildcat wells		6	6
Total	33	27	60

plugged back to 3,774 feet. Two additional oil wells were drilled in the new pool.

Another pool, called the **Kipp Northeast**, was found by the Cities Service Oil Company near the Kipp pool in the southern part of the county. The discovery well was drilled on the Kipp farm in the NE cor. sec. 23, T. 25 S., R. 14 W. It produces from the Lansing limestone between depths of 3,844 and 3,863 feet, although it also tested all the formations lower down, including the Arbuckle dolomite. The well was completed in May and is capable of producing 1,260 barrels of oil testing 32° A.P.I. per day. Two additional producers and two dry holes were drilled in the pool after the discovery.

The other two new pools in Stafford County were found by the Virginia Drilling Company. In one of them, called the **Saundra** pool, the first well was the No. 2 Roberts well in the Cen. W. line SW¼ SW¼ sec. 14, T. 21 S., R. 12 W. Oil was found in the Arbuckle dolomite between the depths of 3,546 and 3,602 feet. The well was completed in August, and is capable of producing 25 barrels of oil per day. One additional producer was drilled in the new pool.

The same operator drilled a test less than 1 mile south of the Saundra discovery on the Rose farm in the NE¼ NE¼ SE¼ sec.

22. Here a larger flow of oil was found in the Arbuckle dolomite between depths of 3,586 and 3,604 feet. This well, completed in December, has a capacity of 90 barrels per day. This new pool was named **Saundra South.**

Drilling was done in 14 of the older pools of this county. The results of this drilling are given in Table 37. The good success which attended drilling to the northwest of the **Mueller** pool resulted in closing the gap between the **James** and the Mueller pools. Henceforth all wells in these two pools will be described under the name Mueller. Some of the 14 new oil wells completed here are wells with large potential capacities. Four new oil wells were drilled in the **Curtis** pool and one each in the **Drach** and **Brock** pools.

Data on the oil and gas pools of Stafford County are given in Table 38 and on the dry wildcat tests in Table 39. Both the pools and dry wildcat tests are shown in Figure 28.

TABLE 38.—*Oil and gas pools of Stafford County*

Pool and location of discovery well	Discovery year	Area, acres	1946 production bbls.	Cumulative production to end of 1946 bbls.	Producing wells	Producing zone	Depth to producing zone, feet
Ahnert 26-22-13W	1941	40	3,360	30,775	1	Arbuckle	3,784
Bedford 21-23-12W	1940	850	112,340	1,070,505	16	Arbuckle	3,859
Brock 12-23-12W	1944	640	50,035	86,185	6	Arbuckle	3,680
Byron 4-21-12W	1943	40	1,718	10,275	1	Arbuckle	3,460
Cadman 4-25-13W	1944	40	821	4,150	1	Viola	4,064
Curtis 6-22-13W	1942	400	85,895	190,735	9	Arbuckle	3,693
Drach 12-22-13W	1937	2,200	497,465	2,248,895	45	Arbuckle	3,690
Drach Northwest 11-22-13W	1944				1	Arbuckle	3,738
Drach West 14-22-13W	1938	40	incl. with Drach			Arbuckle	
Farmington 34-24-15W	1943	640	130,520	498,120	1 13	Kinderhookian Arbuckle	4,417
Fischer 31-21-12W	1938	160	23,360	272,700	3	Arbuckle	3,641
Gates 27-21-13W	1933	700	101,780	1,315,155	13	Arbuckle	3,679
Gates South 3-22-13W	1943	40			1	Arbuckle	3,704
Gray 11-24-13W	1946	120	10,563	10,563	3	K.C.-Lans.	3,762

Grunder 11-25-15W	1943	40	2,630	13,190	1	K.C.-Lans.	3,945
Hazel 21-21-13W	1942	250	32,705	175,725	6	Arbuckle	3,692
Heyen 24-22-12W	1943	400	37,260	110,775	9	Arbuckle	3,652
James 18-21-12W	1943	combined with Mueller					
Jordan 15-25-14W	1936	300	41,625	579,470	7	K.C.-Lans.	3,722
Kipp 27-25-14W	1937	500	35,900	495,260	11	K.C.-Lans.	3,827
Kipp Northeast 23-25-14W	1946	120	20,145	20,145	3	K.C.-Lans.	3,844
Leesburgh 12-25-13W	1938	700	212,630	1,776,280	16	Arbuckle	4,153
McCandless 30-25-13W	1944	200	38,830	114,840	4	Simpson	4,251
Max 35-21-12W	1938	500	141,040	812,130	3 9	K.C.-Lans. Arbuckle	3,356 3,570
Mueller 29-21-12W	1938	1,600		882,714		Arbuckle	3,594
Rattlesnake 13-24-14W	1938	160	8,475	79,275	1	K.C.-Lans.	3,608
Rattlesnake West 11-24-14W	1944	40	2,923	11,790	1	K.C.-Lans	3,759
Richardson 36-22-12W	1930	1,200	683,610	7,801,545	60	Arbuckle	3,537
Richland 27-24-14W	1944	200	41,250	97,415	5	Arbuckle	4,232
Riley 28-23-11W	1940	120	13,350	93,535	2	K.C.-Lans.	3,323
Rothgarn 10-21-13W	1943	120	7,205	59,755	3	Arbuckle	3,569
Sand Hills 19-21-11W	1944	80	9,882	19,590	2	Arbuckle	3,548
Saundra 14-21-12W	1946	80	1,690	1,690	2	Arbuckle	3,546
Saundra South 22-21-12W	1946	40			1	Arbuckle	3,586
Shaeffer 3-21-13W	1941	300	17,170	252,850	4 1	K.C.-Lans. Arbuckle	3,404 3,546
St. John 23-24-13W	1935	1,200	331,755	2,228,865	1 24	K.C.-Lans. Arbuckle	3,588 4,075
St. John Townsite 33-23-13W	1944	300	48,535	161,820	1 6	K.C.-Lans. Arbuckle	 3,919
Sittner 33-21-12W	1937	500		342,423		K.C.-Lans. Arbuckle	3,278 3,600
Sittner South 3-22-12W	1938	1,000	150,110	1,294,480	20	Arbuckle	3,501
Snider 3-21-11W	1936	400	19,095	309,360	2	Simpson	3,362
Snider South 16-21-11W	1938	500	99,250	599,250	10 1	Simpson Arbuckle	3,402
Spangenberg 21-22-12W	1943	40	10,450	42,395	1	Arbuckle	3,691
Stafford 15-24-12W	1940	800	239,305	2,003,875	20 1	Viola Arbuckle	3,836 3,945
Syms 20-21-12W	1943	120	18,740	48,630	3	Arbuckle	3,580
Van Lieu 20-24-13W	1943	120	20,990	146,040	3	Arbuckle	4,069
Zenith 23-24-11W	1937	10,000	1,476,835	22,305,040	372	Viola	3,860
	(The Stafford County part of the Zenith-Peace Creek pool)						
Zenith-Peace Creek (gas) 23-24-11W	1937	1,800	1,554,225	th.cu.ft.	6	Viola	3,860

TABLE 39.—*Dry wildcat tests drilled in Stafford County during 1946*

Company and farm	Location	Depth to top of Lansing, feet	Depth to top of Sooy, feet	Depth to top of Viola, feet	Depth to top of Arb'kle, feet	Total depth, feet
Swearer No. 1 Witt	SW cor. NE¼ 1-23-13W	3,393		3,699	3,803	3,840
Plains Explor. No. 1 McCune	SE cor. SW¼ 33-24-12W	3,563	3,911	3,970	4,151	4,183
Phillips No. 1 Walters	SW¼ NW¼ SE¼ 33-24-14W	3,708	4,016	4,082	4,321	4,434
Hershfield No. 1 Shirk	SE cor. NE¼ 35-24-14W	3,630	3,970	4,088	4,239	4,275
Davis-Child No. 1 Doran	SE¼ NW¼ SW¼ 2-24-15W	3,658	3,998	4,006	4,141	4,174
Olson Drlg. No. 1 Hart	SW cor. NE¼ 15-25-15W	3,795	4,193	4,326	4,498	4,538

STANTON COUNTY

All the producing wells in Stanton County are gas wells, forming part of the Hugoton field. At the close of 1945 only three gas wells had been completed in this county, but during 1946, 40 new wells drilled by the Stanolind Oil and Gas Company, were added. With two exceptions these wells are closely clustered in the southeastern part of the county in Ts. 29 and 30 S., R. 39 W. One small well was drilled in sec. 27, T. 27 S., R. 39 W. and another in sec. 15, T. 28 S., R. 39 W. A western outpost well was drilled in sec. 4, T. 30 S., R. 40 W. on the Peppercorn ranch. This well was acidized at two levels, one with 9,000 gallons and then with 8,000 gallons after which it was capable of producing 162 thousand cubic feet of gas.

The gas wells in Stanton County are shown in Figure 7. Information concerning production in the Hugoton field is given under Finney County.

STEVENS COUNTY

All producing wells in Stevens County are gas wells and form part of the large Hugoton gas area (Fig. 7). By the close of 1945 a total of 288 gas wells had been drilled in this county. During 1946, 74 more gas wells were added. Four of these were drilled by the Stanolind Oil and Gas Company in T. 31 S., R. 39 W., and one in T. 31 S., R. 38 W. The Republic Natural Gas Company drilled 22 of the wells; they are pretty well scattered over the county. The Panhandle Eastern Pipeline Company drilled 26 gas wells in various parts of the county and the Northern Natural

Gas Company drilled 12 wells, most of which are located in the northern part of the county. Three wells were drilled by the Texas Company in T. 35 S., R. 35 W. Herrington and Marsh drilled four new wells and Landon, Derby, and McKnab each drilled one new well.

Most of the wells have large initial capacities. Probably half of them average between 20 million and 30 million cubic feet per day. One well drilled by the Republic Natural Gas Company in sec. 26, T. 34 S., R. 38 W., on the Burrows farm, has a capacity of more than 33 million cubic feet which is probably a record for the whole field. This well made 5 million cubic feet natural and reached the capacity mentioned after 12,500 gallons of acid had been used. However, this amount of acid is not unusual in the Hugoton field.

The gas wells in Stevens County are shown in Figure 7 and information concerning production in the Hugoton field is given under Finney County.

Sumner County

During 1946 there was a great deal of drilling activity in Sumner County. Reasonably good success in the Bellman pool and a renewed search for production among the old fields in the eastern ranges accounted for the revival of interest. A total of 45 test wells were drilled in the county and among these 24 are new oil wells. One new pool, named **Margaret,** was discovered when Ashland completed the first test on the James farm as an oil well. The location of the first well is the NW¼ SW¼ NE¼ sec. 36, T. 32 S., R. 2 E. about midway between the **Oxford** and the **Val Verde** pools. The oil, with gravity of 38° A.P.I., comes from a depth of 3,474 to 3,477 feet in the Arbuckle dolomite. After treatment with 1,000 gallons of acid the well was given a rating of 45 barrels per day. The discovery was made in February and subsequently five additional oil wells were drilled around the first well. One well drilled on the James lease (the No. 3 well in the SE¼ NW¼ SE¼ sec. 36) is producing oil from the top part of the "Mississippi lime." One dry hole was drilled in the new pool. While most of the new wells are small, several are capable of producing 100 barrels per day. However, these wells produce considerable water with the oil.

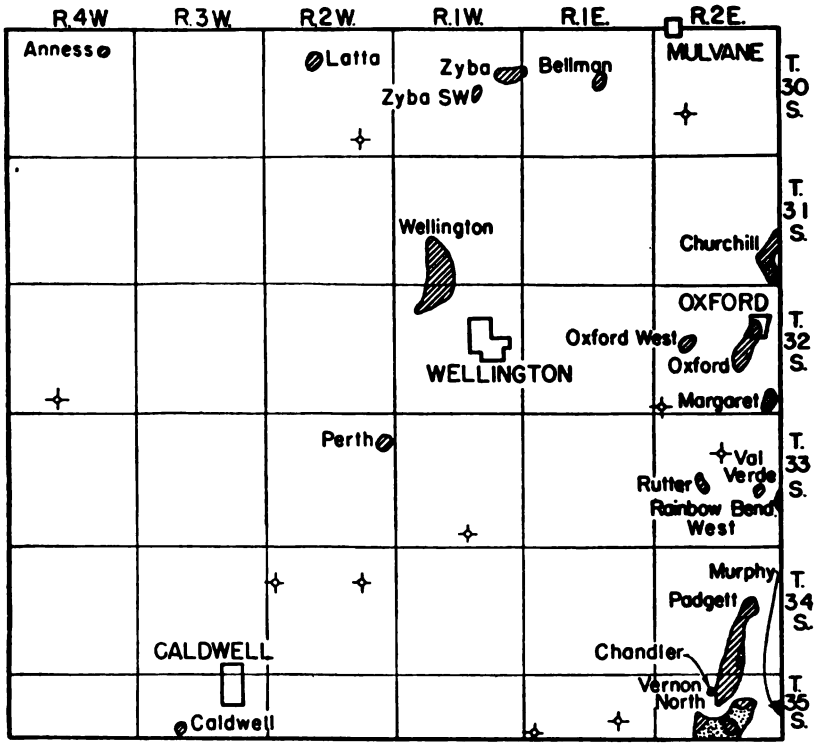

FIG. 29.—Sumner County map showing oil and gas pools and dry wildcat wells drilled during 1946. (Gas, dots; oil, diagonal lines.)

In the **Bellman** pool, which was discovered in 1945, renewed drilling resulted in six new oil wells and three dry holes. The new wells vary considerably in their potential capacity from 15 to more than 1,000 barrels per day. Production is from the Simpson sandstone which is 60 feet thick here. In the **Wellington** pool six small producers were added during the year and three dry holes were drilled to define the southern limits of the pool.

In the **Churchill** pool search for deeper production resulted in three new oil wells. Production ranges from 30 to 150 barrels per day with a large amount of water in each well. The producing zone is the Arbuckle dolomite found at approximately 2,650 feet in this pool. Two new oil wells were completed in the **Padgett** pool. One small oil well was completed in the **Vernon North** pool.

Information on the production in oil and gas pools in Sumner County is given in Table 40. Data on the exploratory wells are provided in Table 41. Both the pools and dry wildcat tests are shown in Figure 29.

TABLE 40.—*Oil and gas pools of Sumner County*

Pool and location of discovery well	Discovery year	Area, acres	1946 production bbls.	Cumulative production to end of 1946 bbls.	Producing wells	Producing zone	Depth to producing zone, feet
Anness 2-30-4W	1937	40	9,335	98,370	1	Simpson	4,394
Bellman 15-30-1E	1945	300	52,989	54,645	7	Simpson	3,798
Caldwell 17-35-3W	1929	200	32,925	1,245,195	4	Simpson	4,765
Chandler 4-35-2E	1942	40	2,455	7,490	1	"Mississippi lime"	3,450
Churchill 25-31-2E	1926	1,000	170,030	19,081,902	58 4	Stalnaker Arbuckle	1,820 2,632
Latta 9-30-2W	1927	500	51,940	984,250	12	K.C.-Lans.	3,042
Margaret 36-32-2E	1946	300			6	Arbuckle	3,474
Murphy 7-35-3E	1933	pool mainly in Cowley County					
Oxford 14-32-2E	1927	800	147,280	15,366,120	43	Stalnaker Layton Arbuckle	2,020 2,510 2,890
Oxford West 17-32-2E	1926	160	10,525	556,585	3	Arbuckle	
Padgett 23-34-2E	1924	1,800	16,000	2,214,845	15	"Mississippi lime"	3,474
Perth 12-33-2W	1945	80	4,750	7,770	2	Wilcox	4,264
Rainbow Bend West 24-33-2E	1926	160			3	Arbuckle	
Rutter 21-33-2E	1926	80	4,845	91,660	2	"Mississippi lime"	3,315
Val Verde 23-33-2E	1945	40	1,835	1,835	1	"Bartlesville"	3,280
Vernon North 15-35-2E	1930	1,200			19	"Mississippi lime"	3,443
Wellington 33-31-1W	1929	2,400	248,740	5,899,060	100	"Chat"	3,655
Zyba 7-30-1E	1937	300	38,830	133,730	6	Simpson	3,866
Zyba Southwest 22-30-1W	1944	80	10,496	26,780	2	Simpson	3,918
Padgett (gas) 24-34-2E	1924	1,800			10	"Mississippi lime"	3,474
Vernon North (gas) 15-35-2E	1915				4		
Wellington (gas) 33-31-1W	1929	1,200				"Chat"	3,655

TABLE 41.—*Dry wildcat tests drilled in Sumner County during 1946*

Company and farm	Location	Depth to top of Kansas City, feet	Depth to top of Mississippian, feet	Depth to top of Arbuckle, feet	Total depth, feet
Cree et al. No. 1 Frantz	NW cor. NE¼ 35-30-2W	3,099	3,759	4,298	4,335
Deep Rock No. 1 Watkins	NE cor. SE¼ 32-32-4W	3,510	4,200	4,715	4,765
Stickle No. 1 Bolay	SE cor. NW¼ 34-33-1W	3,315	3,913	4,469	4,510
Alan Oil et al. No. 1 Stuart	NW cor. SE¼ 7-34-2W	2,990* 3,435	4,118		4,566
Carson et al. No. 1 Mason	Cen. NE¼ SW¼ 11-34-2W	3,462	4,041	4,638	4,695
Marion No. 1 Worden	SE cor. SW¼ 20-30-2E	2,645			2,686
Ashland No. 1 Paton	SW¼ NE¼ SW¼ 31-32-2E	2,834	3,384		3,766
Adkins No. 1 Totten	SW cor. SW¼ 10-33-2E	2,741	3,177	3,471	3,495
Fidelity No. 1 Hensel	NE cor. NW¼ 14-35-1E		3,560?		3,752
Fred Morgan No. 1 Horsley	Cen. E½ SE¼ SW¼ 18-35-1E		3,612		3,894

* (Lansing)

TREGO COUNTY

The amount of drilling done in Trego County during 1946 suggests that the oil operators were not very optimistic about the possibilities of that area. Only eight tests were drilled and all these were dry. One dry hole was drilled on the outer fringe of the **Wakeeney** pool. Another was drilled about 2 miles south of the pool. A third was drilled about 4 miles north of the **Cotton** pool. The others were rank wildcat tests.

Information on the oil pools of Trego County is given in Table 42. These pools and the dry wildcat wells drilled during 1946 are shown in Figure 30.

The Palmer Oil Company drilled a test hole north of the Cotton pool to a total depth of 4,000 feet. It is located on the Dietrich farm in the NW cor. SE¼ sec. 36, T. 11 S., R. 21 W. Here the Lansing is found at 3,595 feet and the Arbuckle dolomite at 3,964 feet.

The Mazda Oil Company drilled a test well on the land of the Central Life Insurance Company in the SE cor. NE¼ sec. 16, T. 11 S., R. 24 W. This test, at an altitude of 2,434 feet, found the Topeka limestone at 3,538 feet, the Lansing limestone at 3,788 feet, the base of the Kansas City limestone at 4,034 feet. and the Sooy conglomerate at 4,259 feet. The Sooy is 79 feet thick and rests upon

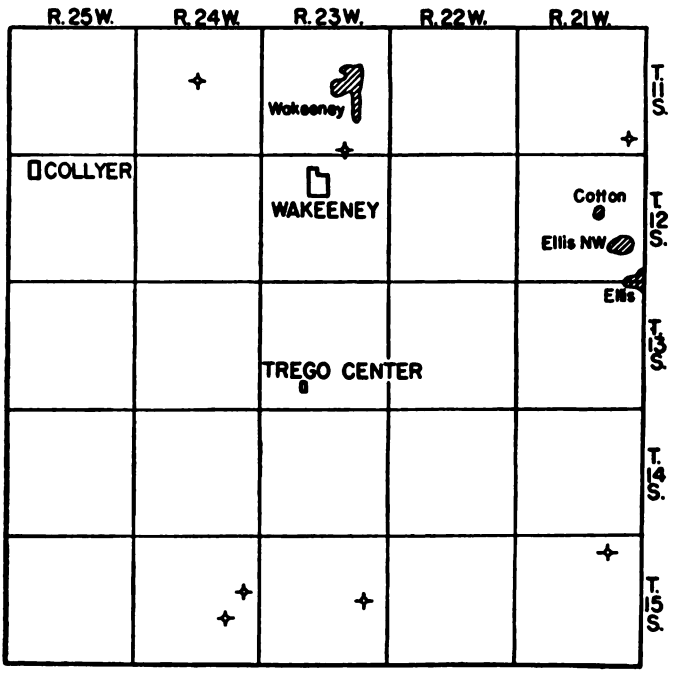

FIG. 30.—Trego County map showing oil pools and dry wildcat wells drilled during 1946.

Mississippian limestone at 4,339 feet. Below the Mississippian the drill went into the Viola limestone at 4,485 feet and the Arbuckle dolomite at 4,543 feet.

In the southeastern part of the county a test well was drilled by the Continental Oil Company on the Joswakoski farm in the SE cor. NW¼ sec. 2, T. 15 S., R. 21 W. This test went down to the Arbuckle. Farther west in T. 15 S., R. 23 W. the Sohio Oil Company completed a test well on the Pfaff farm in the SE cor. SE¼ sec. 14, T. 15 S., R. 23 W. Here the Lansing limestone was found at 3,728 feet and the Sooy conglomerate at 4,289 feet. The Sooy was only 9 feet thick and rests upon Mississippian limestone at 4,298 feet. The Arbuckle dolomite was found at 4,585 feet. There were no shows of oil or gas in this test, and therefore it was abandoned at a total depth of 4,650 feet.

The Republic Natural Gas Company drilled two holes in T. 15 S., R. 24 W. One of these in the SW cor. NE¼ sec. 13 was drilled on the Hille farm and is listed as the No. 1 Hille "B" well. This

TABLE 42.—*Oil pools of Trego County*

Pool and location of discovery well	Discovery year	Area, acres	1946 production bbls.	Cumulative production to end of 1946 bbls.	Producing wells	Producing zone	Depth to producing zone, feet
Cotton 15-12-21W	1945	40	8,700	8,700	1	Arbuckle	3,958
Ellis		see Ellis County					
Ellis Northwest 26-12-21W	1944	200	28,225	72,650	4	Arbuckle	3,925
Wakeeney 14-11-23W	1934	640	37,245	636,525	6	K.C.-Lans.	3,619

test, at an altitude of 2,235 feet, encountered the Lansing limestone at 3,595 feet and the top of the Mississippian limestone at 4,206 feet; the total depth is 4,258 feet. It was completed in August. The other test hole was drilled in the SE cor. SW¼ sec. 23 and is listed as the No. 1 Hille "O" well. This test, at an altitude of 2,339 feet, found the Lansing at 3,688 feet, the Sooy conglomerate at 4,262 feet, and the top of the Mississippian at 4,293 feet. There were no shows and the test was abandoned at 4,323 feet some 30 feet below the top of the Mississippian limestones.

The Continental Oil Company drilled a dry hole, No. 1 Rhoades, altitude 2,441 feet, in the NW¼ SE¼ SE¼ sec. 34, T. 11 S., R. 23 W. It is reported to have reached the top of the Lansing at 3,696 feet and the Arbuckle at 4,162 feet. A good show of oil was reported between 3,710 and 3,721 feet.

EXPLORATORY WELLS IN NONPRODUCING COUNTIES

During 1946 only a few wildcat tests were drilled in nonproductive counties of western Kansas. Nevertheless, these holes furnished extremely valuable geological information which will doubtless be used to help in finding new sources of oil and gas in the future.

In **Decatur County** two such wildcat tests were drilled. One of these is the No. 1 Jorn test drilled by Helmerich and Payne in the SE cor. SW¼ sec. 28, T. 2 S., R. 28 W. This test, at an altitude of 2,529 feet, found the Lansing limestone at 3,513 feet and the Marmaton group at 3,718 feet. In the lower 100 feet of the Marmaton there is much arkosic material in this location. It rests upon the very old part of the Arbuckle dolomite, the Bonneterre member, at a depth of 4,020 feet. This proved to be only 127 feet thick and is underlain by granite at 4,147 feet. A study of the Schum-

berger log shows the presence of the Stone Corral dolomite at 2,213 feet and the Heebner shale at 3,472 feet.

The second test in Decatur County was drilled by Helmerich and Payne on the Bailey farm in the NE cor. NE¼ sec. 14, T. 3 S., R. 27 W. This test, at an altitude of 2,662 feet, found the Heebner shale at 3,561 feet and the Lansing limestone at 3,607 feet. The Marmaton was found at 3,808 feet and it contains much pink sandstone and sandy limestone in this location. The Marmaton rests upon the Arbuckle dolomite at 4,008 feet with the Bonneterre member at 4,065 feet. The last sample shows a small amount of quartz and it is possible that the test ends in pre-Cambrian rock. The total depth is 4,178 feet.

In **Ford County** a deep test was drilled by Swearer on the Brown ranch in the SW cor. SW¼ sec. 4, T. 26 S., R. 23 W. This test, at an altitude of 2,495' feet, found the Blaine gypsum at 995 feet, the Cedar Hills sandstone at 1,270 feet, the Stone Corral dolomite at 1,578 feet, the Wellington shales at 1,840 feet, the Hollenberg limestone at 2,548 feet, the Fort Riley limestone at 2,721 feet, and the Topeka limestone at 3,725 feet. The cherty conglomerate at the base of the Pennsylvanian rocks was found at 4,927 feet and 35 feet lower, the top of the Mississippian strata. The dolomite and limestone layers of the Meramecian Series extend from 4,964 to 4,987 feet, the porous dolomites of the Warsaw formation from 5,084 to 5,249 feet, the cherty limestone beds of the Osagian Series from 5,249 to 5,345 feet, and the St. Joe limestone from 5,345 to 5,537 feet. It is possible that the beds from 5,418 to 5,537 may later be classed as part of the Chouteau formation. Between 5,537 and 5,658 feet the samples show the cherty limestones of the Viola formation and between 5,658 and 5,690 feet the materials are usually classed as the Simpson formation. Below 5,690 feet the samples show typical dolomites of the Arbuckle to the total depth of 5,755 feet.

Two wildcat tests were completed in **Gove County** during 1946. One of these was drilled by the Superior Oil Company on the Priefert farm in the SW cor. SW¼ sec. 32, T. 13 S., R. 29 W. In this location the Permian redbeds were found at 1,620 feet, the Stone Corral dolomite at 2,198 feet, the Topeka limestone at 3,600 feet, the Lansing limestone at 3,840 feet, the top of the Mississippian strata at 4,472 feet, the typical Osagian cherty limestones between 4,515 and 4,590 feet, the St. Joe limestones between 4,590

and 4,660 feet with many oölitic layers near the base (Gilmore City?), and the slighty cherty dolomites of the Viola formation between 4,660 and 4,690 feet, where the top of the Arbuckle dolomite was found. The test ends in this dolomite at a depth of 4,753 feet.

A second test in Gove County, completed at a relatively shallow depth, was drilled by the Phelps Drilling Company on the Wilson farm in the NE cor. NE¼ sec. 16, T. 12 S., R. 30 W. This test, at an altitude of 2,841 feet, found the Topeka limestone at 3,617 feet and the Lansing limestone at 3,865 feet. It was abandoned a few feet lower at a total depth of 3,878 feet. It was later re-entered and deepened, finally being abandoned at a depth of 3,971 feet.

In **Gray County** the Skelly Oil Company drilled a deep exploratory test on the Hartnett farm in the SE cor. SE¼ sec. 8, T. 25 S., R. 27 W. This test hole, at an altitude of 2,705 feet, found the Stone Corral dolomite at 1,775 feet, the Lansing limestone at 3,970 feet, and the top of the Mississippian strata at 4,895 feet. A detailed study of the samples reveals mostly lithographic limestone with some red and gray chert from 4,895 to 5,010 feet. The Warsaw formation which here consists chiefly of crinoidal limestone with thin dolomite layers between 5,010 and 5,110 feet, shows the usual dark dirty variety of pepper and salt dolomite from 5,185 to 5,245 feet. However, between 5,110 feet and 5,185 feet the dolomite is clean and rather uniformly pure. Osagian rocks are present between 5,245 and 5,375 feet. They are very cherty and consist mostly of dolomite instead of limestone. The St. Joe, which occupies the interval between 5,375 and 5,445 feet, consists of alternating beds of oölitic and crinoidal limestone. The Chouteau, which fills the interval between 5,445 and 5,520 feet, is dolomite with gray stony chert in the upper part but has typical blue and black chert in the lower part. A thin layer of the Misener sandstone was found between 5,520 and 5,525 feet. The underlying Viola consists of pink, gray, and buff dolomites which contain 5 to 30 percent chert. There is no basal layer of coarsely crystalline limestone in this location. The Simpson, which occupies the interval between 5,621 and 5,635 feet, consists of sand with dolomitic cement. The Arbuckle dolomite, which extends from 5,635 feet to the total depth of 5,804 feet, shows oil stains at the top. It is studded with sand grains between 5,710 and 5,730 feet and is also very

sandy between 5,785 and 5,804 feet. A layer of sandstone was found from 5,760 to 5,765 feet.

Three wildcat test wells were drilled in **Harper County** during 1946. The first of these was drilled by the Lion Oil Company on the Reed farm in the SE¼ NW¼ NW¼ sec. 3, T. 33 S., R. 8 W. This test, at an altitude of 1,409 feet, found the Kansas City limestone at 3,954 feet and the top of the Mississippian strata at 4,474 feet. The samples show that the Mississippian here is very cherty limestone down to 4,720 feet where the Kinderhookian shales were found. Below the latter the Viola rocks were encountered at 4,839 feet; they show up particularly well on the Schlumberger electric log. Samples indicate that the Viola consists of cherty dolomite layers. The Simpson sandstones also show up strongly on the Schlumberger record. They were found at 4,867 feet and extend down to 5,081 feet where the top of the Arbuckle dolomite was found. The test was abandoned as a dry hole at 5,165 feet.

The Amerada Petroleum Company drilled an unsuccessful exploratory well on the Peacock farm in the NW¼ SW¼ NE¼ sec. 32, T. 33 S., R. 8 W. This test, at an altitude at 1,334 feet, shows the Fort Riley limestone at 1,700 feet and the Heebner black shale at 3,172 feet. The Kansas City limestones were found at 4,020 feet and the top of the Mississippian rocks at 4,566 feet. Samples show limestones with more or less chert down to 4,854 feet where the Kinderhookian shales were encountered. Considerable black shale is present between 4,880 and 4,952 feet. The Viola formation (4,952 to 5,020 feet) consists of cherty dolomite layers. The Simpson sandstones were found at 5,020 feet and extend down to the total depth of 5,149 feet.

The third well in Harper County was drilled by the J. M. Huber Company on the Misak lease in the NE cor. SE¼ sec. 21, T. 34 S., R. 5 W. This test, at an altitude of 1,203 feet, found the Topeka limestone at 2,726 feet, the Kansas City limstone at 3,849 feet, and the top of the Mississippian strata at 4,539 feet. The samples reveal that the Mississippian consists mostly of limestone with imbedded chert. However, there is much dolomite between 4,955 and 4,985 feet. Chattanooga shales fill the interval between 4,985 and 5,020 feet. The cherty dolomitic limestones of the Viola formation were found between 5,020 and 5,070 feet without any coarse limestone at the base. The Simpson formation is mostly sandstone in this location and extends from 5,070 to 5,286 feet.

There is considerable green shale between 5,208 and 5,260 feet. The Arbuckle dolomite was found at 5,286 feet and extends to the total depth of 5,310 feet. There were no shows of oil or gas and the hole was abandoned as dry in August.

In **Hodgeman County**, the Continental Oil Company drilled a test hole on the Reginer farm in the NW cor. SW¼ sec. 2, T. 24 S., R. 21 W. This test, at an altitude of 2,331 feet, found the top of the Mississippian strata at a depth of 4,612 feet where the samples show that the Osagian residual chert forms the topmost layer. Lower down the rock is dolomite which is brown, white, and gray in color and contains much chert. The St. Joe extends from 4,730 to 4,790 feet. Most of it is flaky limestone which is uneven in its crystallinity and is spotted brown and white in color. The lowest 10 feet consists of peculiar dirty gray flaky dolomitic limestone which has a pseudomicaceous appearance. The white medium-grained sandstone of the Misener formation is found in the samples between 4,790 and 4,812 feet. Below it, the cherty dolomites of the Viola fill the interval between 4,812 and 4,912 feet. There is no coarsely crystalline limestone at the base in this location. The very impure sandstones and green waxy shales of the Simpson formation were encountered between 4,912 and 4,952 feet. The Arbuckle dolomite is medium crystalline, dolocastic, and cream, white, and brown in color. It extends to the total depth of 5,000 feet. The well was abandoned in April without having had any shows of oil or gas.

In **Mitchell County** the Olson Drilling Company completed a test well on the Palen farm in the NW¼ SW¼ SE¼ sec. 26, T. 8 S., R. 10 W. This test, at an altitude of 1,825 feet, found the Fort Riley limestone at 1,605 feet, the Heebner black shale at 2,945 feet, Lansing limestone at 2,960 feet, and the top of the Mississippian strata at 3,599 feet. Samples show that the Osagian cherty limestones are present from 3,599 to 3,665 feet. Below them the oölitic limestones of the St. Joe extend down to 3,729 feet. The Kinderhookian, which occupies the interval between 3,729 and 3,766 feet, consists of shale and some siltstone. Four feet of Misener sandstone is present. The Hunton dolomite was found from 3,770 to 3,788 feet and the Maquoketa shale from 3,788 to 3,826 feet. The Viola limestone (3,826 to 4,077 feet) contains a little chert in some layers. It is succeeded below by Simpson rocks at 4,077 feet. The samples in this interval are not very good but

there is enough typical green shale and some sandstone to suggest the presence of the Simpson between 4,077 and 4,147 feet. Typical Arbuckle dolomite fills the interval between 4,147 and the total depth of 4,205 feet.

Several test wells were completed during 1946 in **Ottawa County**. One of these was drilled by H. P. Peatling on the Quinn farm in the SE cor. sec. 27, T. 11 S., R. 2 W. This test, at an altitude of 1,310 feet, found the Mississippian strata at 2,703 feet, the Simpson at 3,544 feet, and the Arbuckle dolomite at 3,623 feet. The second test was drilled by the Central States Development Company on the Central Life lease in the Cen. NW¼ NW¼ sec. 34, T. 12 S., R. 3 W. The surface altitude here is 1,315 feet. The operator reports finding the Mississippian rocks at 2,971 feet; at 3,010 feet the hole was abandoned.

In **Wichita County** several interesting test wells were completed during 1946. One of these was drilled by K. E. Jones on the Deal ranch in the NE¼ NE¼ SW¼ sec. 25, T. 18 S., R. 37 W. This test, at an altitude of 3,305 feet, found the Hollenberg at 2,790 feet, the Herington at 2,852 feet, and the Fort Riley at 2,971 feet. These limestones produce gas in the Hugoton field. The Schlumberger electric log shows the Blaine gypsum at 1,563 feet, the Stone Corral dolomite at 2,353 feet, and the Wellington shales at 2,539 feet. The Topeka limestone seems to be present at 3,670 feet and the Lansing limestone probably at 3,945 feet. It is also possible that the Lansing may be the limestone which is found at 4,076 feet in the samples. There is a prominent sandstone between 4,394 and 4,410 feet which has not as yet been correlated with other Kansas sands. The so-called Atokan dark shales were encountered at 4,609 feet and the Patterson sandstone from 4,779 to 4,782 feet. Between this sandstone and the top of the Mississippian strata there is much dark to black shale. The Mississippian consists of oölitic limestones and extends from 4,921 feet to the total depth of the test at 4,998 feet.

A second test hole in this county was drilled by the Gulf Oil Corporation on the Henry lease in the SW cor. NE¼ sec. 21, T. 20 S., R. 35 W. This test, at an altitude of 3,176 feet, found the Wreford cherty limestone at 3,004 feet and the Cottonwood limestone at 3,145 feet. There were no shows of gas in the layers which usually produce gas in the Hugoton area and the test was therefore abandoned as a dry hole at a total depth of 3,160 feet.

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