Press Bulletin Series

For the Oil and Gas Industry

STATE OF ILLINOIS
DWIGHT H. GREEN, *Governor*
DEPARTMENT OF REGISTRATION AND EDUCATION
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STATE GEOLOGICAL SURVEY
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URBANA

No. 46 ILLINOIS PETROLEUM September 18, 1943
Printed by Authority of the State of Illinois

SUBSURFACE STRUCTURE AND OIL POSSIBILITIES OF PARTS OF EDWARDS, RICHLAND, AND WABASH COUNTIES, ILLINOIS

BY
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INTRODUCTION

The area concerned in this structural study embraces Ts. 1 and 2 N. and the south row of sections of T. 3 N., Rs. 11 E. and 14 W. (fig. 1). This includes producing wells in the Bonpas, Bonpas West, Parkersburg, and Samsville pools. The principal producing zones in the area are in the Ste. Genevieve formation. Production has also been obtained from the Waltersburg, Cypress, and Bethel sandstones, but in only six wells in the area. To date no well produces from more than one formation.

The purposes of this study are (1) to recommend areas for future oil exploration and (2) to present contour maps of two horizons near possible producing formations and also of an easily recognized shallow Pennsylvanian formation which may serve as an index of structural position of future test-wells.

CONTOURED HORIZONS

Levias limestone.—The top of the Ste. Genevieve formation (top of the Levias member) was chosen as one horizon to be contoured (fig. 3) because it is the guide horizon closest to the chief producing zones. The position of this horizon in key wells was determined with careful consideration of evidence available in the Geological Survey files, checking each determination against that of neighboring wells by comparison of the interval between the top of the Levias and the top of the lower Golconda ("Barlow") limestone. The top of the Levias limestone, as determined by the writer, differed by amounts up to more than 100 feet from those reported by well operators.

The top of the Levias limestone (upper member of the Ste. Genevieve formation) is commonly misinterpreted in this area; the top of the so-called "Aux Vases limestone" is frequently picked up as the top of the Levias. Sandy calcareous material at the base of the Aux Vases is then referred to the "Rosiclare sandstone member," the Levias limestone is called "Fredonia limestone," and the oölitic and sandy oölitic beds above the actual Fredonia are called "McClosky".

The sequence of formations in the two key wells, according to the usage of the Illinois State Geological Survey, is shown in figure 2. The picking of these tops is a difficult matter in this area, for lithologic facies similar to "McClosky" and Rosiclare may occur sporadically in the Ste. Genevieve. For this reason, producing zones in the Iowa series in the area are all considered merely Ste. Genevieve formation in this report, as more study is necessary before the identity of the individual producing zones can be established.

In general, the first possible producing zone in the Ste. Genevieve formation is encountered anywhere between 10 and 40 feet below the top of the Levias limestone member. Possible producing zones may be expected for another 60 feet.

FIG. 1.—Index map of the south part of Illinois showing the location of area for which structure maps are given (figs. 3, 4, and 5).

hence any so-called "McClosky" test should penetrate about 100 feet into Ste. Genevieve formation in order to be considered a thorough test of all zones.

Golconda formation.—The top of the lower ("Barlow") limestone of the Golconda formation was chosen as another horizon to be contoured (fig. 4) because it is an easily recognized stratum of nearly uniform thickness in the area and occupies a stratigraphic position in the Chester series near proved producing sandstones.

West Franklin limestone.—The base of the middle bench of the West Franklin limestone was chosen as the third horizon to be contoured (fig. 5) because it is an easily recognized limestone marker at relatively shallow depth. The structure of the West Franklin limestone is similar to that of deeper formations and so this limestone may be utilized to determine relative structural positions of formations in the Chester and Iowa series. The base of the middle bench of the West Franklin limestone was used because there may be from one to three limestone strata (usually two) but one is persistently the thickest. A very calcareous shale may occur just above the principal limestone bed in the West Franklin and give an electric-log reaction that is liable to be confused with that of the top of the contoured bed. The contoured stratum is commonly underlain by a red shale, by mottled shales, or by underclay. A very thin seam of coal may occur above the limestone.

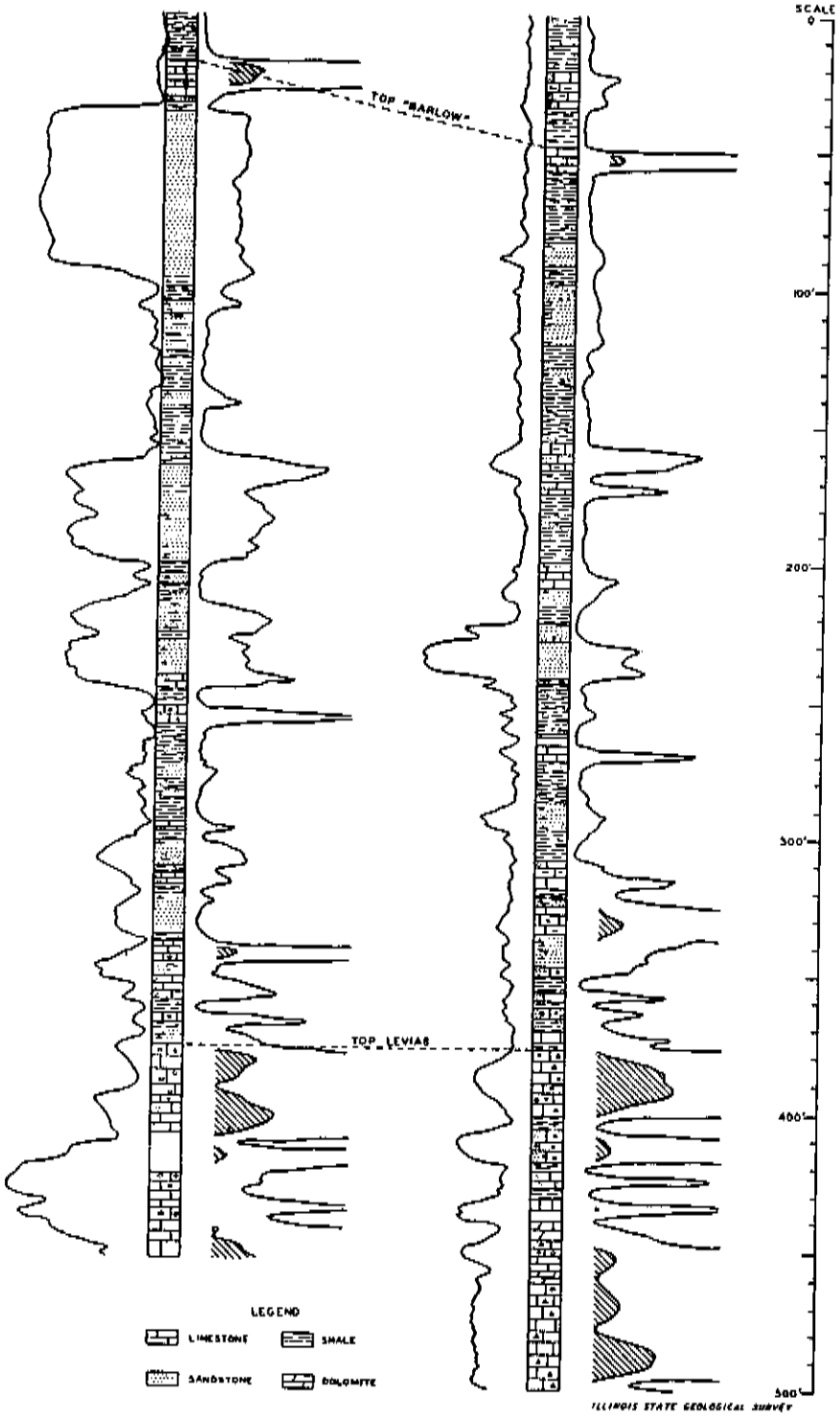

FIG. 2.—Electric logs of wells of Central Pipe Line Co.—Tarpley 1 (left) and Seaboard Oil Co.—Nelson 1 (right). Lithologic interpretations in center columns are based on sample studies.

Left side of electric log shows self-potential in millivolts; right side of electric log shows resistivity in ohms.

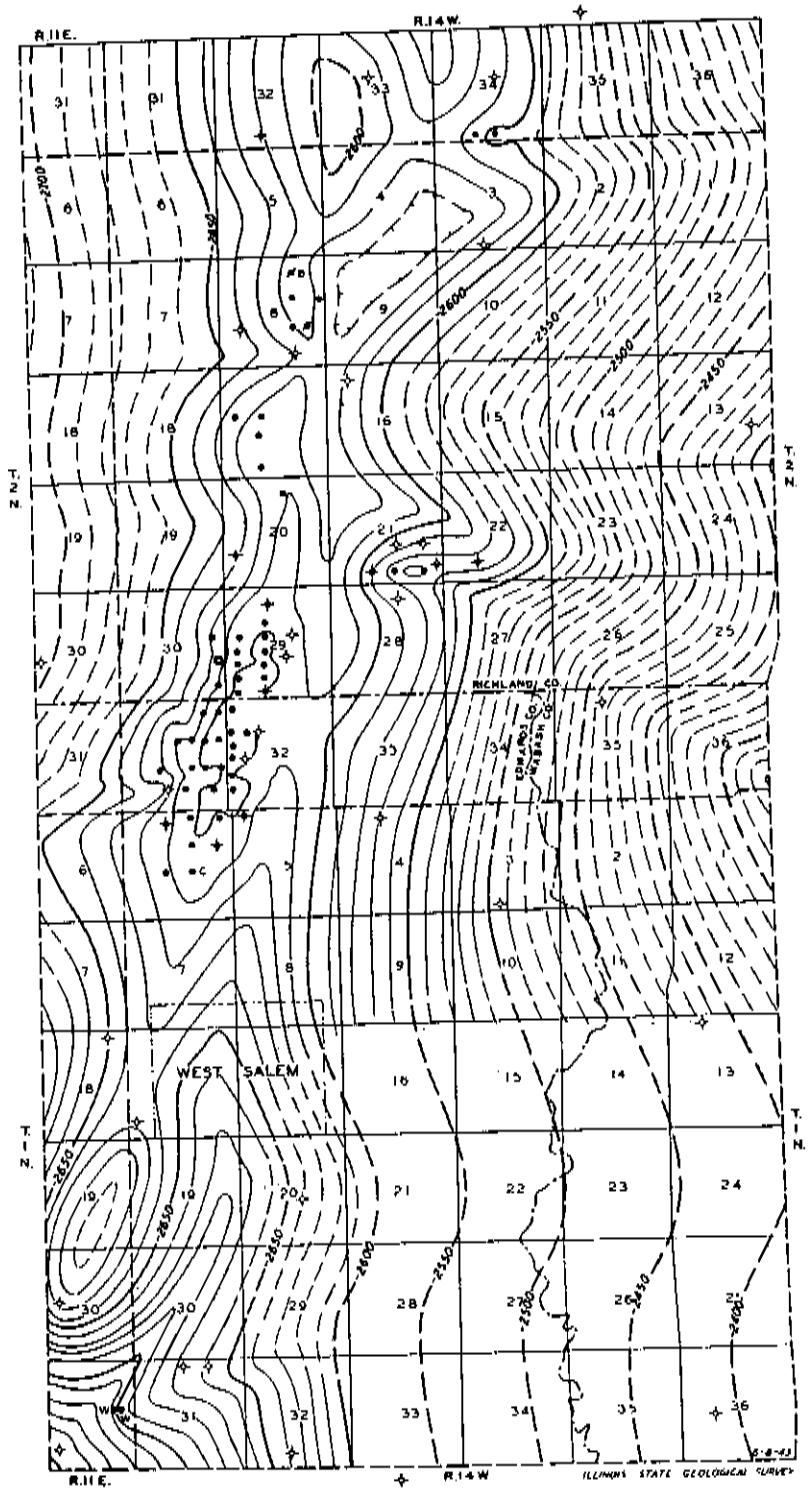

FIG. 3.—Contour map showing the structure of the top of the Levias limestone. Based mainly on electric logs.

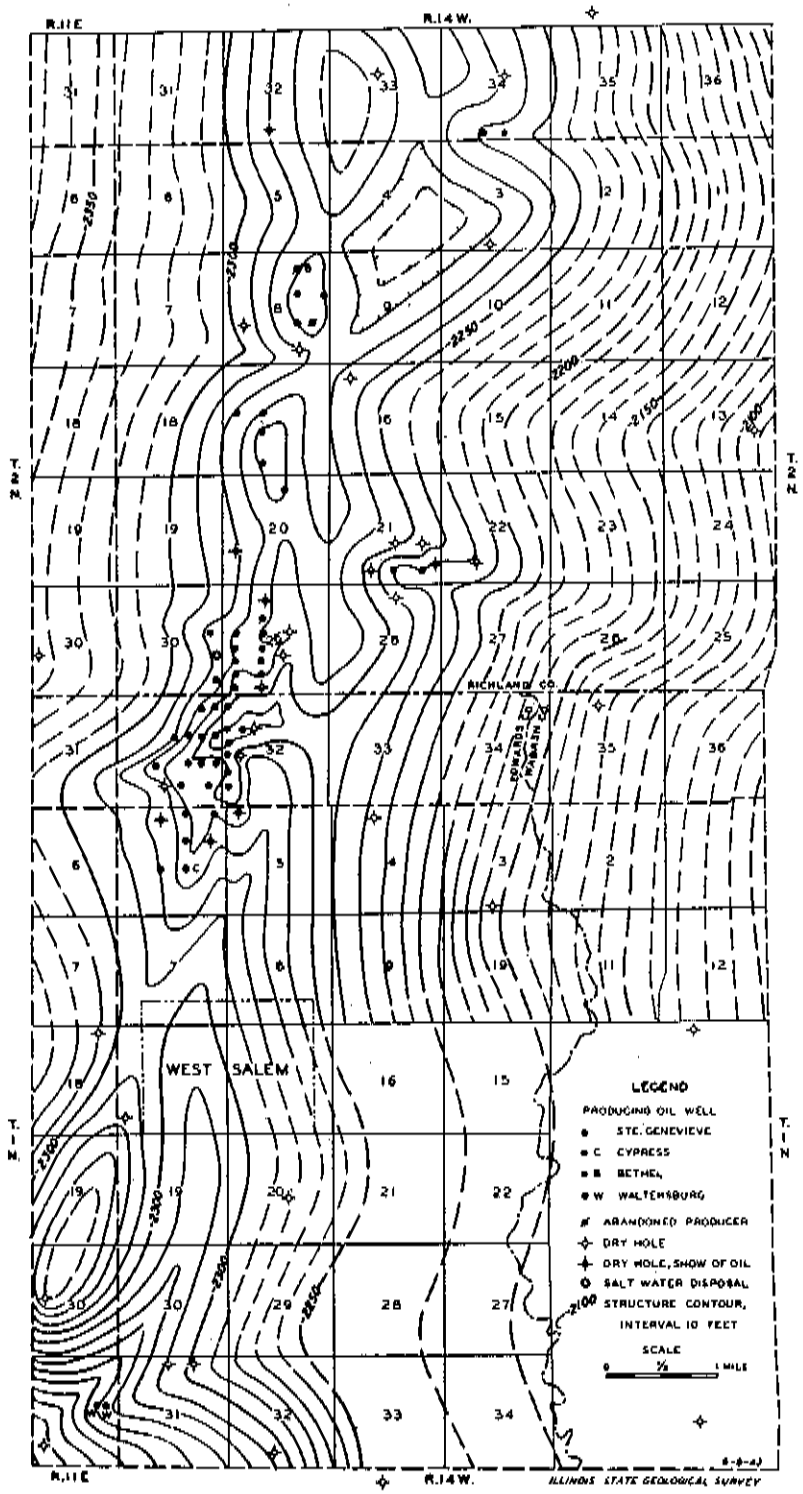

FIG. 4.—Contour map showing the structure of the lower ("Barlow") limestone of the Golconda formation. Based mainly on electric logs.

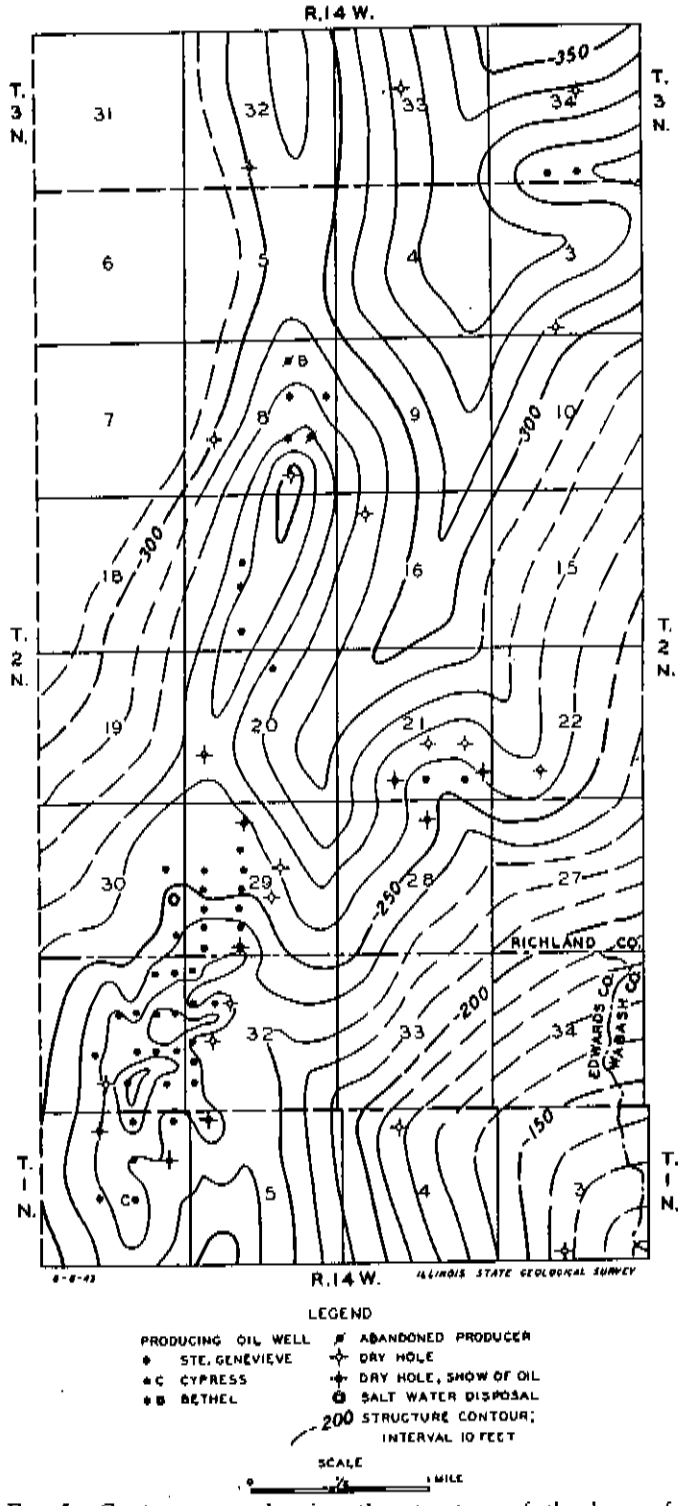

FIG. 5.—Contour map showing the structure of the base of the principal stratum of West Franklin limestone. Based mainly on electric logs.

Oil Production

The main source of oil production has been the Parkersburg pool, which to the end of March 1943 had produced approximately 2,250,000 barrels of oil from 38 wells. Of this, all but a little more than 1,000 barrels (Cypress production) came from the Ste. Genevieve formation ("McClosky" as identified by the operators). Wells on the west flank of the pool are lower than those on the east flank, and the former wells generally make water with the oil.

Bonpas West pool had produced about 130,000 barrels of oil from 9 wells (2 now abandoned) to the end of March 1943, essentially all of which was produced from the Ste. Genevieve formation (Levias and "McClosky" as identified by the operators). Bethel production in the area is negligible. Wells in the southern part of the pool make considerable water with the oil, but most of them have maintained good production in spite of this difficulty.

Bonpas pool had produced approximately 50,000 barrels of oil from 2 wells to the end of March 1943, all of which came from the Ste. Genevieve formation (essentially "McClosky" of the operators).

Samsville pool has been abandoned and then revived. It had only 1 producing well at the end of March 1943. All of its production is from the Waltersburg sandstone but the amount has not been reported.

Structural Features

The most important structural feature of the area is a series of domes and anticlines aligned nearly north-south and constituting a definite structural trend. Parkersburg pool is the chief area of oil production, and the dome upon which the main part of the pool lies is here named the Parkersburg dome. The north end of this dome extends to the north edge of sec. 17, T. 2 N., R. 14 W., and that section, as well as sec. 20, T. 2 N., R. 14 W., includes oil production from the Bonpas West pool.

North of Parkersburg dome is a dome lying for the most part in secs. 32 and 33, T. 3 N., R. 14 W., and secs. 4 and 5, T. 2 N., R. 14 W. A "nose" extends south of this dome into sec. 8, T. 2 N., R. 14 W. and from this is obtained the production of the Bonpas West pool. The dome and the "nose" together constitute what is here named the Blackoak dome (after Blackoak School).

South of Parkersburg dome is a dome lying chiefly in secs. 19 and 30, T. 1 N., R. 11 E. This is here named the West Salem dome.

Of secondary importance are four small anticlines with trends about east-west. The northernmost of these lies along the line between sec. 34, T. 3 N., R. 14 W. and sec. 3, T. 2 N., R. 14 W. This yields the oil production of the Bonpas pool and is here named the Bonpas anticline.

The axis of a broad anticline crosses secs. 13-16, T. 2 N., R. 14 W. Oil has not been obtained from the structure.

In secs. 21, 22, 27, and 28, T. 2 N., R. 14 W. is another "nose," upon which oil production has been obtained in sec. 21. This area has been included with Parkersburg pool, even though different structures are involved. The structure is here named the Redhead anticline (after Redhead School). The anticline apparently extends into sec. 36, T. 2 N., R. 14 W.

Finally, oil from Samsville pool is obtained from a "nose" in sec 31, T. 1 N., R. 11 E. The anticline extends across sec. 31, T. 1 N., R. 14 W., and is here named the Samsville anticline.

The third most important structural feature of the area is the marked depression lying immediately east of the Parkersburg trend. Two synclines pitching away from the saddle east of Parkersburg dome constitute the depression. A marked closed "low" lies southeast of Bonpas West dome.

The final noteworthy feature of the area is the regional dip from east to west. This continues from the western flank of the LaSalle anticline.

Comparisons of Structure Contour Maps

Most production in the area is from the Ste. Genevieve formation, hence the top of the Levias limestone (the uppermost member of the Ste. Genevieve) constitutes the most important reference horizon (fig. 3).

The chief characteristics of the structural features of the area on this horizon are their narrowness or "sharpness" and tendency toward lack of closure on extremities of major domes. Parkersburg dome is a narrow elongate structure on the Levias horizon.

The same structures as shown on the top of the lower limestone of the Golconda formation (fig. 4) are generally broader, the extremities of domes may be small subsidiary domes, the Parkersburg trend is less straight, and the regional dip is slightly less. Parkersburg pool has slightly more closure on this horizon, but the highest portion of the pool occupies less area and lies somewhat to the east of its position on the Levias limestone.

Contours on the base of the principal limestone bed of the West Franklin (fig. 5) agree regionally with the contours on Mississippian horizons. The center of the Bonpas West dome lies about half a mile west and slightly north of its position on the Levias limestone. The closed "low" southeast of Bonpas West dome is replaced by an open syncline, and the entire general depression east of the Parkersburg trend lies east of its position on the Levias limestone, the difference being as much as a mile. One of the most interesting features is that there is one elongate dome at this horizon, whereas there were two domes on the lower Golconda limestone in secs. 8, 17, and 20, T. 2 N., R. 14 W. There apparently is progressive upward coalescence of structures. Parkersburg dome on this horizon is a rounded dome with isolated closed "highs" and with more closure than on the lower horizons. The trend of Parkersburg East anticline has changed from about NW-SE to NNW-SSE and is a much broader, less well defined structure. The northwest corner of the map has not been contoured because of lack of sufficient structural control. Regional dip on this horizon is less than on the lower horizons.

Recommendations For Drilling

Four kinds of recommendations for drilling in the area can be made, namely: (1) new areas, (2) extensions, (3) deeper testing, and (4) inside locations.

(1) *New areas.*—Testing of the high part of the Bonpas West dome is recommended. The first well should be located in the W. ½ W. ½ SW. ¼ sec. 33, T. 3 N., R. 14 W. It may be necessary to locate on the east line of this tract because of drilling restrictions, but a location near the west line of the tract is to be preferred because of the oil shows in the well in sec. 32. The Ste. Genevieve formation should be tested.

Testing of the West Salem dome is recommended. The test well should be located at the highest indicated part of the dome, which is in the center of the SW. 1/4 SW. 1/4 SE. 1/4 sec. 19, T. 1 N., R. 11 E. (330 feet from the south line and 2310 feet from the east line of the section). The Ste. Genevieve formation should be tested, and shows may be encountered in the Tar Springs, Cypress, Bethel, and Waltersburg sandstone.

(2) *Extensions.*—The W. ½ SE. ¼ and SW ¼ NE ¼ sec. 17, T. 2 N., R. 14 W., is structurally as high as or higher than the three wells now producing in that section. The present wells made water with their initial productions, hence new wells presumably would behave similarly. Even so, new wells should pay out in two years or less in the ratio 3 paid out wells to 1 well not paid out, provided that they have initial productions similar to those of the present wells.

(3) *Deeper testing.*—A number of wells in the area penetrate a very few feet into the uppermost Ste. Genevieve producing zone. It is reasonable to expect that these wells should be deepened perhaps another 60 feet in order to complete the testing of all possible producing zones of the Ste. Genevieve formation.

(4) *Inside locations.*—The south end of Parkersburg pool was drilled up under

(Continued on p. 12)

TABLE 1.—TABULATED DATA

Company, Farm, Well No.	Location, Sec., T., R.	Initial Production[a] Oil, Water	Oil-bearing fm.[b]	Elev. top Levias	Elev. top "Barlow"	Levias-"Barlow" Interval	Elev. base "West Franklin"
Steele-Couch 1[c]	SW SE SE 6-1S-11E	10P 75	S.G.	−2703	−2347	356	−164
Kingwood Oil Co.—M. Shurtleif 1	CE NE NW 4-1S-14W	show	S.G.	−2567	−2236	331	−181
Powers Drlg. Co.—Strauss 1	CE SE SW 4- "	D & A		−2570	−2232	338	−135
S. D. Ford—C.C. Marshall 1	CSW NE NE 2-1N-10E	D & A		−2699	−2344	335	−249
Walsh and Dye—W. S. Tull 1	CE SE SE 13- "	show	Cyp.	−2683	−2326	357	−218
Deep Rock Oil Corp.—Madden 1	CNW NW NE 35 "	D & A		−2819	−2458	359	−274
Everson Oil Co.—A. Pixley 1	NW NE NE 18-1N-11E	D & A		[d]	[d]	[d]	−201
Owen and Deerman—Bristow 1	CW SE NW 30- "	D & A		−2629	−2262	367	−102
K. M. Menefee—McDowell 1[e]	S SE NE 31 "	28P 115	Walt.	−2694	−2334	360	−183
K. M. Menefee—McDowell 2	CSW SE NE 31 "	20P 100	Walt.	−2705	−2340	365	—
Ohio-Fullerton	NW SE SW 31 "	D & A		−2752	−2383	369	−208
Seaboard Oil Co.—Bradham 1	SE SE SW 3-1N-14W	D & A		−2493	−2153	340	−136
Everson Oil Co.—I. Gomper 1	SE SE SW 4 "	show gas	Penn.	[f]	[f]	[f]	−190
Walsh & Dye—C. Lemke 1	C NE NW 4 "	D & A		−2570	−2227	343	−182
Magnolia—K. Koertge 2	CN NW NW 5 "	show	S.G.	−2605	−2255	350	−224
Brookhaven Oil Co.—C. Rothrock 1	NW SE NE 6 "	shows	T.S., S.G.	−2603	−2262	341	−232
Central Pipe Line Co.—J. Gadau 1[g]	CN NW NE 6 "	1280F	S.G.	−2605	−2262	343	−216
Magnolia Pet. Co.—K. Koertge 1	N NE NE 6 "	224P 2	S.G.	−2603	−2259	344	−236
R. B. Martin—E. M. Blackford 1	WE NE NW 6 "	shows	Beth., S.G.	−2612	−2275	337	−230
Nelson Dev. Co.—Rothrock Gadau Comm. 1[h]	N NE SW 6 "	15P 30	S.G.	−2613	−2279	334	−232
Seaboard Oil Co.—C. Rothrock 1[i]	CN SW NE 6 "	435F	S.G.	−2601	−2262	339	−231
Sinclair Wyoming—A. Bierhaus 1	CN NW SE 6 "	23P	Cyp.	−2605	−2264	341	−221
Lobree & McCauley—Strine 1	CNW NE NW 13 "	show	S.G.	−2420	−2076	344	−142
A. F. Dye—Schernekau 1	CW SW SW 18 "	show	S.G.	−2630	−2282	348	−408
Owens & Kinney—B. Hansen 1	NW NW SE 20 "	D & A		—	—	—	—
Central Pipeline Co.—D. Staninger 1	NE NW NE 31 "	shows	Beth., S.G.	−2657	−2299	358	−161
Central Pipeline Co.—Tarpley 1	NE NE NW 31 "	shows	Beth., S.G.	−2668	−2309	359	−180
Seaboard Oil Co.—Nelson 1	CE SE SW 32 "	show	Hard.	−2639	−2309	330	−179
Hilton Oil Co.—R. Skelton 1	CNW NE SW 36 "	D & A		−2414	−2070	344	− 83
Ill. Prod. Corp.—Spotswood 1	CN SW SW 1-2N-10E	D & A		−2745	−2404	341	−357
Zephyr Drlg. Co.—F. Simpson 1	CW NW SW 30-2N-11E	D & A		−2709	−2346	363	−277
Kingwood Oil Co.—Provine 1	SE SE SW 3-2N-14W	D & A		−2615	−2275	340	−308
Anderson & Vorhees—Williams 1	E NW SW 8 "	D & A		−2641	−2296	345	−300
Arrow Drlg. Co.—A. Bunch 1	W SE NE 8 "	111P 125	S.G.	−2618	−2264	354	−278
C. R. Craft et al—M. Daubs 1[k]	CE SW NE 8 "	799F 141	S.G.	−2613	−2262	351	−277

TABLE 1.—TABULATED DATA—*(Continued)*

Company, Farm, Well No.	Location, Sec., T., R.	Initial Production[a] Oil, Water	Oil-bearing fm.[b]	Elev. Top Levias	Elev. Top "Barlow"	"Barlow"-Levias-Interval	Elev. base "West Franklin"
Craft & Powers—P. Whitaker 1	E SW SE 8 "	Junked hole		−2629	−2283	346	−248
Ohio—P. Whitaker 1	E NW SE 8 "	19P 29	S.G.	−2620	−2270	350	−269
Sinclair-Wyoming—R. Boley 1[j]	E NW NE 8 "	6P 25	Beth.	−2616	−2271	345	−285
Sun—J. Clodfelter 1[m]	W NE SE 8 "	5P 7	S.G.	−2619	−2267	350	−270
Seaboard Oil Co.—H. Wetzel 1	CW NE SE 13 "	D & A		−2415	−2092	323	−178
W. Duncan—W. Bierhaus 1	E NW NW 16 "	D & A		−2617	−2264	353	−283
C. R. Craft—R. McVaigh 1	C NE SW 17 "	192P 265	S.G.	−2617	−2256	361	–
Ohio Oil Co.—M. Lambert 1	S SE NW 17 "	82P 9	S.G.	−2617	−2268	349	−266
I. W. Siegel—E. Weesner 1[n]	C SE SW 17 "	140P 125	S.G.	−2614	−2259	355	−251
Ohio Oil Co.—G. Hull 1	W NW NE 20 "	30P 40	S.G.	−2611	−2260	351	−272
Ohio Oil Co.—M. Walden 1	S NW SW 20 "	show gas	S.G.	−2631	−2282	349	−266
Bonpas Dev. Co.—L. D. Ahlfield 1	CW NE SE 21 "	D & A		−2587	−2243	344	−263
Bonpas Dev. Co.—J. Woods 1	NE SE SE 21 "	shows	Cyp., S.G.	−2572	−2229	343	−261
Bonpas Dev. Co.—J. Woods 2	CW SW SE 21 "	1086F	S.G.	−2574	−2230	345	−254
Bonpas Dev. Co.—J. Woods 3[o]	CW SE SE 21 "	135P 200	S.G.	−2570	−2230	340	−256
Central Pipeline et al—Walters & Yonaka 1	C SE SW 21 "	show	S.G.	−2591	−2244	347	−263
Longhorn Oil Corp.—L. Ahfield 1	CW NW SE 21 "	D & A		−2597	−2253	344	−267
A. C. Leathers et al—A. Yonaka 1	NW SE SW 22 "	shows	Cyp., S.G.	−2576	−2228	348	−265
Central Pipeline et al—H. McVaigh 1	CW NW NE 28 "	show	S.G.	−2587	−2239	348	−254
W. C. Brown et al—G. P. Koertge 1	S SE SW 29 "	show	S.G.	−2600	−2255	345	−231
Nelson Dev. Co.—C. Clodfelter 1	S SW NE 29 "	show	S.G.	−2607	−2260	347	−262
Nelson Dev. Co.—H. & A. Evans 1	CW NW SE 29 "	C & A		−2604	−2255	349	−252
Ohio Oil Co.—C. Clodfelter 1	N SW SW 29 "	515F 11	S.G.	−2595	−2259	336	−236
Ohio Oil Co.—C. Clodfelter 2[p]	S SW SW 29 "	416F	S.G.	−2596	−2255	341	−233
Ohio Oil Co.—H. Koertge 1	S SE NW 29 "	1459F	S.G.	−2598	−2257	341	−257
Ohio Oil Co.—H. Koertge 2	N SE NW 29 "	1192F	S.G.	−2603	−2263	340	−255
Ohio Oil Co.—H. Koertge 3	S SW NW 29 "	824F	S.G.	−2604	−2268	336	−253
Ohio Oil Co.—H. Koertge "B" & Clodfelter 1	WE NE NW 29 "	show	S.G.	−2605	−2263	342	−259
Sinclair-Wyoming—C. Clodfelter 1	N NE SW 29 "	1968F	S.G.	−2599	−2264	335	−252
Sinclair-Wyoming—C. Clodfelter 2	CS NE SW 29 "	1871F	S.G.	−2598	−2264	334	−246
Sinclair-Wyoming—C. Clodfelter 3[q]	CN NW SW 29 "	1242F	S.G.	−2601	−2267	334	−252
Sinclair-Wyoming—C. Clodfelter 4	CS NW SW 29 "	858F	S.G.	−2603	−2269	334	−247
Sinclair-Wyoming—C. Clodfelter 5	CN SE SW 29 "	1310F	S.G.	−2595	−2261	334	−239
Arrow Drlg. & Terrace—H. Koertge 1[p,r]	S SE NE 30 "	85P 100	S.G.	−2619	−2276	343	−253
Ohio Oil Co.—E. Stevens 1[p]	E SE SE 30 "	1078F 253	S.G.	−2610	−2274	336	−242

Ohio Oil Co.—E. Stevens 1	E NE SE 30	"	S.W.D.		Hard.	−2617	−2278	339	−247
J. Bander & Martin—L. C. Wells 1[p]	CE SW NE 31	"	2052F		S.G.	−2612	−2264	348	−235
J. Bander & Martin—L. C. Wells 2	W SW NE 31	"	168P	70	S.G.	−2610	−2278	332	−228
Central Pipe Line Co.—F. Bierhaus 1[e]	CN SE SE 31	"	1320F		S.G.	−2599	−2257	342	−226
Central Pipe Line Co.—E. M. Blackford 1[e]	CN SW SE 31	"	956F		S.G.	−2601	−2253	348	−208
Central Pipe Line Co.—Kent 1	E SE NE 31	"	1167F		S.G.	−2598	−2238	360	−218
Central Pipe Line Co.—Kent 2	W SE NE 31	"	1270F		S.G.	−2597	−2252	345	−217
Central Pipe Line Co.—Kent 3	W NE SE 31	"	1285F		S.G.	−2599	−2254	345	−222
Central Pipe Line Co.—Kent 4	E NE SE 31	"	1685F		S.G.	−2600	−2253	347	−224
Central Pipe Line Co.—G. Ridgley 1	E NW SE 31	"	875F	175	S.G.	−2603	−2252	351	−226
Central Pipe Line Co.—D. Summerfield 1	CNE SE SW 31	"	D & A			−2626	−2272	351[s]	−229
Magnolia Pet. Co.—C. Brake 1	C NE SW 31	"	47P		S.G.	−2621	−2262	355	−231
Ohio Oil Co.—O. Stremme 1	E NE NE 31	"	2978F		S.G.	−2598	−2260	338	−231
Ohio Oil Co.—O. Stremme 2	W NE NE 31	"	243P	818	S.G.	−2612	−2268	344	−238
W. C. Brown—O. Stremme 1	W NW NW 32	"	707F		S.G.	−2594	−2252	342	−231
A. F. Dye—E. C. Kent 1	NW NW SW 32	"	1800F		S.G.	−2593	−2246	347	−231
A. F. Dye—E. C. Kent 2	NE NW SW 32	"	D & A			−2598	−2254	344	—
A. F. Dye—E. C. Kent 3	CSW NW SW 32	"	1080F		S.G.	−2599	−2250	349	−227
Nelson Dev. Co.—F. Bierhaus 1	CNW SW SW 32	"	350F		S.G.	−2591	−2241	350	—
Ohio Oil Co.—H. G. Markham 1	CNW SW NW 32	"	677F		S.G.	−2596	−2240	356	−232
Ohio Oil Co.—H. G. Markham 2	NE SW NW 32	"	945F		S.G.	−2596	−2233	364	−226
Washburn & Powers—Markham 1	NW SE NW 32	"	show		S.G.	−2602	−2238	364	−229
Anderson & Fields—Higgins 1	CE NE NW 35	"	shows?		S.G.	−2436	−2126	310	−178
Olson Oil Co.—Wm. Boyd 1	CW SW SW 1-3N-10E		D & A			−2614	−2242	372	−351
Seaboard Oil Co.—Staber 1	S SW NE 3-3N-14W		D & A			−2517	−2191	326	−314
Hollingsworth Inc.—Wagner 1	NW NW NW 5	"	D & A			−2670	−2330	340	—
Nadel & Gussman—McEvelly 1	C SW SW 12	"	D & A			−2439	−2096	343	−296
Sinclair-Wyoming—Legan 1	NE SE SW 18	"	D & A			−2687	−2330	357	−351
Hugill—Ray Malone 1	NW NW NE 21	"	D & A			−2610	−2260	350	—
Nadel & Gussman—T. Eaton 1	C SE SW 26	"	D & A			−2567	−2231	336	−336
Seaboard Oil Co.—Kimmel 1	CE SE SW 32	"	show		S.G.	−2620	−2279	341	−298
J. Hasler—Bunn Comm. 1	E SE NW 33	"	D & A			−2606	−2264	342	−323
Case, Pomeroy Co.—Bowers 1	CSW SW SE 34	"	260P	75	S.G.	−2595	−2257	338	−314
Case, Pomeroy Co.—A. E. Bunn 1	S SE SW 34	"	80P	200	S.G.	−2603	−2259	344	−308
Everson Oil Co.—N. W. Byrnes 1	SW SW NE 34	"	D & A			[t]	[t]	[t]	−338

[a] F, flowing; P, pumping; S.W.D., salt water disposal well; D & A, Dry and abandoned.
[b] S.G., Ste. Genevieve; Cyp., Cypress; Walt., Waltersburg; Beth., Bethel; Penn., Pennsylvanian; Hard., Hardinsburg; T. S., Tar Springs.
[c] Shows, Pennsylvanian, Pennsylvanian?
[d] Not penetrated, total depth 1254 feet
[e] Plugged; show? in Cypress.
[f] Not penetrated; total depth 1043 feet.
[g] Show in Cypress.
[h] Show? in Pennsylvanian.
[i] Shows in Tar Springs, Cypress.
[k] Show in Bethel.
[l] Plugged; show in Ste. Genevieve.
[m] Plugged; shows in Ste. Genevieve.
[n] Show? in Ste. Genevieve.
[o] Show in Aux Vases.
[p] Show in Ste. Genevieve.
[q] Show in Bethel.
[r] Shows in Cypress, Tar Springs; show? in Bethel.
[s] Estimated.
[t] Not penetrated; total depth 1453 feet.

restrictions of Order M-68 of the petroleum Administration for War and hence the wells are on a 40-acre spacing. Flowing wells with an initial production as high as 1320 barrels of oil with no water have been reported in the area of the SE. ¼ sec. 31, T. 2 N., R. 14 W., and NE. ¼ sec. 6, T. 1 N., R. 14 W. It may become possible in the future to drill some new wells in the area of present 40-acre spacing, but this depends upon how far depleted the reserves of oil and the gas pressure are by the time Order M-68 may be relaxed.

ILLINOIS STATE GEOLOGICAL SURVEY
ILLINOIS PETROLEUM 46
1943

ILLINOIS STATE GEOLOGICAL SURVEY
Urbana, Illinois

November 13, 1943

SUPPLEMENT TO ILLINOIS PETROLEUM NO. 46

Revised Structural Data Eliminating the West Salem Dome

By William H. Easton

According to information received on the above date, the log (from which the published data were obtained) of the Owen and Deerman - Bristow No. 1 well in the center of the W. 1/2 SE. 1/4 NW. 1/4 sec. 30, T. 1 N., R. 11 E., contained an error of 100 feet in all of the depths, and consequently the structural datum points for this well on top of the Levias (fig. 3, p. 4) and on top of the "Barlow" (fig. 4, p. 5) are each 100 feet too high. When these corrections are made, the structural closures in secs. 19 and 30, T. 1 N., R. 11 E. (referred to in the text on pp. 7 and 8 as the West Salem dome) are eliminated. Instead there is a long narrow extension of the Parkersburg dome, plunging southward.

On table 1, p. 9, line 8, the elevation of the top of the Levias limestone should be changed to -2729 feet; the elevation of the top of the "Barlow" limestone should be changed to -2362 feet; and the elevation of the base of the "West Franklin" should be changed to -202 feet.

The third paragraph under "Recommendations for Drilling" which begins, "Testing of the West Salem dome is recommended . . ." no longer applies. Instead it appears that the south end of the Parkersburg structure is similar to the north end where production was obtained in secs. 17 and 20, T. 2 N., R. 14 W. It may be that the south end will prove productive in the NW. 1/4 sec. 18 and the SW. 1/4 sec. 7, T. 1 N., R. 14 W.