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BULLETIN 48

EXPLORATION FOR OIL AND GAS IN WESTERN KANSAS DURING 1942

BY WALTER A. VER WIEBE

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By Walter A. Ver Wiebe

ABSTRACT

All oil and gas production records were broken in western Kansas during the year 1942. (Fig. 1). The volume of oil production reached an all-time high when 97,845,000 barrels were marketed. This represents an increase of approximately 18 percent over the previous year. In the production of gas the increase was not so great. However, the amount of 98½ billion cubic feet produced represents a new high record also. The great bulk of the gas came from the large Hugoton district in the southwestern part of the state.

In the matter of new pools discovered during 1942, it is gratifying to report that 29 new oil pools and two new gas pools were discovered in western Kansas. The most promising new pool is the Smyres pool in eastern Rice county. Among the remaining new pools, the ones which give most promise at the present time are the Ellis pool in Ellis county, the Merten pool in Barton county, and the Crowther pool in McPherson county.

The areas which received most attention during 1942 were the Peace Creek pool in western Reno county and the Lindsborg pool in northern McPherson county. The rich Peace Creek area was greatly extended both north and south and now has over 130 producing wells. The Lindsborg pool was enlarged in all directions and now has over 50 wells within its borders. It may be confidently expected that both these pools will be expanded during 1943.

The number of test wells drilled in western Kansas during 1942 shows a slight drop from the preceding year. Only 1,177 test wells were completed; of these, 689 were successful oil wells and 33 were successful gas wells. The remaining 455 test wells were unsuccessful and are classed as dry holes. Considering that only 592 dry holes were completed out of a larger total number of test wells during the previous year, it is apparent that the ratio of unsuccessful wells to those which are producers is gradually rising and is causing some concern among producers.

About half of the total number of wells drilled in western Kansas during the year were drilled by independent producers. Among the larger companies the Cities Service Oil Company drilled 163 wells; the Stanolind Oil and Gas Company, 52; the Skelly Oil Company, 39; the Continental Oil Company, 48; and the Shell Petroleum Company, 21 wells. Of the 547 wells drilled by the major companies, 379 were producing wells. Among the wildcat test holes drilled, 80 percent were failures. About 202 of the wildcat wells were drilled farther than one-half mile from a known pool and are classed as "rank wildcat" wells for that reason. It is gratifying to report that 14 of these were successful in finding new oil or gas reserves. Nevertheless, on a percentage basis, these figures reveal that less than 10 percent of the rank wildcat wells are successful.

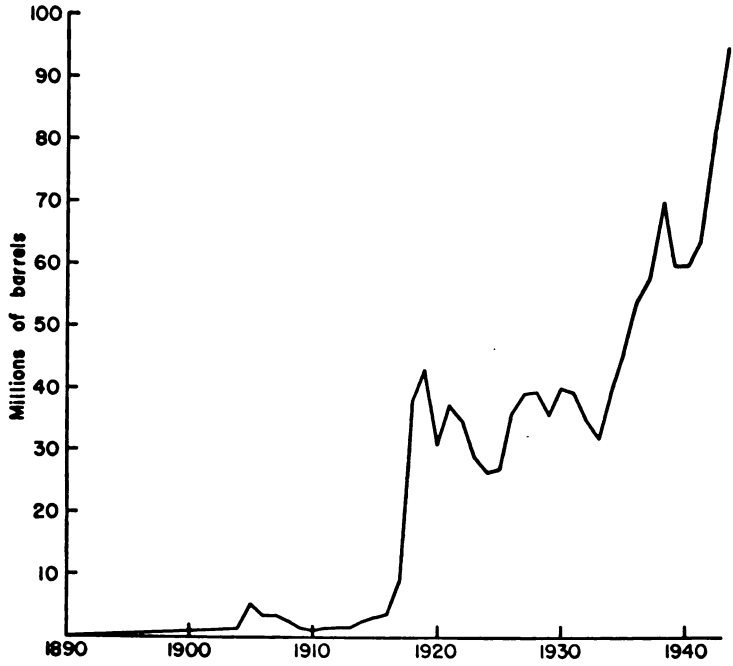

FIG. 1.—Annual oil production in Kansas from 1890 to 1942.

INTRODUCTION

For a number of years the State Geological Survey of Kansas has issued reviews of oil and gas development in the western part of the state. The first of these was published in 1928 as Mineral Resources Circular 1. Subsequently, the reviews were published almost once a year, so there is an available historical summary continuing down to the end of 1941. The purpose of the present report is to furnish similar information for the year 1942.

New records were established during 1942 under the stimulus of new demands caused by the War. A total of 1,513 test wells were drilled in Kansas, a decided drop from the 2,113 total for the previous year. The tests resulted in 800 new oil wells, 85 new gas wells, and 628 dry holes. Considering that only 592 dry holes were drilled in 1941, out of a much larger total, the figure of 628 unsuccessful wells naturally caused concern among oil operators. The large increase in failures illustrates once more the fact that it is becoming more difficult to locate the few remaining oil pools.

A breakdown of figures shows that western Kansas accounted for 1,177 test wells, among which 689 were oil wells, 33 were gas wells, and 455 were dry holes. It is interesting and perhaps significant to note that about half (630) of the total number of wells drilled in western Kansas were drilled by independent operators. Among the larger companies, the Cities Service drilled 163 wells; the Stanolind Oil and Gas Company, 52; the Skelly Oil Company, 39; the Continental Oil Company, 48; and the Shell Petroleum Company, 21 wells. The figures based on relative percentages of dry holes to successful wells are revealing. In western Kansas almost one-half of all wells drilled by the independent operators were dry holes. On the other hand, the major oil companies drilled approximately 547 wells, of which 379 were successful in finding either oil or gas. No less than 329 wildcat test holes were drilled in western Kansas during 1942. Considerably more than half (233) of these were drilled by the independent operators. An exploratory hole one-half mile from a producing well is arbitrarily regarded as a dry hole in Kansas. On a percentage basis, about 80 percent of all wildcat wells were failures. These unsuccessful wells were about equally divided between the major companies and the independents. Exploratory wells drilled at a distance of 2 miles or more from a producing well are called "rank wildcat" wells, in Kansas. Classified in this manner, 202 of all wildcat wells drilled in western Kansas fall into the rank wildcat category. Of this number, only 14 were successful in finding new oil or new gas pools. On a percentage basis these figures reveal that less than 10 percent of the rank wildcat wells were able to find new reserves.

Oil and Gas Production

Kansas reached an all time high production record during the year 1942. From 22,620 wells, approximately 97,845,000 barrels of oil were produced. This represents an increase of 18 percent over the previous year. This notable increase was made possible by the favorable location of the state with reference to centers of consumption. With the disruption of tanker service along the Atlantic Seaboard, much more oil was shipped to eastern seaboard consumers than in former years. While most went by pipe line, a great deal was shipped out by tank car. A few additional gathering lines were built in western Kansas, but, in general, the build-

ing of additional transport facilities was hampered by the scarcity of materials. Outstanding pools from the production standpoint were the Trapp pool which produced 9,759,100 barrels, the Silica pool of southern Rice county which produced 8,167,000 barrels, and the Bemis-Shutts pool of Ellis county which produced 5,298,245 barrels.

The production of gas from Kansas fields again established a new high record in 1942. Somewhat more than 98½ billion cubic feet of gas was marketed, the great bulk coming from the Hugoton district of southwestern Kansas. Some of the pipe lines which were under construction during 1941 were completed in 1942, partly explaining the increase.

New Pools

As shown in table 1, 32 new pools (29 oil and 3 gas) were discovered in Kansas during 1942. If we subtract the two pools found in Butler count, one in Cowley county, and one in Leavenworth county, we find that western Kansas accounted for 28 of the total number. The most valuable of the new pools is the Smyres pool in Rice county, where the Mississippian limestone is the producing zone. Since the discovery of the pool, a total of 780 acres have been proved productive and an additional 640 acres probably will produce later. In fact, this pool will in all probability merge with the Bornholdt pool. The Lindsborg Southwest pool is very prolific and may have an eventual area of over 1,000 acres. At present it is separated from the main Lindsborg pool, but there seems to be no good geological reason why the two should not merge into one producing area before being completely defined. With the possible exception of the Merten pool, the Crowther pool, and the Ellis pool, the others listed will probably be small and of only slight importance. Many of them are located very close to older pools and may be considered advance indications of the eventual extent of these older pools.

New Producing Horizons

In table 2 are shown the new producing horizons found in Kansas during 1942. Only two of these are unusual in their character. One is the Douglas sandstone which was found to contain oil in the new Bear Creek pool in Barber county. The Doug-

TABLE 1.—*Oil and gas pools discovered in 1942*

County, field, and location	*Operator and fee*	*Geologic formation*	*Depth (feet)*	*Month*	*Initial production*
BARBER COUNTY					
Deerhead (gas) 26-32-15 W	Champlin No. 1 Hildebrand	Viola	4,931-4,941	March	14 mil. cu. ft.
Bear Creek 30-31-15 W	Great Lakes Carbon No. 1 Welsh	Douglas	4,235-4,249	December	50 bbls.
BARTON COUNTY					
Merten 10-19-15 W	Appleman No. 1 Merten	Reagan	3,562-3,565	June	168 bbls.
Breford Southwest 23-17-11 W	Auto Ordnance No. 1 A Disque	Arbuckle	3,315-3,320	April	307 bbls.
Mue-Tam 35-20-11 W	Lario No. 1 Mueller	Arbuckle	3,312-3,315	June	354 bbls.
Beaver Northwest 6-16-12 W	Appleman No. 1 Stull	K.C.-Lans.	3,066-3,074	November	408 bbls.
Harrison 18-20-13 W	Palmer & Mid Cont. No. 1 Harrison	Arbuckle	3,520-3,528	December	80 bbls.
BUTLER COUNTY					
Dunns Mill 32-29-4 E	Deep Rock No. 1 Eckels	Arbuckle	2,951-2,956	November	320 bbls.
Vandenburg 35-27-6 E	J. J. Lynn No. 1 Vandenburg	K.C.-Lans.	2,122-2,127	April	100 bbls.
COWLEY COUNTY					
Henderson 26-32-3 E	Wakefield No. 1 Henderson	K.C.-Lans.	2,694-2,704	April	160 bbls.
EDWARDS COUNTY					
Belpre (gas) 8-25-16 W	Cities Service No. 1 English	K.C.-Lans.	3,807-3,815	October	25 mil. cu.ft.

TABLE 1.—*Oil and gas pools discovered in 1942, continued*

County, field, and location	*Operator and fee*	*Geologic formation*	*Depth (feet)*	*Month*	*Initial production*
ELLIS COUNTY					
Kraus Northwest 17-14-19 W	Pryor and Lockhart No. 1 Kraus	Gorham	3,793-3,806	October	50 bbls.
Ellis 31-12-20 W	Darby No. 1 Huber	Arbuckle	3,832-3,840	December	337 bbls.
ELLSWORTH COUNTY					
Heiken North 24-17-10 W	Appleman No. 1 Stratman	Arbuckle	3,216-3,218	February	230 bbls.
Wilkens Southeast 32-17-9 W	Mid-Plains No. 1 Alden	Arbuckle	3,220-3,233	July	3,000 bbls.
HARVEY COUNTY					
Stuckey 3-23-3 W	Williams No. 1 Stuckey	"Mississippi lime"	3,258-3,261	December	8 bbls.
MCPHERSON COUNTY					
Crowther 26-17-1 W	Westgate Greenland No. 1 Crowther	"Chat"	2,778-2,794	August	150 bbls.
Lindsborg Southwest 25-17-4 W	Globe No. 1 Bean	Sylvan	3,401-3,407	November	3,000 bbls.
Roxbury South 30-17-1 W	Westgate Greenland No. 1 Lilly	"Chat"	2,656-2,668	October	3,000 bbls.
PRATT COUNTY					
Carmi 29-26-12 W	Hollow No. 1 "B" Brown	Arbuckle	4,271-4,281	December	200 bbls.
RENO COUNTY					
Morton 17-24-8 W	Cities Service No. 1 Morton	K.C.-Lans.	3,438-3,450	February	185 bbls.

TABLE 1.—*Oil and gas pools discovered in 1942, continued*

County, field, and location	*Operator and fee*	*Geologic formation*	*Depth (feet)*	*Month*	*Initial production*
RICE COUNTY					
Smyres 36-19-6 W	Nelson Drilling No. 1 Smyres	"Chat"	3,343-3,345	February	3,000 bbls.
Pioneer 25-19-10 W	Harwood No. 1 Proffitt	Arbuckle	3,281-3,290	July	560 bbls.
ROOKS COUNTY					
Baum 10-10-16 W	Palmer Oil Co. No. 1 Baum	K.C.-Lans.	3,057-3,065	March	210 bbls.
Barry 11-9-19 W	Continental No. 1 Barry	Arbuckle	3,450-3,456	October	3,000 bbls.
Dorr 20-9-16 W	Cities Service No. 1 Dorr	K.C.-Lans.	3,188-3,205	August	140 bbls.
RUSSELL COUNTY					
Jerry 4-15-14 W	Appleman No. 1 Driscoll	K.C.-Lans.	2,985-2,991	December	460 bbls.
Russell North 15-13-14 W	Aylward No. 1 Ehrlich	K.C.-Lans.	2,995-3,002	October	430 bbls.
Witt 3-14-14 W	Witt No. 1 Witt	K.C.-Lans.	3,009-3,011	August	430 bbls.
STAFFORD COUNTY					
Curtis 6-22-13 W	Vickers No. 1 Curtis	Arbuckle	3,693-3,700	November	3,000 bbls.
Hazel 21-21-13 W	Faulkner No. 1 Ward	Arbuckle	3,692-3,703	July	2,400 bbls.

las formation lies between the Oread limestone and the Lansing limestone. In other areas where this same horizon has been found temporarily productive, it has proved to be only of questionable value. Therefore, its performance in the new area will be watched with interest.

In the Whelan pool of Barber county, the Great Lakes Carbon Company found considerable gas in the Elgin sand. This is also a rather unique producing horizon and cannot be expected to be added to the list of important zones until it has proved itself on the production line. Somewhat of a surprise was the finding of oil in the Mississippian "chat" in the old Eldorado pool, in the Dustin well. The chat is found only on the flanks and in the low structural positions on the Eldorado anticline. Its productivity will be watched with considerable skepticism. The finding of important amounts of oil in the Simpson formation within the Lindsborg pool is of importance inasmuch as this horizon seems to carry the oil on the top of the structure where the Viola is nonproductive.

Drilling Activities

The areas which received the most attention in 1942 are the Peace Creek pool in western Reno county and the Lindsborg pool in northern McPherson county. The Peace Creek pool was enlarged by the merging of the former Peace Creek Northeast, the Schweizer, and the Hendrickson pools with the main part of the pool. Furthermore, extensions toward the southwest have almost brought about a merger with the Zenith pool of Stafford county.

As usual, there was a great deal of drilling in the southern half of Russell county, where many pools still remain undefined. The Hall-Gurney area was extended; the Gorham pool was extended to take in the Dillner area; the Big Creek pool was extended to take in the Neidenthal pool. Similarly, in the rich area of northeastern Barton county, there was much drilling and many small pools were united with the Kraft-Prusa district by the completion of connecting wells. In Rice county, also, there was feverish activity in the area centering around the Chase pool. Enough connecting wells were drilled there to establish the unity of the Chase and the Campbell pools, and almost enough to bring the Keesling pool into the same underground reservoir classification. Northeastern McPherson was actively prospected, with the re-

TABLE 2.—*New producing horizons in old fields*

County, field, and location	*Operator and fee*	*Geologic formation*	*Depth (feet)*	*Month*	*Initial production*
BARBER COUNTY Whelan 31-31-11 W	Great Lakes No. 1 Schwartz	Elgin sand	3,313-3,323	June	4 mil. cu. ft.
BUTLER COUNTY Eldorado 17-25-5 E	Dustin No. 1	Chat			
BARTON COUNTY Ainsworth 10-17-13 W	Continental Oil No. 3 Underwood	K.C.-Lans.	3,181-3,189	March	340 bbls.
ELLIS COUNTY Haller 10-11-18 W	Kansas Development No. 1 Haller	K.C.-Lans.	3,215-3,224		270 bbls.
MCPHERSON COUNTY Lindsborg 8-17-3 W	Auto Ordnance No. 1 Johnson	Simpson	3,451-3,460	July	2,250 bbls.
RICE COUNTY Haferman 5-19-9 W	McPherson Drilling No. 1 Grizzell	K.C.-Lans.	2,905-2,911		55 bbls.
RUSSELL COUNTY Gustafson 15-15-12 W	Stanolind No. 1 Kastrup	K.C.-Lans.	2,956-2,966	August	350 bbls.
COWLEY COUNTY Henderson 22-32-3 E	Wakefield No. 1 Campbell	Arbuckle	3,419-3,423	August	120 bbls.

sult that the older pools were considerably enlarged and several new pools were discovered. Farther west, in the same county, drilling in the Lindsborg pool was continuously sustained at a high pitch. Starting the year with only three wells in the Viola limestone, the Lindsborg pool ended the year with 33 Viola wells and 9 Simpson wells. Activity continued unabated into the next year, 1943.

At the close of 1942 the State Corporation Commission found that the demand for crude oil was in excess of the transportation facilities available to move the oil. The pipe line and railroad tank car facilities were estimated to be approximately equal to a production of 315,000 barrels per day. The Petroleum Administrator for War has submitted a request of 2,500 barrels of oil per day, to be produced and shipped to refineries in western Canada. This production was to be over and above the market demand for Kansas crude. With the building of additional pipe line facilities, it is to be expected that the coming year will see the 1942 record exceeded by considerable margin.

Acknowledgments

The writing of this report and the compilation of the statistics have been greatly facilitated by the generous cooperation and help of many individuals in Wichita. The cards of the Kansas Well Log Bureau were used to compile the fundamental data for each county. The list of new pools was compiled by Zenas Stucky. Other data were secured from Edward Koester, John Galley, Virgil Cole, L. W. Kesler, R. A. Bothwell, and Joe Dougherty. The reports of the State Corporation Commission were used freely with the consent of the Director, Theo Morgan.

OIL AND GAS DEVELOPMENT IN WESTERN KANSAS COUNTIES

Barber County

One of the counties which witnessed a great drilling revival during 1942 was Barber county (fig. 2). Previous to that year the county had five oil pools and one gas pool. The full history of these pools is given in previous reports of the State Geological Survey of Kansas (especially Mineral Resources Circular 13 and Bulletins 36 and 42.)

In the **Lake City** pool no additional producing wells were

drilled, but one well was deepened and one dry hole was completed. The well which was deepened is the No. 1 well, which was drilled from 4,438 feet to 4,656 feet, on the Gant "A" lease of Pryor and Lockhart. At the new depth a flow of gas measuring 3 million cubic feet per day was found. The dry hole which was drilled near the pool is located on the Riepe farm (sec. 13, T. 31 S., R. 14 W.) on the west side of the pool.

In the **Medicine Lodge** pool two additional gas wells were completed. One of these is the Barbara Oil Company No. 1 Laswell, which is capable of producing 22 million cubic feet per day. The other successful well is located on the McKee farm, where it is the seventh well drilled by the Barbara Oil Company. This well is capable of producing four million cubic feet of gas per day. By the close of 1942 the Medicine Lodge gas pool has produced 61 billion cubic feet of gas. Thus, it ranks as the third most prolific pool in the state.

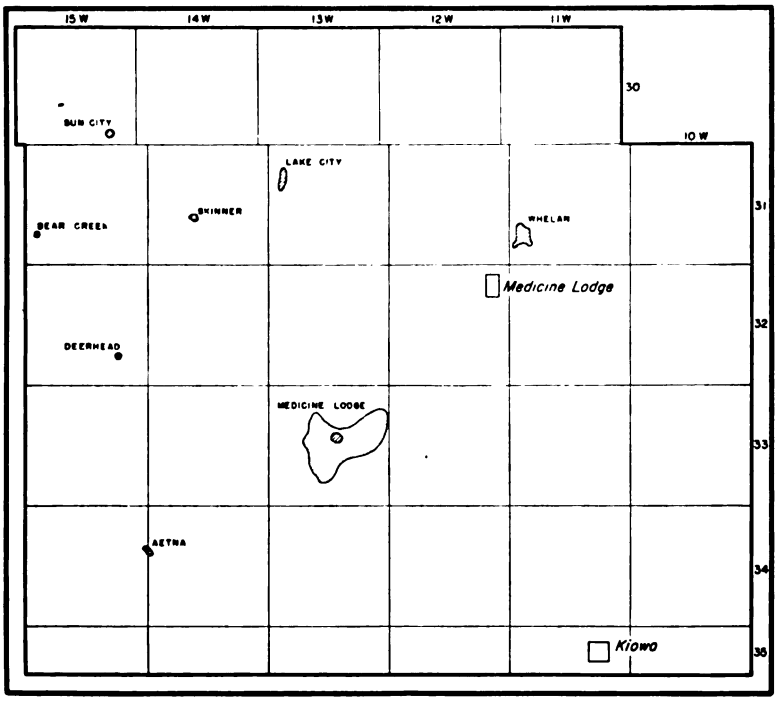

FIG. 2.—Barber county map showing oil and gas pools.

In the **Sun City** pool three test holes were drilled during 1942. Two of these were dry holes and one was a large oil producer. All three tests were drilled by the Great Lakes Carbon Corporation. The producing well is the No. 1 Shutts (NE¼ sec. 35, T. 30 S., R. 15 W.). The No. 2 Shutts well was a dry hole; the other dry hole was drilled on the Massey farm in the same section.

Two new pools were discovered in Barber county during 1942. One of these is the **Bear Creek** pool (sec. 30, T. 31 S., R. 15 W.). The discovery well was drilled by the Great Lakes Carbon Corporation on the Welsh farm in section 30. The producing horizon is the Douglas sandstone which was found at a depth of 4,235 feet. The Douglas sandstone lies directly above the Lansing limestone in this well and may, therefore, correspond to the so-called Stranger sandstone of eastern Kansas. This same sand has also been called the Tonganoxie in previous reports. Between 4,235 feet and 4,249 feet the rock was saturated; when drilling stopped, the oil rose 1,200 feet in the hole. Some water, estimated to be about 500 barrels, accompanied the oil. When a potential test was made later the well yielded 50 barrels per day. The gravity of the oil was determined to be 35° A.P.I.

The second pool to be discovered during 1942 was the **Deerhead** pool (sec. 26, T. 32 S., R. 15 W.) about 7 miles northwest of the Medicine Lodge pool. In the discovery well, drilled by the Champlin Refining Company on the Hildebrand farm, the Viola limestone was found to contain gas in commercial quantities. A saturated core of this limestone was taken from the hole at a depth of 4,931 feet to 5,035 feet. The capacity of the well was determined to be approximately 14 million cubic feet per day. The test was drilled deeper to ascertain the producing possibilities of the Arbuckle dolomite which was found at 5,185 feet. When the Arbuckle proved to be dry, the well was plugged back to the saturated zone in the Viola limestone and was completed as a gas well.

Many dry holes were drilled in Barber county during 1942. One is located about 3 miles north of the Lake City pool (sec. 29, T. 30 S., R. 13 W.). It was drilled by the J. J. Lynn Company on the Sadie Clay farm. The Arbuckle dolomite was found at a depth of 4,806 feet, thus testing all the probable producing horizons. About 6 miles farther west (T. 30 S., R. 14 W.) the Great Lakes Carbon Corporation drilled an unsuccessful test on the Werner farm in section 20. This test also penetrated all formations down

to the Arbuckle dolomite, which was found at a depth of 4,676 feet. It is noteworthy that the Mississippian limestone is completely absent in this part of the county.

In the next township farther west, three dry holes were drilled without finding commercial quantities of oil. One of these, drilled by Pryor and Lockhart on the Atkins farm in section 14, found the Arbuckle dolomite at 4,670 feet. The second one, drilled by Luther Mackall on the Hoss farm in section 12, found the Arbuckle dolomite at 4,621 feet. The third test well was drilled by the Great Lakes Carbon Corporation on the Freeman lease in section 26.

Three dry holes were drilled near the **Whelan** oil pool (T. 31 S., R. 11 W.). One of these was completed on the Axline farm by the Olson Oil Company in section 16. It encountered the Arbuckle dolomite at 4,972 feet. The other two dry holes were completed a short distance south of the oil pool, one in section 31 and the other in section 32. Both were drilled by the Great Lakes Carbon Corporation.

TABLE 3.—*Oil and gas pools of Barber county*

Pool and location	*Area (acres)*	*Cumulative production to end of 1942*	*Number of wells*	*Producing zone*	*Depth (feet)*
		barrels			
*Bear Creek 30-31-15 W	40	none	1	Douglas	4,235
Lake City 7-31-13 W	160	79,584	1	Viola	4,435
			1	Simpson	4,530
			1	Arbuckle	4,607
Medicine Lodge 13-33-13 W	80	45,703	2	Misener	4,845
Skinner 21-31-14 W	40	none	1	Viola	4,531
Sun City 35-30-15 W	80	37,970	2	K.C.-Lans.	4,344
Whelan 32-31-11 W	700	700,688	1	Elgin	3,313
			18	"Chat"	4,355
		million cu. ft.			
*Deerhead (gas) 26-32-15 W	40		1	Viola	4,931
Medicine Lodge (gas) 13-33-13 W	5,000	61,100	33	"Chat"	4,455

* Pools discovered during 1942.

An interesting test well was drilled by the Champlin Refining Company on the Ewers farm (sec. 7, T. 32 S., R. 14 W.) to a depth of 5,182 feet. In this well the Stone Corral dolomite was found at 2,425 feet, the Lansing limestone at 4,200 feet, the Mississippian limestone at 4,715 feet, and the Arbuckle dolomite at 5,137 feet. Another significant test well was drilled about 6 miles west of the Medicine Lodge pool (sec. 22, T. 33 S., R. 14 W.) by the Barbara Oil Company, on the Ott farm. This test well reached a depth of 5,226 feet before it was abandoned. The Arbuckle dolomite in this test hole was logged at 5,193 feet.

In table 3 the production figures of all pools in Barber county are given as cumulative totals up to the end of 1942. It will be noted that no oil was produced from the Skinner pool during the year. The Bear Creek pool was completed in December, so no production is shown for that pool. The new Deerhead gas pool has not yet been connected to an outlet, so no production figures are given for it.

Barton County

During the year 1942 no less than 158 wells were drilled in Barton county. Most of these were drilled in the Kraft-Prusa area in the northeastern corner of the county, but a considerable number were drilled in the southern portion of the large Trapp pool which extends southward into Barton county from adjoining Russell county. Wildcat operations were well spread over the county and served to uncover, during the year, five new oil pools —Beaver Northwest, Breford Southwest, Harrision, Merten, and Mue-Tam.

Because of the large number of pools in Barton county, it will be advisable to describe them geographically beginning with the northeastern corner.

In T. 16 S., R. 11 W., practically all the producing wells have now been combined to form the **Kraft-Prusa** pool. The producing area begins in the next township to the south (T. 17 S., R. 11 W.), with the old Kraft pool, and extends in a northwesterly direction through T. 16 S., R. 11 W. into the adjoining township on the west. This large area now has 165 producing wells, most of which produce from the Arbuckle dolomite. Two wells derive their production from the Reagan sandstone; 100 produce from the Gorham sandstone, 19 from the Lansing limestone, and 7 from the limestone in the Shawnee formation. During 1942 the greatest

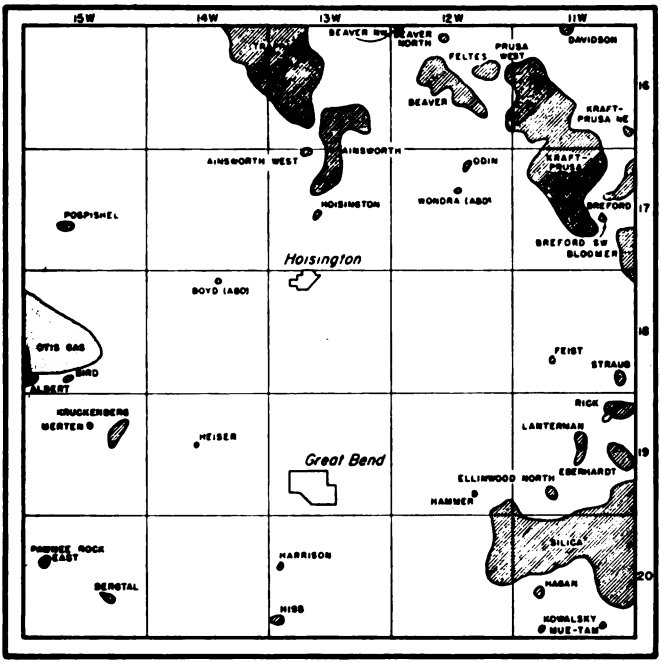

FIG. 3.—Barton county map showing oil and gas pools.

amount of drilling took place along the southern and southwestern part of this large area, specifically in sections 4, 5, 14, 15, 16, 22, and 23 of T. 17 S., R. 11 W. The extensions of the Kraft-Prusa pool thus allow it to approach the Bloomer pool, and these two may be joined in the near future.

The **Davidson** pool (NW¼ T. 16 S., R. 11 W.) acquired one additional producing well during 1942. One dry hole was drilled on the west side of the pool.

In T. 16 S., R. 12 W. there are three oil pools—**Beaver, Beaver North,** and **Beaver Northwest.** One additional well was completed in the old Beaver pool, but none were completed in the Beaver North pool. The Beaver Northwest pool was discovered during 1942 when Nate Appleman completed the first well on the Stull farm (sec. 6, T. 16 S., R. 12 W.). The discovery well found production in the limestone of the Kansas City-Lansing sequence at a depth of 3,066 feet. The well was drilled to a total depth of 3,328 feet into the pre-Cambrian quartzite, which here lies di-

rectly below the Pennsylvanian Sooy conglomerate. Good oil stains were found in the drill cuttings at 3,042 feet to 3,046 feet, and again at 3,066 feet to 3,074 feet. Saturated cores were secured from a depth of 3,109 feet to 3,114 feet and also from 3,120 feet to 3,130 feet. After 5,000 gallons of acid had been used to promote an increased flow of oil, the potential capacity of the well was 408 barrels per day. Subsequently, two offset wells were drilled around the discovery well, but both were dry holes.

The southern end of the large **Trapp** pool lies in the next township to the west (T. 16 S., R. 14 W.). This pool was extended considerably toward the southeast, and sufficient wells were drilled in that area to establish a connection with the **Ainsworth Northwest** pool. Therefore, the Nomenclature Committee voted to combine these two pools. In the table on production (table 4) Ainsworth pool is still listed, although this pool will probably be united with the enlarged Trapp pool in the near future. During 1942 approximately 17 new oil wells were completed in the Barton County portion of the Trapp pool. In addition, some 11 dry holes were drilled in the southern part of the pool. This high ratio of dry holes to producing wells is probably due to the irregular topographic surface on the Arbuckle dolomite. Southwest of the Trapp pool several wildcat wells were drilled in an effort to extend the pool in that direction. In the next township west two rank wildcat wells were drilled during the year. One of these was drilled by the Gulf Oil Corporation in section 4 on the Steinert farm, and the other was drilled by the Falcon-Seaboard Oil Company in section 25 on the Martz farm.

An effort was made during the year to extend the **Ainsworth West** pool (sec. 5, T. 17 S., R. 13 W.). One test was drilled in section 4 by Nate Appleman; one was drilled in section 12 by Bartlett; another test was drilled to the north (sec 32, T. 16 S., R. 13 W.). Unfortunately, all these tests were unsuccessful and the Ainsworth West pool remains a one-well pool.

The rapid expansion of the Kraft-Prusa pool toward the south brought with it the discovery of a new pool (sec. 23, T. 17 S., R. 11 W.) called the **Breford Southwest** pool. The discovery well was drilled by the Auto Ordance Corporation on the Disque farm in the northeast corner of section 23. This new pool is located less than a mile from the Breford pool and less than a mile from

the Bloomer pool. Therefore, it is likely that further drilling will serve to connect these three areas.

A glance at the map (fig. 3) of Barton county will show that the townships through the center are relatively devoid of oil pools. There is some production in T. 18 S., R. 11 W. and considerable gas production in T. 18 S., R. 15 W., but between them there are at present no active oil pools. During 1942 a determined effort was made to test this rather large area. One test was drilled by the Ramsey Petroleum Company (sec. 4, T. 18 S., R. 11 W.) on the Heinz farm. The test reached the Arbuckle dolomite at 3,335 feet without favorable indications. In the next township west T. 18 S., R. 12 W.) four wildcat wells were drilled. One was drilled by the Vernon Oil Company in section 16 on the Eveleigh ranch and another by the National Refining Company in section 27 on the Haberman farm. The Gulf Oil Corporation drilled a dry hole on the Kent estate in section 31, and the Bay Petroleum Company drilled a dry hole in section 35 on the Bates ranch. In T. 18 S., R. 14 W. one dry hole was completed on the Russell ranch by Nadel and Gussman. In this test hole the Arbuckle dolomite was reached at 3,567 feet.

In the next row of townships to the south, very little drilling was done during 1942. In the large **Silica** pool, which extends into sec. 25, T. 19 S., R. 11 W., three wells were drilled extending the pool northward to practically join with the Eberhardt pool. One additional well was also completed in section 35. Farther west a rank wildcat well was drilled by Branine and Holl (sec. 32, T. 19 S., R. 12 W.). In T. 19 S., R. 13 W. only one test, the Phillips Petroleum Company No. 1 Hawkins in section 3, was completed during the year. A good showing of oil was tested in the Lansing limestone between 3,174 feet and 3,184 feet, but the results did not indicate a well of commercial proportions. The test was abandoned at 3,431 feet.

A wildcat well (sec. 10, T. 19 S., R. 15 W.), drilled by the Phillips Petroleum Company on the Ida Merten ranch, was successful in opening a new pool. The oil was found in the Reagan sandstone between depths of 3,554 feet and 3,558 feet. A potential capacity of 168 barrels per day was assigned to the discovery well. The new pool was named the **Merten** pool. Three other oil wells have been completed within a radius of three-quarters of a mile from the discovery well.

In the lowest row of townships, drilling activity during 1942 was very much restricted. The large **Silica** pool lies in this part of the county. Within the confines of the Silica pool, five new oil wells and four dry holes were completed. The ratio between these two seems to corroborate the assumption that the top of the producing Arbuckle dolomite is very uneven and, hence, productive spots are hard to locate. The Silica pool now has 773 wells producing from the Arbuckle dolomite and 12 which produce from the Lansing limestone.

The Lario Oil Company, which controls considerable acreage south of the Silica pool, drilled a test well on the Mueller farm (sec. 35, T. 20 S., R. 11 W.). In this test the top of the Arbuckle dolomite was found at 3,304 feet; 8 feet lower good saturation was found in cores. The well was tested later and was found to be capable of producing 350 barrels per day. The new producing area, although located less than one mile from the Silica pool, was named the **Mue-Tam** pool. Two offset wells drilled later proved to be dry.

A considerable distance west of the Silica pool another wildcat well was successful in uncovering new oil reserves. The discovery well of the **Harrison** pool was drilled by the Palmer Oil Corporation (sec. 18, T. 20 S., R. 13 W.) on the Harrison ranch. The Arbuckle dolomite was found at 3,498 feet, and pipe was set 22 feet lower at 3,520 feet. When the cement was drilled out, oil rose 1,200 feet in 12 hours, proving the presence of considerable oil. When a test of the potential capacity was made later, it was found that the well is capable of yielding 80 barrels per day. This new pool lies about 3 miles north of the Hiss pool.

TABLE 4.—*Oil pools of Barton county*

Pool and location	*Area (acres)*	*Cumulative production to end of 1942 (bbls.)*	*Number of wells*	*Producing zone*	*Depth (feet)*
Ainsworth	5,000	2,622,220	1	Shawnee	2,925
26-16-13 W			1	K.C.-Lans.	
			62	Arbuckle	3,390
Ainsworth West	40	12,551	1	Arbuckle	3,358
5-17-13 W					
Albert	1,600	797,955	16	Reagan	3,601
30-18-15 W					
Beaver	1,200	1,300,660	7	Oread	2,885
16-16-12 W			25	Arbuckle	3,348
			1	Reagan	3,335
*Beaver Northwest	40	908	1	K.C.-Lans.	3,066
6-16-12 W					

TABLE 4.—*Oil pools of Barton county, continued*

Pool and location	*Area (acres)*	*Cumulative production to end of 1942 (bbls.)*	*Number of wells*	*Producing zone*	*Depth (feet)*
Beaver North 4-16-12 W	160	234,940	3	Arbuckle	3,316
*Breford Southwest 23-17-11 W	40	3,280	1	Arbuckle	3,311
Bird 33-18-15 W	40	9,450	1	Reagan	3,508
Bloomer 36-17-11 W	4,600	11,319,795	32 1 189	K.C.-Lans. Sooy Arbuckle	3,044 3,310 3,257
Davidson 4-16-11 W	300	140,810	2 2 4	K.C.-Lans. Sooy Arbuckle	3,016 3,317 3,314
Eberhardt 14-19-11 W	320	343,475	1 7	K.C.-Lans. Arbuckle	3,194 3,311
Ellinwood North 33-19-11 W	80	50,900	1	Arbuckle	3,328
Feist 29-18-11 W	40	53,680	1	Arbuckle	3,430
Feltes 14-16-12 W	600	424,830	13 1	Sooy Arbuckle	3,342 3,350
Hagan 20-20-11 W	80	69,580	4	Arbuckle	3,323
Hammer 35-19-12 W	40	8,980	1	Arbuckle	3,348
*Harrison 18-20-13 W	40	none	1	Arbuckle	3,498
Harzman 33-16-11 W (now part of Kraft-Prusa)	500	63,600	10	K.C.-Lans.	3,124
Heiser 16-19-14 W	40	25,390	1	K.C.-Lans.	3,228
Hiss 31-20-13 W	200	337,910	5	K.C.-Lans.	3,270
Hoisington 21-17-13 W	160	112,010	1 2	K.C.-Lans. Arbuckle	3,222 3,440
Kowalsky 32-20-11 W	40	2,234	1	Arbuckle	3,378
Kraft-Prusa 10-17-11 W	7,000	5,544,660	7 19 100 127 2	Shawnee K.C.-Lans. Gorham Arbuckle Reagan	2,885 3,160 3,335 3,281 3,310
Krier 30-16-11 W (now part of Kraft-Prusa)	1,000	548,040	2 6 7 11 2	Topeka Shawnee K.C.-Lans. Sooy Arbuckle	2,845 2,885 3,030 3,327 3,330

TABLE 4.—*Oil pools of Barton county, continued*

Pool and location	*Area (acres)*	*Cumulative production to end of 1942 (bbls.)*	*Number of wells*	*Producing zone*	*Depth (feet)*
Lanterman 15-19-11 W	400	426,940	7 4	K.C.-Lans. Arbuckle	3,109 3,235
*Merten 10-19-15 W	160	7,260	4	Reagan	3,551
*Mue-Tam 35-20-11 W	40	4,800	1	Arbuckle	3,312
Odin 10-17-12 W	80	18,030	1	Arbuckle	3,340
Pawnee Rock East 17-20-15 W	80	9,060	1	Arbuckle	3,814
Pospishel 20-17-15 W	80	15,585	1	Arbuckle	3,548
Rick 1-19-11 W	400	345,960	7 2	K.C.-Lans. Arbuckle	3,106 3,355
Silica 12-20-11 W	32,000	44,914,900	12 773	K.C.-Lans. Arbuckle	2,955 3,328
Straub 36-18-11 W	40	8,710	1	K.C.-Lans.	3,122

* Pools discovered during 1942.

CLARK COUNTY

The history of oil and gas development in Clark county (fig. 4) has been summarized in previous reports of the State Geological Survey of Kansas (especially Mineral Resources Circular 10, 1938). In Circular 10, the stratigraphic succession of rocks and the early history of the Morrison oil and the Morrison gas pools are rather exhaustively described. In Bulletin 42, data on drilling and production for the year 1941 are presented. Inasmuch as no additional wells were drilled in Clark county during 1942, only the data on production are presented in table 5.

TABLE 5.—*Oil and gas pools of Clark county*

Pool and location	*Area (acres)*	*Cumulative production to end of 1942 (bbls.)*	*Number of wells*	*Producing zone*	*Depth (feet)*
Morrison (oil) 17-32-21 W	160	135,455	2	Viola	6,467
Morrison (gas) 21-32-21 W	1,000		1	Sooy	5,443

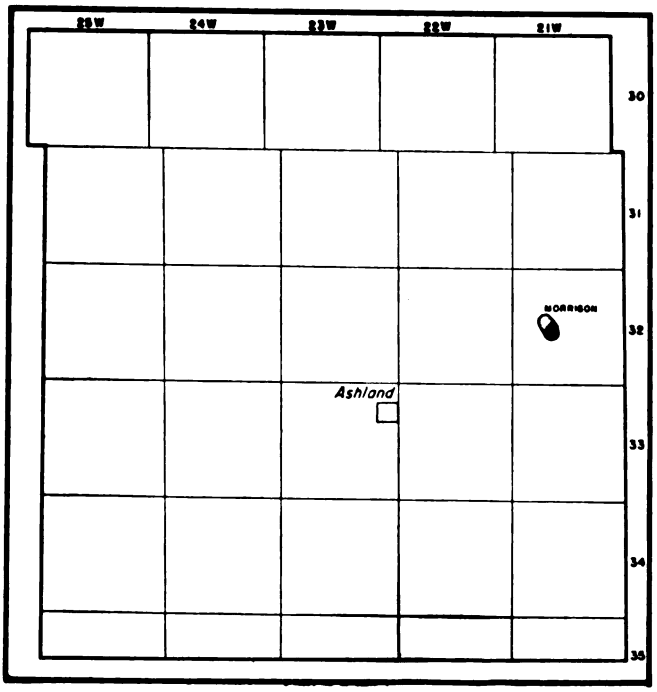

FIG. 4.—Clark county map showing oil and gas pools.

EDWARDS COUNTY

The general geology of Edwards county (fig. 5) was rather fully described in Mineral Resources Circular 10 published by the State Geological Survey of Kansas in April 1938. At that time only one gas pool, the **McCarty** pool, had been found within the area of the county (table 6). The discovery well in the pool was drilled by the British American Oil Company on the McCarty ranch (sec. 31, T. 25 S., R. 17 W.). Both oil and gas were found in this well, apparently in a conglomerate of either Pennsylvanian or Mississippian age. Some oil was taken from the two wells in the pool, and by the end of 1938 about 100,000 barrels had been secured. The gas production by that time had amounted to about 754 million cubic feet. The wells were then shut in and no production was obtained until 1941. During 1941 gas was again taken from the wells, and the production for the year was approximately 12½ million cubic feet. During 1942 the pool produced

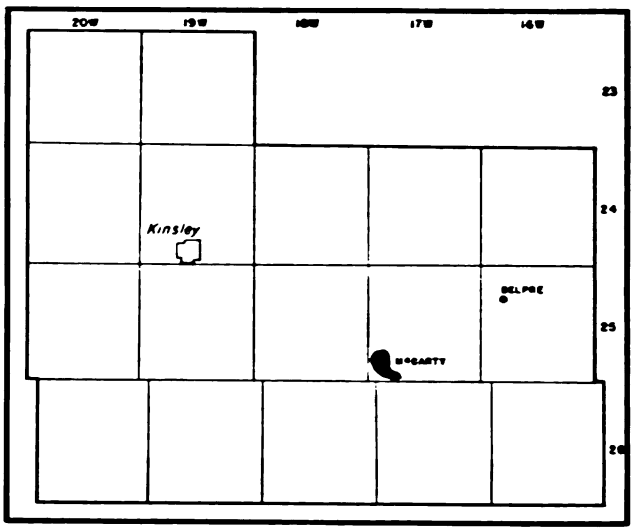

FIG. 5.—Edwards county map showing gas pools.

an additional 23 million cubic feet, bringing the total to almost 800 million cubic feet.

During 1942 a rather determined campaign to find new pools in Edwards county was carried on. Nate Appleman drilled a test well about 5 miles northwest of the McCarty pool on the Malin ranch, and five other test holes were drilled in other parts of the county. In the northwestern part of the county the Stanolind Oil and Gas company drilled a deep test on the Boyd ranch (sec. 1, T. 23 S., R. 19 W.). This wildcat well found a sandy conglomerate, similar to the producing horizon in the McCarty pool, at 4,380 feet. Below it, the cherty Mississippian limestone was entered at 4,408 feet and the Kinderhook shale at 4,505 feet. Approximately 125 feet lower, the bit entered the Viola limestone, at 4,900 feet the Simpson formation, and at 4,960 feet the Arbuckle dolomite. Many geologists believe that the oolitic limestone found between depths of 4,485 feet and 4,505 feet is the Gilmore City limestone. The Kinderhook formation in this well proved to be a sandy shale down to 4,533 feet and a cherty conglomerate from 4,533 feet to 4,585 feet. Red and green shale more typical of the formation was found between depths of 4,585 feet and 4,630 feet.

Another interesting wildcat well was drilled by the Herndon

TABLE 6.—*Gas pools of Edwards county*

Pool and location	*Area (acres)*	*Cumulative production to end 1942 (thous. cu. ft.)*	*Number of wells*	*Producing zone*	*Depth (feet)*
*Belpre 8-25-16 W	160	none	1	K.C.-Lans.	3,807
McCarty 31-25-17 W	160	123,000	1	Sooy	4,545

* Pool discovered during 1942.

Drilling Company (sec. 9, T. 24 S., R. 16 W.) about 15 miles northeast of the McCarty pool. The samples from this test are very difficult to interpret because the rotary mud used in drilling was not heavy enough. In the next township west, Hershey drilled a test hole on the Hawley farm (sec. 13, T. 24 S., R 17 W.). In the southeastern corner of the county, a rank wildcat was drilled by the Herndon Drilling Company on the Long ranch (sec. 27, T. 26 S., R. 16 W.). In this test hole a geological sequence similar to the one penetrated in the Boyd well was found. The Gilmore City limestone was found at 4,535 feet, the sandy zone at 4,549 feet, and the shaley Kinderhook at 4,565 feet. At 4,595 fet the bit entered the Viola limestone, and at 4,838 feet it entered the Arbuckle dolomite. The well was completed at 4,918 feet and abandoned as a dry hole.

The only one of the six wildcat wells which found either oil or gas was the test drilled by the Cities Service Oil Company on the English farm (sec. 8, T. 25 S., R. 16 W.). In this test the top of the Lansing limestone was found at 3,309 feet, relatively high. Farther down in the same series of limestone, a good saturated zone was encountered between depths of 3,807 feet and 3,815 feet. However, the well was drilled to 4,650 feet before the possibilities of this zone were tested. The Mississippian and Ordovician formations were found relatively low, and, therefore, no oil was found in the deeper formations. When a test was made of the porosity in the lower part of the Kansas City-Lansing limestone sequence, 25 million cubic feet of gas per day was found. Thus, this well becomes the discovery well in the second gas pool in the county, and the name **Belpre** gas pool has been given to it.

ELLIS COUNTY

Oil pools of Ellis county (fig. 6) are described in table 7. Somewhat over 50 wells were drilled in the county during 1942. Most

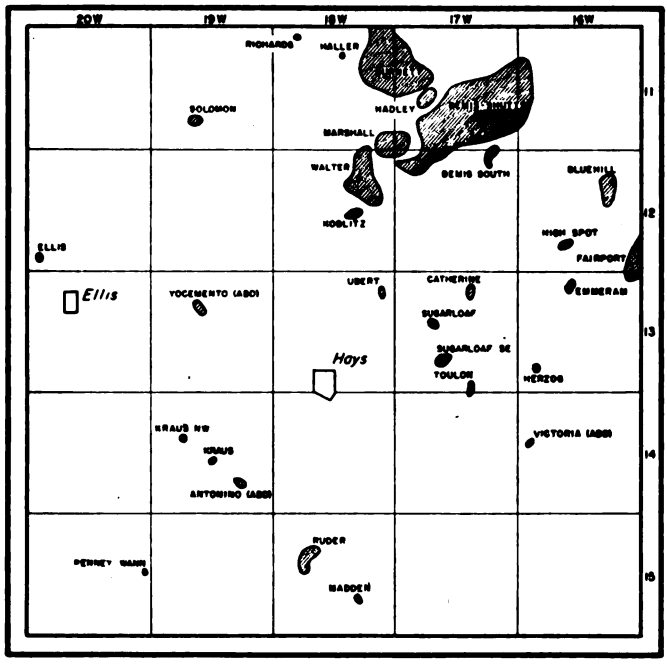

FIG. 6.—Ellis county map showing oil pools.

of these are located within or near the large **Bemis-Shutts** pool in the northeastern part of the county. The additional drilling within and near the Bemis-Shutts pool resulted in the addition of 20 new oil wells and six dry holes. The new wells were drilled partly on the east side and partly along the west and south sides. The dry holes are located mostly along the southeastern side of the pool. Several were drilled close to the three wells which lie somewhat detached, on the south side of the main pool.

In the **Burnett** pool only one test well was drilled and it was dry. In the Marshall pool two new producers were completed by the Lario Oil Company. The same company also completed one deep water-disposal well, the No. 13 Marshall well (sec. 31, T. 11 S., R. 17 W.). In the **Walters** pool area, three test wells, drilled in an attempt to extend the pool, were all failures. One well, drilled in an effort to extend the **Emmeram** pool, was also a failure.

To offset these unfavorable results, it is possible to report the discovery of two additional pools in Ellis county. One is the **Ellis**

TABLE 7.—*Oil pools of Ellis county*

Pool and location	*Area (acres)*	*Cumulative production to end of 1942 (bbls.)*	*Number of wells*	*Producing zone*	*Depth (feet)*
Bemis-Shutts 16-11-17 W	12,000	21,242,945	401	Arbuckle	3,380
Bemis South 2-12-17 W	40	35,606	1	Arbuckle	3,592
Blue Hill 14-12-16 W	700	547,420	3 14 2	Topeka K.C.-Lans. Arbuckle	3,030 3,072 3,360
Burnett 1-11-18 W	5,000	9,428,230	2 207	K.C.-Lans. Arbuckle	3,093 3,570
Catherine 3-13-17 W	160	131,050	2	K.C.-Lans.	3,262
*Ellis 31-12-20 W	40	none	1	Arbuckle	3,832
Emmeram 4-13-16 W	160	105,305	4	K.C.-Lans.	3,262
Hadley 20-11-17 W	40	58,562	1	K.C.-Lans.	3,428
Haller 10-11-18 W	40	15,610	1	Topeka	3,045
Herzog 30-13-16 W	120	95,420	3	Arbuckle	3,450
High Spot 28-12-16 W	40	4,910	1	Arbuckle	3,620
Koblitz 23-12-18 W	800	217,240	8	Arbuckle	3,694
Kraus 22-14-19 W	100	63,915	2	Sooy	3,735
*Kraus Northwest 17-14-19 W	40	none	1	Gorham	3,798
Marshall 36-11-18 W	1,000	900,240	24	Arbuckle	3,638
Penny Wann 13-15-20 W	40	41,215	1	Sooy	3,653
Richards 5-11-18 W	120	94,235	2	K.C.-Lans.	3,332
Ruder 17-15-18 W	700	745,060	9 2	K.C.-Lans. Arbuckle	3,422 3,572
Solomon 28-11-19 W	160	101,362	3	Arbuckle	3,629
Sugar Loaf 17-13-17 W	80	25,275	2	Arbuckle	3,645
Sugar Loaf Southeast 28-13-17 W	40	11,505	1	K.C.-Lans.	3,312
Toulon 3-14-17 W	200	196,587	3 1	K.C.-Lans. Arbuckle	3,298 3,512
Ubert 12-13-18 W	160	177,117	5	Arbuckle	3,707
Walter 2-12-18 W	1,400	1,927,410	1 39	Topeka Arbuckle	3,160 3,619

* Pools discovered during 1942.

pool (sec. 31, T. 12 S., R. 20 W.). The discovery well was drilled by the Darby Petroleum Company on the Huber farm. Oil was found at 3,832 feet in the Arbuckle dolomite. The well has a daily capacity of about 350 barrels and the oil has a gravity of 36° A.P.I. The second pool has been named the **Kraus Northwest** pool. Here, the first successful well was drilled by Pryor and Lockhart on the Kraus farm (sec. 17, T. 14 S., R. 19 W.). The Pennsylvanian basal conglomerate, also known as the Sooy formation, was found at 3,795 feet and 3 feet lower oil came into the hole from a sandstone layer identified as probably the Gorham sandstone. The well has been assigned a minimum rating by the State Corporation Commission.

Exploratory Wells.—A fairly large number of exploratory wells were drilled in various parts of Ellis county during 1942. One of these is the Three Way Drilling Company No. 1 McCauley well (sec. 4, T. 11 S., R. 19 W.). This test hole was drilled to the Arbuckle dolomite which was found at 3,655 feet. In the same township Nate Appleman drilled a test hole on the Wade farm in section 16, to a total depth of 3,701 feet. This test also penetrated the Arbuckle dolomite. North of the town of Ellis and in the westernmost part of the county, the Palmer Oil Company drilled a well on the Keller farm (sec. 19, T. 12 S., R. 20 W.). All probable producing horizons were tested without success. Several miles southeast of the town of Hays the Darby Petroleum Company drilled a dry hole on the Kansas Experimental Farm (sec. 14, T. 14 S., R. 18 W.). The Arbuckle dolomite was encountered at a depth of 3,601 feet, and the test was abandoned at 3,637 feet. Near the old (abandoned) **Yocemento** pool the Sharon Drilling Company attempted to find oil on the Orth farm (sec. 5, T. 14 S., R. 19 W.). A good show of oil was found in the Arbuckle dolomite between the depths of 3,912 feet and 3,954 feet where the hole filled up with 2,800 feet of fluid. The large proportion of water with the oil caused abandonment of the test. In the same township and a few miles east of the **Antonino** pool (abandoned), Witt drilled a test well to 3,787 feet without finding oil. In this test well the Arbuckle dolomite was found at 3,781 feet.

Ellsworth County

The history of the search for oil and gas in Ellsworth county (fig. 7) has been given in Mineral Resources Circular 13. The

developments in all pools from 1937 to 1941 have been described in Bulletins 36 and 42 of the State Geological Survey of Kansas. Descriptive data about Ellsworth county oil pools are given in table 8 of this bulletin. In 1942 a total of 27 holes were drilled in Ellsworth county in order to find new supplies of oil or gas. Most of these were drilled in the southwestern part of the county where the present producing pools are located.

In the **Stoltenberg** pool, 17 new oil wells were completed, most of which are fairly well scattered through the total length of the present pool. In the **Edwards** pool one dry hole and one new producer (sec. 28, T. 17 S., R. 8 W.) were drilled. In the **Wilkins** pool the Gulf Oil Corporation drilled the fifth well on the Mehl farm as a 210-barrel proucer. A second new producer was drilled by Branine and Holl as the No. 1 well on the Kruse farm (sec. 20, T. 17 S., R. 9 W.).

Further wildcat drilling southeast of the area of the Wilkins pool was rewarded by the discovery of commercial oil in the Mid-Plains Oil Corporation No. 1 Alden (sec. 32, T. 17 S., R. 9 W.). In the discovery well, oil was found at 3,220 feet to 3,232 feet in the Arbuckle dolomite. The high rate of initial flow caused other

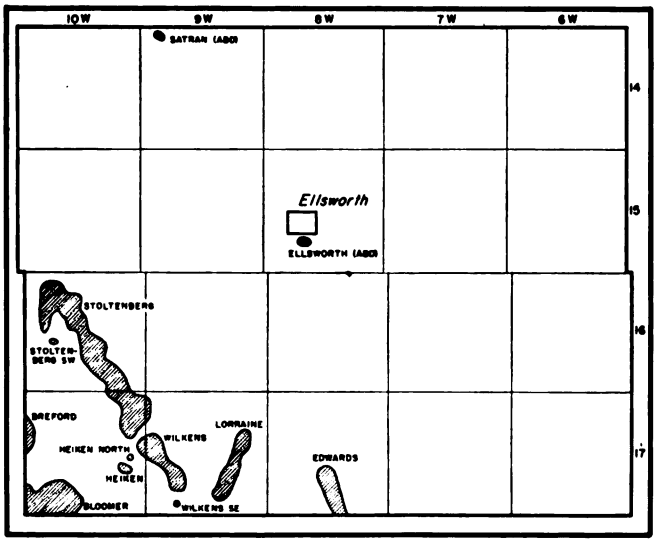

FIG. 7.—Ellsworth county map showing oil pools.

wells to be drilled near the discovery well, so that by the end of the year there were three producing wells in the new **Wilkins Southeast** pool. Three dry holes drilled within half a mile of the new pool seem to set rather close limits for it.

In the southwestern township of the county there are a number of old pools and one new pool discovered during 1942. The old pools were extended by the completion of two new oil producers in the **Heiken** pool and two new oil producers in the **Bloomer** pool. The search for new reserves in this part of the county resulted in the drilling of one important dry hole and the discovery of the new **Heiken North** pool. The dry hole was drilled almost in the center of the township by the Three Way Drilling Company on the Besthorn farm. The new pool was found by the Appleman Oil Company when the first well on the Stratman farm (sec. 24, T. 17 S., R. 10 W.) was completed. Oil was secured from a depth of 3,216 feet to 3,218 feet in the Arbuckle dolomite. The capacity of the discovery well is about 250 barrels per day.

Important Dry Holes.—During 1942 the intensive search for new oil supplies caused a number of important test wells to be drilled in Ellsworth county. Far to the northeast of production,

TABLE 8.—*Oil pools of Ellsworth county*

Pool and location	*Area (acres)*	*Cumulative production to end of 1942 (bbls.)*	*Number of wells*	*Producing zone*	*Depth (feet)*
Breford 7-17-10 W	1,200	1,539,980	8 20	K.C.-Lans. Arbuckle	3,140 3,368
Heiken 25-17-10 W	320	364,190	2	Arbuckle	3,269
*Heiken North 24-17-10 W	80	13,790	2	Arbuckle	3,212
Lorraine 13-17-9 W	5,500	8,741,125	30 55	K.C.-Lans. Arbuckle	3,060 3,200
Stoltenberg 22-16-10 W	6,000	8,494,775	171	Arbuckle	3,333
Stoltenberg S.west 20-16-10 W	320	30,060	2	Arbuckle	3,349
Wilkins 13-17-10 W	3,600	2,268,900	63	Arbuckle	3,260
*Wilkins Southeast 32-17-9 W	120	19,985	3	Arbuckle	3,220

* Pools discovered during 1942.

Nate Appleman drilled a test well on the McManus farm (sec. 29, T. 15 S., R. 6 W.). About 6 miles northwest of Ellsworth, the Cities Service Oil Company drilled a dry hole (sec. 7, T. 15 S., R. 9 W.). In the same township the Falcon Seaboard Drilling Company drilled a dry hole in section 9, 2 miles east of the former test. About 3 miles northwest of the Edwards pool, Cities Service drilled a test hole (sec. 4, T. 17 S., R. 8 W.). The same company also drilled an exploratory well a few miles east of the Edwards pool (sec. 25, T. 17 S., R. 8 W.). Unfortunately, all these test holes resulted in disappointments, although each was drilled to the Arbuckle dolomite, which produces most of the oil in this county.

Finney County

In Finney county (fig. 8) both oil and gas wells have been found during the past twelve years. The gas wells in this county are now grouped with those in the enlarged **Hugoton** pool. At the close of 1941 there were five gas wells in the county, and during 1942 two additional producing wells were added. One of these is the No. 2 Hamlin well, drilled by the Fin-Ker Oil and Gas Company (sec. 30, T. 24 S., R. 34 W.). This well is capable of producing more than 23 million cubic feet per day. The second well was drilled by the Kansas Nebraska Natural Gas Company on the Layman ranch (sec. 13, T. 24 S., R. 34 W.).

For details of the history of oil and gas development in Finney county the reader is referred to Mineral Resources Circulars 10 and 13. In Bulletins 28, 36, and 42, the developments for succeeding years are discussed. Table 9 furnishes data on the production of the Nunn oil pool.

Table 9.—*Oil pool of Finney county*

Pool and location	*Area (acres)*	*Cumulative production to end of 1942 (bbls.)*	*Number of wells*	*Producing zone*	*Depth (feet)*
Nunn 27-21-34 W	800	145,605	2	"Mississippi lime"	4,654

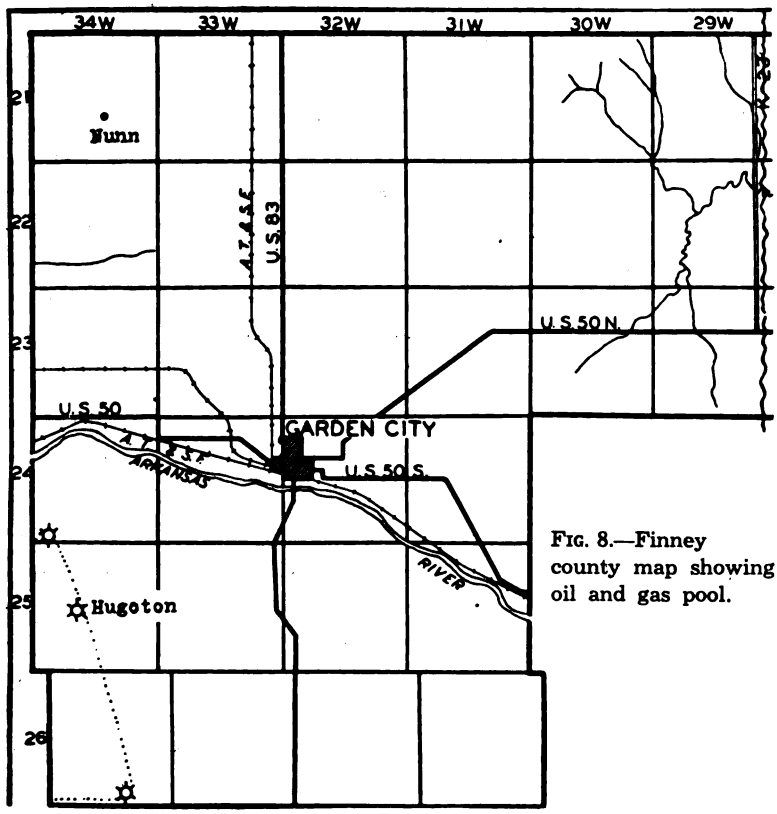

FIG. 8.—Finney county map showing oil and gas pool.

FORD COUNTY

In March 1938 the Sinclair Oil Company drilled a wildcat well on the Young ranch (sec. 34, T. 27 S., R. 21 W.) in Ford County (fig. 9). The upper formations were found in their usual sequence and thickness, except that the Wellington shale proved to be unusually thick. The Mississippian "chat" appeared at 4,890 feet and the base of the Mississippian shale was found at 5,400 feet. Some oil and gas were found within this formation at a depth of 5,037 feet. The test later showed about 6 million cubic feet of gas, 40 barrels of oil, and 200 barrels of water. The well was allowed to stand idle for several years before an attempt was made to secure any production. The name **Pleasant Valley** pool was assigned to the probable producing area. During 1942 the Sinclair Oil Company had the well cleaned out and put into

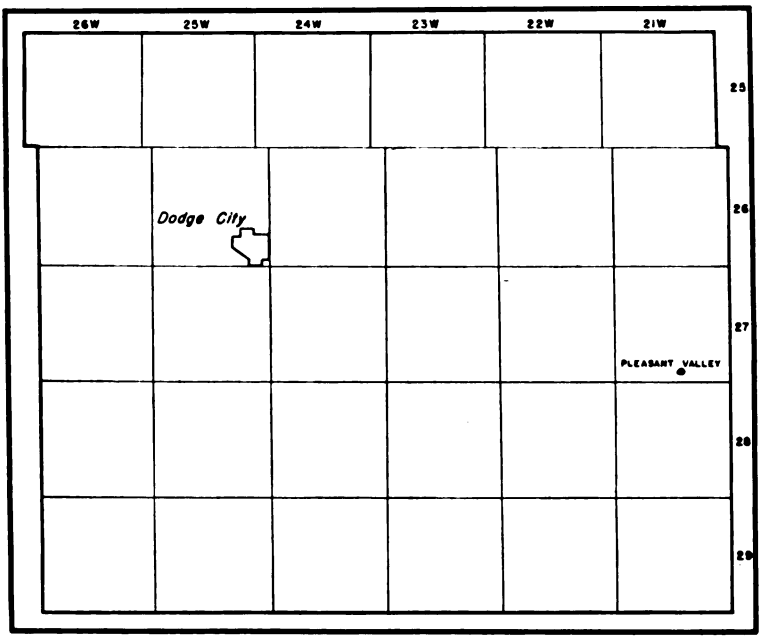

FIG. 9.—Ford county map showing oil and gas pool.

shape for a production test. Later, enough oil was taken from the well to yield the production of 3,588 barrels, shown in table 10.

TABLE 10.—*Oil pool of Ford county*

Pool and location	*Area (acres)*	*Cumulative production to end of 1942 (bbls.)*	*Number of wells*	*Producing zone*	*Depth (feet)*
Pleasant Valley 34-27-21 W	40	3,588	1	"Chat"	4,892

GRAHAM COUNTY

At the present time there are three oil pools (table 11) in Graham county (fig. 10) of which the largest is the **Morel** pool. During 1942 seven new oil wells and three dry holes were drilled in and near this pool. Some of the new wells have a very large potential producing capacity, which will no doubt result in continued drilling operations during 1943.

The **Gettysburg** pool, located 5 miles west of Hill City, is still a one-well pool. In an effort to increase the producing area of

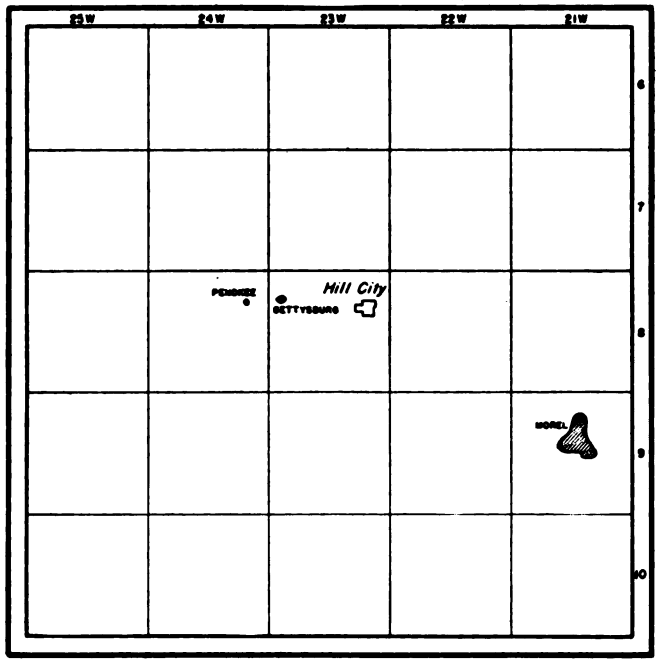

FIG. 10.—Graham county map showing oil pools.

this pool, the Cities Service Oil Company drilled a well on the Emery farm (sec. 7, T. 8 S., R. 23 W.). The Arbuckle dolomite was found at 3,979 feet, but the test was abandoned as a failure.

The **Penokee** pool, which is located several miles west of the Gettysburg pool, also remains a one-well pool. Here, a dry hole was drilled by Shields on the Murphy farm (sec. 12, T. 8 S., R. 24 W.). In this test the Arbuckle dolomite was found at 4,006 feet, but it proved to be barren.

Exploratory Wells.—Four interesting wildcat wells were drilled in Graham county during 1942 in an effort to find new oil pools. In the northeasternmost township (T. 6 S., R. 21 W.) the Cities Service Oil Company drilled a test in the northeast quarter of section 4. This hole was drilled to the pre-Cambrian granite wash, found at 3,639 feet. Five miles northwest of the Morel pool, R. W. Shields drilled a test well on the Arbuthnot farm (sec. 18, T. 8 S., R. 21 W.). The Arbuckle dolomite was found at 3,601 feet, but it proved to be without oil. Two miles east of this well

another dry hole was drilled by the Cities Service Oil Company on the Newell farm in section 21. The Arbuckle dolomite in this test was 33 feet higher than in the Shields test. Another dry hole was drilled in the western part of the county, some 9 miles southwest of the Penokee pool. Here, Carlock drilled a test well (SW¼ sec. 22, T. 8 S., R. 25 W.), the No. 1 Federal Land Bank. It was abandoned at a depth of 4,101 feet without finding any important shows of oil or gas.

TABLE 11.—*Oil pools of Graham county*

Pool and location	*Area (acres)*	*Cumulative production to end of 1942 (bbls.)*	*Number of wells*	*Producing zone*	*Depth (feet)*
Gettysburg 7-8-23 W	40	8,915	1	K.C.-Lans.	3,725
Morel 15-9-21 W	2,400	518,670	15	Arbuckle	3,718
Penokee 11-8-24 W	40	28,810	1	K.C.-Lans.	3,750

HARVEY COUNTY

Harvey county (fig. 11) has four oil pools and one gas pool (table 12) besides having within its area some portion of the **Graber** pool of McPherson county and the eastern portion of the **Burrton** pool of Reno county. Maps showing the structure of the **Hollow-Nikkel** and the Burrton pools were published in Bulletin 42 of the State Geological Survey of Kansas. Because all of these pools have been fairly well defined as to productive limits, very little drilling activity took place in 1942. Only one well was added to the east side of the Burrton pool. It was the No. 5 well on the Martindale farm, drilled by the Hipple Oil Company.

One new oil pool was discovered when H. M. Williams completed a test well on the Ida Stuckey farm (sec. 3, T. 23 S., R. 3 W.). In this well the Mississippian "chat" was found at 3,213 feet, and 11 feet lower considerable gas came into the hole. At 3,258 feet to 3,261 feet enough oil came into the hole to give the well a potential capacity of about 15 barrels per day. The gas found at the higher level was gauged at 2 million cubic feet per day.

Only one wildcat well, the Atlantic Oil Corporation No. 1 Williams (sec. 30, T. 24 S., R. 2 W.), was drilled in Harvey county during 1942. In this test hole the Mississippian limestone was

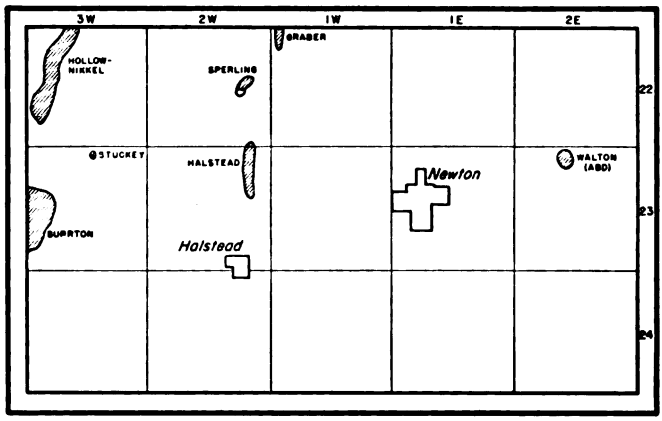

FIG. 11.—Harvey county map showing oil and gas pools.

found at 3,295 feet and the Kinderhook shale at 3,795 feet. The Hunton limestone was found at 3,837 feet; at a depth of 3,872 feet it had a small showing of oil which, on testing, proved to be non-commercial. The test was drilled to the Arbuckle which was penetrated from 4,033 feet to the total depth of 4,091 feet.

TABLE 12.—*Oil and gas pools of Harvey county*

Pool and location	*Area (acres)*	*Cumulative production to end of 1942*	*Number of wells*	*Producing zone*	*Depth (feet)*
		barrels			
Halstead 36-22-2 W	1,200	1,388,135	19	"Chat"	3,005
Hollow-Nikkel 30-22-3 W	1,500	19,153,850	81	K.C.-Lans. "Chat" Hunton Simpson	2,499 3,195 3,507 3,500
Sperling 23-22-2 W	500	391,300	8	Hunton	3,279
*Stuckey 3-23-3 W	40	none	1	"Mississippi lime"	3,224
		thousand cu. ft.			
Sperling (gas) 23-22-2 W	600	6,207,000	2	"Chat"	2,955

* Pool discovered during 1942.

KEARNY COUNTY

In Kearny county (fig. 12) there is one oil pool, the **Patterson** pool (table 13), which was discovered during 1940. The strata encountered in the discovery well and the details of the drilling

campaign which led to the finding of the pool are given in Bulletin 42, published by the State Geological Survey of Kansas. By the end of 1941 there were two producing wells in the pool. During 1942 the Stanolind Oil and Gas Company drilled another good commercial producer (sec. 25, T. 22 S., R. 38 W.) on the Beissel farm. This new well has a potential capacity of 250 barrels per day and showed no water contamination when it was drilled. A test hole drilled by the Stanolind Oil and Gas Company in section 23 was a dry hole. It was the No. 2 well on the Patterson farm.

In Kearny county there are quite a number of gas wells which have been assigned to the **Hugoton** gas pool of southwestern Kansas. During 1942 three additional gas wells were completed, bringing the total number in the county to 11. The northernmost

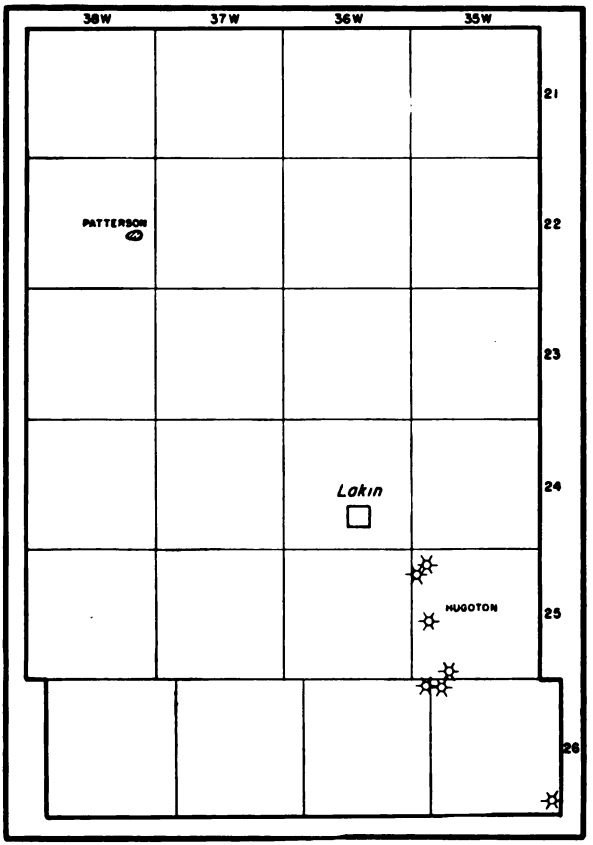

FIG. 12.—Kearny county map showing oil pool and gas wells, Hugoton pool.

one of the new wells (sec 19, T. 24 S., R. 35 W.) is the most northern well of the pool. It was drilled by the Fin-Ker Oil and Gas Company on the Campbell ranch as the No. 5 well on that ranch. The same company drilled another successful well on the same ranch (sec. 18, T. 25 S., R. 35 W.), the No. 6 Campbell well. It is capable of producing 25 million cubic feet of gas per day. In the same township the Fin-Ker Oil and Gas Company drilled a gas well on the Tate ranch in section 22. This well is rated as capable of producing 17½ million cubic feet of gas per day.

Exploratory Wells.—During 1942 an attempt was made to find new production on the southeastern flank of the large Patterson anticline. A deep test well was drilled by the Parker Drilling Company on the Druley ranch (NW¼ sec. 28, T. 23 S., R. 37 W.). In this hole the Stone Corral dolomite was found at 2,050 feet, the Lansing limestone at 4,050 feet, and the Mississippian limestone at 4,896 feet (or minus 1,597 feet on a sea-level basis). The Cherokee formation, which produces the oil in the Patterson pool, was found at 4,350 feet, but it proved to be barren.

TABLE 13.—*Oil pool of Kearny county*

Pool and location	*Area (acres)*	*Cumulative production to end of 1942 (bbls.)*	*Number of wells*	*Producing zone*	*Depth (feet)*
Patterson 23-22-38 W	120	40,270	3	Patterson sand	4,740

KINGMAN COUNTY

In Kingman county (fig. 13) there is one pool, the **Cunningham** (table 14), which produces both oil and gas. By the close of 1941, 74 successful wells had been completed in this rich pool. Production by that time had reached 2,718,703 barrels. During 1942 one additional well was completed by the Skelly Oil Company which holds most of the acreage in the pool. The new well is the No. 4 well on the Conley farm (sec. 20, T. 27 S., R. 10 W.). This well can produce about 17 million cubic feet of gas per day at a depth of 4,200 feet. The Skelly Oil Company attempted to extend the pool southward by drilling a test well in SW cor., T. 27 S., R. 10 W., on the Michener farm. When no oil or gas shows were found in the usual zones within the Kansas City-Lansing limestone sequence, the well was abandoned at a depth of 4,260 feet.

Exploratory Wells.—Two very interesting wildcat wells were

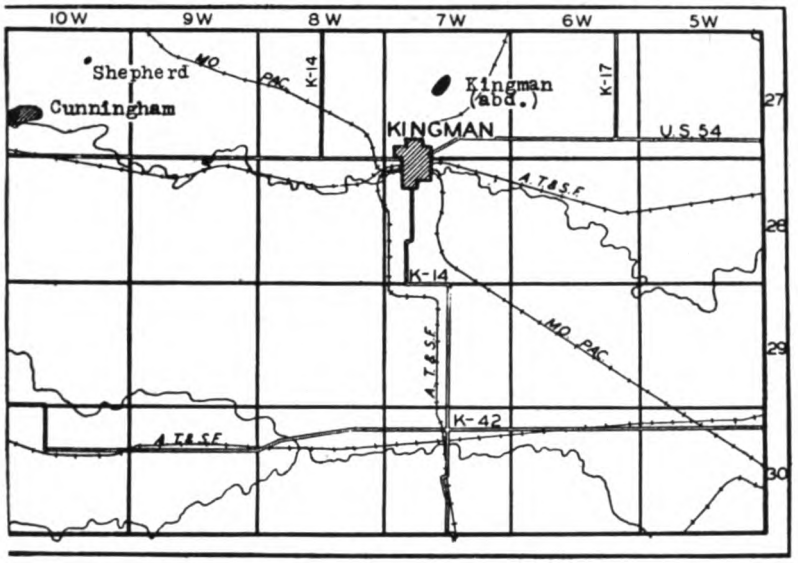

FIG. 13.—Kingman county map showing oil and gas pools.

drilled in Kingman county during 1942. One of these was drilled in the eastern part of the county by the Dickey Oil Company on the Davis farm (sec. 27, T. 27 S., R. 6 W.). As drilling proceeded it was noted from well cuttings that the test hole was "running low" as compared to other tests in the vicinity; therefore, drilling was abandoned without testing the possibilities of the Mississippian or the Ordovician zones. The top of the Lansing limestone was found in this test hole at 3,100 feet; it was abandoned at a depth of 3,456 feet. In February, a rank wildcat well was started by the Stanolind Oil and Gas Company on the Tradick farm (sec. 28, T. 29 S., R. 7 W.). In this test hole the Lansing limestone was found at 3,360 feet, the Mississippian limestone at 4,128 feet, the Simpson formation at 4,521 feet, and the Arbuckle dolomite at 4,643 feet. No oil shows were found and it was abandoned as a dry hole.

TABLE 14.—*Oil pool of Kingman county*

Pool and location	*Area (acres)*	*Cumulative production to end of 1942 (bbls.)*	*Number of wells*	*Producing zone*	*Depth (feet)*
Cunningham	1,400	3,445,395	78	K.C.-Lans.	3,390
30-27-10 W			7	Viola	3,925

McPherson County

At the close of 1941 there were twelve oil pools and two gas pools in McPherson county. During 1942 three new oil pools were added to this list (fig. 14). The new pools are the Crowther, the Roxbury South, and the Lindsborg Southwest. For details regarding the early history of the older pools the reader is referred to Mineral Resources Circulars 10 and 13 and Bulletins 36 and 42 of the State Geological Survey of Kansas. Table 15 contains data relative to McPherson county oil and gas pools.

Drilling was most active in the northeastern corner of McPherson county during 1942. In T. 17 S., R. 1 W. many new oil wells were added to the existing pools, and the wildcat wells uncovered several promising new pools. In considering first the older pools we may note that seven new oil wells and two dry holes were drilled in the **Henne** pool. One wildcat well, located about 1½ miles north of the pool, was drilled by the McBride Oil Company on the Hanson farm, in section 10. This well did not test the strata older than the Mississippian limestone.

The **Crowther** pool, discovered during 1942, was found by the Westgate-Greenland Oil Company when the first well on the Crowther farm (sec. 26, T. 17 S., R. 1 W.) was drilled into the Mississippian formations. Oil was found in the erosional detritus, called "chat," at the top at a depth of 2,778 feet. The potential production of the discovery well is approximately 150 barrels per day. Before the close of the year, four other wells were completed in the pool; some had a production in excess of 3,000 barrels per day.

The **Roxbury South** pool was discovered by the Westgate-Greenland Oil Company when the first well on the Lilly farm (sec. 30, T. 17 S., R. 1 W.) was successfully completed. Oil was found in the Mississippian "chat" at a depth of 2,656 feet. The discovery well has a capacity of 5,400 barrels per day. The rather large recovery from this well led to the drilling of five offset wells almost immediately. However, four of these were failures, as is so often the case in areas where the chat is the producing zone.

The **Lindsborg** pool had a sensational revival during 1942. This pool is on a well-known anticlinal trend which was first tested in December 1929, when the Dixie (now Stanolind) Oil Com-

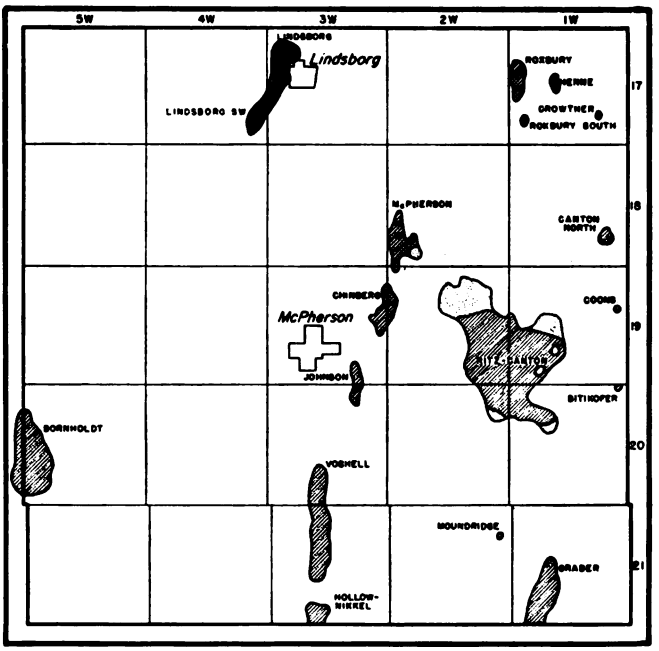

FIG. 14.—McPherson county map showing oil and gas pools.

pany completed a 10-barrel well on the Olson farm (sec. 10, T. 16 S., R. 3 W.). This original well was not acidized, and after producing about 1,400 barrels, it was abandoned as non-commercial. A second test well was drilled near the Olson well on the Tehlander farm in the year 1937, but it had only a small show of oil in the Viola limestone. In January of the following year the first commercial producer was drilled (sec. 8, T. 17 S., R. 3 W.); this well was the discovery well of the Lindsborg pool. The small potential capacity of the new well and the uninviting record of previous wells caused oil operators to take but slight interest in the area. Therefore, it should not cause surprise to find that further drilling was delayed for several years. Nevertheless, several small producing wells were completed between 1938 and 1942. Early in 1942 the M. & L. Drilling Company drilled an offset well to one of the older wells and found a good producer. The next offset well was somewhat better still. Soon other operators were attracted to the area, and before the year was well under way a considerable number of new oil wells had been drilled. By

TABLE 15.—*Oil and gas pools of McPherson county*

Pool and location	*Area (acres)*	*Cumulative production to end of 1942 (bbls.)*	*Number of wells*	*Producing zone*	*Depth (feet)*
Bitikofer 1-20-1 W	80	21,070	2	"Chat"	2,885
Bornholdt 30-20-5 W	2,600	4,378,300	151	"Chat"	3,292
Canton North 26-18-1 W	80	82,855	2	"Chat"	2,803
Chindberg 18-19-2 W	700	1,380,685	5 22	K.C.-Lans. "Chat"	2,363 3,007
*Crowther 26-17-1 W	250	4,250	5	"Chat"	2,778
Graber 32-21-1 W	2,800	6,943,050	2 136	Misener "Hunton"	3,323 3,274
Henne 21-17-1 W	450	168,630	13	"Chat"	2,658
Johnson 35-19-3 W	1,200	2,718,430	15	"Chat"	3,032
Lindsborg 8-17-3 W	4,000	273,100	33 9	Sylvan Simpson	3,352
*Lindsborg S.west 25-17-4 W	320	630	5	Sylvan	3,470
McPherson 29-18-2 W	2,000	973,525	25	K.C.-Lans. "Chat" Viola	2,340 2,967 3,140
Ritz-Canton 12-20-2 W	13,000	36,057,425	236	K.C.-Lans. "Chat" Viola Simpson	2,360 2,935 3,412 3,440
Roxbury 18-17-1 W	500	930,792	37	"Chat"	2,684
*Roxbury South 30-17-1 W	80	9,025	2	"Chat"	2,658
Voshell 9-21-3 W	3,500	24,065,007	97	"Chat" Viola Simpson Arbuckle	3,095 3,301 3,322 3,394
Coons (gas) 13-19-1 W				"Chat"	2,897
Moundridge (gas) 12-21-2 W				"Chat"	3,007

* Pools discovered during 1942.

the close of the year there were in the pool 33 wells producing from the Sylvan dolomite and 9 other other wells producing from the Wilcox (Simpson) sandstone. The Simpson sand wells are located on the highest part of the anticline, where, for some reason, the Sylvan is not porous enough to contain oil.

The **Lindsborg Southwest** pool was discovered during 1942 when the Lario (Globe Refining) Oil Company completed their first well on the Bean farm (sec. 25, T. 17 S., R. 4 W.). (During the year 1943, at the time of writing this report, enough wells have been drilled between the main Lindsborg pool and the Lindsborg Southwest pool to prove that they are part of the same producing area.)

Exploratory Wells. — The large production obtained in the Lindsborg has led to the drilling of many exploratory wells in other parts of McPherson county. In the northeastern portion of the county, among the Henne pool, the Crowther pool, and the **Canton North** pool, three wildcat wells were drilled. One of these was the Westgate-Greenland Oil and Gas Company No. 1 Messenger well (sec. 5, T. 18 S., R. 1 W.). In the same township Nate Appleman drilled, in section 15, a dry hole which penetrated the strata down to the Viola limestone without favorable results. In the southwestern corner of the same township, the Cities Service Oil Company drilled an unsuccessful test in section 31 on the Goering farm. This test did not go beyond the Mississippian formations.

In the Ritz-Canton area, several dry holes were drilled. Five miles west of the **Chindberg** pool, the Globe Refining Company (Lario) drilled a dry hole (sec. 8, T. 19 S., R. 3 W.) on the Ostlind farm. This test probed the possibilities of all likely producing horizons. North of the **Bornholdt** pool in the western part of the county, a test well was drilled on the Conrad farm by the Continental Oil Company. Four miles to the southeast another dry hole was drilled by the Three Way Drilling Company on the Slayback farm (sec. 2, T. 20 S., R. 5 W.).

Two miles north of the **Graber** pool, the Dickey Oil Company drilled a dry hole on the Decker farm (sec. 7, T. 21 S., R. 1 W.). The test was not drilled deep enough to ascertain the oil possibilities of the Ordovician strata. Four miles farther west in the next adjoining township, the Robert Durst farm was tested by Branine and Goering. The test hole penetrated the Arbuckle dolomite from 3,515 feet to the total depth of 3,635 feet without finding commercial quantities of oil or gas. A very interesting wildcat well was drilled by Nate Appleman on the Regehr farm (sec. 21, T. 21 S., R. 4 W.). This test also penetrated all the higher

formations and entered the Arbuckle dolomite at 3,940 feet. Since no oil shows were encountered, the test was abandoned as a dry hole.

Ness County

At the present time Ness county (fig. 15) has only one oil pool, the Aldrich pool. For detailed information concerning the discovery and early history of this pool the reader is referred to Mineral Resources Circular 10. During 1942 only one test well was drilled near this pool and it was a dry hole. Data as to production in the pool are given in table 16.

Exploratory Well.—One exploratory well was drilled in Ness county in an effort to find another oil pool. This test well was drilled by the Aladdin Petroleum Company on the Dubbs farm (sec. 3, T. 16 S., R. 24 W.). This location is 18 miles northeast of the Aldrich pool. The formations were found in their usual thickness and sequence. The Mississippian limestone, which pro-

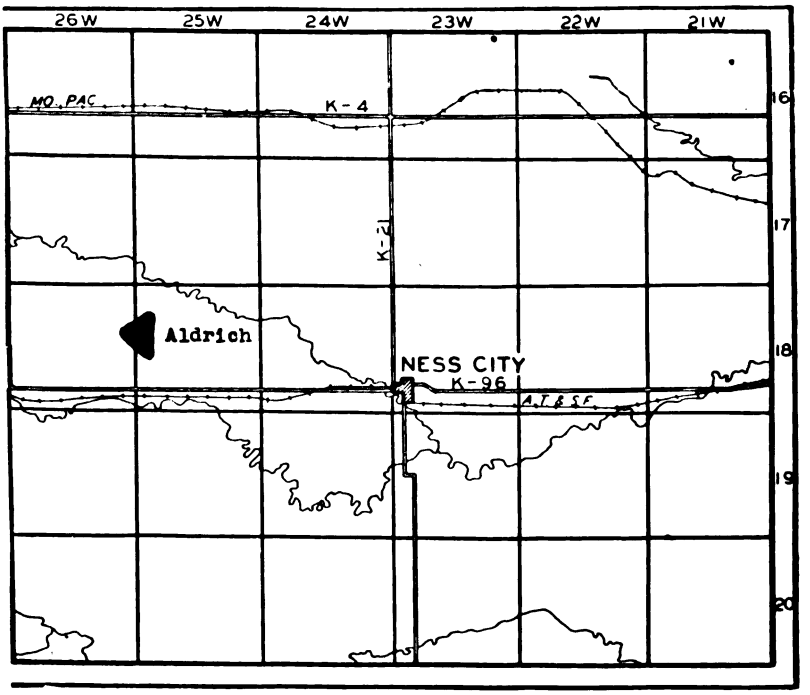

FIG. 15.—Ness county map showing oil pool.

duces oil in the Aldrich pool, was entered at 4,470 feet, and the test was drilled on down to the Arbuckle dolomite at a depth of 4,858 feet. Inasmuch as no important oil shows had been found, the test was abandoned at a total depth of 4,913 feet.

TABLE 16.—*Oil pool of Ness county*

Pool and location	*Area (acres)*	*Cumulative production to end of 1942 (bbls.)*	*Number of wells*	*Producing zone*	*Depth (feet)*
Aldrich 7-18-25 W	2,000	509,650	12	"Mississippi lime"	4,428

NORTON COUNTY

In Norton county (fig. 16) there is only one active oil pool at the present time, the **Hewitt** pool (table 17) in the southeastern part of the county. The discovery well in the pool was drilled during 1941 by the Phillips Petroleum Company. Oil is found at several levels within the Kansas City-Lansing sequence of limestones. During 1942, the Phillips Petroleum Company drilled a third test hole in the area of the pool failing to find commercial quantities of oil.

Exploratory Wells.—The wildcatter was very active in this county during 1942. No less than eight rank wildcat wells were completed during the year. One of the test wells is located several miles north of the townsite of Norton near the center of the county. It was drilled by the Rine Drilling Company on the Wallack ranch (sec. 22, T. 2 S., R. 23 W.). The Arbuckle dolomite was found at 3,690 feet (1,287 feet below sea level), and the pre-Cambrian rocks were entered at a depth of 3,706 feet. In the western part of the county the Cities Service Oil Company drilled a dry hole (sec. 15, T. 3 S., R. 25 W.) on the Mizell ranch. In this test hole, the Arbuckle dolomite was absent, but the Reagan sandstone was found at 3,785 feet (1,322 feet below sea level). The pre-Cambrian rocks were entered at 3,801 feet and the hole was abandoned at a depth of 3,897 feet. Twelve miles southwest of Norton, the Paxton ranch was tested for oil by Helmerick and Payne. Drilling continued until the pre-Cambrian granite wash was encountered at 3,936 feet. In the same township the Stanolind Oil and Gas Company drilled an unsuccessful test well on the Steelsmith ranch in section 28. Here, the Arbuckle was present at 3,843 feet (1,453 feet below sea level), but the Reagan

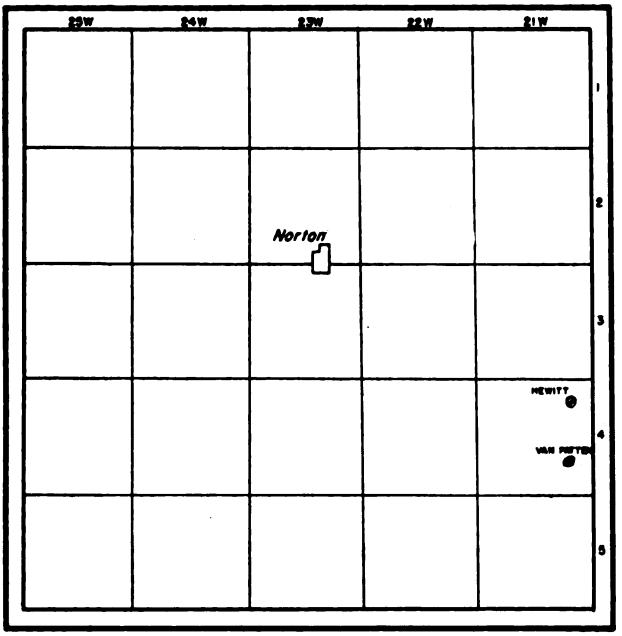

FIG. 16.—Norton county map showing oil pools.

sandstone was not found, and the bit went directly into the pre-Cambrian rocks at 3,920 feet. Four miles northwest of the **Ray** pool, the Cities Service Oil Company drilled a test hole (sec. 18, T. 5 S., R. 21 W.) on the Harrison farm. Here, the Arbuckle is absent and the Reagan sandstone was found at 3,585 feet (1,437 feet below sea level). It proved to be only 4 feet thick. One mile south of this dry hole the Phillips Petroleum Company drilled another test hole with similarly unfavorable results. Six miles northwest of these two dry holes another one was drilled by the Cities Service Oil Company (sec. 6, T. 5 S., R. 22 W.). Here, also, the Arbuckle dolomite was found to be absent. The bit went directly from the Sooy conglomerate into the pre-Cambrian rocks

TABLE 17.—*Oil pools of Norton county*

Pool and location	*Area (acres)*	*Cumulative production to end of 1942 (bbls.)*	*Number of wells*	*Producing zone*	*Depth (feet)*
Hewitt 11-4-21 W	40	10,968	2	K.C.-Lans.	3,404
Van Patten 26-4-21 W	40	none	1	K.C.-Lans.	3,475

at 3,733 feet. Four miles southwest of this dry hole another test hole was drilled by the Derby Oil Company and the Bay Petroleum Company (sec. 22, T. 5 S., R. 23 W.). Here, the Arbuckle dolomite was found to be present at a depth of 3,822 feet (1,542 feet below sea level). The test was abandoned at a total depth of 3,897 feet.

Pawnee County

In Pawnee county (fig. 17) there are at present two oil pools (table 18). The older and larger one is the **Pawnee Rock** pool in the northeastern corner of the county. During 1941 an active drilling campaign increased the number of producing wells greatly, so that it had at least 25 oil producers at the close of the year. During 1942 only one additional producer was added. Fifteen miles west of the pool the Cities Service Oil Company attempted to open another oil pool on the Peter ranch in section 29, but this test proved to be a failure.

The second pool to be discovered in Pawnee county was the **Zook** pool, 18 miles south of the Pawnee Rock pool. The Zook pool was discovered in December 1941 by the Stanolind Oil Company and was described in Bulletin 42 of the State Geological Survey of Kansas. Although opened as a gas pool, it was able to produce somewhat over 6,000 barrels of oil during the past year. An attempt was made to extend the producing limits by drilling a test well on the Rosine Smith ranch (sec. 16, T. 23 S., R. 16 W.). This test found the Arbuckle dolomite at 4,113 feet. The dolomite was porous down to 4,116 feet and capable of yielding 50 barrels of oil per day and about 6 million cubic feet of gas with the oil. Another test well intended as an extension of the pool was drilled on the Gilkison farm (sec. 4, T. 23 S., R. 16 W.). Here, about 50 barrels of water with a little oil was found in the Arbuckle dolomtie at 4,165 feet. The test had to be abandoned as noncommercial.

Exploratory Wells. — Despite the large number of failures

Table 18.—*Oil pools of Pawnee county*

Pool and location	*Area (acres)*	*Cumulative production to end of 1942 (bbls.)*	*Number of wells*	*Producing zone*	*Depth (feet)*
Pawnee Rock 13-20-16 W	2,400	636,596	26	Arbuckle	3,825
Zook 16-23-16 W	80	6,120	2	Arbuckle	4,066

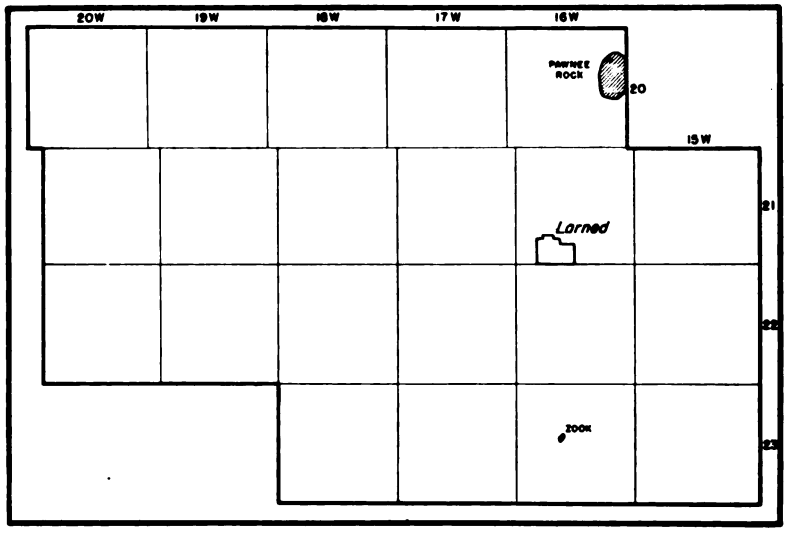

FIG. 17.—Pawnee county map showing oil and gas pools.

drilled during 1941, a certain number of wildcat test wells were staked during 1942 in Pawnee county. One of these was a test on the Peter ranch (sec. 29, T. 20 S., R. 18 W.), drilled by the Cities Service Oil Company. Another very interesting wildcat well was drilled in the southwestern part of the county by the Stanolind Oil and Gas Company on the McCambridge ranch. In this well the Mississippian limestone was found at 4,455 feet, the Simpson shale at 4,690 feet, and the Arbuckle dolomite at 4,740 feet (2,540 feet below sea level). The drill continued in the Arbuckle dolomite to the total depth of 5,364 feet, indicating a thickness for this formation of over 600 feet. Five miles west of this dry hole another test well was drilled by Adair and Morton on the Thompson ranch. In this well, also, the lower formations were thick and deep, with the Ordovician represented by the Viola limestone as well as the Simpson and Arbuckle. In the southeast corner of the county, the Fain Drilling Company drilled a deep dry hole on the Singer ranch (sec. 1, T. 23 S., R. 15 W.).

PHILLIPS COUNTY

A great many wells were drilled in Phillips county (fig. 18) during the year 1942. Most of these were drilled in the two larg-

est pools, the Dayton pool and the Ray pool. There was no drilling in or near the Bow Creek pool. (Table 19.)

In the **Dayton** pool 21 additional wells were added to the two which were reported in Bulletin 42 of the State Geological Survey of Kansas. The pool has grown southward until it now reaches well into T. 3 S., R. 19 W. For a short time during 1942 the south end of the pool was listed separately as the Dayton South pool, but before the end of the year this portion of the pool was linked to the main pool by connecting wells. Production comes from pores in the limestone of the Kansas City-Lansing sequence. Contrary to the usual condition in western Kansas, these openings are not like the oolitic openings generally found in the limestones of this part of the stratigraphic section. One dry hole drilled by the Sinclair Oil Company (sec. 13, T. 3 S., R. 19 W.) seems to limit the possible extensions in that direction.

In the **Ray** pool of southwestern Phillips county at least 33 good oil wells were added during 1942. Most of the wells produce from the Reagan sandstone; four produce from the Arbuckle;

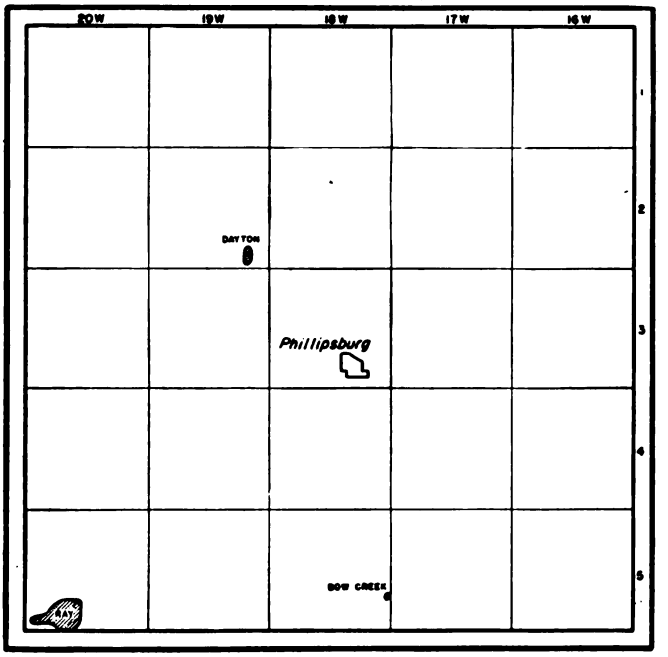

FIG. 18.—Phillips county map showing oil pools.

four produce from both Arbuckle and Reagan as combination wells; and one produces from the Gorham sandstone. This pool is quite definitely of the stratigraphic trap type, because the Arbuckle dolomite wedges in from the north side, while the Reagan is productive farther south and higher on the structure. Late in 1942 (December 22) the Cities Service Oil Company found production in the Lansing limestone, in an extension well drilled in section 14, several miles northeast of the main pool. This well will probably be called the Ray Northeast until such time as it may be linked with the main pool.

Exploratory Wells.—During 1942 a number of wildcat wells were drilled in Phillips county in an effort to discover some of the pools which still remain hidden. One of the test wells was drilled in the northwestern part of the county by the Sinclair Oil Company on the Johnson farm (sec. 33, T. 1 S., R. 19 W.). In this test the Arbuckle dolomite was found at 3,810 feet (1,620 feet below sea level); it contained some porosity but no oil or gas between the depths of 3,869 feet and 4,063 feet. The Arbuckle dolomite proved to be 282 feet thick. In the eastern part of the county the Carter Oil Company drilled a rank wildcat (sec. 5, T. 3 S., R. 16 W.) on the Munyon ranch. In this test the Arbuckle appeared at a depth of 3,892 feet (1,886 feet below sea level) but failed to produce oil as had been expected. Two miles southeast of Phillipsburg, a test well was drilled on the Hoover ranch by Good and Floyd. This site proved to be nonproductive. Another nonproductive well was drilled northeast of the townsite (sec. 23, T. 3 S., R. 18 W.) by the Carter Oil Company. Here, the Viola limestone and the Simpson formation were found above the Arbuckle dolomite. The Simpson formation was entered at 3,709 feet (1,747 feet below sea level). Small shows of oil were found at 3,310 feet to 3,314 feet in the Kansas City-Lansing limestone sequence, but they were not of sufficient importance to result in a producing well. Several miles south of the Dayton pool, the Carter Oil Company drilled another dry hole on the Vogel farm (sec. 26, T. 3 S., R. 19 W.). About 8 miles west of the Dayton pool, a dry hole was drilled on the Cumings farm by the Sinclair Oil and Gas Company (sec. 2, T. 3 S., R. 20 W.). Here, the Arbuckle dolomite was found at a depth of 3,744 feet (1,579 feet below sea level), and the Reagan sand was 198 feet lower. The

Reagan sandstone proved to be only 23 feet thick. Several miles south of Phillipsburg a test well was drilled by the Carter Oil Company on the Robb farm (sec. 3, T. 4 S., R. 18 W.). Some oil stains were noted in the well cuttings at 3,235 feet in one of the Kansas City limestones. Drilling was continued down to the Arbuckle dolomite which was found at 3,574 feet (1,700 feet below sea level).

TABLE 19.—*Oil pools of Phillips county*

Pool and location	*Area (acres)*	*Cumulative production to end of 1942 (bbls.)*	*Number of wells*	*Producing zone*	*Depth (feet)*
Bow Creek 25-5-18 W	40	22,225	1	K.C.-Lans.	3,111
Dayton 36-2-19 W	1,200	136,775	23	K.C.-Lans.	3,430
Ray 32-5-20 W	2,400	944,225	1	Gorham	3,560
			8	Arbuckle	3,575
			55	Reagan	3,540

PRATT COUNTY

At the end of 1941 there were two oil-producing areas and three gas-producing areas in Pratt county. During 1942 one additional oil pool, the Carmi, was found. (Fig. 19.)

The oldest pool in the county is the **Cunningham** pool which was discovered in adjacent Kingman county and which is, therefore, described under the heading of that county. The second pool to be discovered was the **Iuka** pool, 5 miles north of Pratt. This pool had seven wells by the end of 1941. During 1942 drilling in the pool was rather active and an additional 12 producers as well as six dry holes were completed.

In the **Cairo** gas pool only one new producer was drilled during the year; it is the No. 1 Lunt well (sec. 18, T. 28 S., R. 11 W.). This pool produced 11 billion cubic feet of gas during the year, thus bringing the cumulative total to over 41 billion cubic feet, as of the close of 1942.

The new **Carmi** pool is located 2 miles northeast of the Iuka pool and was discovered by the Hollow Drilling Company when the first well on the Hattie Brown farm was completed. With a potential of 3,000 barrels, the new well started a drilling campaign which resulted in the completion of one offset well in the next township to the west. In the discovery well (sec. 29, T. 26 S., R. 12 W.) oil was found in the Arbuckle dolomite between the

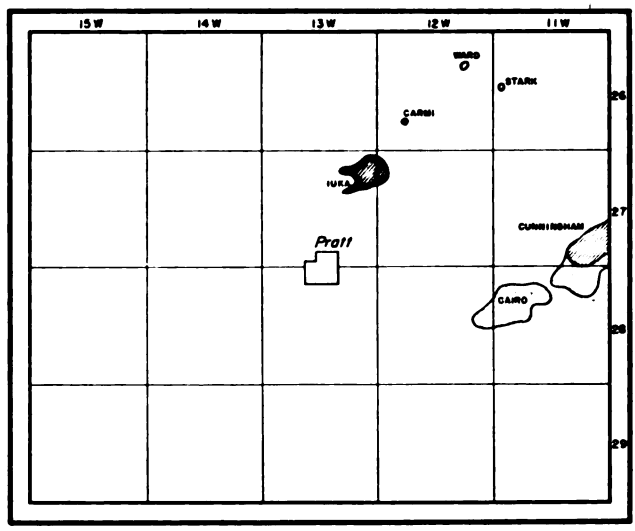

FIG. 19.—Pratt county map showing oil and gas pools.

depths of 4,271 feet and 4,281 feet. This area will doubtless see considerable drilling during the coming year.

Exploratory Wells.—Quite a number of wildcat wells were drilled in various parts of Pratt county during 1942. One of these is the No. 1 Bauman well (sec. 8 , T. 26 S., R. 11 W.) which was drilled jointly by Black-Marshall Oil Company and Helmerick and Payne Drilling Company. The Viola limestone, which was expected to produce, was found at 4,251 feet (2,391 feet below sea level). Drilling continued, to test the Simpson at 4,350 feet and the Arbuckle dolomite at 4,435 feet. Inasmuch as there were no important shows, the test was abandoned at 4,466 feet. The fact that this wildcat is located only 1½ miles northeast of the **Stark** gas pool seems to indicate that the latter will not cover much territory. In the middle of the same township the Barbara Oil Company drilled a test well on the Barker ranch (sec. 22, T. 26 S., R. 11 W.). It was dry and abandoned at a depth of 4,485 feet. Seven miles northwest of the Iuka pool the Alladin Petroleum Company drilled a dry hole on the V. Taylor farm (sec. 19, T. 26 S., R. 13 W.). Here, the Viola limestone was found at 4,265 feet (2,305 feet below sea level), and the Arbuckle dolomite was entered at 4,519 feet. Seven miles west of Pratt, the Falcon-Seaboard Oil Company drilled a dry hole on the Lemon farm (sec.

32, T. 27 S., R. 14 W.). Five miles south of Pratt, the Jones farm was tested for oil or gas by Earl Wakefield (sec. 24, T. 28 S., R. 13 W.). Although the area had a favorable structure determined by core drilling, no important shows of oil or gas were found. The Viola limestone was found at 4,483 feet (2,574 feet below sea level). Two miles farther south a test hole was drilled by the Shell Petroleum Company on the Green land (sec. 6, T. 29 S., R. 12 W.). This also proved to be a disappointment. The Viola limestone in the test hole was found at 4,439 feet (2,553 feet below sea level). In section 17 of the same township (2 miles farther south) the Herndon Drilling Company attempted to find an oil pool. Here, the Viola limestone appeared at 4,486 feet (2,590 feet below sea level), the Simpson at 4,605 feet, and the Arbuckle dolomite at 4,698 feet. The test was abandoned as a dry hole at a depth of 4,733 feet. In far southwestern Pratt county an interesting test well was drilled by Helmerick and Payne on the Strait farm (sec. 36, T. 29 S., R. 15 W.). All likely producing horizons were tested without favorable results. The test was abandoned at a depth of 4,751 feet.

TABLE 20.—*Oil and gas pools of Pratt county*

Pool and location	*Area (acres)*	*Cumulative production to end of 1942*	*Number of wells*	*Producing zone*	*Depth (feet)*
		barrels			
Cairo 7-28-11 W	160	62,460	3	Viola	4,267
*Carmi 29-26-12 W	40	none	1	Arbuckle	4,271
Iuka 11-27-13 W	1,200	221,785	18 1	Simpson Arbuckle	4,292 4,354
		million cu. ft.			
Cairo (gas) 7-28-11 W	20,000	41,000	39 1	Viola Arbuckle	4,278

* Pool discovered during 1942.

RENO COUNTY

In Reno county (fig. 20) there were seven oil pools and two gas pools at the end of 1941. During 1942 one additional oil pool, the Morton pool, was discovered (table 21). A very large number of wells were drilled in the county during 1942, chiefly within or near the sensational **Peace Creek** pool. In the report for 1941 published as Bulletin 42 of the State Geological Survey of Kansas,

four separate pools are listed in the area now occupied by the Peace Creek pool. They are the **Peace Creek Northeast, Schweizer, Hendrickson,** and **Peace Creek** pools. During 1942 wells drilled in this area proved that these four pools are all part of the same underground storage reservoir. At the close of 1941, the four pools had 28 wells. During 1942 enough additional producers were drilled to bring the present total to 130 wells. Besides the producers, 12 dry holes were drilled within the pool and about eight dry holes around the immediate fringes of the pool.

In the older pools of Reno county, drilling was either entirely lacking or else very much reduced. Several salt water disposal wells were drilled in the **Burrton** pool. One dry hole was drilled on the north side of the **Buhler** pool. Two additional producers were completed in the **Abbyville** pool, near the center of the county.

One new pool, the **Morton,** was found during 1942. The discovery well was drilled by the Cities Service Oil Company (sec.

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

Pool and location	*Area (acres)*	*Cumulative production to end of 1942*	*Number of wells*	*Producing zone*	*Depth (feet)*
		barrels			
Abbyville 24-24-8 W	1,200	457,385	9	K.C.-Lans.	3,540
Buhler 25-22-5 W	500	394,440	1	Viola	3,890
			8	Simpson	3,897
Burrton 23-23-4 W	5,000	35,180,610	351	"Chat"	3,266
			58	"Hunton"	3,583
Hilger 16-26-4 W	600	2,373,190	32	Viola	4,062
Lerado 11-26-9 W	1,800	2,488,910	1	K.C.-Lans.	3,535
			29	Viola	4,128
*Morton 17-24-8 W	40	5,205	1	K.C.-Lans.	3,180
Peace Creek 21-23-10 W	5,000	964,595	130	Viola	3,773
Yoder 34-24-5 W	500	77,295	5	"Chat"	3,450
		million cu. ft.			
Burrton (gas) 23-23-4 W	5,000	50,007	52	"Chat"	3,298
Yoder (gas) 34-24-5 W	800		4	"Chat"	3,402

* Pools discovered during 1942.

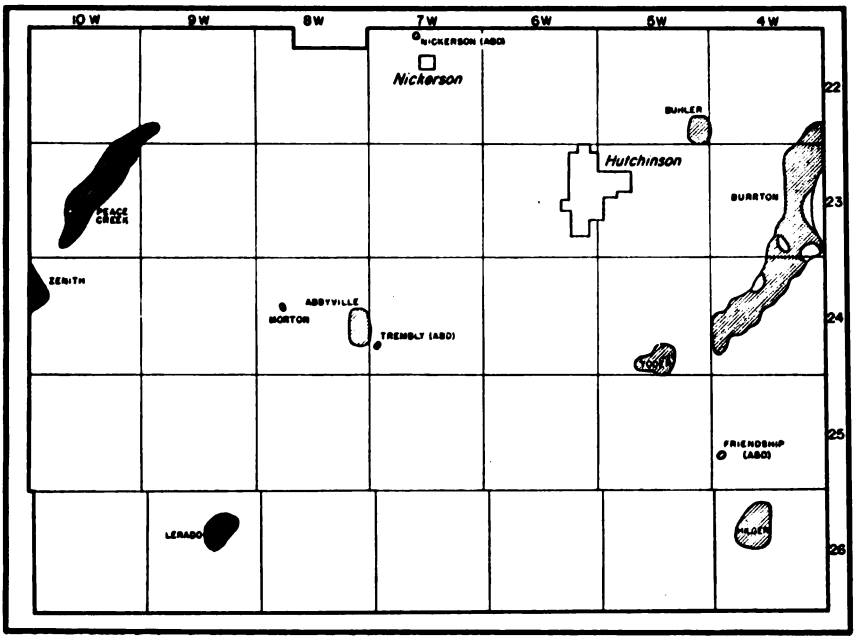

FIG. 20.—Reno county map showing oil and gas pools.

17, T. 24 S., R. 8 W.) on the Morton farm. The oil was found in the limestones of the Kansas City-Lansing sequence at several levels. Some oil came into the hole between 3,402 feet and 3,450 feet, while additional amounts of fluid came into the hole between 3,500 feet and 3,511 feet. After acid had been applied, the well responded by flowing 185 barrels of oil with 30 barrels of water. Originally, the test had been drilled to discover the possibilities for production at lower levels. The Arbuckle dolomite was found at 3,876 feet (2,216 feet below sea level) but it did not contain oil or gas. The well was then plugged back to the porous zones in the higher limestones. This new pool is located 3 miles northwest of the old Abbyville pool.

Exploratory Wells.—Wildcat wells were drilled in various parts of Reno county in an effort to find more pools similar to Peace Creek. This is evidently a stratigraphic trap pool, in all respects similar to the Zenith pool, the geological characteristics of which were described in Bulletin 42. Several wildcat wells were drilled in T. 24 S., R. 9 W., lying between the Peace Creek pool and the

new Morton pool. Seven wildcat wells were drilled in the southern part of the county. One of these was the Foraker and Emrich test, several miles east of the **Friendship** pool (sec. 22, T. 25 S., R. 4 W.). Another was located 10 miles farther west (sec. 29, T. 25 S. R. 5 W.) on the Tonn farm. It was drilled by Helmerick and Payne as a Stanolind "farmout" well. All formations down to and including the Arbuckle dolomite were tested without success. Ten miles south of the Abbyville pool two dry holes were drilled in T. 25 S., R. 8 W. One was the Falcon-Seaboard No. 1 Altland in section 31 and the other was the Shell No. 1 Warner test in section 34. Both were drilled deep enough to test all probable producing horizons. Two dry holes were completed in T. 26 S., R. 5 W. One was drilled by the Auto-Ordnance Company on the Fredericks farm in section 4, and the other was drilled by the Dickey Oil Company on the Schwartz farm in section 20. Ten miles farther west, J. J. Lynn completed a dry hole on the Krehbiel farm (sec. 10, T. 26 S., R. 7 W.). In this test, the Viola limestone was found at 4,247 feet (2,657 feet below sea level). It was drilled on down to the Simpson formation at 4,273 feet and to the Arbuckle dolomite which was found at 4,361 feet.

Rice County

Rice county (fig. 21) boasts 26 oil pools and three gas pools (table 22). Two of the oil pools, the Smyres and the Pioneer, were discovered in 1942. A total of 132 wells were drilled in the county during 1942. Most of these are new oil wells in the older established pools, and only 31 of the number are classed as dry holes. The **Campbell** pool was united with the **Chase** pool during 1942 by connecting wells. There were 279 wells in the two pools at the end of 1941, and during 1942 over 100 additional wells were drilled in that rich area.

One new well was added in the **Doran** pool, and several new oil wells were added to the **Edwards** pool. In the Geneseo pool, two new oil wells were completed and several dry holes were drilled to define the eastern limits of the pool. In the Haferman pool, two additional producing wells from the Arbuckle dolomite were drilled during 1942; in one well a new producing horizon, the Lansing limestone, was found. One additional well was added to the nine wells in the **Ploog** pool. Two new wells were added to those in the **Wenke** pool.

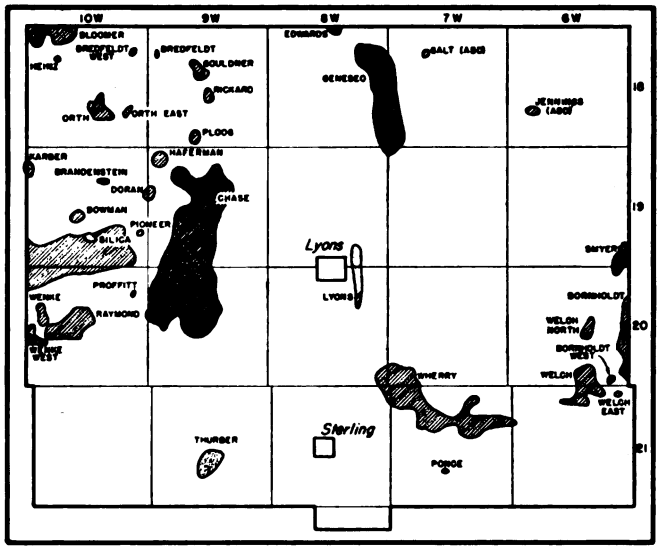

FIG. 21.—Rice county map showing oil and gas pools.

The **Smyres** pool was discovered during February 1942, when the Nelson Drilling Company completed the first well on the Smyres farm (sec. 36, T. 19 S., R. 6 W.). The high potential production of the discovery well led to much additional drilling in the vicinity of this first well, so that there were 22 producing wells by the end of the year. Furthermore, the narrow gap between the Smyres pool and the **Bornholdt** pool was narrowed to such an extent that a union of the two should be expected soon.

The **Pioneer** pool was discovered when the Harwood Oil Company drilled the first well on the Proffitt farm (sec. 25, T. 19 S., R. 10 W.). This new well is located less than a mile from the large Silica pool, and not much farther away from the Chase pool. It is to be expected, therefore, that these two large producing areas may be merged into one pool. The **Silica** pool was extended during 1942 by the successful completion of a number of wells on the eastern end of the pool.

Exploratory Wells.—Inasmuch as nearly every township in Rice county has one or more pools within its boundaries, it is difficult to locate a rank wildcat well in the county. The few which may be considered in that category will be enumerated below. In the northeastern corner of the county a test well was

drilled by the Westgate-Greenland Oil Company (sec. 16, T. 18 S., R. 6 W.). This well tested the Mississipian limestone, but it failed to test the Ordovician rocks. In the next township to the south, two dry holes were drilled. One is located in section 3 where the Westgate Greenland Oil Company drilled a test on the Appel farm. This well stopped in the Kinderhook shales and thus did not test the Ordovician horizons. The second dry hole is located in section 23, only a mile from the Smyres pool. It was drilled by Butcher on the Ihde estate. An interesting wildcat was drilled by the Cities Service Oil Company 5 miles north of Lyons on the Ellis farm (sec. 11, T. 19 S., R. 8 W.). This well tested all the probable producing horizons without favorable results. Two dry holes were completed in T. 20 S., R. 9 W., a short distance southeast of the **Keesling** pool. Two dry holes were drilled in the next two townships farther west (T. 20 S., R. 10 W.), southeast of the **Raymond** pool. One mile west of the **Thurber** gas pool, Holl and Branine drilled a test well (sec. 20, T. 21 S., R. 9 W.) without finding oil or gas. In the southwestern township of Rice county, a test hole was drilled by the Alpine Oil and Royalty Company on the Gish farm (sec. 16, T. 21 S., R. 10 W.) without favorable results.

TABLE 22.—*Oil and gas pools of Rice county*

Pool and location	*Area (acres)*	*Cumulative production to end of 1942*	*Number of wells*	*Producing zone*	*Depth (feet)*
		barrels			
Bowman	160	77,934	4	K.C.-Lans.	3,032
21-19-10 W			2	Arbuckle	3,272
Brandenstein	160	390,023	2	K.C.-Lans.	3,014
10-19-10 W					
Bredfeldt West	80	30,810	2	Arbuckle	3,260
12-18-10 W					
Chase	7,500	26,157,370	22	K.C.-Lans.	2,942
32-19-9 W			358	Arbuckle	3,246
Doran	250	173,150	6	Arbuckle	3,291
13-19-10 W					
Edwards	2,600	3,973,685	91	Arbuckle	3,278
3-18-8 W					
Geneseo	5,600	9,791,500	1	Simpson	3,191
25-18-8 W			193	Arbuckle	3,132
Gouldner	160	254,995	2	K.C.-Lans.	2,884
16-18-9 W					
Haferman	800	577,220	1	K.C.-Lans.	
6-19-9 W			10	Arbuckle	3,192
Heinz	80	51,510	1	K.C.-Lans.	3,000
8-18-10 W			1	Arbuckle	3,254

TABLE 22.—*Oil and gas pools of Rice county, continued*

Pool and location	*Area (acres)*	*Cumulative production to end of 1942*	*Number of wells*	*Producing zone*	*Depth (feet)*
		barrels			
Karber 7-19-10 W	120	47,175	4	Arbuckle	3,343
Keesling 10-20-9 W	1,200	3,748,680	65	Arbuckle	3,239
Lyons 14-20-8 W	40	10,915	1	Simpson	3,274
Orth 27-18-10 W	1,000	890,832	1 1 13	Shawnee K.C.-Lans. Pre-Cambrian	 2,915 3,240
*Pioneer 25-19-10 W	40	3,450	1	Arbuckle	3,281
Ploog 33-18-9 W	300	1,313,045	10	Arbuckle	3,252
Ponce 28-21-7 W	40	32,945	1	Sooy	3,388
Raymond 21-20-10 W	1,200	7,002,780	25 43	K.C.-Lans. Arbuckle	3,130 3,330
Rickard 22-18-9 W	160	85,645	4	Arbuckle	3,324
*Smyres 36-19-6 W	1,000	133,072	22	"Chat"	3,339
Welch 35-20-6 W	1,500	4,368,130	24	"Chat"	3,370
Welch East 1-21-6 W	40	6,835	1	"Chat"	3,341
Welch North 23-20-6 W	160	51,045	3	"Chat"	3,334
Wenke 7-20-10 W	400	475,030	11	Arbuckle	3,360
Wenke West 18-20-10 W	80	61,920	2	Arbuckle	3,292
Wherry 11-21-7 W	7,200	8,516,495	165	Sooy	3,358
		million cu. ft.			
Lyons (gas) 35-19-8 W	1,500	10,996	1 11	Simpson Arbuckle	3,290 3,277
Orth (gas) 27-18-10 W	640		3	K.C.-Lans.	2,906
Thurber (gas) 22-21-9 W	400	8,220	7	Misener	3,317

* Pools discovered during 1942.

ROOKS COUNTY

There were nine oil pools in Rooks county (fig. 22) at the end of 1941 when the last report on oil developments in western Kansas was published (Bulletin 42 of the State Geological Survey of

Kansas). During 1942 three additional oil pools were discovered. (Table 23.) Because of previous successes, quite a large number of wildcat wells were drilled in the county.

In the northwestern corner of the county, which adjoins good production in the Ray pool of Phillips county, seven test holes were drilled, but all were dry except one. This particular well was an offset to production in the **Ray Southeast** pool which was found late in 1941.

In the area of the **Laton** pool, 19 test holes were drilled; 16 were new oil wells and three were dry holes. This active pool now has 82 producing wells in it and is still expanding. Two dry holes were drilled northeast of the pool and one was drilled (sec. 32, T. 8 S., R. 16 W.) about 2 miles northwest of the pool's limits. In the **Dopita** pool one dry hole and one new oil well were completed. In the **Westhusin** pool two new producing wells were added during 1942 making a total of 14 wells at the present time. In an effort to extend this pool the Phillips Petroleum Company drilled a test well (sec. 15, T. 9 S., R. 17 W.) about one mile west of the limits of the present pool. No oil shows of importance were found, so the test had to be abandoned. One mile farther west, the Wentworth Drilling Company drilled a dry hole on the Yeagy farm in section 16.

Three attempts were made to extend the limits of the **Erway** pool, found in 1941. Two of these, the Cities Service No. 1 Groesbeck in section 1 and the Cities Service No. 1 Kirkwood test in section 11, were dry holes. The third test drilled by the Palmer Oil Company on the Baum ranch (sec. 10, T. 10 S., R. 16 W.) resulted in the discovery of the **Baum** pool. This well is located 1½ miles southwest of the well in the Erway pool. It derives its oil from the limestones of the Kansas City-Lansing sequence, the porous zones of which lie at a depth of 3,057 feet.

The new **Dorr** pool is located 3 miles southwest of the Laton pool (sec. 20, T. 9 S., R. 16 W.). It was discovered by the Cities Service Oil Company when the first well on the Dorr ranch was completed in July. Since then 3,342 barrels of oil have been taken from the well which produces from a depth of 3,300 feet in the Kansas City-Lansing limestone.

The new **Barry** pool is located at a considerable distance from any other pool. The discovery well (sec. 11, T. 9 S., R. 19 W.) was

drilled by the Continental Oil Company on the Barry land and oil was found at a depth of 3,435 feet in the Arbuckle dolomite. The large productivity of the first well will undoubtedly lead to further exploration in this part of the township.

Exploratory Wells.—In addition to the dry holes drilled near old pools, which have been mentioned, there were eight other test holes drilled which may be called wildcat wells. One of these is the Carter Oil Company No. 1 Oliva well (sec. 9, T. 7 S., R. 17 W.). Another is the Cities Service No. 1 Baumgartner well (sec. 25, T. 8 S., R. 19 W.) which was abandoned at 3,680 feet after testing the Arbuckle dolomite and all other higher zones. A very interesting test well was drilled on the Coulter farm (sec. 14, T. 9 S., R. 20 W.) by the Sinclair Oil Company. Here, the Arbuckle dolomite was found at 3,677 feet (1,518 feet below sea level) but it proved to be barren. Five miles southwest of this dry hole another one was completed on Nutsch ranch (sec. 3, T. 10 S., R. 20 W.) by the Falcon Seaboard Drilling Company. It also tested all probable producing horizons without favorable indications.

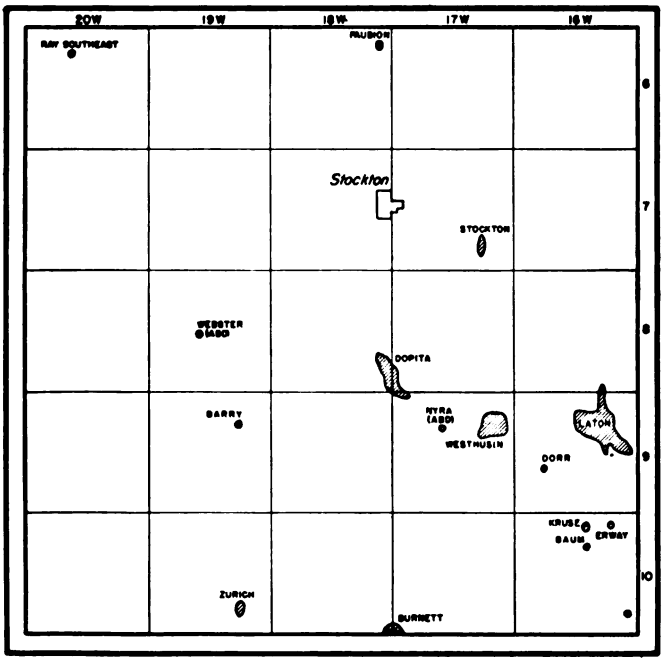

FIG. 22.—Rooks county map showing oil pools.

TABLE 23.—*Oil pools of Rooks county*

Pool and location	*Area (acres)*	*Cumulative production to end of 1942 (bbls.)*	*Number of wells*	*Producing zone*	*Depth (feet)*
*Baum 10-10-16 W	40	2,450	1	K.C.-Lans.	3,057
*Barry 11-9-19 W	40	none	1	Arbuckle	3,435
Dopita 31-8-17 W	500	221,370	2 8	K.C.-Lans. Arbuckle	3,212 3,400
*Dorr 20-9-16 W	40	3,342	1	K.C.-Lans.	3,300
Erway 2-10-16 W	40	10,590	1	K.C.-Lans.	3,136
Faubion 12-6-18 W	80	44,610	1	K.C.-Lans.	3,128
Kruse 3-10-16 W	40	8,980	1	K.C.-Lans.	3,115
Laton 11-9-16 W	1,200	1,726,270	82	K.C.-Lans.	3,228
Ray Southeast 9-6-20 W	40	8,384	1	Reagan	3,600
Webster 21-8-19 W	40	56,369	1	Arbuckle	3,434
Westhusin 11-9-17 W	400	524,695	14	K.C.-Lans.	3,231
Zurich 26-10-19 W	200	128,455	2	K.C.-Lans.	3,340

* Pools discovered during 1942.

RUSH COUNTY

The oil and gas pools of Rush county (table 24 and fig. 23) were described rather fully in previous publications of this series (Mineral Resources Circulars 10 and 13 and Bulletins 36 and 42 of the State Geological Survey of Kansas). In 1942 no additional pools were found and the amount of drilling was very much reduced. Only six wildcat test holes were completed. One of these was drilled by the Auto Ordnance Oil Company on the Herrman ranch (sec. 2, T. 16 S., R. 18 W.). The Reagan sand, which produces in the Otis gas field, was found at 3,551 feet, but it proved to be barren. In the next township to the west, the Continental Oil Company drilled a test well on the Munch farm (sec. 9, T. 16 S., R. 19 W.). Here, the Reagan sand was found at 3,670 feet (1,610 feet below sea level), but there were no indications of oil or gas in the 6 feet drilled through. Several miles north of the aban-

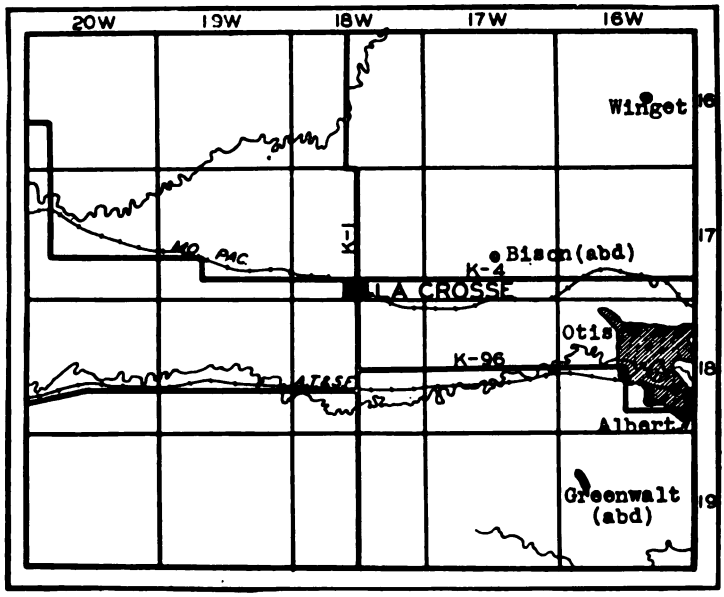

FIG. 23.—Rush county map showing oil and gas pools.

doned **Bison** pool, the Lario Oil Company drilled an unsuccessful wildcat well on the Schwindt farm (sec. 15, T. 17 S., R. 17 W.). The Reagan sand was found at 3,569 feet (1,490 feet below sea level), and the test was abandoned at a depth of 3,579 feet after entering the pre-Cambrian rocks at 3,571 feet. Fifteen miles west of the large Otis gas pool, a dry hole was completed on the Lyman ranch (sec. 32, T. 18 S., R. 18 W.) by J. J. Lynn of Kansas City. In this test the Arbuckle dolomite was found at a depth of 3,862 feet (1,804 feet below sea level), and it proved to be over 46 feet thick. Seven miles southwest of the abandoned **Greenwalt** pool, Helmerick and Payne drilled an unsuccessful wildcat (sec. 28, T. 19 S., R. 17 W.) on the Brannon ranch. Here, the Arbuckle dolomite was found at 3,892 feet (1,762 feet below sea level), and it was penetrated to a total depth of 3,960 feet before drilling ceased.

Nine miles south of LaCrosse, the Vickers Petroleum Company drilled a dry hole on the Steitz ranch (sec. 17, T. 19 S., R. 18 W.). In this test hole the Arbuckle dolomite was found at 4,035 feet, just below the Pennsylvanian basal conglomerate, and at a sub sea level depth of 1,926 feet.

At the close of the year the State Corporation commission issued a new order with regard to the Otis gas and oil field. It was decided that inasmuch as only 4 percent of the field was underlain by oil, this oil needed the force of the gas within the same reservoir to cause the oil to flow from the reservoir. It was reasoned that since there is no water drive in the pool, the maximum production of the recoverable oil reserve should be obtained prior to the depletion of the gas. It was assumed that approximately 55 percent of the gas had been taken out of the pool through the sale of dry gas. It was also assumed that about 50 percent of the oil had been taken out. On the basis of such estimates it was believed that there might be danger of waste of underground reserves unless the flow of gas and oil could be correlated. Therefore, it was ordered that thenceforth the maximum amount of oil might safely be produced from the combination oil and gas wells.

TABLE 24.—*Oil and gas pools of Rush county*

Pool and location	*Area (acres)*	*Cumulative production to end of 1942*	*Number of wells*	*Producing zone*	*Depth (feet)*
		barrels			
Otis 10-18-16 W	800	1,906,695	22	Reagan	3,527
Winget 15-16-16 W	120	49,000	1 1	K.C.-Lans. Arbuckle	3,243 3,537
		million cu. ft.			
Otis (gas) 11-18-16 W	15,000	74,190	59	Reagan	3,507

RUSSELL COUNTY

There were 33 oil pools in Russell county (fig. 24) at the end of 1941, when the last report on this county was written (Bulletin 42 of the State Geological Survey of Kansas). During 1942 the Jerry, Russell North, and Witt pools were added; however, the total number of pools was decreased to 32 because four pools were joined to other near-by pools. (Table 25.)

As might be expected, drilling activity continued at a high pitch in Russell county during 1942. Out of a total of 151 wells drilled, only 30 were dry holes. The pools which were most active were the **Hall-Gurney** in which 25 new producers were added and the **Trapp** pool in which 36 new producers were added. The **Gorham** pool was extended toward the east by the addition

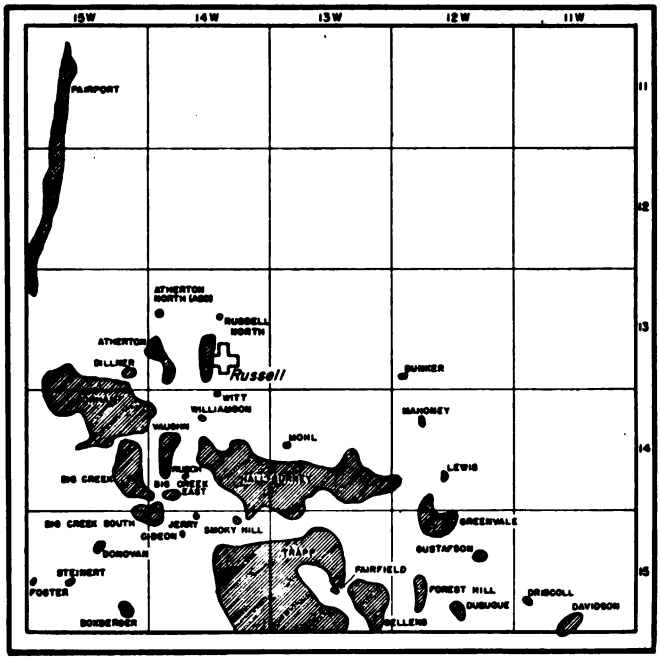

FIG. 24.—Russell county map showing oil pools.

of 13 wells, which incidentally proved that the **Dillner** pool is a part of the same underground reservoir. Therefore, the name Dillner will no longer appear on the county production map. Similarly, enough wells were drilled between the **Neidenthal** and the **Big Creek** pools to establish a common reservoir for those two pools. The name Neidenthal will therefore be dropped from future maps. The large **Trapp** pool was extended chiefly on the west side, and in such a manner that it was definitely linked with the **Trapp West** pool.

The oldest pool in the county is the **Fairport** pool, discovered in 1923. There, a number of wildcat wells were drilled to find extensions, but without favorable results. Two wells were drilled on the northeast side of the pool, one on the east side, and one 2 miles east of the limits of the pool.

Exploratory Wells.—Elsewhere, wildcat wells were also drilled rather close to existing pools, so that no special mention of them is necessary. One exception is the test hole (sec. 36, T. 12

TABLE 25.—*Oil pools of Russell county*

Pool and location	*Area (acres)*	*Cumulative production to end of 1942 (bbls.)*	*Number of wells*	*Producing zone*	*Depth (feet)*
Atherton	1,800	1,281,410	7	K.C.-Lans.	3,008
30-13-14 W			28	Arbuckle	3,284
Big Creek	2,600	3,356,235	12	K.C.-Lans	2,908
36-14-15 W			40	Gorham	3,152
			23	Arbuckle	3,171
Big Creek East	300	301,095	7	K.C.-Lans.	
31-14-14 W			4	Arbuckle	3,149
Boxberger	160	154,795	3	K.C.-Lans.	3,147
36-15-15 W					
Bunker Hill	200	73,760	4	K.C.-Lans.	2,965
31-13-12 W					
Davidson Northeast					
34-15-11 W					
Dillner	Joined to Gorham by nomenclature committee June 11, 1942				
35-13-15 W					
Donovan	200	82,790	4	K.C.-Lans.	3,193
10-15-15 W					
Driscoll	80	24,095	1	Arbuckle	3,255
30-15-11 W					
Dubuque	300	231,140	1	K.C.-Lans.	3,275
34-15-12 W			5	Arbuckle	
Eichman	800	679,195	10	Arbuckle	3,316
34-15-13 W					
(now part of Trapp)					
Fairfield	40	10,130	1	Arbuckle	3,352
22-15-13 W					
Fairfield North	400		2	K.C.-Lans.	3,112
16-15-13 W			8	Arbuckle	3,332
Fairport	3,600	15,629,040	147	K.C.-Lans.	2,950
8-12-15 W					
Forest Hill	250	58,425	5	Arbuckle	3,320
29-15-12 W					
Gideon	40	42,495	1	Sooy	3,266
8-15-14 W					
Gorham	8,000	22,160,675	1	Tarkio	2,525
5-14-15 W			8	Topeka	2,765
			125	K.C.-Lans.	3,027
			7	Arbuckle	3,289
			160	Reagan	3,299
Greenvale	2,000	905,105	24	K.C.-Lans.	3,040
4-15-12 W			28	Arbuckle	3,267
			2	Gorham	3,266
Gustafson	80	14,295	2	K.C.-Lans.	
14-15-12 W			1	Arbuckle	3,344

TABLE 25.—*Oil pools of Russell county, continued*

Pool and location	*Area (acres)*	*Cumulative production to end of 1942 (bbls.)*	*Number of wells*	*Producing zone*	*Depth (feet)*
Hall-Gurney 30-14-13 W	20,000	13,586,570	2 4 378 24 10 12 2	Wabaunsee Topeka K.C.-Lans. Gorham Arbuckle Reagan Pre-Cambrian	 2,675 2,985 3,165 3,451 3,129 3,156
*Jerry 4-15-14 W	40	none	1	K.C.-Lans.	2,985
Karst 27-15-14 W	160	221,065	5	Arbuckle	3,315
Lewis 28-14-12 W	40	8,685	1	Wabaunsee	2,317
Mahoney 8-14-12 W	120	31,690	3	K.C.-Lans.	2,977
Mohl 18-14-13 W	40	3,670	1	Reagan	2,977
Neidenthal	Joined to Big Creek by nomenclature committee.				
Rusch 29-14-14 W	250	94,310	2 4	K.C.-Lans. Arbuckle	3,071 3,216
Russell 22-13-14 W	1,200	5,236,575	3 47	K.C.-Lans. Arbuckle	3,195 3,280
*Russell North 15-13-14 W	40	3,128	1	K.C.-Lans.	2,978
Sellens 26-15-13 W	1,200	2,760,640	1 9 15	Shawnee K.C.-Lans. Arbuckle	 3,088 3,352
Steinert 21-15-15 W	40	39,748	1	K.C.-Lans.	3,060
Trapp 23-15-14 W	32,000	35,220,910	4 124 1 746	Shawnee K.C.-Lans. Sooy Arbuckle	2,889 3,062 3,252
Trapp West	Joined to Trapp by nomenclature committee.				
Vaughn 17-14-14 W	1,000	1,329,890	24 1 4	K.C.-Lans. Gorham Arbuckle	3,004 3,282
Williamson 9-14-14 W	160	58,595	2	Tarkio	2,522
*Witt 3-14-14 W	80	8,060	3	K.C.-Lans.	3,009

* Pool discovered during 1942.

S., R. 13 W.) made by the Black Marshall Oil Company on the Fairchild ranch. In this test hole the Stone Corral dolomite was found at 557 feet, the Lansing limestone at 2,790 feet, the Sooy conglomerate at 3,153 feet, the Viola limestone at 3,250 feet (1,691 feet below sea level), the Simpson dolomite at 3,311 feet, and the Arbuckle dolomite at 3,370 feet. The test was abandoned at a total depth of 3,375 feet.

Three new oil pools were found in Russell county during 1942. One of these is the **Jerry** pool (sec. 4, T. 15 S., R. 14 W.) where the discovery well was drilled by Nate Appleman. The oil was found in the Lansing limestone at a depth of 2,985 feet. The new **Russell North** pool was discovered by the British American Oil Company in conjunction with the Aylward Producing Company on the Ehrlich farm (sec. 15, T. 13 S., R. 14 W.). The oil was found in the Lansing limestone at a depth of 2,978 feet. A number of porous zones between 2,978 feet and 3,245 feet were tested to give the well a potential of 430 barrels of oil per day. The new pool is separated from the main **Russell** pool by a distance of about 2 miles. The new **Witt** pool was drilled by Witt on fee land (sec. 3, T. 14 S., R. 14 W.). It produces oil from the Lansing limestone at a depth of 3,009 feet. The Witt pool is separated from the Russell pool by a distance of about 2 miles. It lies an equal distance south of the city of Russell.

Scott County

The only pool which has been discovered in Scott county (fig. 25) up to 1943 is the **Shallow Water** pool (table 26). It was discovered during 1934 when the Atlantic Refining Company successfully completed the first well on the Vaniman ranch (sec. 15, T. 20 S., R. 33 W.). The history of the pool to the end of 1937 was discussed in Mineral Resources Circular 13, and subsequent developments within the pool and in the county as a whole were published in Bulletins 28, 36, and 42 of the State Geological Survey of Kansas. No additional drilling was done in 1942.

Table 26.—*Oil pool of Scott county*

Pool and location	*Area (acres)*	*Cumulative production to end of 1942 (bbls.)*	*Number of wells*	*Producing zone*	*Depth (feet)*
Shallow Water 15-20-33 W	600	1,152,560	9	"Mississippi lime"	4,670

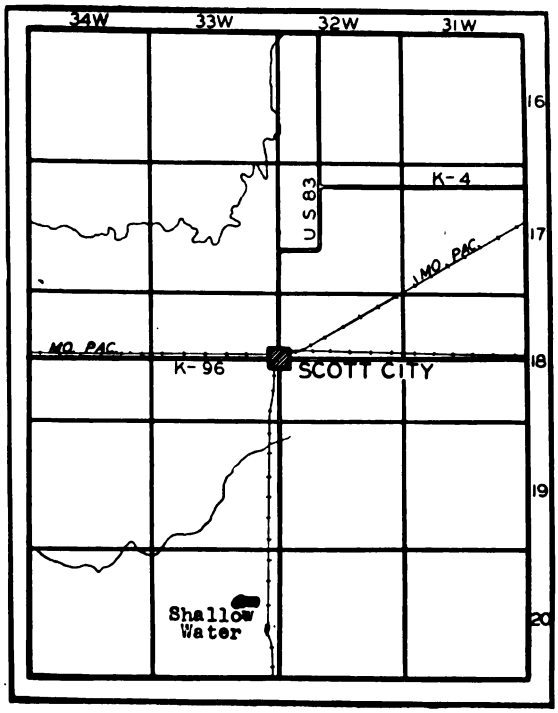

FIG. 15.—Scott county map showing oil pool.

SEDGWICK COUNTY

Sedgwick county (fig. 26) has produced a great deal of oil in years past (table 27). Most of the flush production has come from the **Valley Center, Greenwich, Goodrich, Robbins**, and **Eastborough** pools. These pools were described rather fully in Mineral Resources Circular 10. The drilling and production data on these pools and others in the county were brought up to date yearly in Bulletins 28, 36, and 42 of the State Geological Survey of Kansas. During 1942 very little drilling was done in this county. Two small wells were drilled in the Valley Center pool. One of these is the Prunty Oil Company No. 1 Wright (NE¼ sec. 12, T. 26 S., R. 1 W.). It came in with a potential capacity of 12 barrels of oil and 1,200 barrels of water. The second well was drilled in the same section but in the southwest quarter; it is capable of producing 68 barrels of oil and 900 barrels of water. The amount of water in these wells indicates clearly that the Valley Center oil

pool is yielding its last quota of oil. In the Eastborough pool, one well was deepened from the chat horizon to the deeper Viola limestone. This well is the No. 1 Davies of the Ramsey Petroleum Company (sec. 17, T. 27 S., R. 2 E.).

Exploratory Wells.—Five wildcat wells were drilled in Sedgwick county during 1942 in an effort to locate new oil or gas pools. One of these was the Anderson-Pritchard Oil Company No. 1 Lorg test (sec. 12, T. 27 S., R. 4 W.). The Mississippi limestone was found at 3,703 feet and the Viola limestone at 4,180 feet (2,731 feet below sea level). The Simpson was penetrated from 4,196 feet to 4,283 feet where the drill entered the last probable producing zone, the Arbuckle dolomite. This test well is located 4 miles east of the abandoned **Cheney** pool. Another dry hole was drilled about 4 miles south of the Lorg test (sec. 1, T. 28 S., R. 4 W.). Drilled by the Ruso Drilling Company on the Puetz farm, this test found the Arbuckle dolomite at 4,332 feet (2,894 feet below sea level), about 60 feet lower than the same formation in the Lorg well. Seven miles southwest of the Robbins pool, the Continental Oil Company drilled a wildcat well on the Capron farm (sec. 11, T. 29 S., R. 1 W.). In this test the Mississippian lime-

TABLE 27.—*Oil pools of Sedgwick county*

Pool and location	*Area (acres)*	*Cumulative production to end of 1942 (bbls.)*	*Number of wells*	*Producing zone*	*Depth (feet)*
Cross **29-25-1 W**	**160**	**51,171**	**2**	**K.C.-Lans.**	**2,690**
Eastborough 19-27-2 E	1,000	8,027,510	42	"Chat" Viola	2,956 3,238
Eastborough North 8-27-2 E	80		1	Viola	3,258
Goodrich 16-25-1 E	640	3,197,362	34	K.C.-Lans. "Chat" Misener	2,614 3,010 3,334
Greenwich 14-26-2 E	700	9,525,850	42	"Chat" Viola Simpson	2,885 3,321 3,350
Kuske 24-25-1 E	40	141,680	1	Sooy	3,013
Oatville 18-28-1 E	80		1	Simpson	3,489
Robbins 20-28-1 E	420	3,040,800	51	"Mississippi lime"	3,090
Valley Center 1-26-1 W	1,500	20,544,525	66	Misener Viola	3,368 3,366

stone was found at 3,295 feet (2,009 feet below sea level). Inasmuch as the sub-sea level of production in the Robbins pool is approximately 1,800 feet, the well was evidently running low, so the Ordovician zones were not tested. The test was abandoned at 3,370 feet in the Mississipian system.

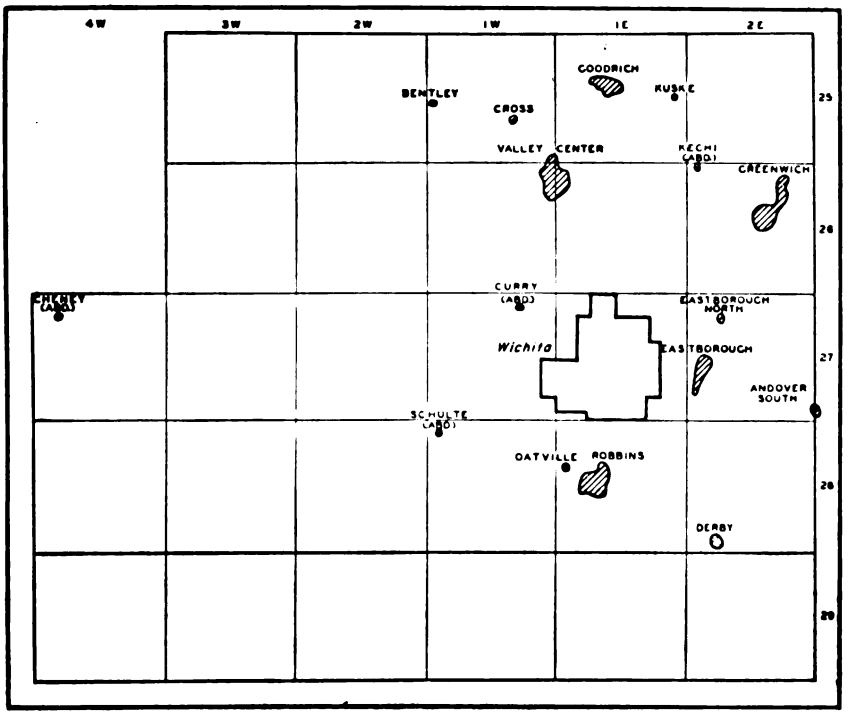

FIG. 26.—Sedgwick county map showing oil pools.

STAFFORD COUNTY

Despite the fact that 24 oil pools have been found in Stafford county (table 28), it continues to be the most difficult area in which to operate. This statement is based on the fact that out of 75 wells drilled in the county during 1942, 44 were dry holes. Out of a total of 34 wildcat wells, drilled some distance from old oil pools, only two were successful in finding new oil supplies. The two new pools are the Curtis and the Hazel pools (fig. 27).

The pools which received important extensions during 1942 are the **Drach, Bedford, Stafford** and the **Leesburgh** pools. In each of

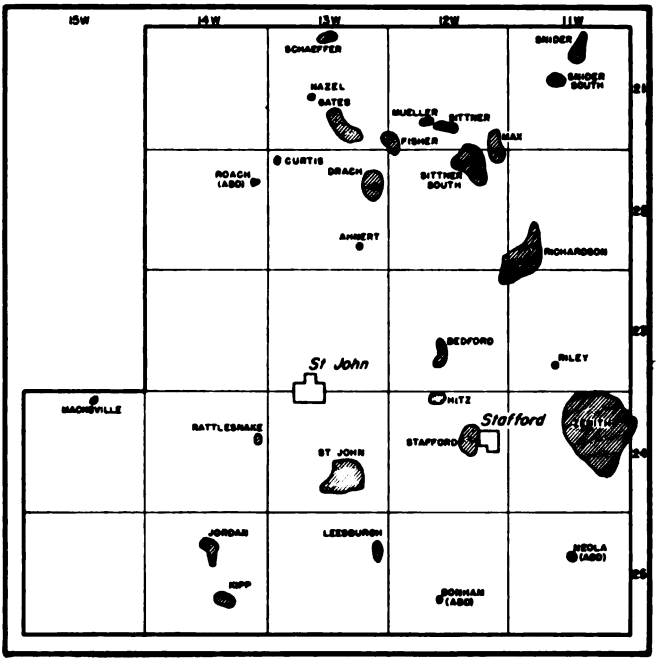

FIG. 27.—Stafford county map showing oil pools.

these, one or more new producers were completed. In the **Zenith** pool, which is already the largest pool in the county, 11 new oil wells were brought into production.

The new **Curtis** pool (sec. 6, T. 22 S., R. 13 W.) was discovered by the Vickers Petroleum Company when the first well on the Curtis farm was completed as a producer. The oil was found in the Arbuckle dolomite at a depth of 3,693 feet. At present, the well is capable of producing an average of 3,000 barrels per month. One offset test to the west proved to be a dry hole. The other new pool, the **Hazel** pool, is located a distance of 5 miles northeast of the Curtis pool (sec. 21, T. 21 S., R. 13 W.). It was discovered by the Faulkner Drilling Company when the test well on the Hazel Ward farm was completed in June. The oil was found in the Arbuckle dolomite at a depth of 3,692 feet from a porous zone extending down to 3,703 feet. The rather large potential production of the first well led to additional drilling with the result that one small producer was added before the end of the year and also one dry hole.

Exploratory Wells.—The 34 exploratory wells drilled in Stafford county during 1942 are fairly well distributed all over the county. Three were drilled in the northeastern township (T. 21 S., R. 11 W.). No exceptional conditions were found in any of the three, and all were abandoned as failures. One dry hole was drilled 4 miles north of the **Sittner** pool (sec. 14, T. 21 S., R. 12 W.). It was abandoned at 3,667 feet after testing all probable producing levels. In T. 21 S., R. 14 W. a dry hole was completed in section 16 by the Vickers Petroleum Company, on the Koehn farm. Four miles east of the **Max** pool, Nadel and Gussman completed a dry hole (sec. 3, T. 22 S., R. 11 W.). Four miles west of the **Roach** pool, the Stanolind Oil Company completed a dry hole on the Strobel farm (sec. 9, T. 22 S., R. 14 W.). The Arbuckle dolomite was found at 3,878 feet (1,932 feet below sea level). In the next township to the south (T. 23 S., R. 14 W.) two dry holes were drilled during the year. One of these is located in section 1 and was drilled by the Cities Service Company as the No. 1 Liberty Life well. The second one was drilled by the Stanolind Oil Company in section 29 on the Gillmore farm. Both tests went into the Arbuckle dolomite. The Stanolind test penetrated the dolomite a distance of 119 feet before it was abandoned. South of the **Macksville** pool a test well drilled by the Cities Service Oil Company on the Walker farm (sec. 10, T. 24 S., R. 15 W.) found the Arbuckle dolomite at 4,044 feet (2,021 feet below sea level.) The dolomite was in the form of reworked material from 4,044 to 4,106 feet, an unusual geological condition. Seven miles farther south, the Herndon Drilling Company completed a dry hole on the Suiter farm (sec. 9, T. 25 S., R. 15 W.). The Arbuckle was found very low, at 4,536 feet (2,504 feet below sea level).

TABLE 28.—*Oil pools of Stafford county*

Pool and location	*Area (acres)*	*Cumulative production to end of 1942 (bbls.)*	*Number of wells*	*Producing zone*	*Depth (feet)*
Ahnert 26-22-13 W	40	14,490	1	Arbuckle	3,784
Bedford 21-23-12 W	850	474,985	22	Arbuckle	3,859
*Curtis 6-22-13 W	40	3,205	1	Arbuckle	3,693
Drach 12-22-13 W	1,100	414,505	16	Arbuckle	3,693

TABLE 28.—*Oil pools of Stafford county, continued*

Pool and location	*Area (acres)*	*Cumulative production to end of 1942 (bbls.)*	*Number of wells*	*Producing zone*	*Depth (feet)*
Fischer 31-21-12 W	120	140,840	3	Arbuckle	3,641
Gates 27-21-13 W	640	811,800	11	Arbuckle	3,679
*Hazel 21-21-13 W	40	14,795	2	Arbuckle	3,692
Jordan 15-25-14 W	260	360,402	7	K.C.-Lans.	3,722
Kipp 27-25-14 W	220	226,980	8	K.C.-Lans.	3,827
Leesburgh 12-25-13 W	500	576,350	13	Arbuckle	4,153
Macksville 3-24-15 W	80	26,460	2	K.C.-Lans.	3,811
Max 35-21-12 W	400	250,950	2 10	K.C.-Lans. Arbuckle	3,356 3,570
Mueller 29-21-12 W	80	182,760	2	Arbuckle	3,594
Rattlesnake 13-24-14 W	40	42,290	1	K.C.-Lans.	3,608
Richardson 36-22-12 W	1,200	5,057,135	60	Arbuckle	3,537
Riley 28-23-11 W	40	24,415	1	K.C.-Lans.	3,323
Schaeffer 3-21-13 W	300	124,250	6 1	K.C.-Lans. Arbuckle	3,404 3,546
St. John 23-24-13 W	1,200	1,264,980	14 10	K.C.-Lans. Arbuckle	3,588 4,075
Sittner 33-21-12 W	600	399,925	2 6	K.C.-Lans. Arbuckle	3,278 3,600
Sittner South 3-22-12 W	500	575,440	18	Arbuckle	3,501
Snider 3-21-11 W	320	222,200	4 2 2	K.C.-Lans. Simpson Arbuckle	3,111 3,362 3,324
Snider South 16-21-11 W	360	222,940	8	Simpson	3,402
Stafford 15-24-12 W	600	604,870	18 1	Viola Arbuckle	3,845 3,945
Zenith 23-24-11 W	5,400	10,346,250	310	Misener Viola	3,804 3,860

* Pools discovered during 1942.

Stevens County

Stevens county (fig. 28) is important because a large portion of the Hugoton gas field is located within its borders. Although the first well in the very large Hugoton field was actually drilled in neighboring Seward county, the richest portion of the field seems to lie within Stevens county and to center about the town of Hugoton, after which the field was named. By the close of 1941 a total of 217 gas wells had been completed in Stevens county, and during 1942 nine more gas wells were completed. The new wells range in productive capacity from 4 million cubic feet per day to over 32 million cubic feet per day. Two were drilled in T. 32 S., R. 36 W. One of these, on the Taylor ranch in section 30, is the largest well completed during the year having a capacity of 32½ million cubic feet per day. Three gas wells were drilled in T. 32 S., R. 37 W. They were all drilled by the Northern Natural Gas Company and are all large producers. In T. 33 S., R. 37 W. the Republic Natural Gas Company drilled one well on the Kuhn ranch in section 15. This well came in with a bottom hole pressure of 402 pounds and a capacity of 15 million cubic feet of gas per day. In T. 34 S., R. 37 W. three new gas wells were completed. They were all drilled by the Huber Corporation in the northwestern portion of the township and are all relatively small producers.

In the Grant county portion of the Hugoton gas field one well was drilled on the Ray Lighty ranch by the United Producing Company (sec. 14, T. 30 S., R. 35 W.). The new well has a rated capacity of 8 million cubic feet per day. In the Haskell portion of the Hugoton field four new gas wells were completed during 1942. All were drilled by the United Producing Company and all are located in T. 29 S., R. 34 W. One was drilled in section 19 on the Ponceti farm. It has a capacity of 10 million cubic feet per day and a rock pressure of 430 pounds. The second one was drilled on the Frank Roy farm in section 20; it has a capacity of 2 million cubic feet per day. The third was drilled on the Oliver Ray land in section 21, with a rated capacity of 13½ million cubic feet per day and a rock pressure of 433 pounds. The fourth well was drilled on the Frank Roy farm in section 29; it has a capacity of 16½ million cubic feet of gas per day. The geological conditions in the Hugoton gas field are described in the report written during 1942 and published as Bulletin 42 of the State Geological Survey of Kansas.

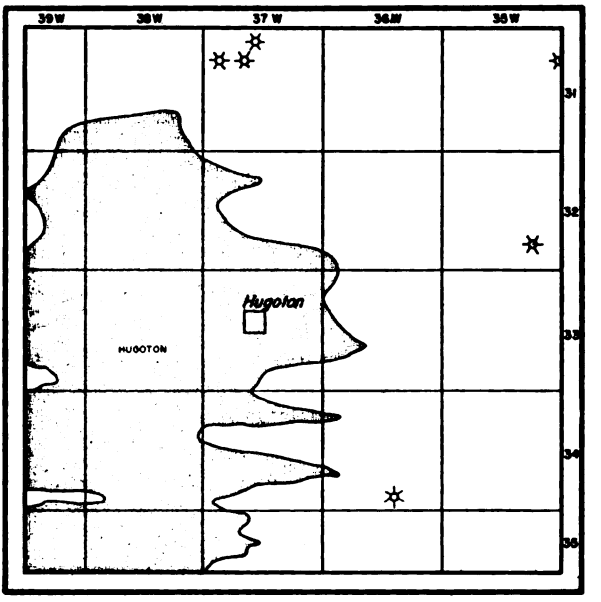

FIG. 28.—Stevens county map showing gas pool and outlying wells.

The total number of wells in the Hugoton field (table 29) at the close of 1942 was 327, the total combined open flow of which exceeds 3,500 million cubic feet per day. The production of the field during 1942 equalled 41,418 million cubic feet, which is approximately five billion more than the yield for the previous year. The total production to date is well over 200 billion cubic feet, from an estimated 2 million acres of productive territory. Twenty-two of the wells in the field are not connected to pipe line outlets and have never produced any gas, although some of them were drilled over 8 years ago. Although the owners of these wells have been willing to sell their gas to the pipe lines purchasing gas in the field, they have been refused such aid. In order to rectify this situation the State Corporation Commission drew up new regulations which were published on October 10, 1942. In these regulations the statement is made that the present market demand for gas is approximately 100 million cubic feet per day, which is far below the productive capacity of the field. Of the total number of wells, 188 are drilled on 640 acre locations while 84 are drilled on 160 acre locations. While the producing zones vary greatly in thickness throughout the field, an average of from 50 to 75 feet

of porosity in any one well seems to be correct. The porosity of this zone of 50 or more feet is approximately 18.2 per cent. The number of producing zones in any one well varies from 3 to 5. The virgin producing rock pressures was evidently 435 foot pounds per square inch while pressure as low as 373 pounds have been noted recently in shut-in wells. Variations between wells and leases exist, but these are usually equalized after a well has been shut in for a time because of the movement of gas within the common reservoir.

In view of all these considerations, the State Corporation Commission ordered that a well's quota should be determined by the following formula: First, determine the proration factor of the field (the sum of the products of the deliverability times the acreage factors of all the wells in the field). Then multiply the field proration factor by the product of the deliverability times the acreage factor for the well. The result shall constitute the well's allowable production in cubic feet, which it may produce for the proration period. The first allowable period shall extend from October 1 to March 31, both inclusive, and the second period from April 1 to September 30, both inclusive. The Commission further ruled that no well shall be drilled, hereafter, unless the Commission, after due notice and hearing, shall find that undue or uncompensated drainage of gas is occurring beneath the tract, or that there is actual need for additional gas to fulfill market demand. The order was made effective as of October 31, 1942. Data on the Hugoton field are given in table 29.

TABLE 29.—*Gas pool of Stevens county, Hugoton area*

Pool and location	*Date of discovery*	*Area (acres)*	*Production*	
			In 1942	*Cumulative*
Hugoton 3-35-34 W	1922	2 million	41,418,093 thousand cu. ft.	299,919,168 thousand cu. ft.

SUMNER COUNTY

The wave of exploration which passed over eastern Kansas shortly after 1915 affected Sumner county (fig. 29) favorably so that quite a number of oil and gas pools were located. Subsequent drilling extended the pools then found and eventually defined their limits. In recent years only one additional pool has been found, the **Zyba** pool. (Table 30.) This pool received further at-

tention during 1942 when three test holes were drilled there. Two of these, unfortunately, resulted in dry holes, but one did become a producing well. The new oil well is the No. 1 Mary Sprout drilled by Waite Phillips (sec. 13 T. 30 S., R. 1 W.). It was given a rating of 212 barrels of oil per day. Both dry holes tested all probable producing horizons down to and including the Arbuckle dolomite.

In the old **Padgett** pool two dry holes were drilled during 1942. One of these was the Continental Oil Company No. 4 Curry well (sec. 26, T. 34 S., R. 2 E.). The other was drilled by Shawver on the Padgett "A" lease, in section 23 of the same township. In the **North Vernon** pool the Stelbar Oil Company completed one new producer on the Waggoner farm (sec. 16, T. 35 S., R. 2 E.).

Exploratory Wells. No important wildcat wells were drilled in

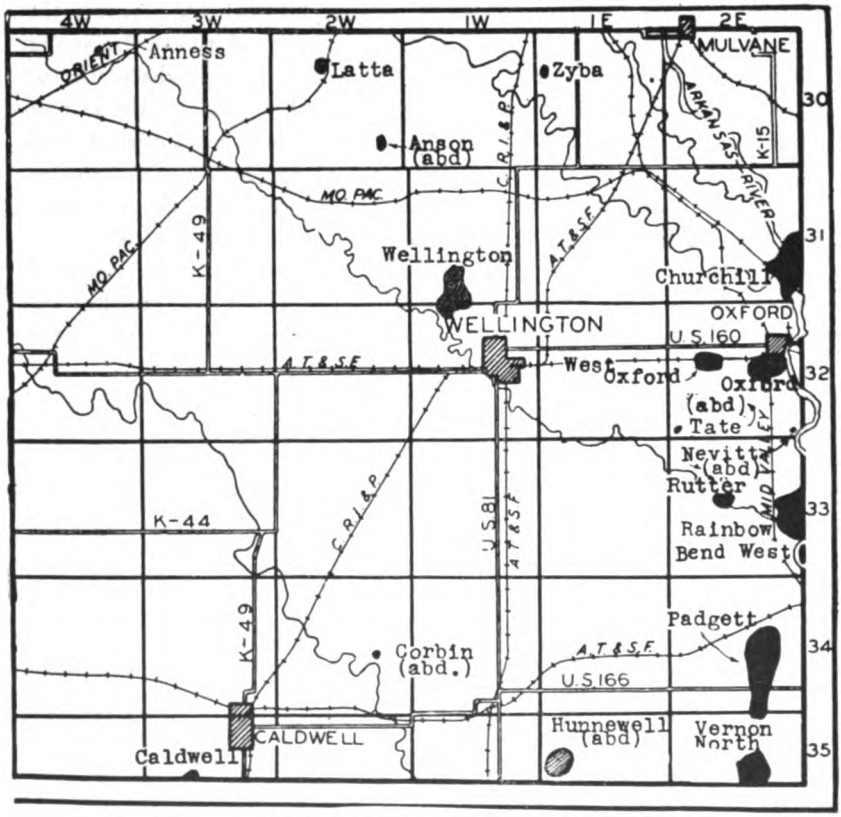

FIG. 29.—Sumner county map showing oil and gas pools.

Sumner county during 1942. One test well located a short distance west of the old **Oxford West** pool was drilled by the Benedum and Trees Oil Company on the Landwehr farm (sec. 17, T. 32 S., R. 1 E.). The test was located on an ideal geologic structure and found the strata relatively high, but there were no shows of oil or water.

TABLE 30.—*Oil and gas pools of Sumner county*

Pool and location	*Area (acres)*	*Cumulative production to end of 1942 (bbls.)*	*Number of wells*	*Producing zone*	*Depth (feet)*
Anness 2-30-4 E	40	53,890	1	Simpson	4,394
Caldwell 17-35-3 W	200	1,081,725	4	Simpson	4,765
Churchill 25-31-2 E	1,000	18,616,250	59	Stalnaker	1,820
Latta 9-30-2 W	300		12	K.C.-Lans. K.C.-Lans.	3,042 3,200
Oxford 23-32-2 E	800	14,690,665	13 6 21	Stalnaker Layton Arbuckle	2,020 2,890
Oxford West 17-32-2 E	160	512,895	3	Arbuckle	
Padgett 23-34-2 E	1,800		20	"Mississippi lime"	3,474
Rainbow Bend W. 24-33-2 E	160		1 1	Burbank Arbuckle	
Rutter 21-33-2 E	80	67,480	2	"Mississippi lime"	3,315
Vernon North 15-35-2 E	400		9	"Mississippi lime"	3,443
Wellington 33-31-1 W	1,200	5,057,780	98	"Chat"	3,655
Zyba 7-30-1 E	80	26,365	2	Simpson	3,866
Wellington (gas)	1,200			"Chat"	3,655

TREGO COUNTY

In Trego county (fig. 30) there is one active oil pool, the **Wakeeney,** and two abandoned oil pools, the **Gugler** and the **Ogallah.** (Table 31). Drilling activity in this county was on a very small scale during 1942. In fact, only two test holes were drilled there. Both were drilled by the Darby Petroleum Company on a structure outlined and defined by the reflection seismograph. The first test on this structure was drilled on the Haneke ranch (sec. 24, T.

11 S., R. 21 W.). This test had good saturation in the Arbuckle dolomite from 3,840 feet to 3,842 feet. When the plug was drilled, after cementing, a hole full of water caused the abandonment of the test. Four months later the second well was drilled a short distance west of the first hole, on the Fundlay farm (sec. 23, T. 11 S., R. 21 W.). In this test the Lansing limestone was found only 7 feet lower than in the Haneke test, but the Arbuckle dolomite came in considerably lower at 3,922 feet. Therefore, the test had to be abandoned as a dry hole.

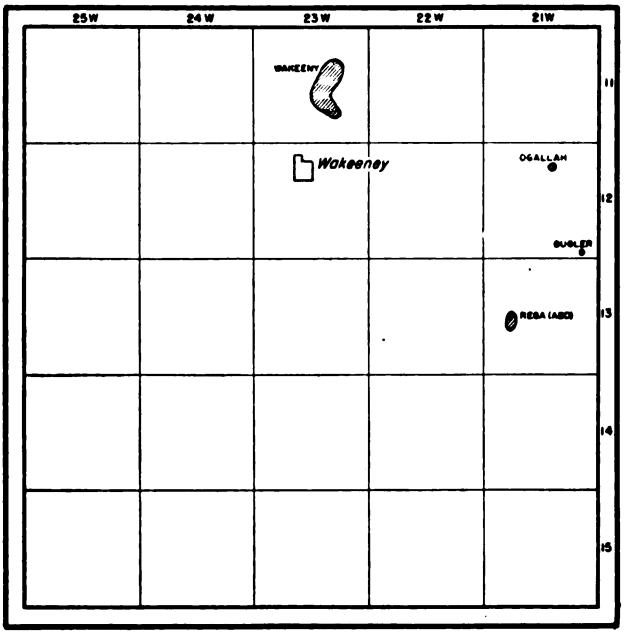

FIG. 30.—Trego county map showing oil pools.

TABLE 31.—*Oil pools of Trego county*

Pool and location	*Area (acres)*	*Cumulative production to end of 1942 (bbls.)*	*Number of wells*	*Producing zone*	*Depth (feet)*
Gugler 36-12-21 W		Abandoned during 1942			
Ogallah 10-12-21 W	40	none	1	Arbuckle	3,992
Wakeeney 14-11-23 W	640	471,220	7	K.C.-Lans.	3,619

Exploratory Wildcat Wells

A general survey of the results of wildcat drilling in Kansas during 1942 leads to the conclusion that such drilling was carried on with determination and particularly with good geological background. No less than 31 of the wildcat wells succeeded in finding new pools of either oil or gas. An examination of the reasons for drilling these successful wildcat tests shows that one was due to surface geology, 15 were due to careful subsurface geology determination, three were due to the discovery of structures by means of the core drill, four were due to the finding of structures by means of the seismograph, and the remaining eight were due to random drilling.

Despite this apparently favorable record, it must be reported that the great majority of all wildcat tests were dry holes. Some of them are located in counties which have not heretofore produced any oil. One such rank wildcat was drilled in **Comanche County** by the Sinclair Oil Company on land of the Exchange Bank (sec. 27, T. 33 S., R. 19 W.). With an elevation of 1,935 feet above sea level, this test found the Mississippian limestone at 5,280 feet, the Viola limestone at 5,102 feet, the Simpson formation at 6,357 feet, and the Arbuckle dolomite at 6,462 feet.

In **Decatur County** a dry hole was drilled by the Phillips Petroleum Company on the Vernon farm (sec. 32, T. 3 S., R. 28 W.).

In **Graham County** a test well by Helmerick and Payne was completed on the Holmquist farm (sec. 11, T. 6 S., R. 21 W.). This test also penetrated all likely producing horizons without favorable results.

In **Harper County** a test well drilled by M. H. Williams on the Lahman farm (sec. 1, T. 34 S., R. 6 W.) found the Mississippian limestone at 4,433 feet and the Arbuckle dolomite at 5,099 feet.

The Herndon Drilling Company completed an interesting test well on the Dowell farm in **Kiowa County.** This wildcat test, with an elevation of 2,113 feet, found the Viola limestone at 4,793 feet and the Arbuckle dolomite at 4,994 feet. It was abandoned at a total depth of 5,025 feet.

Charles Coats drilled a dry hole in the northern part of the state in **Mitchell County** on the Black farm (sec. 1, T. 6 S., R. 7 W.). This test, with an elevation of 1,561 feet above sea level, found the

Mississippian limestone at 3,166 feet and the Arbuckle dolomite at 3,930 feet. The full section of Hunton, Sylvan, and lower formations was found in the well.

In **Saline County** no less than 14 wildcat wells were drilled during 1942. The reason for the sudden interest in this county is to be found in the success of drilling in the Lindsborg pool, which lies in McPherson county just south of Saline county. About half of the total number of wildcat wells tested only the Mississippian formations, but the rest went down to and below the top of the Arbuckle dolomite. Unfortunately, not a single one was able to find oil or gas in commercial quantities.

In **Sherman County** the Sinclair Oil Company drilled a wildcat well on the Guy Mercer farm (sec. 28, T. 10 S., R. 40 W.). The total depth of the well is 5,913 feet.

In **Thomas County** three wildcat tests were completed during 1942. Two of these were drilled by Ackard on the Murray farm (sec. 24, T. 7 S., R. 34 W.). Both were abandoned at a very shallow depth without testing any important horizons. The third one was drilled by Billings on the Ryan farm (sec. 27, T. 8 S., R. 32 W.). With an elevation of 3,080 feet above sea level, this test found the base of the Kansas City limestone at 4,221 feet. The lower formations are difficult to delimit in this part of Kansas, so it is not known what formation was penetrated at the total depth of 4,652 feet.

In **Wallace County** one wildcat well was drilled by the Sinclair Oil Company (sec. 22, T. 11 S., R. 39 W.).

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