OKLAHOMA GEOLOGICAL SURVEY
Chas. N. Gould, Director

Bulletin 40-GG

OIL AND GAS IN OKLAHOMA

OIL AND GAS GEOLOGY OF LOGAN COUNTY

By
Hubert E. Bale

NORMAN
SEPTEMBER, 1928

CONTENTS

ILLUSTRATIONS

FOREWORD

In 1917 the Oklahoma Geological Survey issued Bulletin 19 part 2 entitled, "Petroleum and Natural Gas in Oklahoma." This volume was so popular that the supply was soon exhausted, and for several years copies have not been obtainable.

The present director has seen the need of a revision of this bulletin. On account of lack of appropriations he has not been able to employ sufficient help to compile the data, and has called on some twenty representative geologists throughout the state to aid in the preparation of reports on separate counties. These gentlemen, all busy men, have contributed freely of their time and information in the preparation of these reports.

It will be understood that the facts as set forth in the various reports represent the observation and opinion of the different men. The Oklahoma Gological Survey has every confidence in judgment of the various authors, but at the same time the Survey does not stand sponsor for all statements made or for all conclusions drawn. Reports of this kind are, at best, progress reports, representing the best information obtainable as of the date issued and doubtless new data will cause many changes in our present ideas.

The author of this report, Mr. Hubert E. Bale, has had wide experience in Logan County as geologist of the Texas Pacific Coal and Oil Co. Mr. Bale has added to his information by collaborating with other geologists of wide experience in this area, so that this report contains the best information on Logan County available at this time.

September, 1928

Chas. N. Gould,
Director.

OIL AND GAS IN OKLAHOMA

LOGAN COUNTY

GENERAL STATEMENT

It is the purpose of this paper to present to the reader very briefly some conditions found in Logan County, Okahoma, and to discuss that county's possibilities for oil and gas production in the future. Logan County has a place among the oil producing counties of the State but to date only a small part of the county has proved productive. It is dangerous to predict what the final result will be, due to poor surface beds and to complicated surface conditions.

It is hoped that this paper may help the reader to form an opinion and encourage closer study of conditions and methods used in this county, for, at present, Logan County contains Oklahoma's deepest oil field and daily presents new problems of drilling and production.

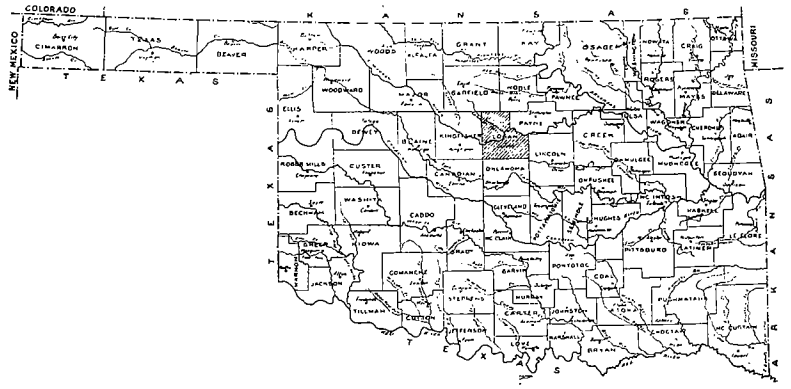


Fig. 1. Index map of Oklahoma showing area covered by this report.

LOCATION

Logan County is located in the north-central part of Oklahoma. It has for its southern boundary the south line of T. 15 N., and extends north to the Cimarron River in Rs. 1 E., and 1 W., and to the south line of T. 20 N., in Rs. 2, 3, and 4 W., embracing about 755 square miles.

ACKNOWLEDGMENTS

Many of the details of this report were worked out while the writer was in the employ of the Texas Pacific Coal and Oil Company. This opportunity is taken to thank the officials of that company for their kindness in permitting its publication.

Thanks are also due Clifford W. Byron, David Donoghue, and Dr. A. J. Williams for valuable suggestions and criticisms. Published maps and bulletins of the United States Geological Survey and the Oklahoma Geological Survey were used freely.

TOPOGRAPHY AND DRAINAGE

The southern and eastern portions of Logan County are regions of sandstone hills which are chiefly features of stream erosion and the northern and western portions are more typically red bed plains.

The Cimarron River and its tributaries drain almost the entire county except the southeastern corner where drainage is to the North Canadian River.

The relief of the county is about 340 feet, the lowest known point being on the Cimarron River just north of the village of Goodnight in sec. 13, T. 17 N., R. 1 E., and the highest known point is about 3 miles northwest of Crescent in T. 17 N., R. 4 W., where the elevation is 1,160 to 1,180 feet above sea level. Topographic maps of central and northern Logan County have never been made, hence the relief of the entire county cannot be accurately given.

GENERAL GEOLOGY

Stratigraphy

SURFACE FORMATIONS

The rocks exposed in the county belong to the Enid group of Permian red beds. Along the streams there is much alluvial and wind blown material.

The Enid group has recently been subdivided by Aurin, Officer and Gould[1] into six parts here named in ascending order; the Stillwater formation, the Wellington formation, the Garber sandstone, the Hennessey shale, the Duncan sandstone, and the Chickasha formation.

The four older members outcrop in Logan County forming relatively narrow strips across the county north and south. So far as is known no unconformities occur between the beds exposed in Logan County, except of course, at the base of the recent deposits.

STILLWATER FORMATION

The Stillwater formation outcrops only in the extreme eastern portion of the county, being here almost entirely covered by the recent

1. Aurin, F. L., Officer, H. G., and Gould, Chas. N., The subdivision of the Enid formation: Bull. Am. Assoc. Pet. Geol., Vol. X, No. 8, 1926.

sand deposits along the Cimarron River. The Stillwater formation in this region is made up of red shale and reddish gray sandstone.

WELLINGTON FORMATION

The Wellington formation, exposed in the eastern one-third of the county, is made up of alternating beds of red shales and sandstones with a combined thickness of about 500 feet. The Wellington formation is correlated with the Wellington shale of Kansas, but its physical characteristics are very different. In Kansas the formation is made up of gray-blue shales and gray "mudstones."

GARBER SANDSTONE

The Garber sandstone forms by far the greater part of the exposed rocks in Logan County. The Garber sandstone has been divided by Aurin, Officer and Gould[2] into two members, the Lucien shale and the Hayward sandstone.

Lucien shale member. The Lucien shale member is made up chiefly of red shales with several more or less lenticular sands and one rather prominent red sandstone at the base which is also the base of the Garber sandstone. The Lucien shale member is about 250 feet thick.

Hayward Sandstone. The Hayward sandstone consists chiefly of red massive sandstone, complexly cross-bedded, and interstratified with shales and sandy shales. Over a wide area the Hayward member is more or less lenticular and loses its massive character northward. The thickness of the Hayward sandstone is about 350 feet.

HENNESSEY SHALE

The Hennessey shale is generally easily distinguished from the Garber sandstone below and the Duncan sandstone above because of its typically clay-shale character. These shales are rather blocky and commonly have concoidal fracture. Throughout the Hennessey are numerous bands of white or light green color varying in thickness from a few inches to 4 or 5 feet. There are also many very round, almost white, spots which do not vary from the adjacent material in other properties. The cause of these white spots is, so far as the writer knows, very questionable. They do not seem to occur at any regular interval vertically or horizontally, nor to be of any uniform size, varying from one-half inch or less in diameter to two inches or more. Ross Gahring in "A Study of the Red Bed Concretions" says, in substance, "At the time of the deposition of the shale, small pieces of pyrite and organic material were included which later reduced the iron present and changed its red color to a whitish green. The highly spherical shape of the spots perhaps is due to chemical change radiating from the center in a homogeneous medium."

The Hennessey shale has been divided by Aurin, Officer, and

2. Aurin, F. L., Officer, H. G., and Gould, Chas. N., The subdivision of the Enid formation: Bull. Am. Assoc. Pet. Geol., Vol. X, No. 8, 1926.

Gould[3] into the Fairmont shale and the Bison banded member. Only the Fairmont member is exposed in Logan County.

Fairmont Shale Member. The Fairmont shale member is generally composed of deep-red clay shales which break with rather characteristic concoidal fracture and appear quite blocky. There seem to be alternating beds of hard and soft material, and throughout both beds are scattered thin bands of almost white material, generally only a few inches in thickness, thus differing from the thicker white bands in the Bison banded member above. The Fairmont shale member is about 250 feet thick.

RECENT

Along the streams, chiefly along the Cimarron River, occur rather large deposits of recent alluvial soil and wind blown sand. The wind blown sand has accumulated in dunes 10 to 40 feet high on the north side of the Cimarron River due to prevailing south winds.

SUBSURFACE STRATIGRAPHY

The lack of deep wells except in the northern part of the county makes a study of the subsurface stratigraphy of necessity very general.

Beds above the Mississippian diverge southward and to a lesser degree also westward. In general the formations become more shaly and interstratified making very precise subsurface mapping quite difficult. Many of the key horizons of areas north and east of Logan County lose their identity and occur in the county as interbedded series rather than clear-cut beds. Another great difficulty is encountered in the large number of unconformities present which makes early predictions on drilling wells quite hazardous.

ENID GROUP

Above the Neva-Foraker series the beds are here grouped in one series and called the Enid Group. This series is made up of sands, limestones, and shales, and in the upper part is characteristically crimson red in color.

The base of this crimson red color may be used for tentative correlation. It is found at around 1,000 feet in northwest Logan County.

NEVA-FORAKER LIME SERIES

The Neva-Foraker lime series, with an average thickness of about 150 feet, forms the first good key bed in this region. It is found in Logan County at around 2,000 feet.

GARBER-ELGIN SAND SERIES

Between the Neva-Foraker limestones and the Oread limestone occur about 1,000 to 1,200 feet of interbedded sands, shales, and limes.

This series is not important from the standpoint of oil and gas production nor does it contain a reliable key bed for mapping.

3. Aurin, F. L., Officer, H. G., and Gould, Chas. N., op. cit.

OREAD LIMESTONE

The Oread limestone is 80 to 100 feet thick. It is a grayish-white crystalline lime and forms a very good key bed for subsurface mapping.

ENDICOTT-TONKAWA SAND SERIES

In this report all those beds between the Oread limestone and the Layton sand series are grouped, and called the Endicott-Tonkawa series. The thickness of this series is about 900 feet. It is made up of shales, limes, and sands, similar perhaps to the Layton series in their lenticular character. Several wells in Logan County have found oil and gas production from this series but offset or near-offset wells may not find production at the same stratigraphic level.

Some of the sands in this series are quite salty, so salty that if well cuttings are allowed to dry out large crystals of salt will form in the sands. These very salty sands may not carry any water and are very misleading to the geologist who is examining rotary cuttings, for he may pronounce it a salt water sand when really it is only a salt sand and may be perfectly dry.

The sands in this series are often rather thin, separated by beds of shale. Some of the sands may carry oil and gas and others water. Several cases are known where two thin oil-bearing sands are separated by only a few feet with a water sand in the thin shale interval. The writer has seen cores of sands that show this very plainly.

The character of this series makes production from the Endicott-Tonkawa horizon quite difficult but some oil and some gas is produced. The largest gas well being about 40 million feet in the Sinclair No. 1, Webber in sec. 18, T. 19 N., R. 4 W., and the largest oil well, about 450 barrels, in Sinclair No. 1, Knecht, sec. 28, T. 18 N., R. 4 W. The gas is usually a wet gas and the oil of good gravity—40° to 44° Baume.

LAYTON SAND SERIES

The Layton sand series is 60 to 200 feet in thickness and is characteristically a series of lenticular sands and shales. This lenticular character of the sands is often responsible for good shows of oil and gas but these shows do not seem to bear any definite relation to subsurface structure, hence are misleading.

OSWEGO—BIG LIME SERIES

The Oswego-Big lime series averages about 200 feet in thickness. It is one of the important key beds for subsurface mapping and often a part of the series is sandy and has good shows of oil and gas.

CHEROKEE SHALE

Above the "Mississippi" lime and unconformable to it is the Cherokee shale with an average thickness of about 150 feet. It is characteristically a dark shale and locally has a sand near the middle which is no doubt a near equivalent of the Bartlesville sand known to the east of this area. This sand has not proved an important producing horizon in Logan County but usually shows some oil and gas.

MISSISSIPPI LIMESTONE

The "Mississippi" limestone is conformable in this area to the Chattanooga shale below. Its thickness varies from 30 to 350 feet dependent upon its position on the underlying structure. The "Mississippi" lime is brown to black in color and often cherty at the top. This horizon, commonly known as chat, produces oil and gas to the north in Garfield and Kay counties.

CHATTANOOGA SHALE

The Chattanooga shale lies unconformably on the Hunton limestone. In some places the Hunton limestone is absent and the Chattanooga rests upon the Sylvan shale. The Chattanooga shale is rather uniform in thickness and its color is always black. The average thickness is about 75 feet.

HUNTON LIMESTONE

The Hunton limestone is present in the greater part of Logan County as a white lime of varying thicknesses from 0 to 150 feet. It may or may not be conformable to the Sylvan shale below. The Hunton limestone usually carries shows of oil and gas but so far has not proved an important oil producing horizon in Logan County.

SYLVAN SHALE

The Sylvan shale, blue-green in color, rests on the Viola limestone and is probably conformable to it. The Sylvan shale is about 100 feet thick.

VIOLA LIMESTONE

The Viola limestone is present in Logan County as a hard white lime with an average thickness of about 50 feet. It rests unconformably on the Simpson formation below, and may be eroded away on the higher structures. Opinions differ—some geologists think it entirely absent in Roxana Petroleum Corporation No. 1 Cully in sec. 30, T. 19 N., R. 4 W.

SIMPSON FORMATION

The Simpson formation, made up of limes, shales, dolomites, and sands, is found in Logan County at 5,600 to 6,400 feet. The Wilcox sand, a member of the Simpson formation, is productive where found on favorable structure. So far, Logan County's chief hope to become one of the important oil producing counties of the State lies in the Wilcox sand production in the Lovell-Crescent area.

STRUCTURE

SURFACE STRUCTURE

In general, the structural geology of the surface formations in Logan County is monoclinal with a dip of about 40 feet per mile to the northwest.

The geologist meets with extreme difficultv in trying to do surface mapping in the county due to the thickness and the cross-bedded character of the exposed beds. No known unconformities occur between the surface outcrops except at the base of the recent sand and alluvial deposits. So far as the writer knows there are no closed surface structures in the county, but several terraces and noses are known.

SUBSURFACE STRUCTURE

The subsurface structure of beds above the Hunton limestone is probably in general very similar to the surface structure with perhaps local exceptions which will come to light with more drilling. The writer believes that subsurface beds may show closed structures in some cases where surface beds only show noses and terraces. Below the Hunton lime the beds probably dip south and southwest.

Recent deep drilling in Logan and adjacent counties gives a strong suggestion that the "granite ridge" known in southeastern Kansas and northeastern Oklahoma, or perhaps a similar "high" may show up in Logan County giving it a series of very pronounced "highs" which can be expected to yield some important oil fields.

DEVELOPMENT

To date more than 60 wells have been drilled or are drilling in Logan County and all except five have reported one or more shows of oil and gas. The first commercial well to be completed in the county was No. 1, Gragg, in NW.¼ NW.¼ SE.¼ sec. 16, T. 18 N., R. 4 W., by T. T. Eason and Wood, Gilbert, and Wood. This well was completed in May, 1927 for about 20 million cubic feet of wet gas. It is producing from the Endicott-Tonkawa series at 3,985-3,994 feet.

LOVELL-CRESCENT FIELD

The first well to be completed in the Lovell field was No. 1, Cully, SW.¼ NE.¼ SE.¼ sec. 30, T. 19 N., R. 4 W., by the Roxana Petroleum Corporation. This well is producing from the Wilcox sand from 5,901 to 5,989 feet. It came in for about 2,900 barrels of high gravity oil.

The Lovell field structure was located by the Roxana Petroleum Corporation with diamond core drills. The structure mentioned above, sec. 16, T. 18 N., R. 4 W., was located by the Marland Refining Company, also with the core drill. Much core drilling has been done and is being done in Logan County and perhaps in time other favorable structures may be found.

DRILLING

The cost of drilling deep wells in Logan County at present is $9.00 to $10.00 per foot for actual drilling and with additional costs for casing, fuel, water, etc. A Wilcox sand test would cost more than $100,000.00. Time required for completing one of these deep wells is 5 to 6 months where the rotary method is used most of the way. If the rotary method is used only to the top of the Endicott-Tonkawa series perhaps a little more time would be required to reach the Wilcox sand.

Both methods of drilling have been tried in Logan County and where the rotary method has been used part of the way casing has been set at various points. In some cases a second smaller string of rotary casing has been employed and the rotary method of drilling used to near completion. In all cases the standard tool method has been used for "drilling in."

The writer believes that where the Wilcox sand is the objective that the rotary method is most satisfactory to about 4,700 feet from

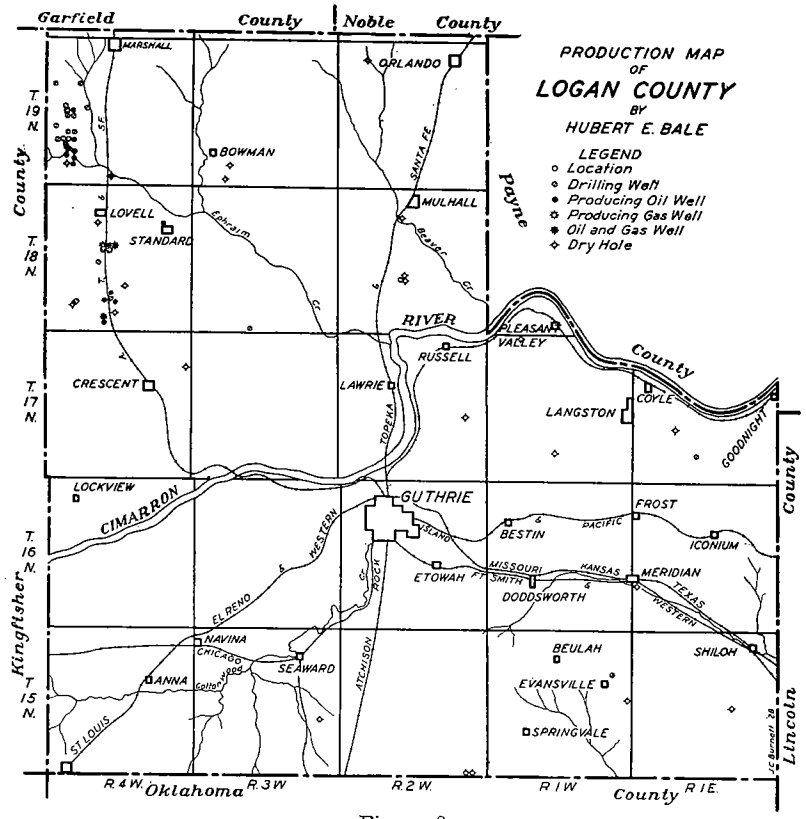


Figure 2

which depth standard tools would be employed to completion. Time has not proved that present rotary methods are very satisfactory to greater depths than that mentioned above.

The Endicott-Tonkawa series may be tested with standard tools after changing from the rotary method at about 3,900 feet in the northwestern part of the county and even from that depth the standard tool method can be satisfactorily used in drilling to the Wilcox sand.

Completed Wells, Logan County, Oklahoma

COMPANY	FARM	LOCATION	TOTAL DEPTH	ELEVATION	DATE	SHOWS OF OIL & GAS	PRODUCTION	METHOD OF DRILLING	REMARKS
Magnolia Petr. Co.	Prichard	NW NW NW 23-15-1E	4145	1034	1925	None	None	Standard	
Empire Gas & Fuel Co.	Vicks	SE SE SE 13-15-1W	3483	1053	1917-21	Gas 1295 Oil 1658-66	None	Standard	
American Drilling Co.	Johnson	SW SW SW 36-15-2W			1920-23	Gas 1530-65	None	Standard	
Gibraltar Oil & Refining Co.	Johnson	SE SE SW 36-15-2W	1693			Gas 1623-28	None	Rotary	
Ramsey-Bailey	McMillen	NW NW SW 24-15-3W	4507	1105	1926	None	None	Rotary 3500 Stand. 4507	
?	?	NW NW NW 30-16-1E	2727			Gas 2060-80 Gas 2145-55 Gas 2328-50	None	Standard	
Bailey-Kilgore, et al	Baker	NE NE NW 5-17-1W	5712	945	1926	Oil 4560-70 Oil 5540-60	None	Rotary 3503 Stand. 5712	
T. B. Slick	Fisher	NW SE SE 20-17-1E	5335	999	1927		None	Rotary 4157 Stand. 5335	
Roxana Petr. Corp.	Carter	SE SE SE 28-17-1W	2872	976	1916-18	Gas 2090-98	None	Standard	
Roxana Petr. Corp.	Cole	SW SW NW 24-17-2W	3893	1036	1920-22	None	None	Standard	
Champlin & Bass	Steinbaugh	SE SE NE 12-17-4W	3006	1080	1920-22	None	None	Standard	

Completed Wells, Logan County, Oklahoma, Cont'd.

COMPANY	FARM	LOCATION	TOTAL DEPTH	ELEVATION	DATE	SHOWS OF OIL & GAS	PRODUCTION	METHOD OF DRILLING	REMARKS
Ponca Oil & Gas Co.	Wyant	NW NW NE 9-18-2W	2550	935	1920–22	Oil & Gas 1217-19 Gas 1395	None	Standard	
Big Star Oil Co.	Donohue	NW SE SE SE 21-18-2W	1750	998	1914–19	Gas 1350-61 Oil 1600-05 Oil 1640-55	None	Standard	
J. J. Donohue	Donohue	NW NW SE 21-18-2W	3501	1078	1925–26	Oil 1570-75 Oil 1665-75 Oil 1840-50 Gas 2080-85 Gas 2470-2500 Gas 3030-35 Gas 3099-3115 Gas 3140-90	None	Standard	
Bailey-Kilgore, et al	Lovell	SW SW NW 9-18-4W	4719	1011	1926–27	Gas 3135-38 Oil 3997-4006 Oil 4630-50	None	Rotary 3821 Standard 4719	
Harris & Haun	Hull	NE NE SE 11-18-4W	5620	1004	1927–28	Gas 1734 Oil 3800 Oil 4752-4870	80 Barrels 4752-4870	Rotary 4384 Std. 6620	Production from Layton sand Series.
Marland Refining Co.	Lovell	SW SW NE 16-18-4W	4005	1008	1928	Oil 3969-4005	365 Bbls.	Rotary 3969 Std. 4005	Production from Endicott-Tonkawa sand series
W. R. Ramsey	Lovell	SW SE NE 16-18-4W	4085	1013	1927–28	Oil & Gas 3988-4000	14 Million Gas, 100 Bbls. Oil	Rotary 3981 Standard 4085	Production from Endicott-Tonkawa sand series.
Roxana Petr. Corp.	McDaniel	NE NE SW 16-18-4W	4026	1016	1928	Oil 3999-4026	89 Bbls.	Rotary 3993 Standard 4026	Production from Endicott-Tonkawa sand series.
Mid Continent Petr.	Poston	SE SE NW 16-18-4W	4032	1007	1928	Gas 4010-32	9 Million	Rotary 3666 Standard 4032	Production from Endicott-Tonkawa sand series.

Completed Wells, Logan County, Oklahoma, Cont'd.

COMPANY	FARM	LOCATION	TOTAL DEPTH	ELEVATION	DATE	SHOWS OF OIL & GAS	PRODUCTION	METHOD OF DRILLING	REMARKS
T. T. Eason Wood-Gilbert-Wood	Gragg	NW NW SE 16-18-4W	3994	1014	1927	Gas 3060-65 Gas and Oil 3119-28 Gas 3994	20 Million Wet Gas	Rotary 3941 Standard 3994	Production from Endicott-Tonkawa sand series.
Texas Pacific Coal & Oil Co.	Rahe	NW NE NW 27-18-4W	6285	1038	1927–28	Oil 4240-46	None	Rotary 4120 Standard 6285	
Texas Pacific Coal & Oil Co.	Moore	SW NE SE 28-18-4W	4090	1069	1925–27	Gas 3877-89 Oil 4061-65 Oil 4088-90	10 Million Gas 3877-89 70 Bbls. Oil 4061-90	Rotary 3579 Standard 4090	Production from Endicott-Tonkawa sand series.
Sinclair Oil & Gas Co.	Knecht	SW SW NE 28-18-4W	6325 P. B. 4200	1058	1927	Oil 4040-4118; Gas 5407-5570	500 Bbls.	Rotary 4776 Standard 6325	Production from Endicott-Tonkawa sand series after plugging back.
Blackwell Oil & Gas Co.	Sade	NE NE SW 28-18-4W	4944 P. B. 4250	1061	1927	Oil & Gas 3851-62, Oil 4201-50	100 Bbls.	Rotary 3801 Standard 4944	Production from Endicott-Tonkawa sand series after plugging back.
Healdton Oil & Gas Co., Wood-Gilbert-Wood	Gragg	SW SW SW 29-18-4W	3988	1069	1927			Rotary 3988	Lost hole—Drilling twin well.
Prairie Oil & Gas Co. Twin State Oil Co.	Moore	SE NE NE 33-18-4W	6218	1075	1927	Oil 5535 Oil 6037	None	Rotary 4210 Standard 6218	
W. R. Ramsey	Smith	NE NE SW 33-18-4W	4747 P. B. 4126	1110	1927–28	Oil 4118-26	50 Bbls.	Rotary 4107 Standard 4747	Production from Endicott-Tonkawa sand series.
Texas Pacific Coal & Oil Co.	Speaks	SE SE NW 33-18-4W	4150	1114	1927	Oil & Gas 4121-23 Oil & Gas 4133-43	10 Million Gas 25 Barrels Oil	Rotary 4150	Production from Endicott-Tonkawa sand series.
Berry Petr. Co.	Myier	SE NW SW 5-19-2W	3408		1925	Gas 2833-43	None	Standard	

Completed Wells, Logan County, Oklahoma, Cont'd.

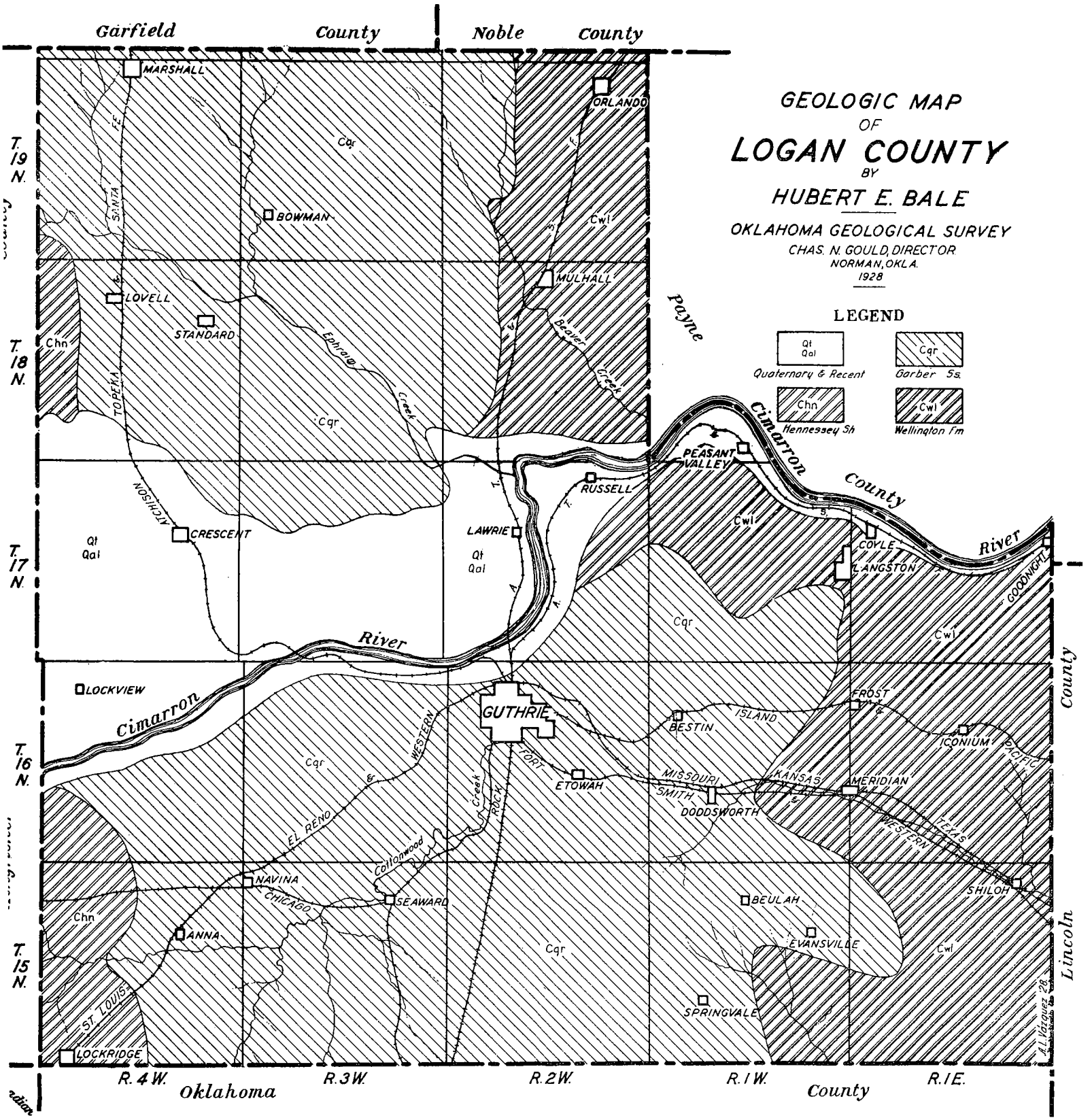
COMPANY	FARM	LOCATION	TOTAL DEPTH	ELEVATION	DATE	SHOWS OF OIL & GAS	PRODUCTION	METHOD OF DRILLING	REMARKS
Buford & Brimm	Newman	NW NW NE 32-19-3W	3007	1043	1925	Gas 1270-76 Gas 1295-1300 Oil 1780-1807 Oil 2340-45 Oil 2450-55	None	Standard	
Carter Oil Co.	Rodgers	SW NE SW 32-19-3W	6205	1025	1926-27	Oil 5310-22	None	Standard	
Roxana Petr. Corp.	Freelove	SW SW SW 17-19-4W	6103	1035	1927–28	Oil 6082-6103	2550 Bbls.	Rotary 5817 Standard 6103	Production from Wilcox sand.
Sinclair Oil & Gas Co.	Webber	SE SE SE 18-19-4W	4809	1035	1927–28	Gas 3984-96	50 Million	Rotary 4809	Production from Endicott-Tonkawa sand series about 4000 feet.
Roxana Petr. Corp.	Ross	NW NW NW 29-19-4W	6050	985	1927–28	Oil 4650-97 Oil 5838-6054	724 Bbls.	Rotary 5818 Standard 6050	Production from Simpson formation (Wilcox sand productive.)
Roxana Petr. Corp.	Stevens	SW SW SW 29-19-4W	6113 P. B. 6090	990	1927–28	Oil 6025-91	100 Bbls.	Rotary 5802 Standard 6113	Production from Simpson formation (Water in Wilcox Sand.)
Roxana Petr. Corp.	Cully	SW NE SE 30-19-4W	5989	994	1927	Gas 3601-25 Oil 3954-65 Gas 4695-4723 Oil 5310-22 Oil 5825-5989	2900 Bbls.	Rotary 4355 Standard 5989	Production from Simpson-Wilcox Formation (Wilcox sand Productive.)
Roxana Petr. Corp.	Sebranek	SE SE NE 30-19-4W	5221	965	1927-28	Oil 3921-27	None	Rotary 5221	Lost hole—drilling twin well.

Completed Wells, Logan County, Oklahoma, Cont'd.

COMPANY	FARM	LOCATION	TOTAL DEPTH	ELEVATION	DATE	SHOWS OF OIL & GAS	PRODUCTION	METHOD OF DRILLING	REMARKS
Wentz Oil Corp.	Williams	NE NE NE 31-19-4W	6280	995	1927–28	?	None	Rotary 4396 Standard 6280	H. F. W. Wilcox sand.
Roxana Petr. Corp.	Williams	NW NW NW 32-19-4W	6178	1001	1927–28	Oil 6000-6178	305 Bbls.	Rotary 5917 Standard 6178	Simpson-Wilcox Productive.
Bryan-Emery	Scott	C NW SE 33-19-4W	4504	995	1927–28	Oil about 4000		Rotary	Lost hole.

Drilling Wells, Logan County, Oklahoma

COMPANY	FARM	LOCATION	PRESENT DEPTH	METHOD OF DRILLING	REMARKS
Bu-Vi-Bar Co.	Fitzpatrick	C SW 12-15-1W	5620	Rotary 3492 Standard 5620	
T. B. Slick	Woods	SW SW SE 28-17-1E	5730	Standard	Show oil 4535-50 Show oil 4660-70 Show gas 4830-50
Tippett & Bond	Donohue	SW NW SE 21-18-2W	Location		
Roland Oil Co.	Quier	SE SE SW 33-18-3W	3912	Rotary	Gas 3604-07
Galt-Brown Co.-Wirt Franklin Co.	Knecht	NW NW NW 21-18-4W	5085	Rotary	4 Million Gas 4029-33
Blackwell Oil & Gas Co.	Moore	NW NW SE 28-18-4W	4005	Rotary 4005, R. U. S. T.	
Healdton Oil & Gas Co.	Gragg	SW SW SW 29-18-4W	4120	Rotary	Twin well.
Olean Petr. Co.	Shephard	SE SE SW 7-19-4W	4125	Rotary	Shut down.
Champlin Refining Co.	Clark	SE SE SW8-19-4W	5837	Rotary—Standard and back to Rotary.	
Sinclair Oil & Gas Co., Margay Oil Co.	Murphy	SW SW SE 17-19-4W	3480	Rotary	
Sinclair Oil & Gas Co.	Webber	SE SE SE 18-19-4W	4680	Rotary	Twin to gas well.
Barnsdall Refining Co.	DeJarnett	NE NE SW 19-19-4W	4450	Rotary	
Roxana Petr. Corp.	Ross	SE SE SE 19-19-4W	5456	Rotary	
Roxana Petr. Corp.	Rouse	NE NE NE 19-19-4W	4730	Rotary	
Twin State Oil Co., J. E. Crosbie	Shaffer	NW NW NW 20-19-4W	5058	Rotary—Standard and back to Rotary.	
Roxana Petr. Corp.	Rouse	SW SW SW 20-19-4W	5841	Rotary 5841 R. U. S. T.	
Roxana Petr. Corp.	Stevens	NW NW SW 29-19-4W	4640	Rotary	
Roxana Petr. Corp.	Sebranek	SE SE NE 30-19-4W	4230	Rotary	Twin well.
Roxana Petr. Corp.	Sebranek	NE NE NE 30-19-4W	4735	Rotary 4710, Standard 4735	
Roxana Petr. Corp.	Sebranek	NE NE NE 30-19-4W	Location	Rotary	
Roxana Petr. Corp.	Sebranek	NW NW NE 30-19-4W	3935	Rotary	Shut down.


GEOLOGIC MAP
OF
LOGAN COUNTY
BY
HUBERT E. BALE
OKLAHOMA GEOLOGICAL SURVEY
CHAS. N. GOULD, DIRECTOR
NORMAN, OKLA.
1928
LEGEND
Qt Qal
Quaternary & Recent
Cqr
Garber Ss.
Chn
Hennessey Sh
Cwl
Wellington fm
Garfield County
Noble County
Payne
Cimarron County
Oklahoma County
Lincoln
T. 19 N.
T. 18 N.
T. 17 N.
T. 16 N.
T. 15 N.
R. 4 W.
R. 3 W.
R. 2 W.
R. 1 W.
R. 1 E.
MARSHALL
ORLANDO
BOWMAN
MULHALL
LOVELL
STANDARD
CRESCENT
LAWRIE
RUSSELL
PEASANT VALLEY
COYLE
LANGSTON
GOODNIGHT
LOCKVIEW
GUTHRIE
BESTIN
FROST
ISLAND
ICONIUM
ETOWAH
MISSOURI
KANSAS
SMITH
DODDSWORTH
AMERIDIAN
PACIFIC
TEXAS
WESTERN
SHILOH
NAVINA
SEAWARD
CHICAGO
ANNA
BEULAH
EVANSVILLE
SPRINGVALE
ST. LOUIS
LOCKRIDGE
Santa Fe
Topeka & Santa Fe
Atchison
Western
El Reno
Fort Rock Creek
Cottonwood Creek
Beaver Creek
Ephraim Creek
Cimarron River
A. L. Vazquez 28