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WEST VIRGINIA OILFIELDS DISCOVERED BEFORE 1940

By Charles E. Whieldon, Jr., and William E. Eckard

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WEST VIRGINIA OILFIELDS DISCOVERED BEFORE 1940[1]

By

Charles E. Whieldon, Jr.,[2] and William E. Eckard[3 4]

Summary

DURING 1960 about 2,275,000 barrels of oil was produced from 12,950 oil wells in West Virginia. The wellhead value of the oil was about $9,434,000. Most of the oil was produced from oilfields at least 20 years old; in fact, a small portion was produced from the Burning Springs Field, which was discovered in 1860.

As part of the effort of the Federal Government to increase ultimate recovery of crude oil from old pressure-depleted Appalachian area reservoirs, the Federal Bureau of Mines has compiled available records of oilfields discovered in West Virginia before 1940. These data will assist interested oil operators in planning additional secondary recovery operations in these oilfields.

This report contains data on 79 oilfields discovered before 1940. The boundary of each field and extent of the individual producing formations are presented. All available information is presented along with an estimate of original reservoir oil content.[5] Oil production to January 1, 1960, and an estimate of total oil remaining are also listed. Secondary-recovery methods used in each field since discovery and degree of success are reported.

INTRODUCTION

The continuing decline in crude oil production in West Virginia with its attendant effects on the economy of the area and the increase in requests for oilfield information have prompted the Bureau of Mines to assemble and publish all available data and references on the older oilfields of the State.

The first oil well drilled in West Virginia was completed in 1860. This well, located in the Burning Springs Field, produced from the Cow Run sand at a depth of 303 feet and reportedly flowed at a rate of 100 barrels of oil a day. It gave stimulus to the industry, and the Burning Springs Field was rapidly developed. The Civil War retarded development in other areas, but with cessation of hostilities, drilling increased; by 1920 over 96 percent of the fields shown in figure 1 had been discovered.

Cumulative oil production to 1876 has been reported by the West Virginia Geological and Economic Survey to be 3 million barrels. Oil production continued to be less than 180,000 barrels a year until 1889; then most succeeding years showed a marked increase. During 1900

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[4] In preparing this report, the authors were materially assisted by James R. Williamson, petroleum research engineer, and Joseph K. Allamong, petroleum engineering aid, Morgantown Petroleum Research Laboratory, Bureau of Mines, Morgantown, W. Va.

[5] All oil volumes or saturations reported herein are at stock-tank (surface) conditions. When oil is produced, natural gas comes out of solution. Thus a stock-tank barrel of oil occupies less volume at the surface than the same barrel of oil would in the underground oil reservoir.

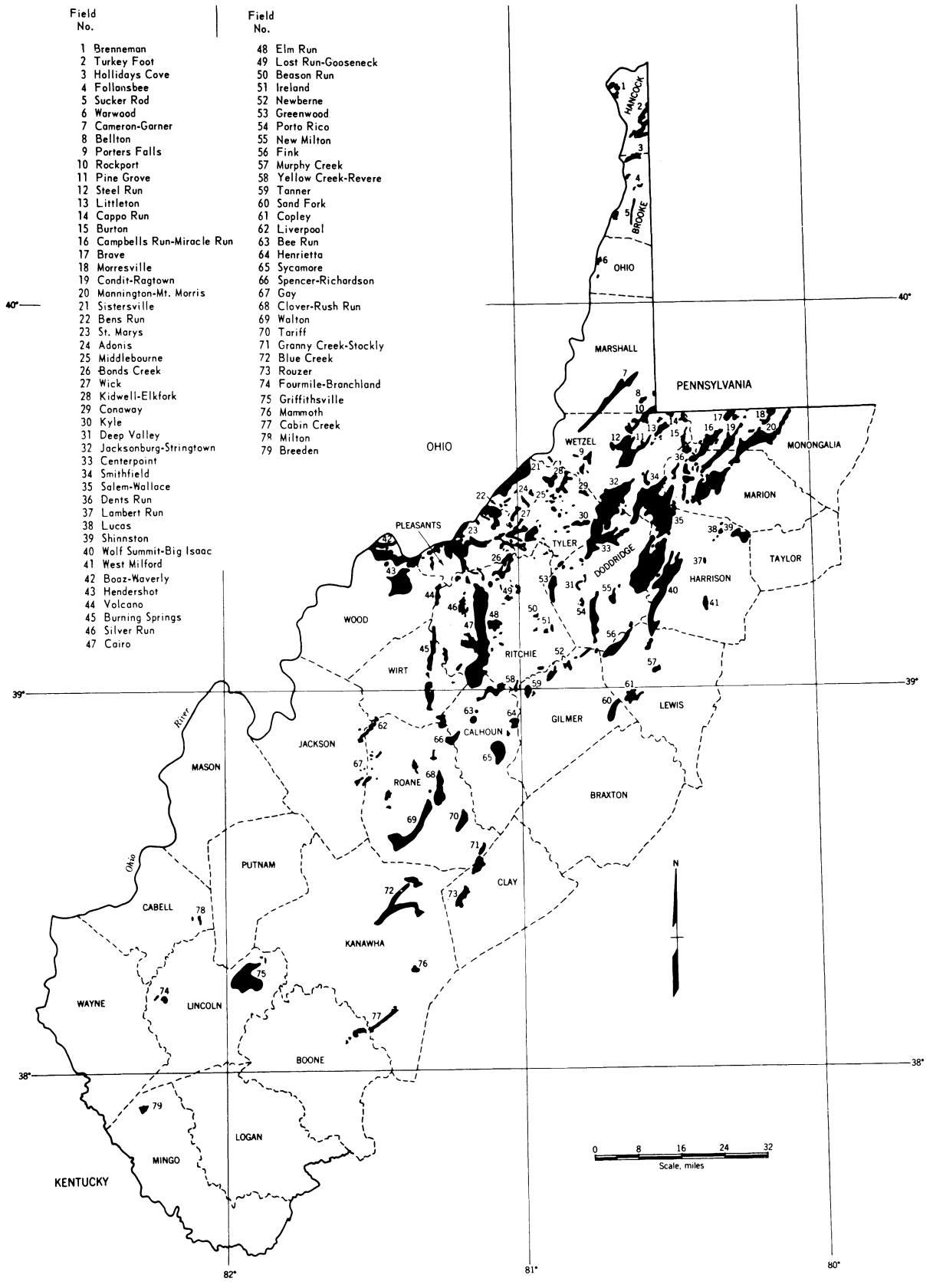

FIGURE 1.—Map of Historical Oil-Productive Portion of West Virginia Showing Name, Relative Size, Number, and Location of Oilfields.

an all-time high of 16,196,000 barrels of oil was produced. Estimated cumulative oil production from 1860 to 1960, totaled from data presented in this report, was 461,615,000 barrels. (The American Petroleum Institute has reported that about 466,343,000 barrels of oil was produced during the same period.)

Oil has been produced in 32 counties of West Virginia. The wellhead value of crude oil produced from 1860 to 1960 is estimated to be $991,739,000. During this period more than 81,973 wells were drilled; about 52.6 percent of these were successful oil wells. West Virginia contains approximately 24,080 square miles; maps in this report show that less than 3 percent of the area is oil productive.

All oil production in the State has been from sediments deposited during the Pennsylvanian, Mississippian, and Upper Devonian periods of the Paleozoic era.

SOURCE AND PRESENTATION OF DATA

This report was compiled using information from many different sources. The map (fig. 1) showing the name, relative size, number, and location of the older oilfields of West Virginia was prepared from detailed but unpublished information provided by Mr. Rietz C. Tucker.[6] Mr. Tucker also provided the authors with outlines of each oil pool and/or oilfield that included the extent of individual producing formations, estimates of original oil content, total oil production to November 1935, and estimated original oil content per acre.

The annual oil-production curve to 1961 (fig. 2) for all oilfields in West Virginia was prepared from data published by the Bureau of Mines, the West Virginia Geological and Economic Survey, and the American Petroleum Institute It includes oil production from the few pools discovered since 1939. Figure 2 also shows the years in which secondary recovery by natural gas injection and waterflooding first occurred.

Natural gas was first injected into the Cow Run sand, St. Marys Field, during 1903 (*27, p. 3*).[7] An air-gas mixture was first injected into this same field during 1916 (*30, p. 109*). The oil production decline (fig. 2) was not greatly affected by secondary-recovery methods until after 1918. Undoubtedly, the two periods of increased production—beginning in 1918 and 1925—were influenced by gas and/or air injection. A study made during 1956 (*27, p. 17*)

[6] Assistant State Geologist, West Virginia Geological and Economic Survey, Morgantown, W. Va.

[7] Italicized numbers in parentheses refer to items in the bibliography at the end of this report. Page references refer to pages in the items and not in this report.

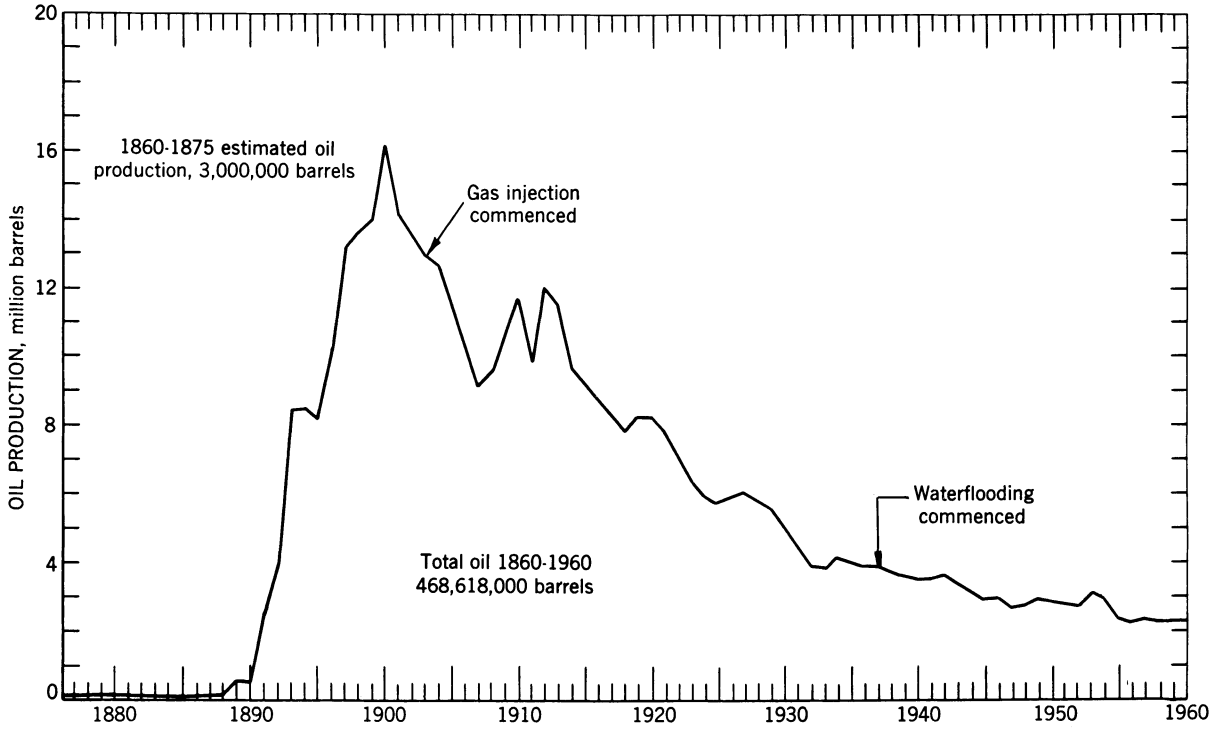

FIGURE 2.—Annual West Virginia Oil Production.

indicated that from 1930 to 1953 gas- and/or air-drive operations accounted for about 24 percent of the total oil produced. It is believed that the same proportion still exists.

Water was first injected into the Berea Sand, Cabin Creek Field, during 1937. To date, secondary recovery of oil by waterflooding has been attempted in only 11 other oilfields with generally poor results.

Subsurface cross-sectional maps (figs. 3–8) were prepared from information published by the West Virginia Geological and Economic Survey. The wells from which data were obtained to prepare the cross sections are listed in table 1. The prime source of data was the West Virginia County Reports (*12* and *13*). Figures 3 to 8 are intended to show only the general relationships of geologic series. Broken lines on figures 4 to 8 indicate inferred elevation or thickness of the illustrated series.

Oilfield data sheets and maps are presented alphabetically. The field name used is the one under which the initial or major development took place. A standard form is used for reporting data on each of the 79 oilfields. Some of the data presented were taken from the unpublished "Report to the Petroleum Coordinator for National Defense on West Virginia Oilfields, 1941," by the Petroleum Administration for Defense, District I Production Committee. Acreage was determined by planimetering the productive area outlined on the oilfield map. No attempt was made to correct for multiple producing formations. Where secondary recovery by gas injection or waterflooding is listed, an error might be found in the presented average well spacing due to drilling of new wells.

Estimated original reservoir oil content is presented for each mapped field. This esti-

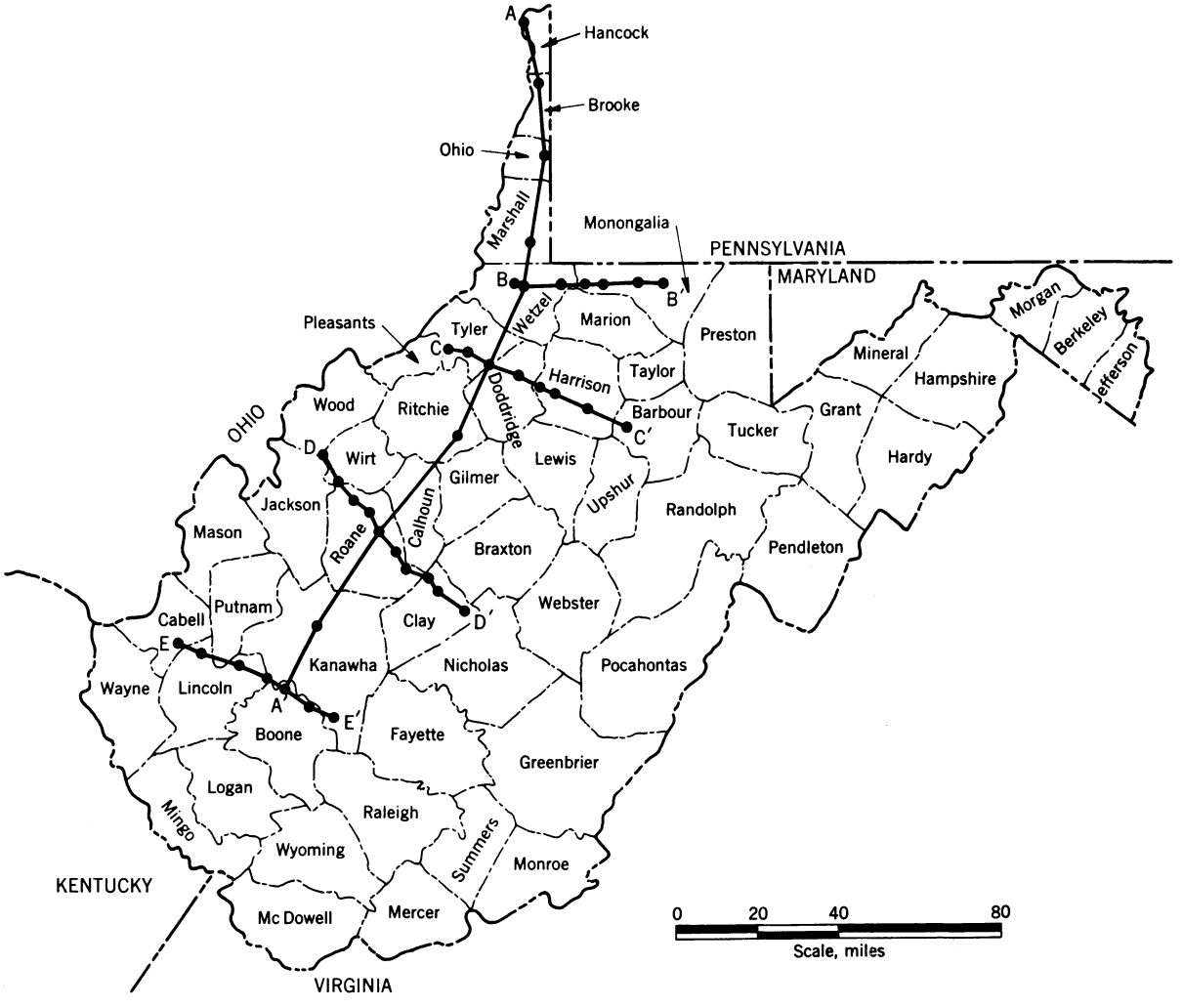

FIGURE 3.—Map of West Virginia Showing Location of Cross Sections A–A′ Through E–E′.

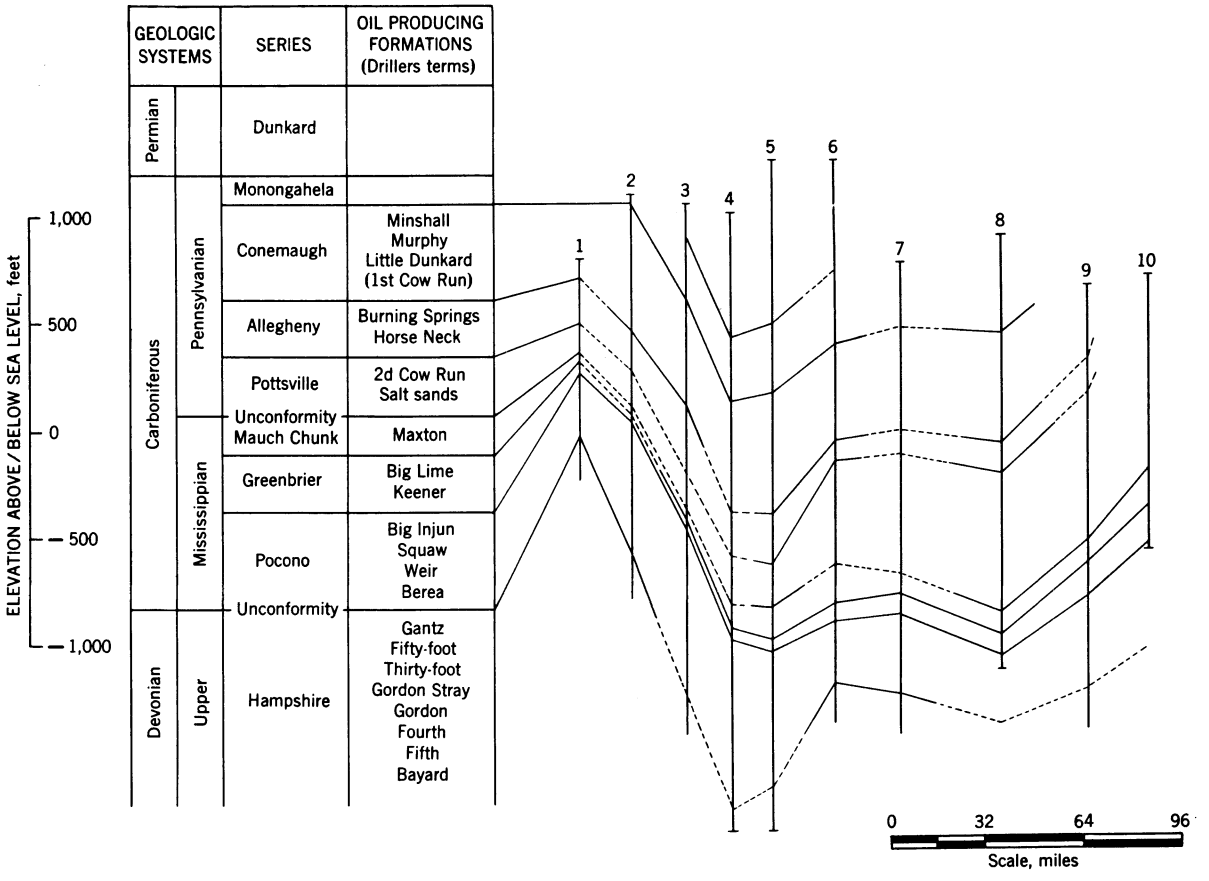

FIGURE 4.—Cross Section A–A′ Showing Generalized Subsurface Formations North to South.

mate was made by multiplying the barrels per acre oil content provided by Mr. Tucker by the planimetered field area outlined on the maps. These estimates and the estimates made by Mr. Tucker, including five unmapped oil-producing areas, are listed in table 2.

Certain of the estimates of original oil content are of limited accuracy because sufficient reliable reservoir or production data are not available. For example, it was estimated that the Conaway Oilfield (29) originally contained 3,720,000 barrels of oil. This field comprises about 4,960 acre-feet of net pay sand. Published records (*27, p. 19*) list an average porosity of 17.6 percent and an avaerge original oil saturation of 46.1 percent for 24 Big Injun sand reservoirs. Using these average values and the constant, 7,758 barrels per acre-foot, computations show that the Conaway Oilfield originally may have contained about 3,122,000 barrels of oil; comparing reasonably well with the listed 3,720,000 barrels. Similar calculations for the Brenneman Oilfield (1) show a much larger difference. This field comprises about 10,240 acre-feet. One record (*67, p. 24*) lists an average porosity of 16.0 percent and an average original oil saturation of 74.4 percent—indicating an original oil content of about 9,457,000 barrels. Another reference (*27, p. 19*) lists an average porosity of 15.0 percent and an average original oil saturation of 68.4 percent for 16 Berea sand reservoirs. These values indicate that the Brenneman Oilfield originally contained about 8,151,000 barrels. The calculated oil volumes total about three times more than the listed 3,072,000 barrels.

These simple calculations show that the data available cannot always be reconciled.

The total original oil content of the fields reported herein is estimated to be about 2 billion barrels of oil. An estimate made on January 1, 1960, published by P. D. Torrey, shows the original oil content of these reported fields, and the few that have been discovered since 1939, to be about 2.593 billion barrels (*68, p. 15*).

Oil production from each field from November 1935 to January 1, 1960, was estimated by the authors so that the total oil produced from each field could be reported. The unknown

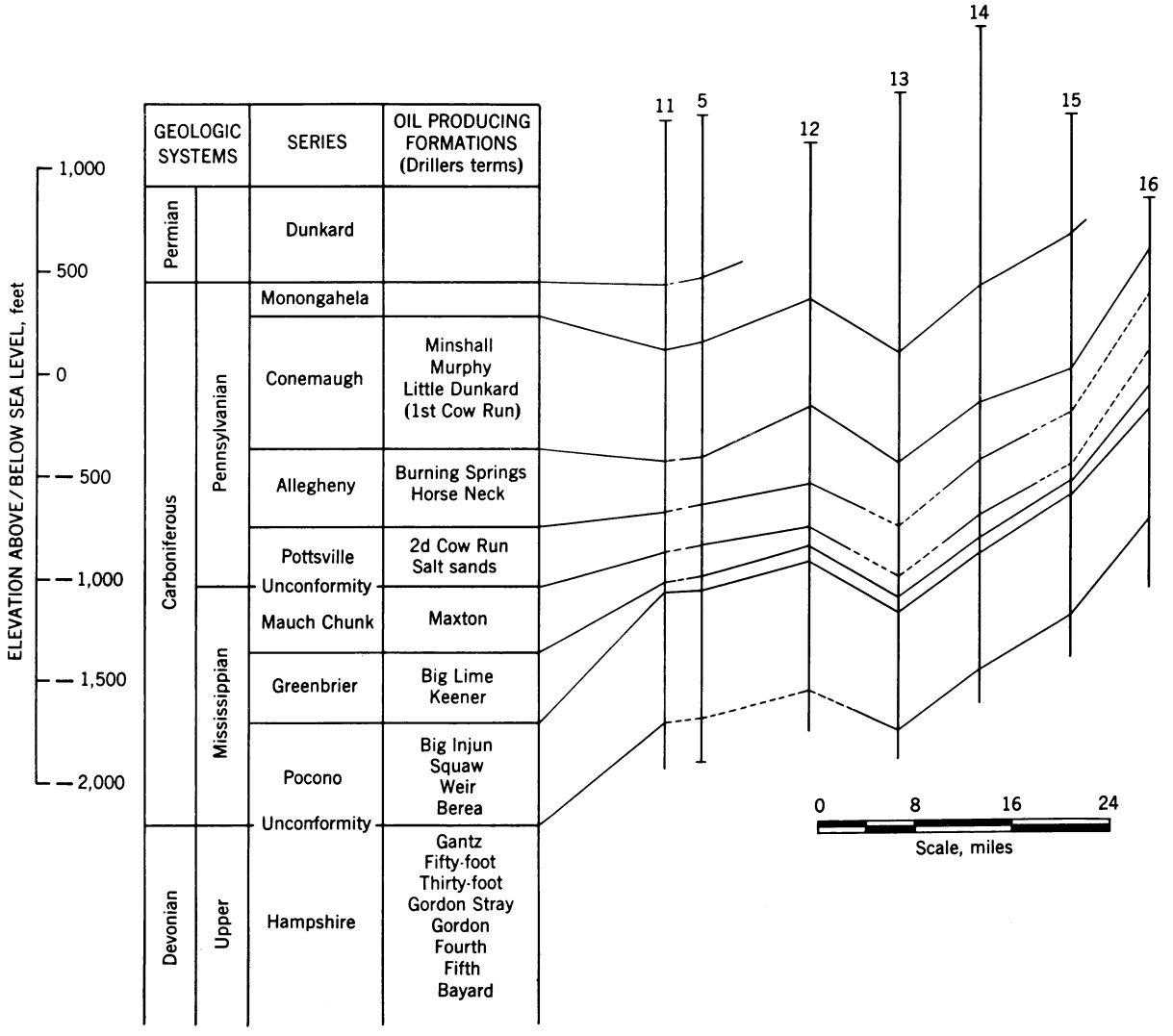

FIGURE 5.—Cross Section B–B′ Showing Generalized Subsurface Formations West to East.

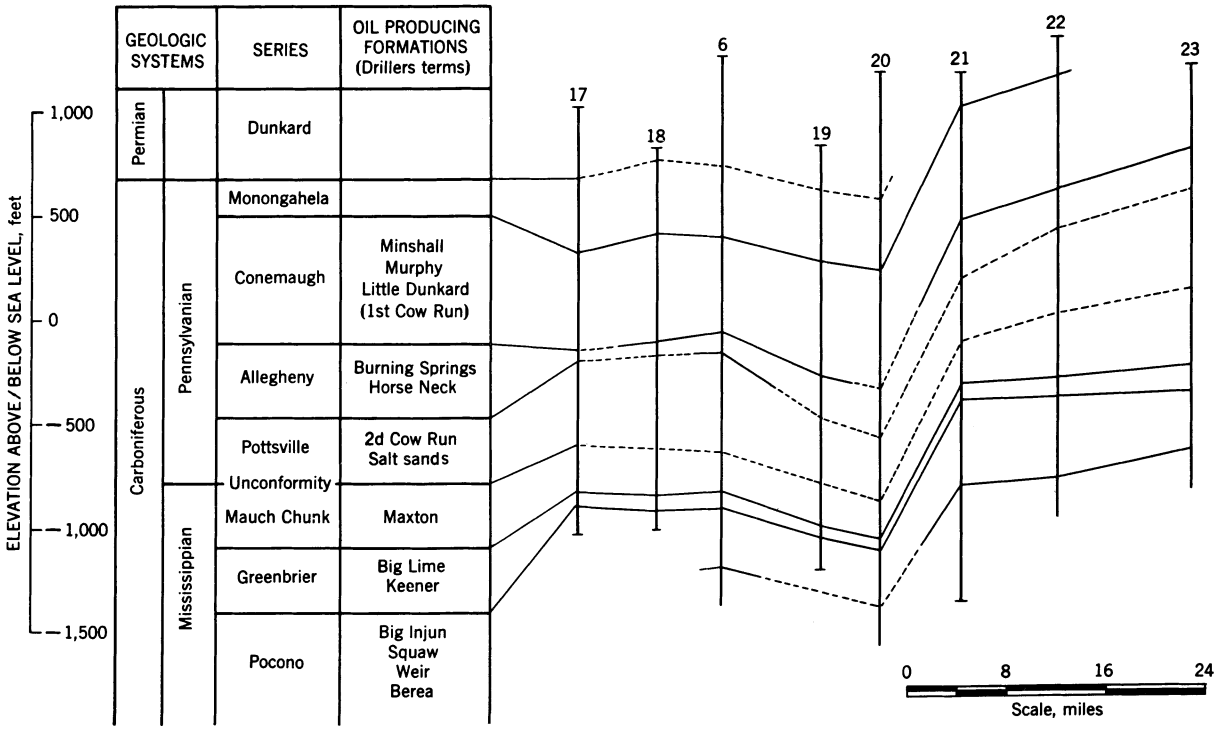

FIGURE 6.—Cross Section C–C′ Showing Generalized Subsurface Formations West to East.

volume of oil that has been produced from the Sycamore Field, the unknown volume of oil produced since November 1935 from the unmapped areas previously listed—producing a total of 728,000 barrels of oil before November 1935, and the relatively small volume of oil produced from pools discovered since 1939 were included in the estimated oil production from the 78 reported oilfields. Accuracy of the reported total oil production from each field would not be significantly improved by eliminating these relatively small volumes of oil.

Mr. Tucker's production estimate was extended to 1936 by proportionately adding one-sixth (equivalent) of the State's 1935 production to each individual field. Production from each field from 1936 to 1960 was estimated not only from the annual production-decline curve but also from a revised estimate of yearly production from each field that was originally reported in the unpublished "Report to the Petroleum Coordinator for National Defense on West Virginia Oilfields, 1941." These revised estimates were further improved after conversations with knowledgeable employees of oil-producing companies. These employees also provided information as to the years (after 1950) in which certain fields were considered to

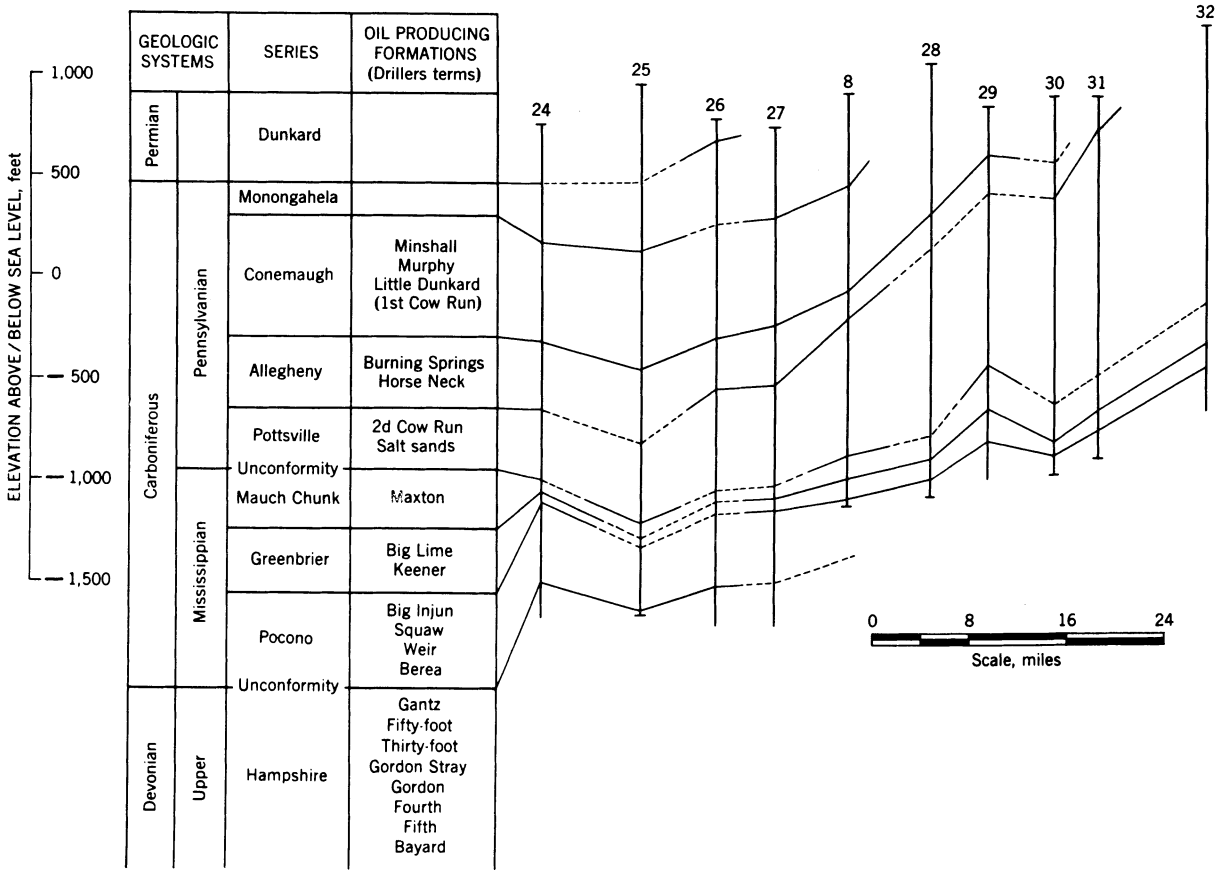

FIGURE 7.—Cross Section D–D′ Showing Generalized Subsurface Formations West to East.

TABLE 1.—*Wells used in construction of cross sections A–A′ through E–E′*

Well No.	Name	Number [1]	District	County
A–A′:				
1	C. E. Brenneman	49	Grant	Hancock.
2	R. Patterson	2, 279	Cross Creek	Brooke.
3	W. E. Anderson	1	Liberty	Ohio.
4	C. C. Lough	3	do	Marshall.
5	J. A. Lemasters	1	Center	Wetzel.
6	S. J. Freeman	2, 063	McElroy	Tyler.
7	A. Perrine	1	Union	Ritchie.
8	T. M. Perot	1	Smithfield	Roane.
9	S. M. Burdette	1	Elk	Kanawha.
10	Forks Creek Coal Co	4	Peytona	Boone.
B–B′:				
11	G. Dunham	1	Proctor	Wetzel.
5	J. A. Lemasters	1	Center	Do.
12	M. E. Earnshaw	5, 223	Church	Do.
13	W. Haught	4	Battelle	Monongalia.
14	D. L. Toothman	12	Clay	Do.
15	M. A. Miller	1	do	Do.
16	J. & D. Krepps	1	Morgan	Do.
C–C′:				
17	B. F. Robinson	2	Meade	Tyler.
18	A. L. Corbly	5	Centerville	Do.
6	S. J. Freeman	2, 063	McElroy	Do.
19	B. D. Helmick	1, 476	Grant	Doddridge.

See footnotes at end of table.

TABLE 1.—*Wells used in construction of cross sections A–A′ through E–E′*—Continued

Well No.	Name	Number[1]	District	County
C–C′—Continued				
20	G. E. Harbert	1	Tenmile	Harrison.
21	H. M. Furner	1	do	Do.
22	J. A. Mills	5, 085	Grant	Do.
23	M. D. Reiley	5, 048	Elk	Barbour.
D–D′:				
24	R. J. Moore	1	Tucker	Wirt.
25	G. R. Dennis	1	Reedy	Do.
26	W. V. Callow	1	do	Roane.
27	J. A. Ward	1	Spencer	Do.
8	T. M. Perot	1	Smithfield	Do.
28	E. Snodgrass	1	do	Do.
29	W. F. Wilson	1	Geary	Do.
30	R. S. Hamrick	1	Otter	Clay.
31	J. G. Lyons	1	do	Do.
32	Elk River Coal and Lumber Co	1, 576	Buffalo	Do.
E–E′:				
33	T. C. Bledsoe	1	McComas	Cabell.
34	Poor Farm	1	Carroll	Lincoln.
35	Stephenson et al	4	Duval	Do.
36	Seaboard Fuel Co	2	Washington	Do.
10	Forks Creek Coal Co	4	Peytona	Boone.
37	Winifrede Coal Co	1	Sherman	Do.
38	Williams Coal Co	1	Cabin Creek	Kanawha.

[1] Numbers refer to specific well location, published by the West Virginia Geological Survey.

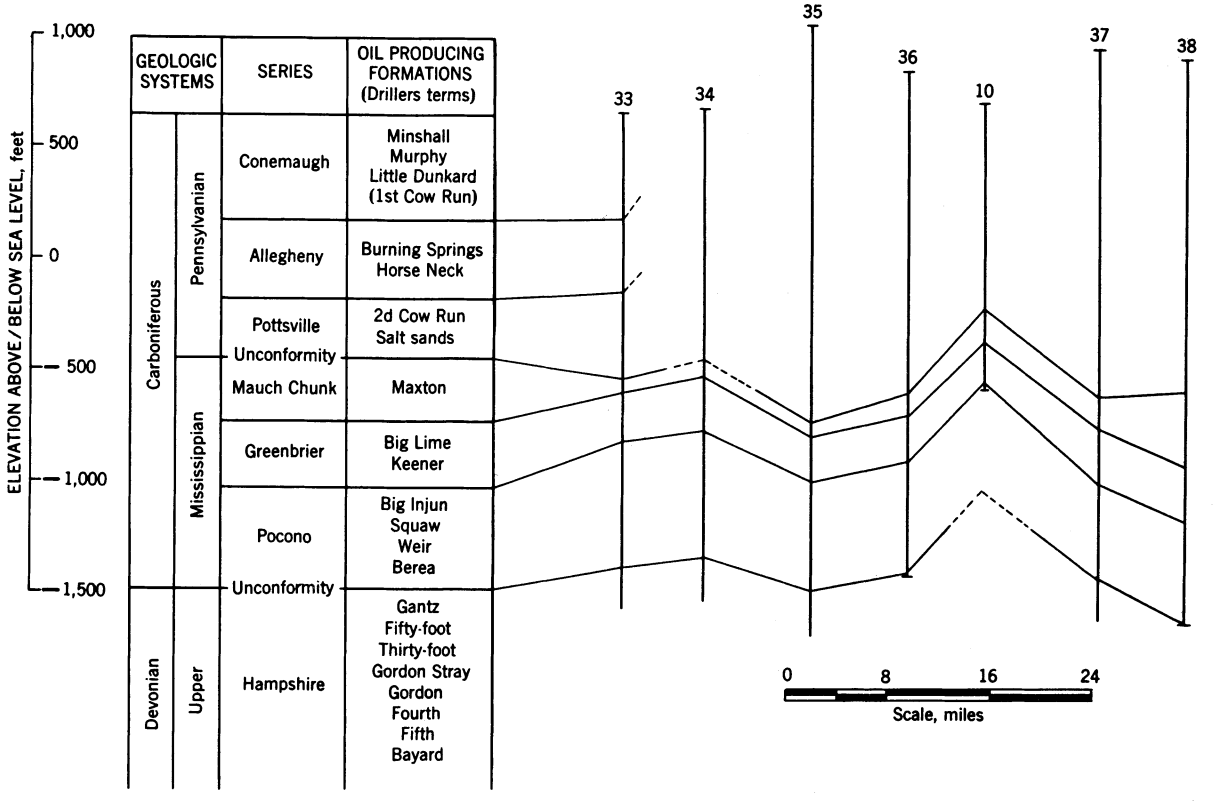

FIGURE 8.—Cross Section E–E′ Showing Generalized Subsurface Formations West to East.

TABLE 2.—*Estimates of original oil content*

Oilfield	Estimated original oil content, thousand barrels	
	Mr. Tucker	Authors
Adonis	5, 600	5, 196
Beason Run	1, 318	1, 098
Bee Run	3, 800	2, 792
Bellton	2, 400	1, 920
Bens Run	17, 675	15, 610
Blue Creek	68, 500	69, 016
Boaz-Waverly	47, 375	44, 799
Bonds Creek	18, 615	19, 757
Brave	16, 100	11, 443
Breeden	2, 250	2, 286
Brenneman	3, 240	3, 072
Burning Springs	29, 000	26, 316
Burton	7, 166	5, 076
Cabin Creek	37, 778	32, 704
Cairo	91, 035	119, 112
Cameron-Garner	30, 046	25, 160
Campbells Run-Miracle Run	49, 088	30, 965
Cappo Run	5, 400	4, 708
Centerpoint	53, 200	51, 920
Clover-Rush Run [1]		
Conaway	3, 750	3, 720
Condit-Ragtown	41, 796	34, 830
Copley	13, 700	8, 160
Deep Valley	8, 861	9, 502
Dents Run	28, 800	21, 912
Elm Run	5, 344	5, 137
Fink	32, 200	20, 784
Follansbee	1, 350	1, 152
Fourmile-Branchland	1, 760	1, 680
Gay	6, 160	5, 617
Granny Creek-Stockly	17, 250	16, 818
Greenwood	13, 218	13, 518
Griffithsville	71, 588	74, 043
Hendershot	54, 960	56, 218
Henrietta	5, 850	5, 472
Hollidays Cove	4, 017	3, 762
Ireland	5, 136	5, 394
Jacksonburg-Stringtown	93, 725	88, 469
Kidwell-Elkfork	27, 000	25, 692
Kyle	10, 800	10, 912
Lambert Run [2]		
Littleton	9, 500	9, 200
Liverpool	5, 200	5, 452
Lost Run-Gooseneck	5, 100	5, 433
Lucas, includes Lambert Run	7, 575	3, 675
Mammoth	2, 975	3, 047
Mannington-Mt. Morris	202, 130	127, 617
Middlebourne	6, 314	5, 262
Milton	1, 450	1, 096
Mooresville	17, 000	10, 496
Murphy Creek	1, 663	1, 008
Newberne	18, 690	13, 007
New Milton	5, 850	6, 606
Pine Grove	26, 328	32, 910
Porters Falls	7, 600	7, 580
Porto Rico	35, 425	36, 315
Rockport	6, 248	6, 144
Rouzer	18, 900	14, 898
Salem-Wallace	211, 491	242, 440
Sand Fork	5, 688	3, 808
Shinnston	9, 800	10, 800
Silver Run	8, 910	8, 986
Sistersville	56, 925	58, 986
Smithfield	63, 200	83, 392
Spencer-Richardson	17, 550	17, 163
Steel Run	34, 850	26, 629
St. Marys	48, 675	40, 832
Sucker Rod	2, 000	2, 047
Sycamore [3]		
Tanner	13, 163	8, 281
Tariff	14, 335	13, 809
Turkey Foot	8, 889	9, 177
Volcano	9, 998	10, 126
Walton, includes Clover-Rush Run	56, 631	54, 165
Warwood	750	913
West Milford	5, 513	6, 475
Wick	40, 260	40, 775
Wolf Summit-Big Isaac	57, 900	68, 916
Yellow Creek-Revere	24, 062	21, 654
Oil pools south and northeast of Chester, Hancock County	[4] 354 (118)	[3]
Oil pools near Moundsville, Marshall County	[4] 400 (192)	[3]
Wayne County	[4] 1, 000 (300)	[3]
Putnam County	[4] 1, 125 (500)	[3]
Rosedale, Braxton, and Gilmer Counties	[4] 520 (200)	[3]
Total	2, 008, 789	1, 904, 862

[1] Included with Walton Field.
[2] Included with Lucas Field.
[3] No estimate available.
[4] Numbers in parentheses are estimated producing acreage on Nov. 1, 1935

have been abandoned. The volumes of oil, which straight-line projection indicated should have been produced from these abandoned fields, were also proportionately added to the totals for fields that were producing at that time. Thus, oil production to 1960 was obtained.

It is regrettable that it has been necessary to use this method to estimate the volume of oil produced from each field. No individual records have been kept, and to tabulate these data from pipeline company records would be an almost impossible task.

Each oilfield data sheet shows the estimated oil remaining in the reservoir as of 1960. The total of these individual estimates equals 1,543,247,000 barrels of oil; most of it cannot be produced with today's technology and economic conditions.

Several important oil industry associations annually publish their estimate of oil reserves. The American Petroleum Institute estimated that on December 31, 1959, about 51,259,000 barrels of oil were recoverable in West Virginia

under the then existing economic and operating conditions (*2, p. 9*). The Interstate Oil Compact Commission estimated on January 1, 1960, that, the stripper wells—producing less than 10 barrels of oil per day—would produce 35,274,000 barrels of oil. However, about 50,840,000 additional barrels of oil could be produced by fluid injection methods (*53, p. 3*). The Commission also estimates that 590 million barrels of oil can be produced from all fields in West Virginia (*68, p. 15*). This large additional volume of oil could be physically, not necessarily economically, recovered by presently known methods. These methods include the use of solvents and heat. References listed in the bibliography (*2, 53, 68*) give a more precise definition of these oil reserves.

The references listed on each oilfield data sheet contain all known published information on that field.

Maps showing the location, extent, and oil-producing formations of oilfields in West Virginia (figs. 9–87) were drawn from original work by Mr. Tucker. On several of these maps the field outline was skewed for better composition; therefore the top of the page is not true north. To avoid confusion in terminology and for this report, all oil pools within a specific area comprise an oilfield. These maps show only the general outline of the productive acreage of the field. Very few fields have been extended by drilling since their outlines were originally determined.

Bureau of Mines routine crude petroleum analyses from 12 oilfields are included in the appendix. Little information is available on the exact sampling point in each field. All except one of these analyses were made before 1934. For simple interpretation, the volume-percent distilling up to 200° C., can be considered gasoline, and the remaining distillate obtained at atmospheric pressure either as kerosine and gas oil or as middle distillate.

In addition to the previously mentioned specific references on each field, other reports of general interest are included in the bibliography.

ACKNOWLEDGMENTS

The writers express appreciation to Dr. Paul H. Price, Director and State Geologist, and to Mr. Rietz C. Tucker, Assistant State Geologist, West Virginia Geological and Economic Survey, for their cooperation and assistance in providing data that made this report possible.

The writers also acknowledge the assistance given by West Virginia oil producers.

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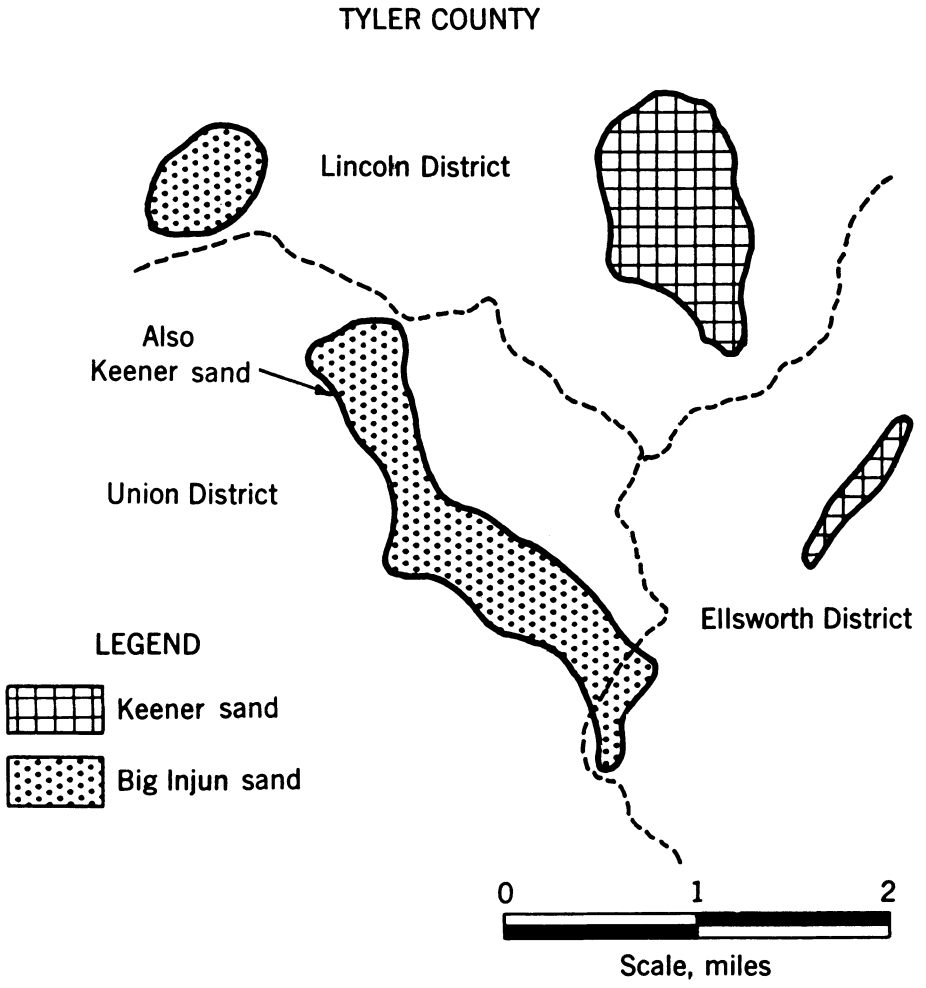

FIGURE 9.—Map of Adonis Oilfield, Tyler County, W. Va.

WEST VIRGINIA OILFIELDS

ADONIS FIELD (24)

LOCATION:

Lincoln, Union, and Ellsworth Dists., Tyler County.

QUADRANGLES:

West Union (W. Va.), New Martinsville (W. Va.-Ohio), and New Matamoras (Ohio-W. Va.).

DATE DISCOVERED: 1895. APPROXIMATE ACREAGE: 1,299. AVERAGE WELL SPACING, FEET: 500.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Keener sand	1, 340–2, 159	11–46	8
Big Injun sand	1, 418–2, 187	100–119	5

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	4, 000
Oilfield size	acres	1, 299
Original oil content	barrels	5, 196, 000
Total oil production	do	1, 377, 000
Reservoir oil content	do	3, 819, 000

RESERVOIR ROCK CHARACTERISTICS:

The Keener sand is friable and varies from fine to coarse grained. The Big Injun sand is coarse grained and has small pebbles.

SECONDARY RECOVERY METHOD:

Gas Injection:

Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 1,100,000 bbl. Water is produced from both oil sands. About 60 producing wells remain in the field.

BIBLIOGRAPHY:

18, p. 46; 35, pp. 488–510, 476–481.

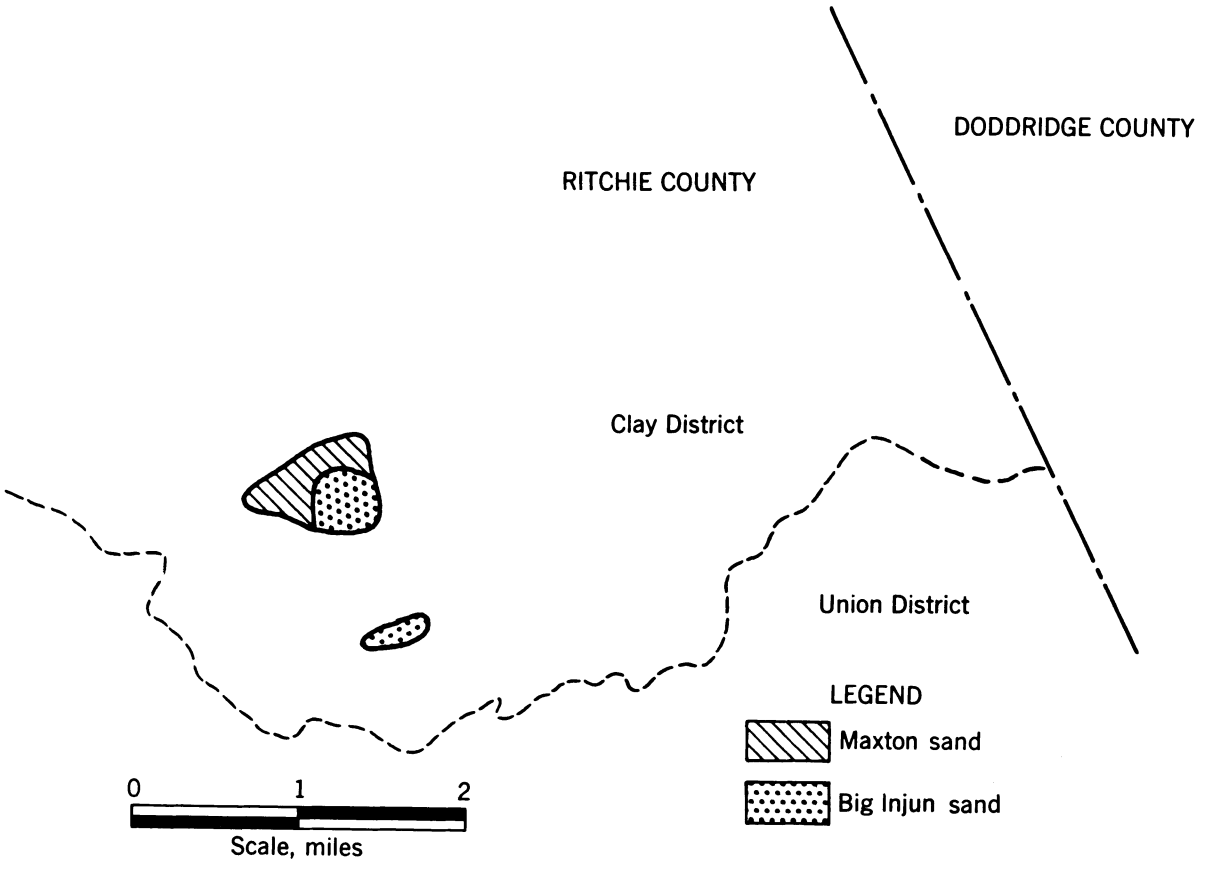

FIGURE 10.—Map of Beason Run Oilfield, Ritchie County, W. Va.

BEASON RUN FIELD (50)

LOCATION:
Clay Dist., Ritchie County.

QUADRANGLE:
Holbrook (W. Va.).

DATE DISCOVERED: Unknown. APPROXIMATE ACREAGE: 244. AVERAGE WELL SPACING, FEET: 550.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Maxton sand	1, 475–1, 650	20–40	---
Big Injun sand	1, 710–1, 850	35–125	---

ESTIMATED RESERVOIR OIL CONTENT AS OF 1955:

Original oil content	barrels per acre	4, 500
Oilfield size	acres	244
Original oil content	barrels	1, 098, 000
Total oil production	do	819, 000
Reservoir oil content	do	279, 000

RESERVOIR ROCK CHARACTERISTICS:

SECONDARY RECOVERY METHOD:
Gas Injection:
Waterflooding:

REMARKS:
Estimated volume of oil produced to November 1935: 800,000 bbl. Field was reported as abandoned about 1955.

BIBLIOGRAPHY:
13, pp. 148–157.

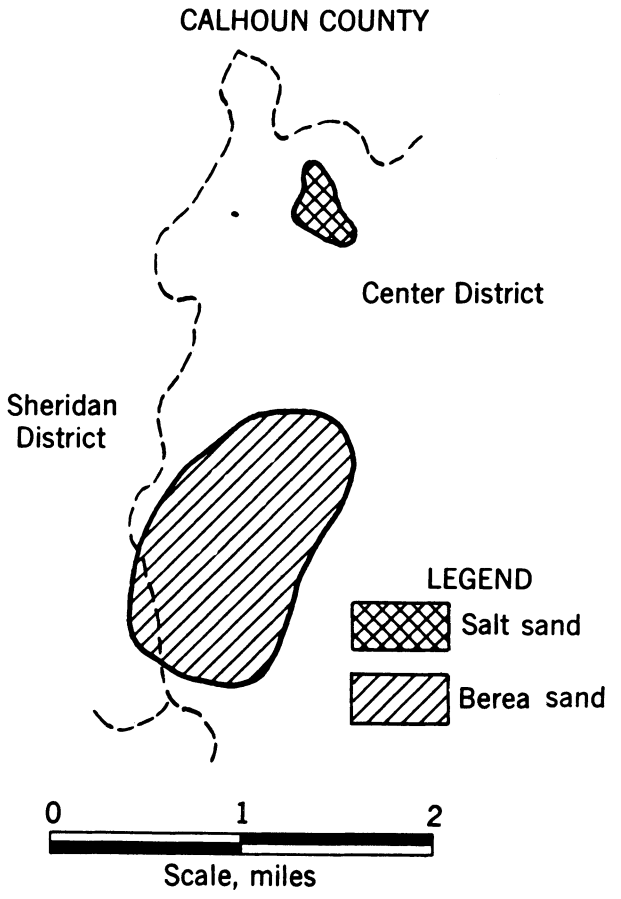

FIGURE 11.—Map of Bee Run Oilfield, Calhoun County, W. Va.

BEE RUN FIELD (63)

LOCATION:

Sheridan and Center Dists., Calhoun County.

QUADRANGLE:

Arnoldsburg (W. Va.).

DATE DISCOVERED: 1911. APPROXIMATE ACREAGE: 698. AVERAGE WELL SPACING, FEET: 700.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Salt sand	1, 300–1, 384	178–280	---
Berea sand	2, 100–2, 431	27–34	10

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	4, 000
Oilfield size	acres	698
Original oil content	barrels	2, 792, 000
Total oil production	do	803, 000
Reservoir oil content	do	1, 989, 000

RESERVOIR ROCK CHARACTERISTICS:

SECONDARY RECOVERY METHOD:

Gas Injection:

Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 758,500 bbl. Maximum initial oil production was reported as 75 b.p.d.

BIBLIOGRAPHY:

36, pp. 426–443.

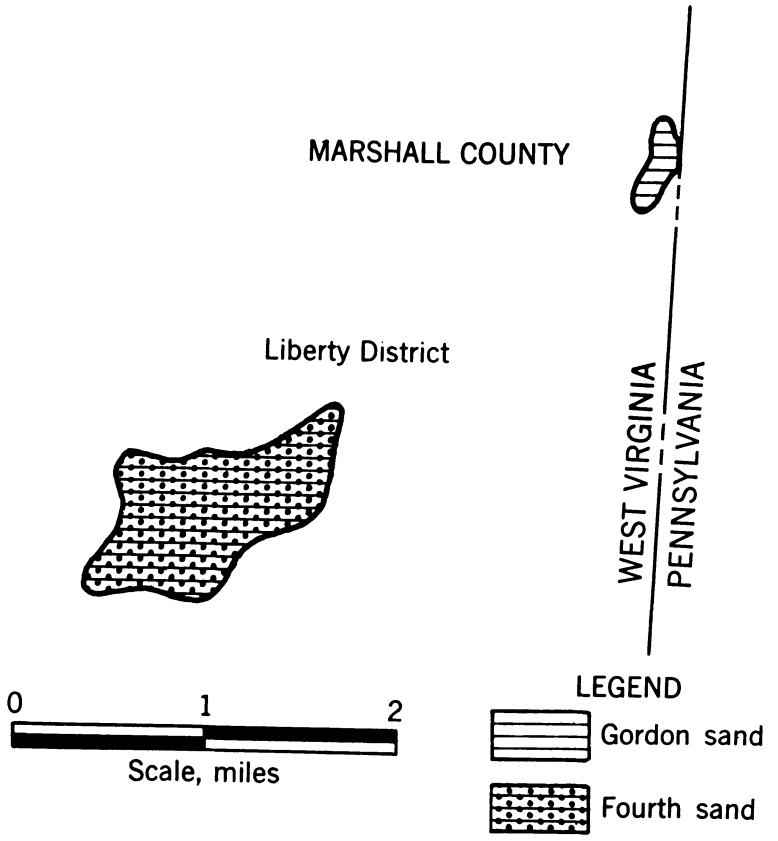

FIGURE 12.—Map of Bellton Oilfield, Marshall County, W. Va.

BELLTON FIELD (8)

LOCATION:
Liberty Dist., Marshall County.

QUADRANGLE:
Cameron (W. Va.-Pa-.Ohio).

DATE DISCOVERED: 1903. APPROXIMATE ACREAGE: 480. AVERAGE WELL SPACING, FEET: 800.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Gordon sand	2, 647–3, 295	14–31	3
Fourth sand	2, 713–3, 312	6–12	3

ESTIMATED RESERVOIR OIL CONTENT AS OF 1950:

Original oil content	barrels per acre	4, 000
Oilfield size	acres	480
Original oil content	barrels	1, 920, 000
Total oil production	do	541, 000
Reservoir oil content	do	1, 379, 000

RESERVOIR ROCK CHARACTERISTICS:
The Fourth sand is dark in color and is composed of small, tightly cemented pebbles.

SECONDARY RECOVERY METHOD:
Gas Injection:
Waterflooding:

REMARKS:
Estimated volume of oil produced to November 1935: 475,000 bbl. Maximum initial oil production was reported as 50 b.p.d. Field was reported as abandoned about 1950.

BIBLIOGRAPHY:
18, p. 41; 29, pp. 20, 25; 35, pp. 381–391.

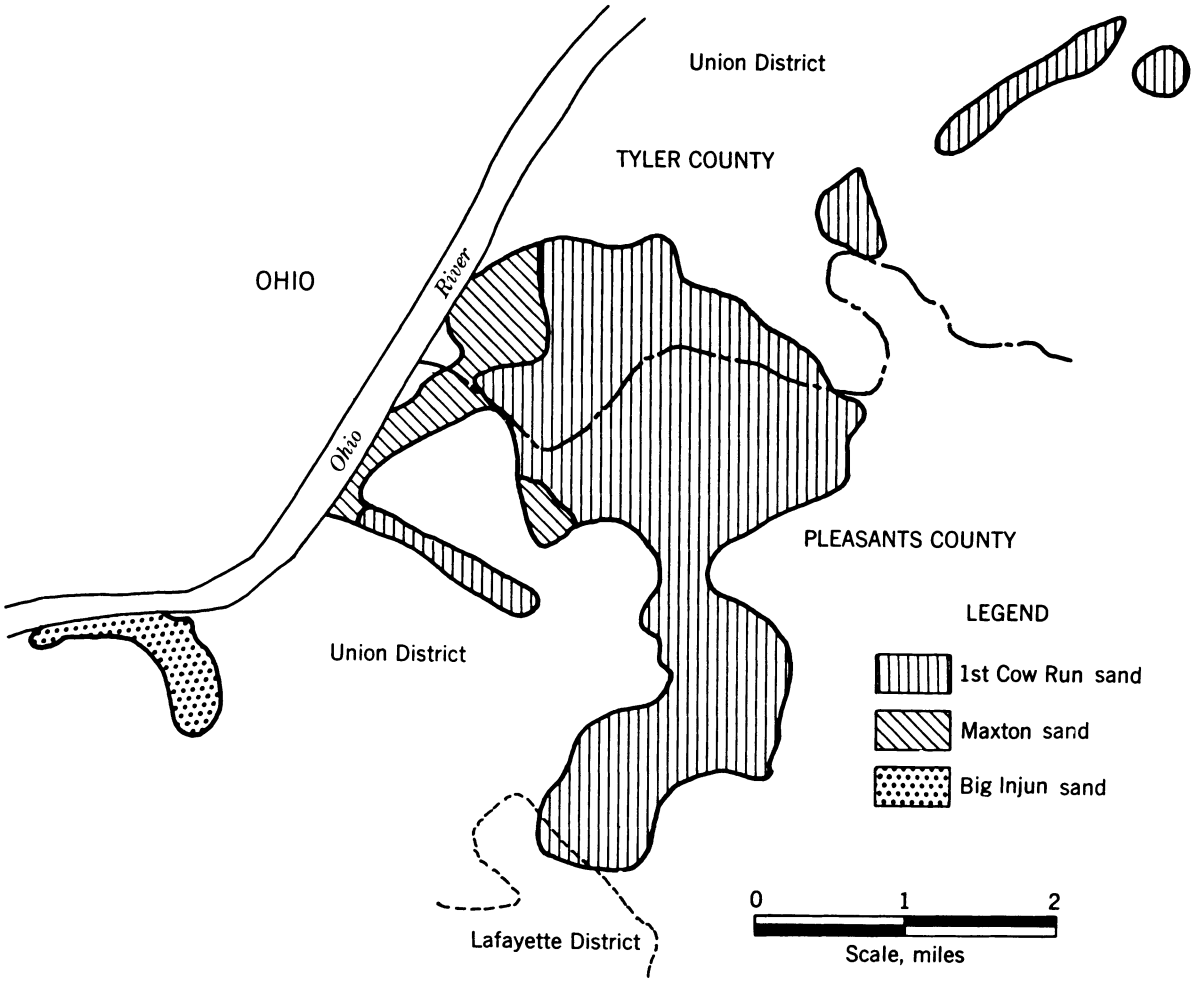

FIGURE 13.—Map of Bens Run Oilfield, Tyler and Pleasants Counties, W. Va.

BENS RUN FIELD (22)

LOCATION:

Union and Lafayette Dists., Pleasants County; Union Dist., Tyler County.

QUADRANGLE:

St. Marys (W.Va.-Ohio).

DATE DISCOVERED: 1895. APPROXIMATE ACREAGE: 4,460. AVERAGE WELL SPACING, FEET: 350.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
1st Cow Run sand	702–1, 031	10–80	5
Maxton sand	1, 150–1, 673	17–55	----------
Big Injun sand	1, 436–1, 838	90–110	----------

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	3, 500
Oilfield size	acres	4, 460
Original oil content	barrels	15, 610, 000
Total oil production	do	5, 304, 000
Reservoir oil content	do	10, 306, 000

RESERVOIR ROCK CHARACTERISTICS:

The 1st Cow Run sand is a hard, fine-grained sandstone. The Maxton sand is a tightly cemented sandstone.

SECONDARY RECOVERY METHOD:

Gas Injection: Started in 1941; no record of results.
Waterflooding: Started in 1954; no record of results.

REMARKS:

Estimated volume of oil produced to November 1935: 4,200,000 bbl. Maximum initial oil production was reported as 300 b.p.d.

BIBLIOGRAPHY:

Appendix; *13, pp. 91–99; 18, p. 45; 25, pp. 2, 4–5, 8–9; 26, pp. 2–3; 27, pp. 2–3, 6–7; 29, p. 21; 35, pp. 493–500; 64, p. 21; 72, pp. 54.*

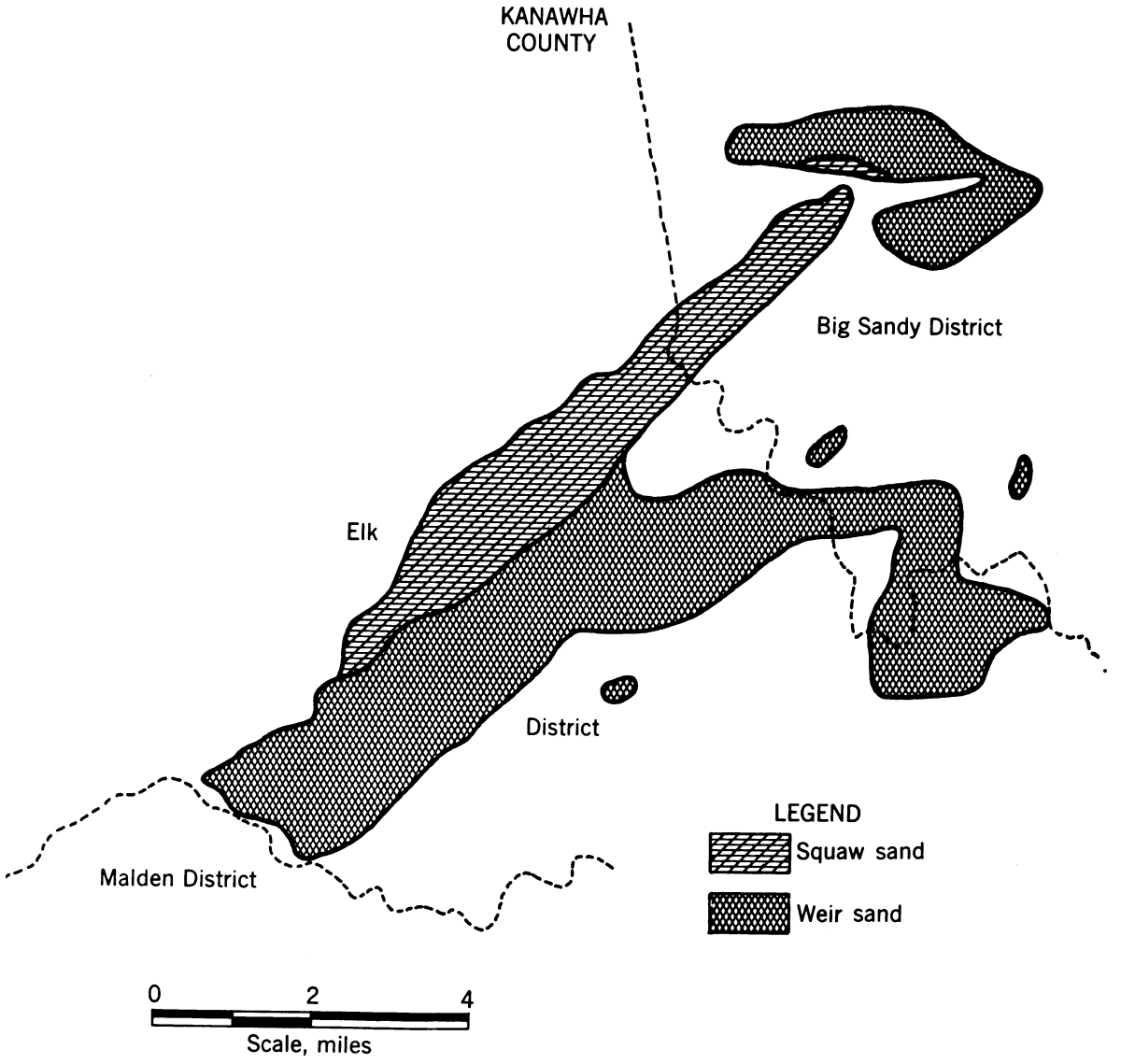

FIGURE 14.—Map of Blue Creek Oilfield, Kanawha County, W. Va.

BLUE CREEK FIELD (72)

LOCATION:

Elk and Big Sandy Dists., Kanawha County.

QUADRANGLES:

Charleston and Clendenin (W. Va.).

DATE DISCOVERED: 1911. APPROXIMATE ACREAGE: 17,254. AVERAGE WELL SPACING, FEET: 600.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Squaw sand	1,700–2,070	16–180	12
Weir sand	1,750–2,250	64	10

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960: [8]

Original oil content	barrels per acre	4,000
Oilfield size	acres	17,254
Original oil content	barrels	69,016,000
Total oil production	do	18,185,000
Reservoir oil content	do	50,831,000

RESERVOIR ROCK CHARACTERISTICS:

The Weir sand is coarse grained and pebbly.

SECONDARY RECOVERY METHOD:

Gas Injection: Started in 1925; no record of results.
Waterflooding: Reported as unsuccessful.

REMARKS:

Estimated volume of oil produced to November 1935: 13,280,000 bbl. Maximum initial oil production was reported as 100 b.p.d. from the Squaw sand and 40 b.p.d. from the Weir sand.

BIBLIOGRAPHY:

Appendix; *11, pp. 22–26; 21, pp. 15, 23; 23, pp. 470, 474, 476; 25, pp. 6–7, 12–13, 19, 22; 26, p. 6; 27, pp. 6–7; 29, pp. 24, 26; 30, p. 121; 46, pp. 327–379, 394–399; 64, pp. 6, 18.*

[8] An unlocatable area of 100 acres in Kanawha County known as Higginsbothem Run produced 39,000 bbl. of oil during 1942 from 6 wells. An estimated 367,000 bbl. of oil was produced from this area during 1935 to 1960. That volume of oil was added to the volume of oil estimated to have been produced from the Blue Creek field.

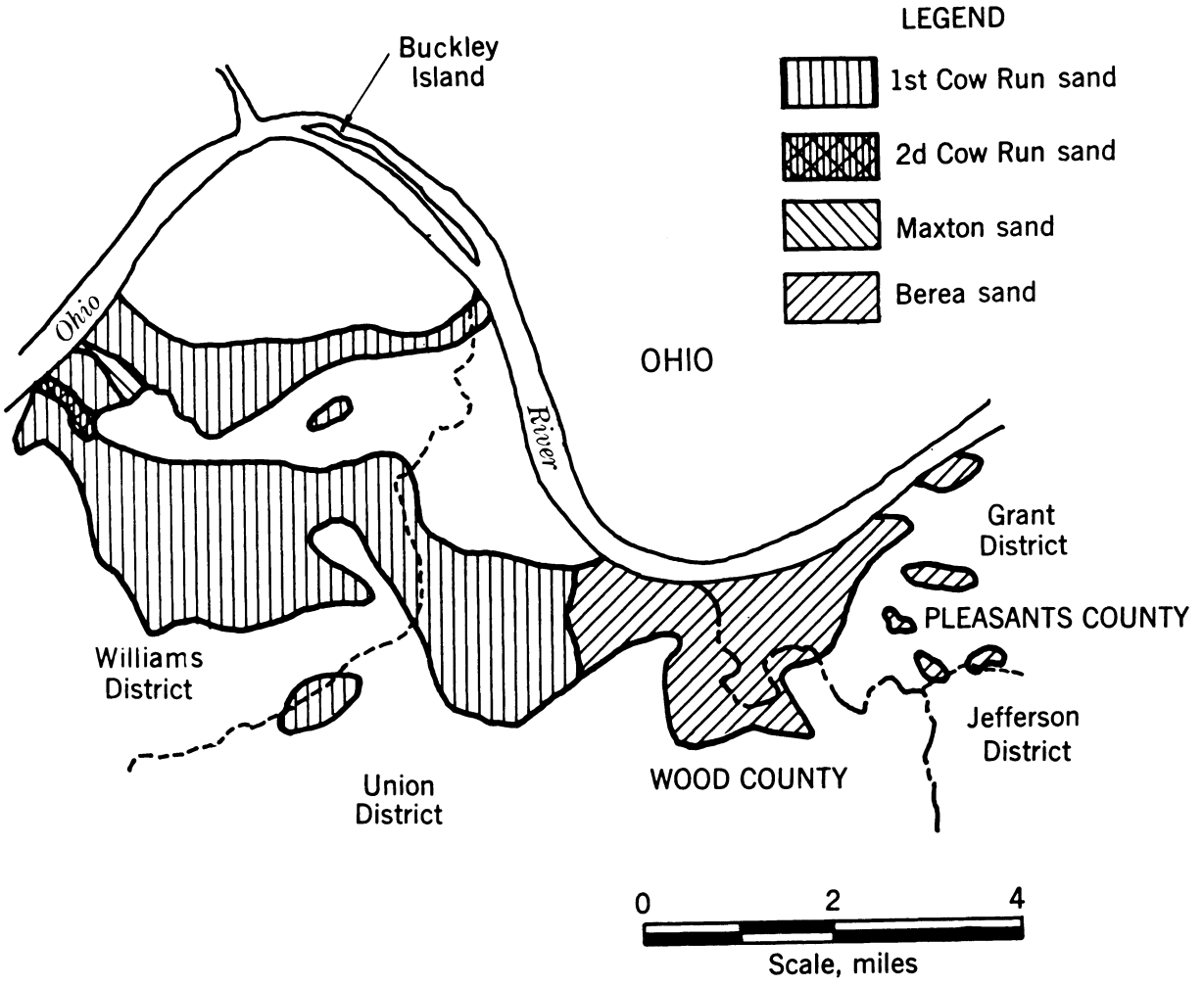

FIGURE 15.—Map of Boaz-Waverly Oilfield, Wood and Pleasants Counties, W. Va.

BOAZ-WAVERLY FIELD (42)

LOCATION:

Grant and Jefferson Dists., Pleasants County; Williams and Union Dists., Wood County.

QUADRANGLES:

Marietta and Parkersburg (Ohio-W. Va.).

DATE DISCOVERED: 1895. APPROXIMATE ACREAGE. 9,907. AVERAGE WELL SPACING, FEET: 350.

PRODUCING FORMATION:

Name	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
1st Cow Run sand	675–750	30–50	5
2d Cow Run sand	771–961	40–60	5
Maxton sand	1, 060–1, 775	15–40	----------
Berea sand	1, 338–2, 240	10–30	3

ESTIMATED RESERVOIR OIL CONTENT AS OF 1956:

Original oil content	barrels per acre	4, 522
Oilfield size	acres	9, 907
Original oil content	barrels	44, 799, 000
Total oil production	do	11, 942, 000
Reservoir oil content	do	32, 857, 000

RESERVOIR ROCK CHARACTERISTICS:

The 1st Cow Run sand is a medium-to-coarse-grained, pebbly sandstone; 2d Cow Run sand is a coarse-grained, pebbly sandstone; Berea sand is a uniformly fine-grained sandstone.

SECONDARY RECOVERY METHOD:

Gas Injection: Reported as successful.

Waterflooding: Reported as unsuccessful.

REMARKS:

Estimated volume of oil produced to November 1935: 10,937,500 bbl. Field was reported as abandoned about 1956.

BIBLIOGRAPHY:

13, pp. 109–113, 115–128; 25, pp. 3–5; 26, pp. 2–3; 27, pp. 2–3; 29, p. 21.

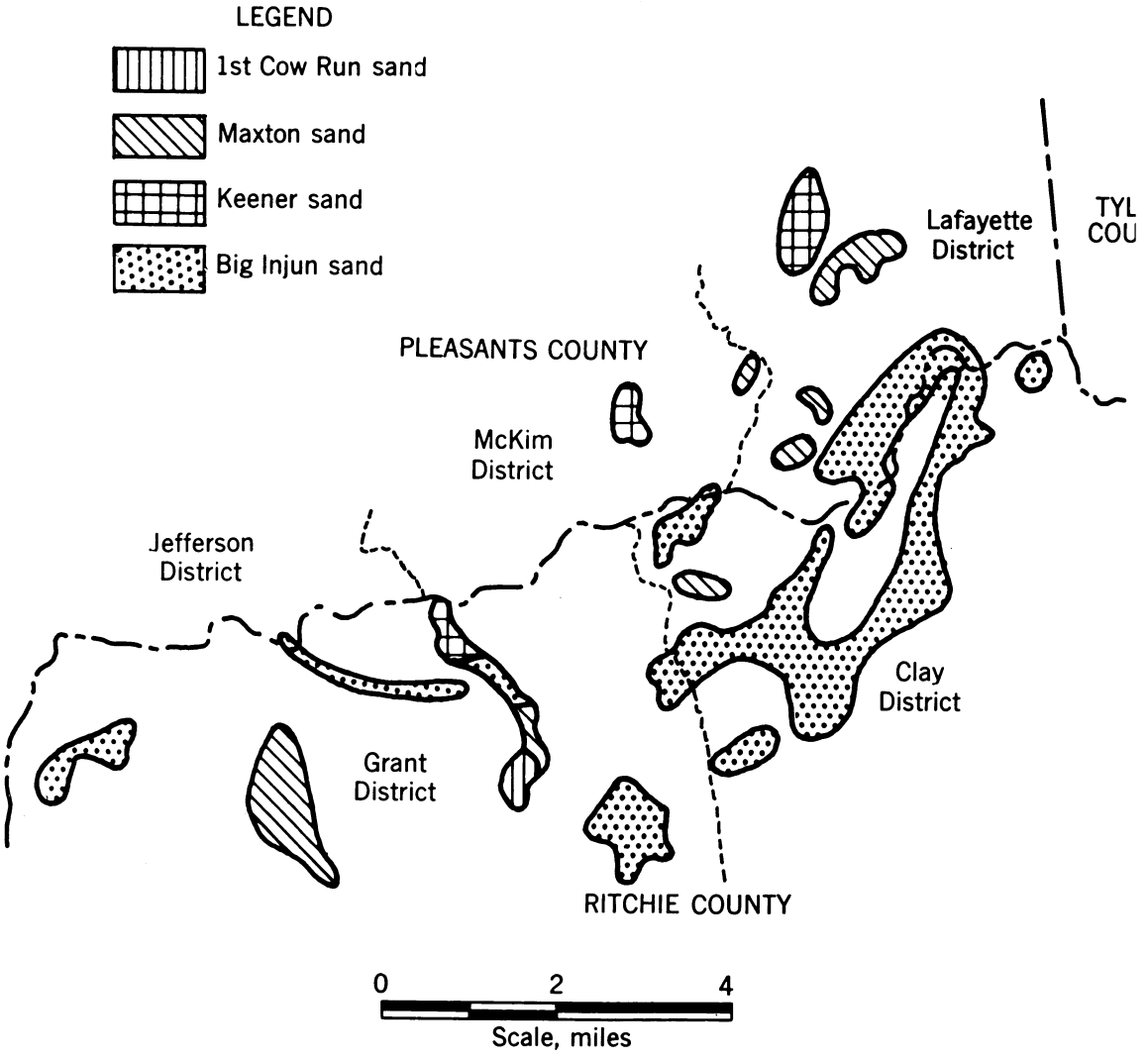

FIGURE 16.—Map of Bonds Creek Oilfield, Pleasants and Ritchie Counties, W. Va.

BONDS CREEK FIELD (26)

LOCATION:

Lafayette and McKim Dists., Pleasants County; Grant and Clay Dists., Ritchie County.

QUADRANGLE:

St. Marys (W. Va.-Ohio).

DATE DISCOVERED: 1898. APPROXIMATE ACREAGE: 5,811. AVERAGE WELL SPACING, FEET: 400.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
1st Cow Run sand	550–1, 050		
Maxton sand	1, 400–1, 820	6–20	
Keener sand	1, 550–1, 950	12–44	10
Big Injun sand	1, 560–2, 000	19–98	45

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	3, 400
Oilfield size	acres	5, 811
Original oil content	barrels	19, 757, 000
Total oil production	do	4, 820, 000
Reservoir oil content	do	14, 937, 000

RESERVOIR ROCK CHARACTERISTICS:

Maxton sand is fine grained and gray in color; Keener sand is a fine-grained white sandstone with traces of lime; Big Injun sand is friable and varies from fine to coarse grain.

SECONDARY RECOVERY METHOD:

Gas Injection: Reported as successful in Big Injun sand.

Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 4,027,500 bbl. Maximum initial oil production was reported as 1,000 b.p.d.

BIBLIOGRAPHY:

13, pp. 98–101, 148–181; 25, pp. 2–3; 27, pp. 2–3.

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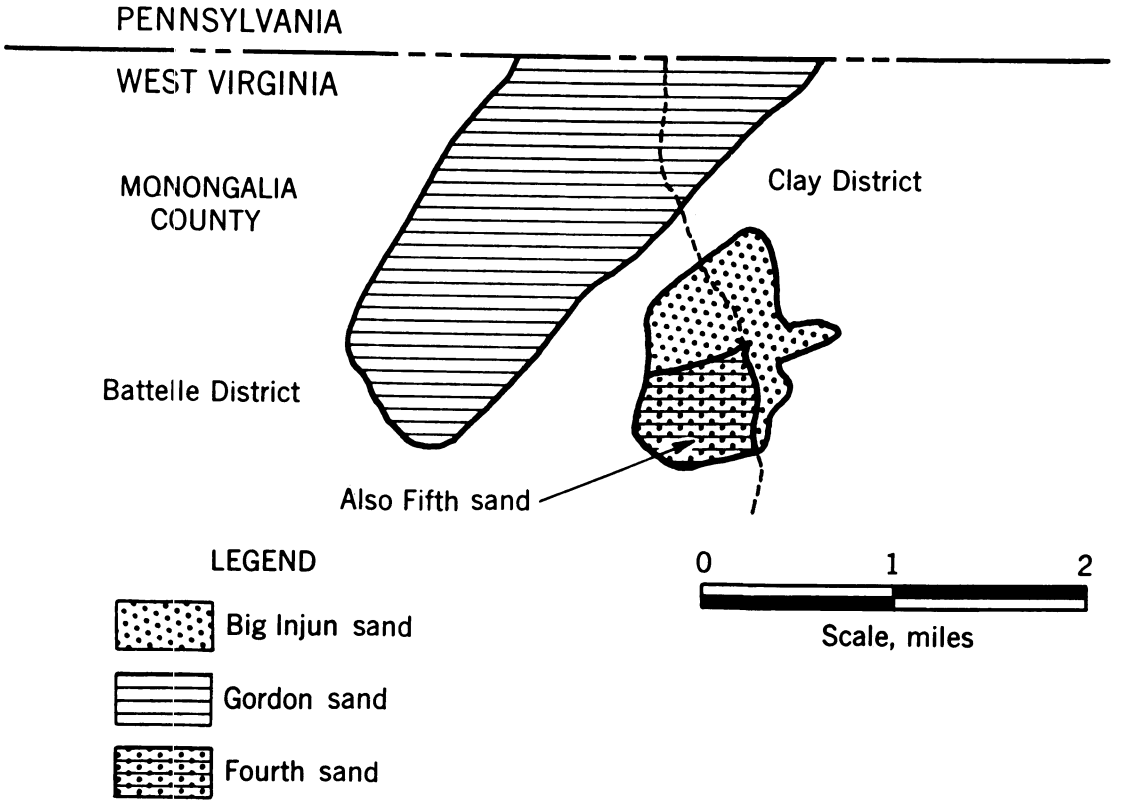

FIGURE 17.—Map of Brave Oilfield, Monongalia County, W. Va.

BRAVE FIELD (17)

LOCATION:

Battelle and Clay Dists., Monongalia County.

QUADRANGLES:

Mannington and Blacksville (W. Va.-Pa.).

DATE DISCOVERED: 1899. APPROXIMATE ACREAGE: 1,990. AVERAGE WELL SPACING, FEET: 700.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Big Injun sand	1, 730–2, 631	180–260	---
Gordon sand	2, 630–3, 530	15–47	5
Fourth sand	2, 700–3, 560	10–52	---
Fifth sand	2, 815–3, 940	14–45	---

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	5, 750
Oilfield size	acres	1, 999
Original oil content	barrels	11, 443, 000
Total oil production	do	3, 360, 000
Reservoir oil content	do	8, 083, 000

RESERVOIR ROCK CHARACTERISTICS:

The Gordon sand is composed of small, loosely cemented pebbles.

SECONDARY RECOVERY METHOD:

Gas Injection:

Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 3,200,000 bbl. Maximum initial oil production was reported as 200 b.p.d. Water is produced from the Big Injun sand.

BIBLIOGRAPHY:

Appendix; *19, pp. 43, 46; 29, p. 20; 37, pp. 398–409, 415–487.*

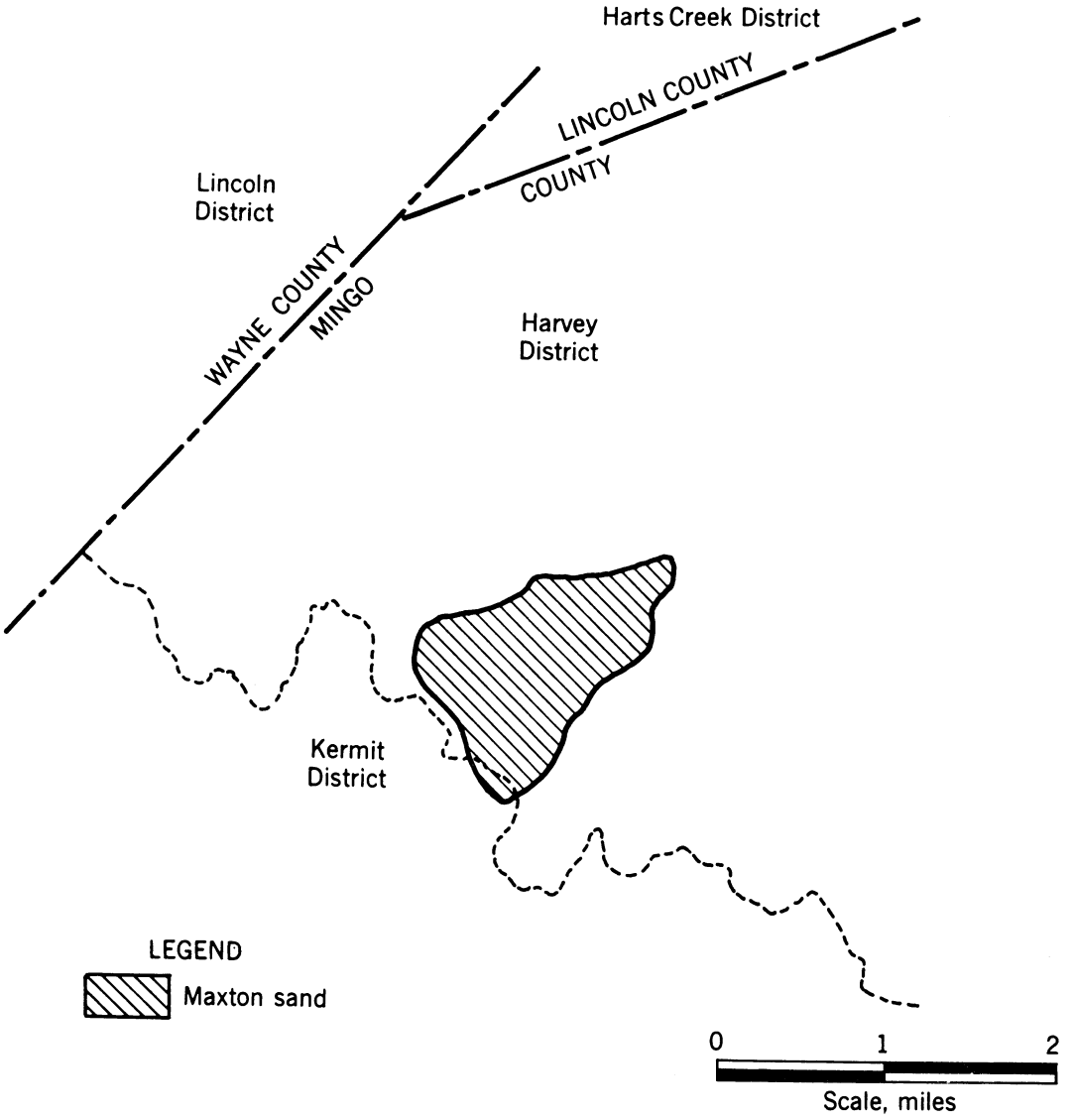

FIGURE 18.—Map of Breeden Oilfield, Mingo County, W. Va.

BREEDEN FIELD (79)

LOCATION:

Harvey and Kermit Dists., Mingo County.

QUADRANGLE:

Naugatuck (W. Va.-Ky.).

DATE DISCOVERED: 1923. APPROXIMATE ACREAGE: 762. AVERAGE WELL SPACING, FEET: 400.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Maxton sand	1,200	19–144	20

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	3,000
Oilfield size	acres	762
Original oil content	barrels	2,286,000
Total oil production	do	401,000
Reservoir oil content	do	1,885,000

RESERVOIR ROCK CHARACTERISTICS:

SECONDARY RECOVERY METHOD:

Gas Injection:

Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 360,000 bbl. Maximum initial oil production was reported as 200 b.p.d.

BIBLIOGRAPHY:

21, pp. 10, 23, 28.

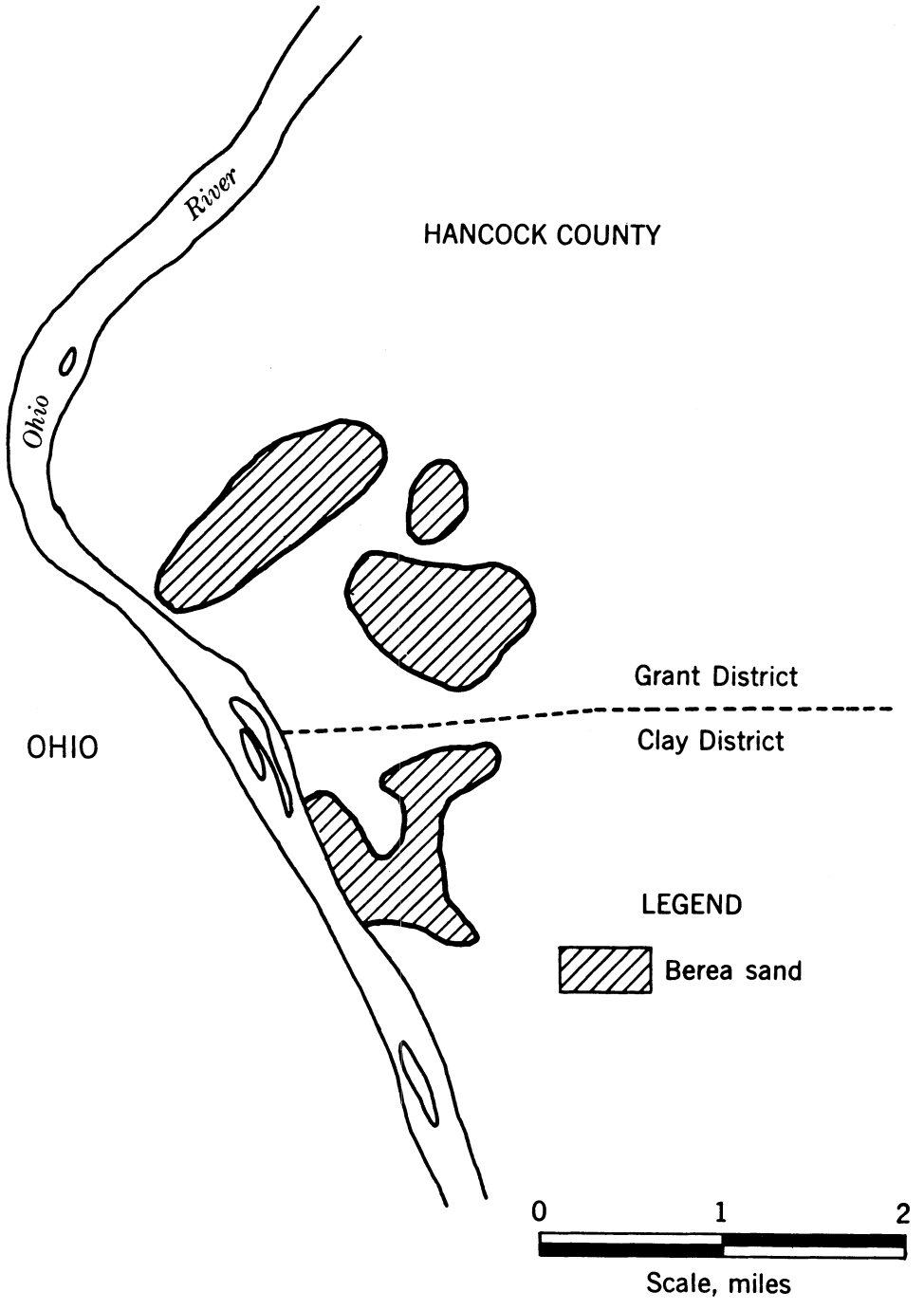

FIGURE 19. Map of Brenneman Oilfield, Hancock County, W. Va.

BRENNEMAN FIELD (1)

LOCATION:

Grant and Clay Dists., Hancock County.

QUADRANGLE:

Wellsville (W. Va.-Ohio-Pa.).

DATE DISCOVERED: 1905. APPROXIMATE ACREAGE: 1,024. AVERAGE WELL SPACING, FEET: 500.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Berea sand	700–1, 000	10–20	10

ESTIMATED RESERVOIR OIL CONTENT AS OF 1952:

Original oil content	barrels per acre	3, 000
Oilfield size	acres	1, 024
Original oil content	barrels	3, 072, 000
Total oil production	do	1, 018, 000
Reservoir oil content	do	2, 054, 000

RESERVOIR ROCK CHARACTERISTICS:

The Berea sand is hard and fine grained.

SECONDARY RECOVERY METHOD:

Gas Injection: Started in 1927; reported as successful.

Waterflooding: Reported as unsuccessful.

REMARKS:

Estimated volume of oil produced to November 1935: 800,000 bbl. Maximum initial oil production was reported as 1,000 b.p.d. Field was reported as abandoned about 1952.

BIBLIOGRAPHY:

12, pp. 272–274; 23, pp. 468, 473, 476; 25, pp. 6–7, 10–11, 19, 22; 26, p. 6; 27, pp. 6–7; 30, pp. 113, 114; 67, 26 pp.

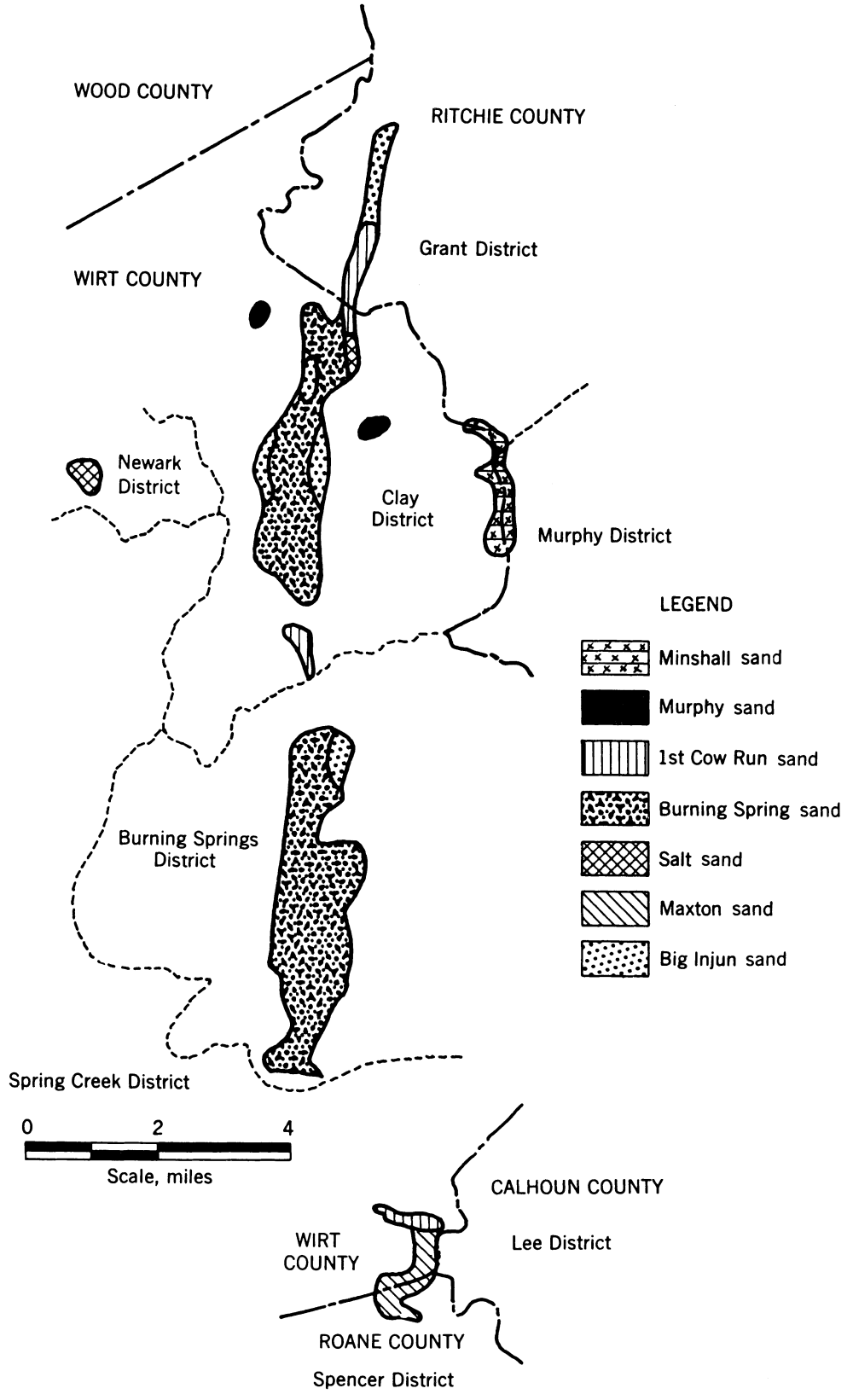

FIGURE 20.—Map of Burning Springs Oilfield, Ritchie, Wirt, Roane, and Calhoun Counties, W. Va.

BURNING SPRINGS FIELD (45)

LOCATION:

Grant and Murphy Dists., Ritchie County; Clay, Newark, Burning Springs, and Spring Creek Dists., Wirt County; Spencer Dist., Roane County; Lee Dist., Calhoun County.

QUADRANGLES:

Elizabeth and Spencer (W. Va.).

DATE DISCOVERED: 1860. APPROXIMATE ACREAGE: 6,579. AVERAGE WELL SPACING, FEET: 200.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Minshall sand	350–600	40–60	---
Murphy sand	390–850	17–25	---
1st Cow Run sand	356–1, 050	15–55	---
Burning Springs sand	200–1, 170	20–100	---
Salt sand	1, 405–1, 752	15–125	---
Maxton sand	1, 445–1, 776	15–65	---
Big Injun sand	1, 562–2, 000	25–116	---

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	4, 000
Oilfield size	acres	6, 579
Original oil content	barrel	26, 316, 000
Total oil production	do	7, 615, 000
Reservoir oil content	do	18, 701, 000

RESERVOIR ROCK CHARACTERISTICS:

The 1st Cow Run sand is a light gray sandstone varying from fine to coarse grain.

SECONDARY RECOVERY METHOD:

Gas Injection:

Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 6,822,000 bbl. Maximum initial oil production from the Cow Run sand was reported as 100 b.p.d.

BIBLIOGRAPHY:

13, pp. 158–188; 36, pp. 296–322, 328–329, 339–359, 422–425, 443–457; 64, pp. 6, 16; 72, p. 54; 61, pp. 14–16.

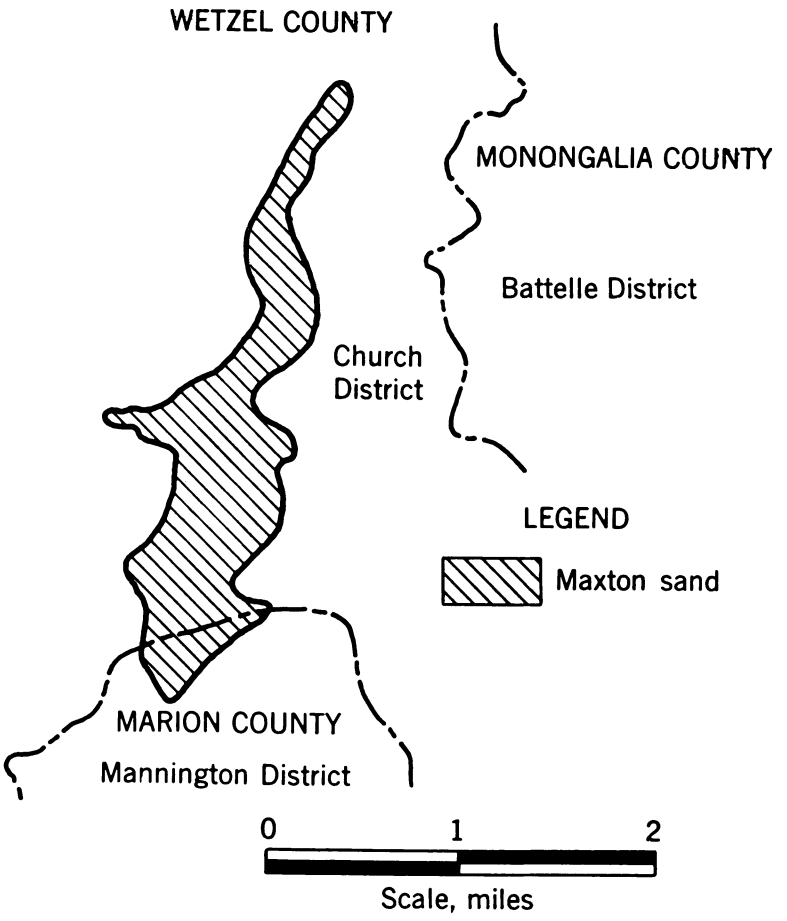

FIGURE 21.—Map of Burton Oilfield, Wetzel and Marion Counties, W. Va.

BURTON FIELD (15)

LOCATION:

Church Dist., Wetzel County; Mannington Dist., Marion County.

QUADRANGLE:

Mannington (W. Va.-Pa.).

DATE DISCOVERED: 1902. APPROXIMATE ACREAGE: 787. AVERAGE WELL SPACING, FEET: 500.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Maxton sand	1,813–2,350	30–85	53

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	6,450
Oilfield size	acres	787
Original oil content	barrels	5,076,000
Total oil production	do	1,934,000
Reservoir oil content	do	3,142,000

RESERVOIR ROCK CHARACTERISTICS:

The Maxton sand is a hard, white, medium-grained sandstone.

SECONDARY RECOVERY METHOD:

Gas Injection: Started in 1953; discontinued during 1955.
Waterflooding: Pilot flood started in 1955: reported as successful.

REMARKS:

Estimated volume of oil produced to November 1935: 1,640,000 bbl. Maximum initial oil production was reported as 20 b.p.d. Water is produced along with oil.

BIBLIOGRAPHY:

Appendix; *18, pp. 23, 34–45; 19, p. 46; 26, pp. 2–3; 27, pp. 2–3, 6–7; 29, p. 20; 35, pp. 418–435; 37, pp. 546–589; 75, 14 pp.*

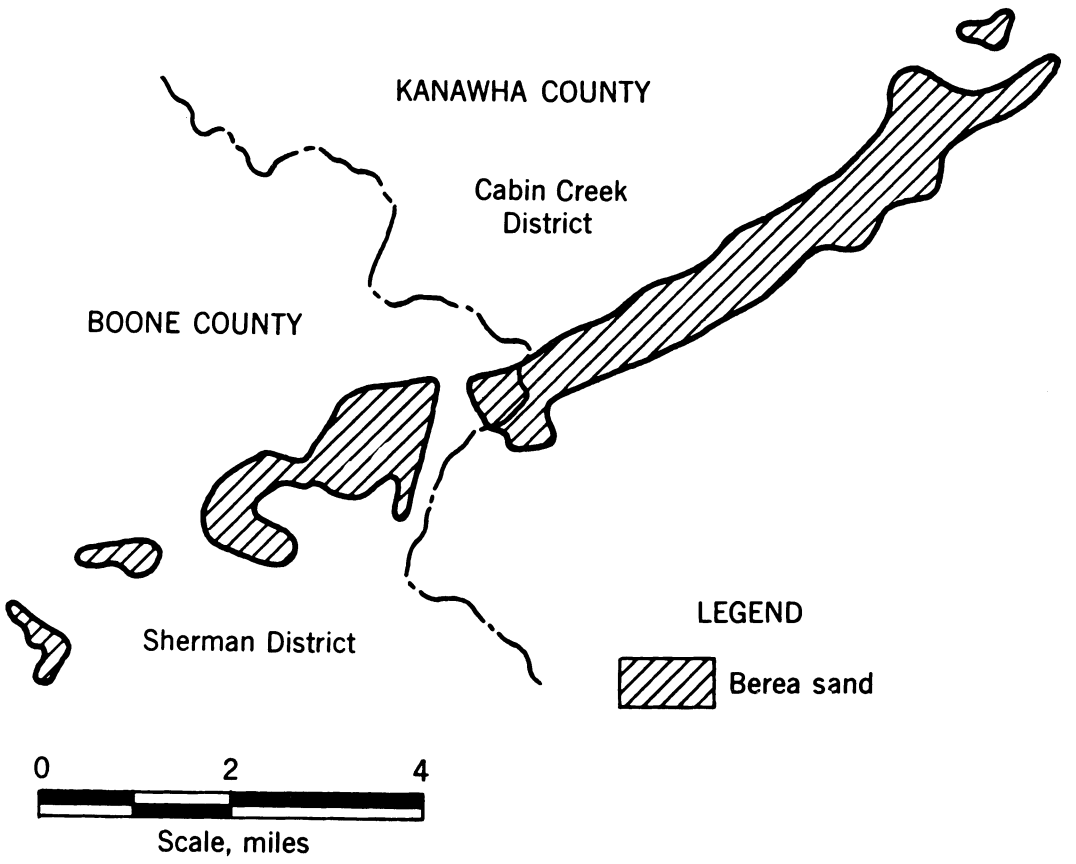

FIGURE 22.—Map of Cabin Creek Oilfield, Boone and Kanawha Counties, W. Va.

CABIN CREEK FIELD (77)

LOCATION:

Sherman Dist., Boone County; Cabin Creek Dist., Kanawha County.

QUADRANGLES:

Montgomery and Peytona (W. Va.).

DATE DISCOVERED: 1914. APPROXIMATE ACREAGE: 4,480. AVERAGE WELL SPACING, FEET: 650.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Berea sand	2, 400–3, 200	35–44	20

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	7, 300
Oilfield size	acres	4, 480
Original oil content	barrels	32, 704, 000
Total oil production	do	11, 077, 000
Reservoir oil content	do	21, 627, 000

RESERVOIR ROCK CHARACTERISTICS:

The Berea sand ranges from a clear, white, hard quartzite to a fine-grained, pebbly quartz sandstone.

SECONDARY RECOVERY METHOD:

Gas Injection: Started 1932; reported as successful.
Waterflooding: Started 1937; reported as successful.

REMARKS:

Estimated volume of oil produced to November 1935: 6,900,000 bbl.

BIBLIOGRAPHY:

10, 28 pp.; 21, pp. 17–23; 22, pp. 18–21; 23, pp. 470, 474, 476; 25, pp. 2–3, 6–7, 12–13; 26, p. 6; 27, pp. 6–7; 29, pp. 24, 26; 30, pp. 122–123; 44, pp. 542–555; 47, 24 pp.; 60, 48 pp.; 62, pp. 77–82; 65, pp. 15–18; 70, pp. 705–719; 71, pp. 21–22; 72, p. 48.

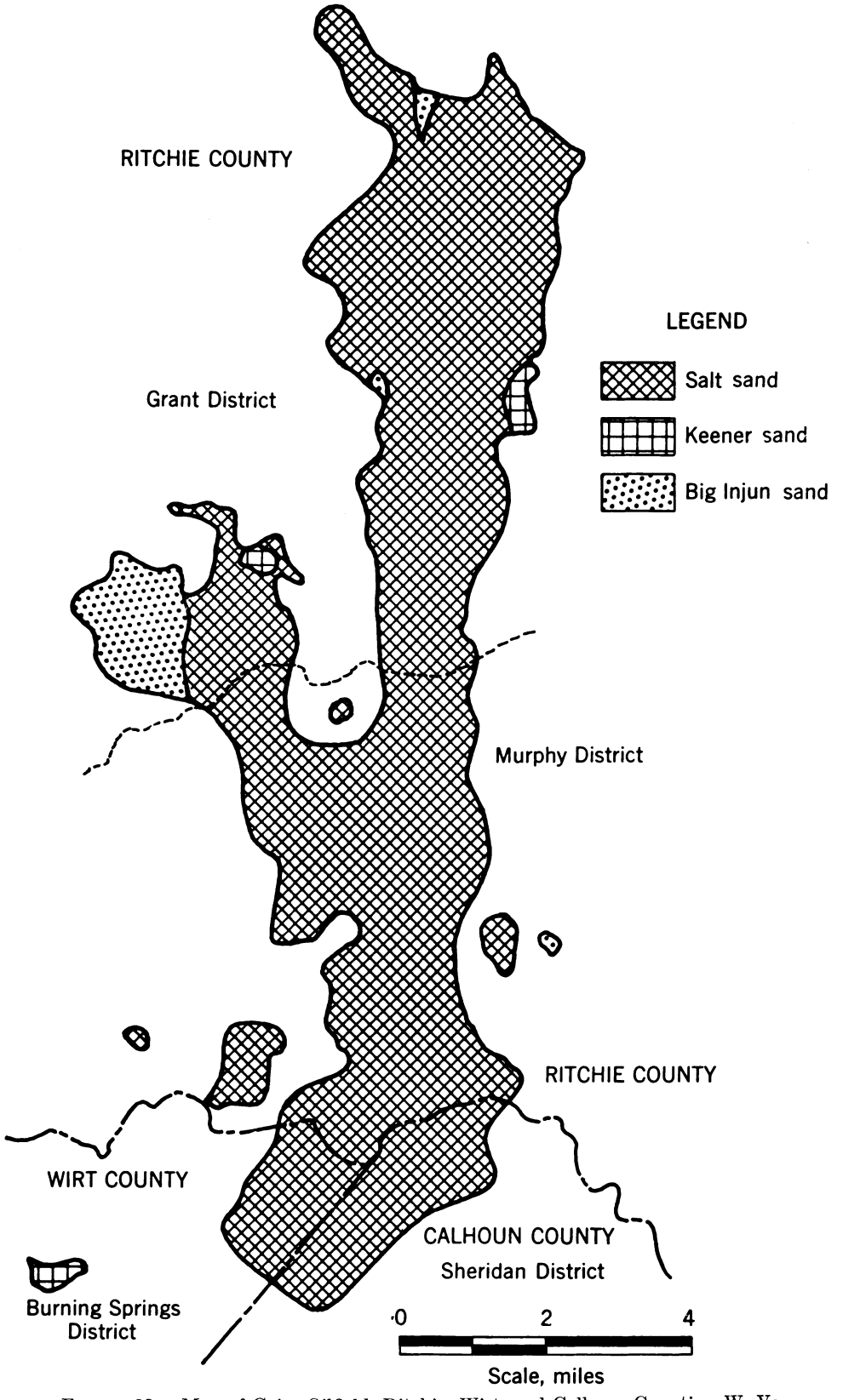

FIGURE 23.—Map of Cairo Oilfield, Ritchie, Wirt, and Calhoun Counties, W. Va.

CAIRO FIELD (47)

LOCATION:

Grant and Murphy Dists., Ritchie County; Burning Springs Dist., Wirt County; Sheridan Dist., Calhoun County.

QUADRANGLES:

Harrisville (W. Va.), St. Marys (W. Va.-Ohio).

DATE DISCOVERED: 1890. APPROXIMATE ACREAGE: 28,360. AVERAGE WELL SPACING, FEET: 500.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Salt sand	1,024–1,840	15–110	17
Keener sand	1,226–1,942	15– 45	----------
Big Injun sand	1,562–1,950	20–135	----------

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	4,200
Oilfield size	acres	28,360
Original oil content	barrels	119,112,000
Total oil production	do	29,273,000
Reservoir oil content	do	89,839,000

RESERVOIR ROCK CHARACTERISTICS:

The Salt sand varies from a fine-grained to a small, pebbly sandstone.

SECONDARY RECOVERY METHOD:

Gas Injection: Reported as unsuccessful in Salt sand.
Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 22,477,500 bbl. Maximum initial oil production was reported as 15 b.p.d.

BIBLIOGRAPHY:

Appendix; *13, pp. 158–188; 23, pp. 473–476; 25, pp. 4–5; 26, pp. 4–5; 36, pp. 306–318, 438–443; 65, pp. 16–18.*

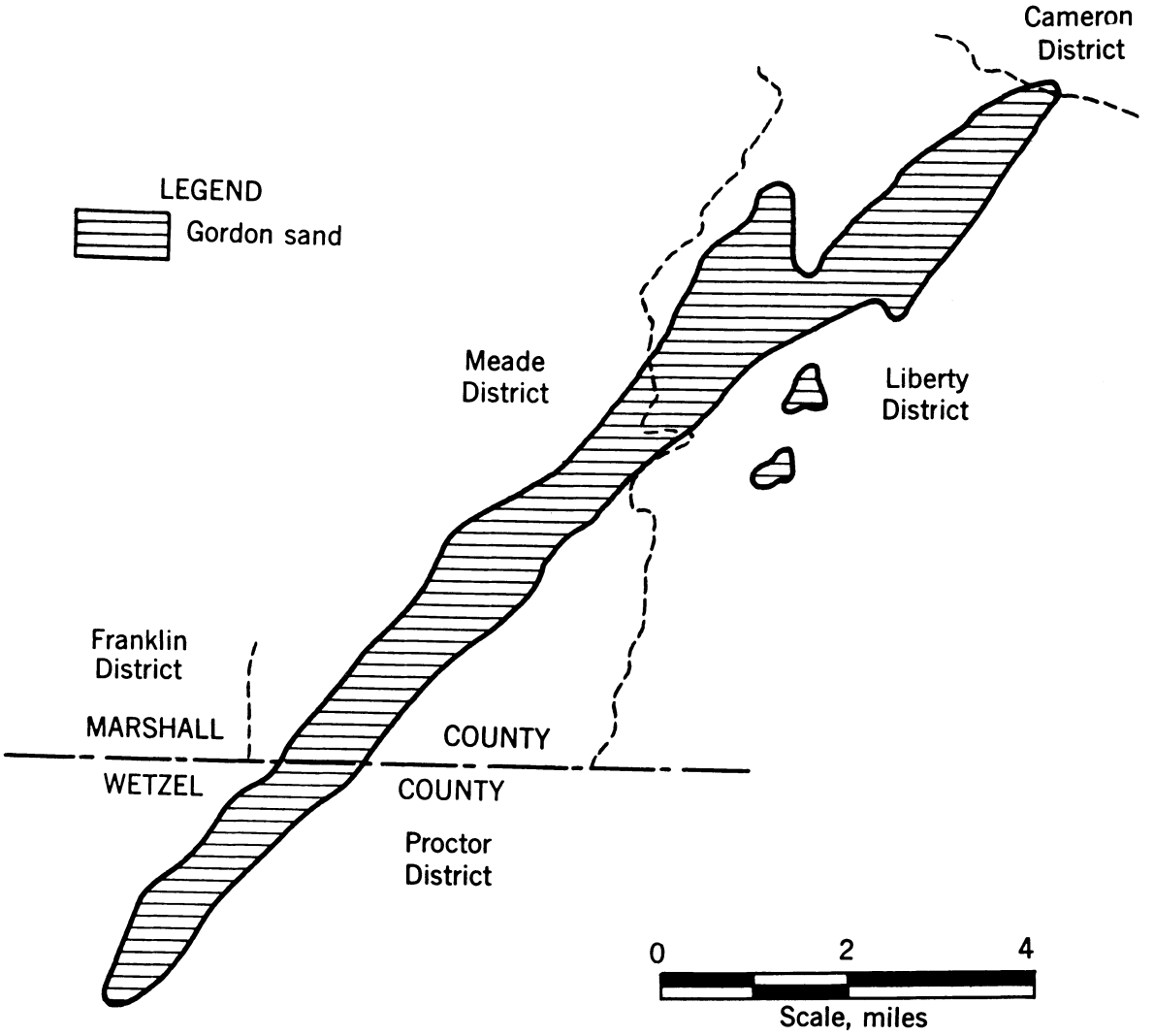

FIGURE 24.—Map of Cameron-Garner Oilfield, Marshall and Wetzel Counties, W. Va.

CAMERON-GARNER FIELD (7)

LOCATION:

Liberty, Meade, and Cameron Dists., Marshall County; Proctor Dist., Wetzel County.

QUADRANGLES:

Cameron (W. Va.-Pa.-Ohio), Littleton (W. Va.-Pa.), New Martinsville (W. Va.-Ohio).

DATE DISCOVERED: 1899. APPROXIMATE ACREAGE: 6,989. AVERAGE WELL SPACING, FEET: 700.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Gordon sand	2,352–3,260	10–50	5

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	3,600
Oilfield size	acres	6,989
Original oil content	barrels	25,160,000
Total oil production	do	5,975,000
Reservoir oil content	do	19,185,000

RESERVOIR ROCK CHARACTERISTICS:

The Gordon sand is a tightly cemented sandstone containing small pebbles.

SECONDARY RECOVERY METHOD:

Gas injection:
Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 5,300,000 bbl. Maximum initial oil production was reported as 400 b.p.d. About 150 producing wells remain in the field.

BIBLIOGRAPHY:

18, p. 41; 29, pp. 20, 25; 35, pp. 380–398, 466–471.

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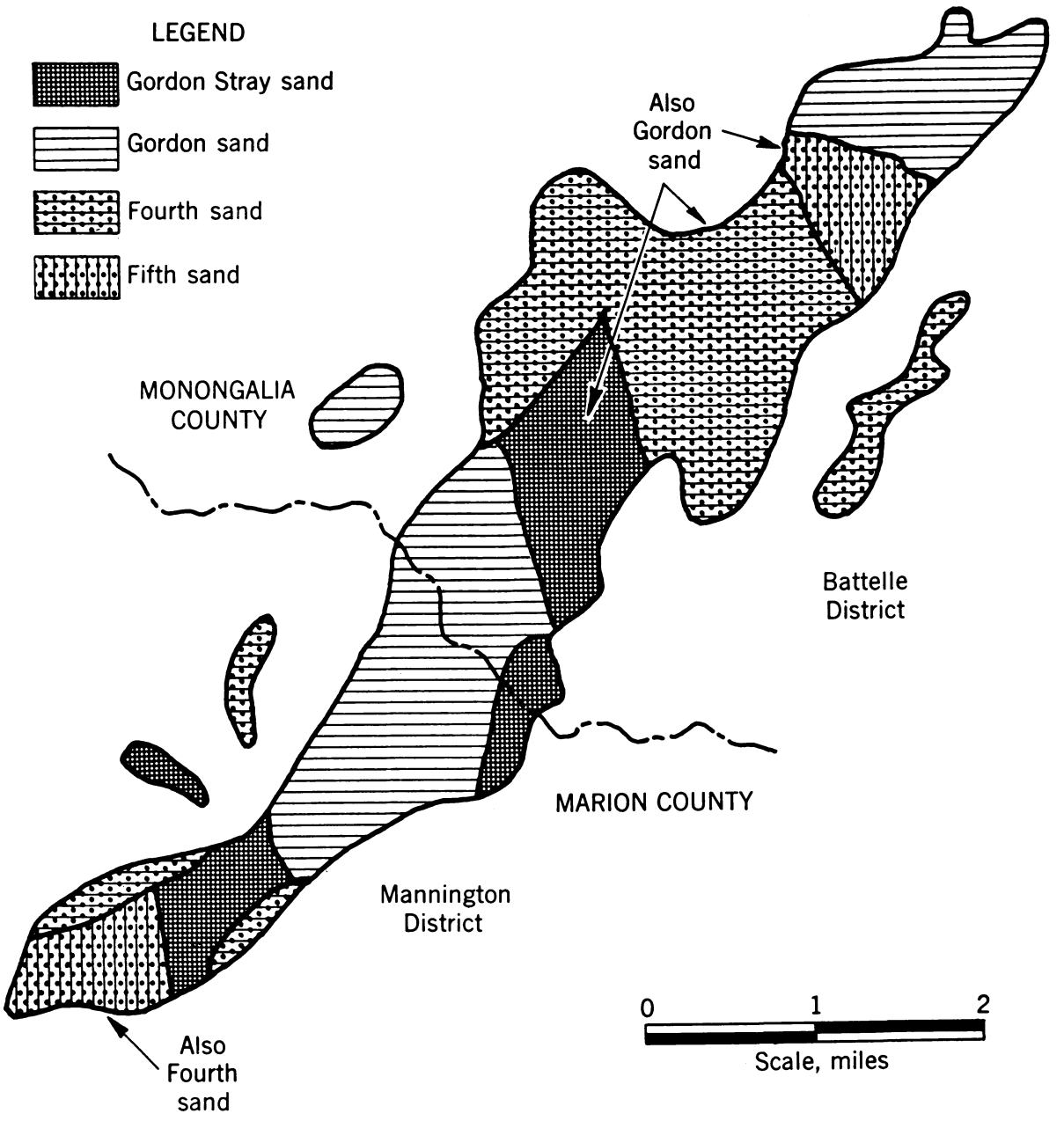

FIGURE 25.—Map of Campbell Run-Miracle Run Oilfield, Marion and Monongalia Counties, W. Va.

CAMPBELL RUN-MIRACLE RUN FIELD (16)

LOCATION:

Mannington Dist., Marion County; Battelle Dist., Monongalia County.

QUADRANGLE:

Mannington (W. Va.-Pa.).

DATE DISCOVERED: 1897. APPROXIMATE ACREAGE: 5,630. AVERAGE WELL SPACING, FEET: 600.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Gordon Stray sand	2, 835–3, 094	15–38	---
Gordon sand	2, 865–3, 186	17–38	5
Fourth sand	2, 966–3, 254	21–32	---
Fifth sand	2, 981–3, 265	10–20	---

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	5, 500
Oilfield size	acres	5, 630
Original oil content	barrels	30, 965, 000
Total oil production	do	7, 544, 000
Reservoir oil content	do	23, 421, 000

RESERVOIR ROCK CHARACTERISTICS:

The Gordon sand ranges from a fine-grained to a coarse-grained, pebbly sandstone.

SECONDARY RECOVERY METHOD:

Gas Injection: Reported as unsuccessful in Gordon sand.
Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 7,000,000 bbl. Maximum initial oil production was reported as 150 b.p.d.

BIBLIOGRAPHY:

19, pp. 43, 46; 25, p. 2; 29, p. 20; 37, pp. 415–454, 546–589.

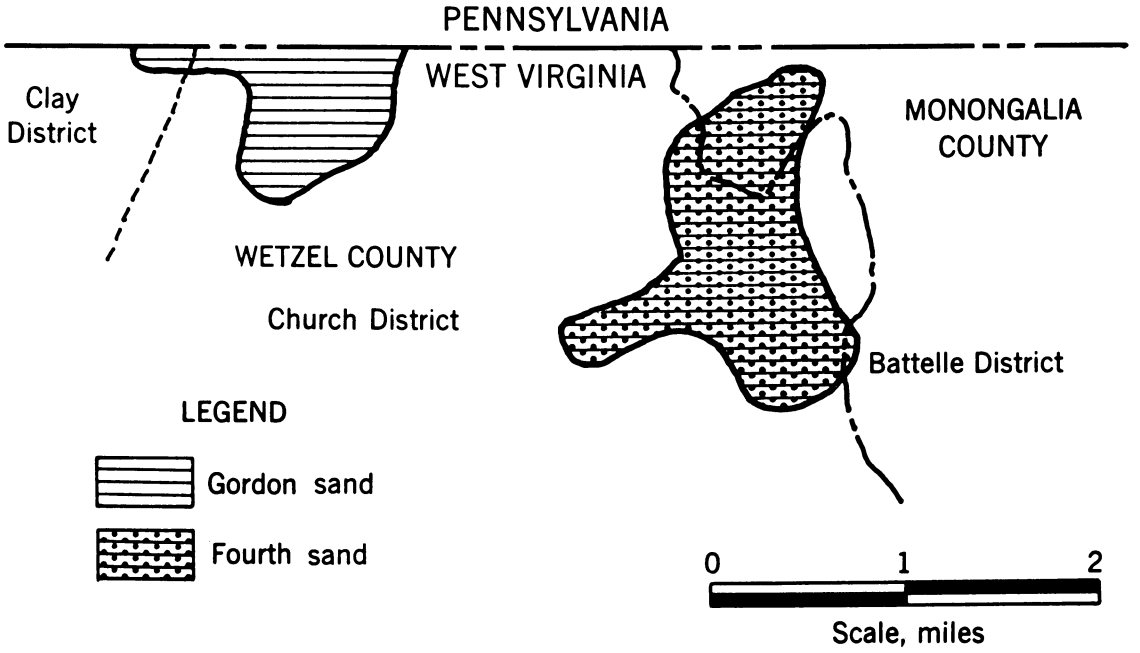

FIGURE 26.—Map of Cappo Run Oilfield, Wetzel and Monongalia Counties, W. Va.

CAPPO RUN FIELD (14)

LOCATION:

Church and Clay Dists., Wetzel County; Battelle Dist., Monongalia County.

QUADRANGLE:

Mannington (W. Va.-Pa.).

DATE DISCOVERED: 1908. APPROXIMATE ACREAGE: 1,177. AVERAGE WELL SPACING, FEET: 600.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Gordon sand	2, 824–3, 395	15–75	5
Fourth sand	2, 900–3, 526	5–50	5

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	4, 000
Oilfield size	acres	1, 177
Original oil content	barrels	4, 708, 000
Total oil production	do	1, 353, 000
Reservoir oil content	do	3, 355, 000

RESERVOIR ROCK CHARACTERISTICS:

The Gordon sand is a fine-grained sandstone containing occasional lenses of pebbles. The Fourth sand is a medium-grained sandstone containing small pebbles.

SECONDARY RECOVERY METHOD:

Gas Injection:

Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 900,000 bbl. Maximum initial oil production was reported as 1,000 b.p.d. About 100 producing wells remain in the field.

BIBLIOGRAPHY:

18, p. 44; 19, pp. 44, 46; 35, pp. 404–407, 418–440; 37, pp. 398–403, 415–454.

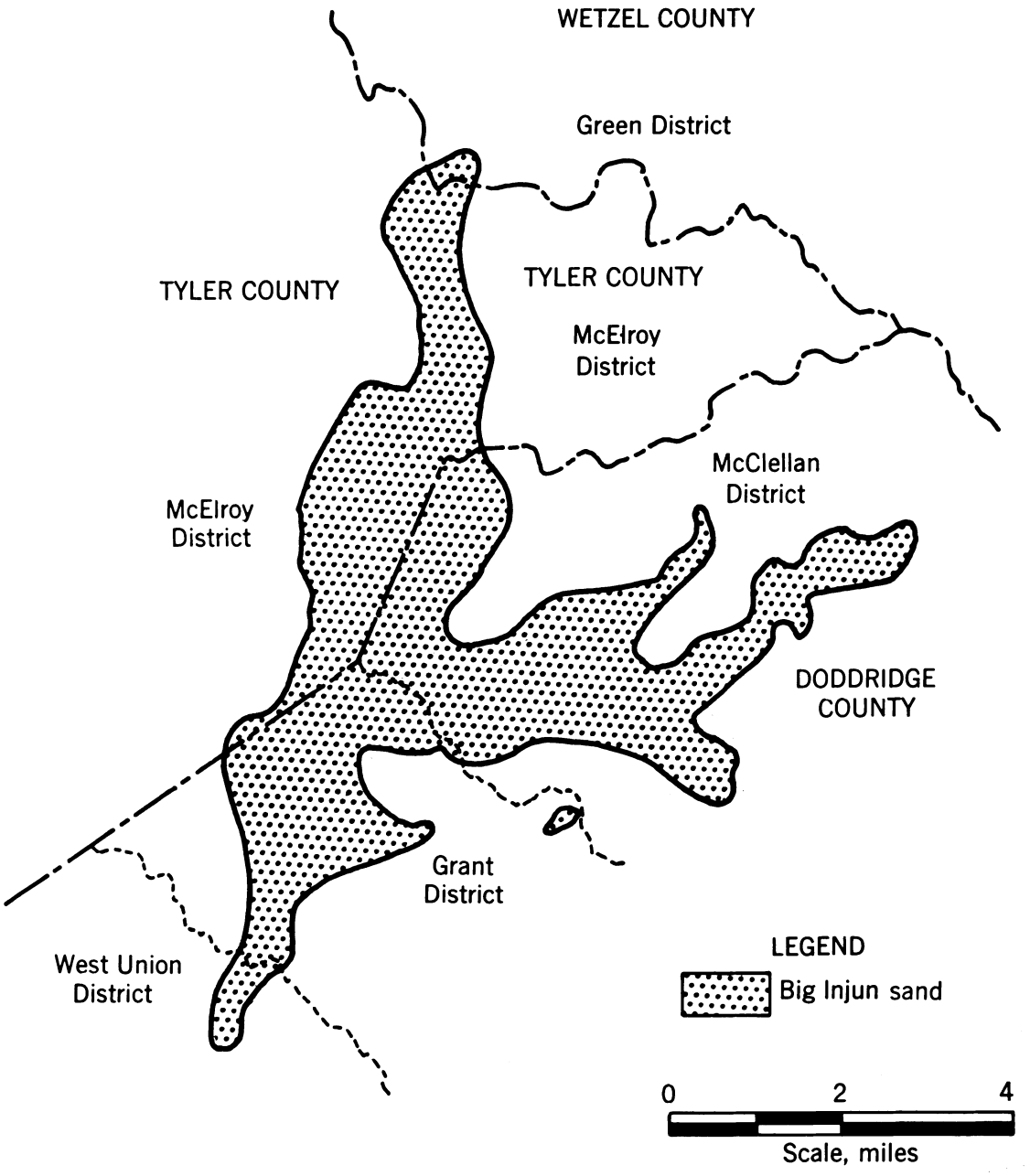

FIGURE 27.—Map of Centerpoint Oilfield, Wetzel, Tyler and Doddridge Counties, W. Va.

CENTERPOINT FIELD (33)

LOCATION:

Green Dist., Wetzel County; McElroy Dist., Tyler County; McClellan, Grant, and West Union Dists., Doddridge County.

QUADRANGLES:

Centerpoint and West Union (W. Va.).

DATE DISCOVERED: 1892. APPROXIMATE ACREAGE: 12,980. AVERAGE WELL SPACING, FEET: 700.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Big Injun sand	1, 640–2, 290	70–178	10

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	4, 000
Oilfield size	acres	12, 980
Original oil content	barrels	51, 920, 000
Total oil production	do	11, 123, 000
Reservoir oil content	do	40, 797, 000

RESERVOIR ROCK CHARACTERISTICS:

The Big Injun sand is a friable sandstone.

SECONDARY RECOVERY METHOD:

Gas Injection: Started in 1929; reported as successful.

Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 10,202,500 bbl. Maximum initial oil production was reported as 300 b.p.d. About 325 producing wells remain in the field.

BIBLIOGRAPHY:

15, pp. 14–19; 18, pp. 45–46; 23, pp. 469, 473, 476; 25, pp. 4–5, 8–9; 26, pp. 4–5; 27, pp. 4–5; 29, p. 21; 34, pp. 290–297, 304–362; 35, pp. 412–415, 460–466, 480–483, 510–520; 73, p. 5.

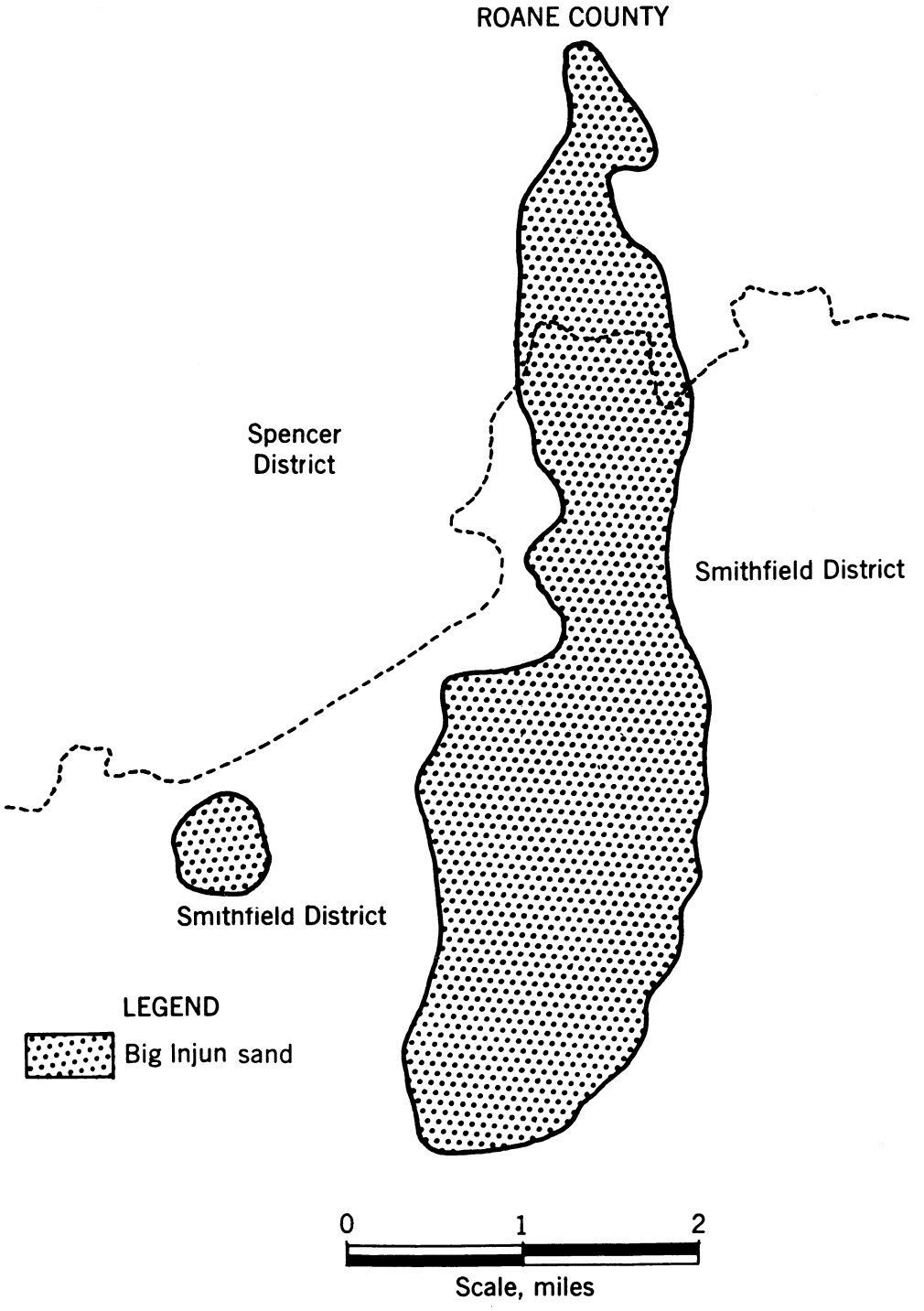

FIGURE 28.—Map of Clover-Rush Run Oilfield, Roane County, W. Va.

CLOVER-RUSH RUN FIELD (68)

LOCATION:

Spencer and Smithfield Dists., Roane County.

QUADRANGLES:

Spencer and Walton (W. Va.).

DATE DISCOVERED: 1907. APPROXIMATE ACREAGE: 4,200. AVERAGE WELL SPACING, FEET: 700.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Big Injun sand	1, 773–2, 042	25–80	10

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:[9]

Original oil content	barrels per acre	----------
Oilfield size	acres	----------
Original oil content	barrels	----------
Total oil production	do	----------
Reservoir oil content	do	----------

RESERVOIR ROCK CHARACTERISTICS:

The Big Injun sand is a light gray, hard sandstone ranging in grain size from fine to medium.

SECONDARY RECOVERY METHOD:

Gas Injection: Reported as successful.
Waterflooding: Pilot operation started in 1955; no record of results.

REMARKS:

Estimated volume of oil produced to November 1935: Not available. Maximum initial oil production was reported as 40 b.p.d.

BIBLIOGRAPHY:

27, pp. 4–7; 29, p. 24; 30, p. 120; 36, pp. 328–331, 339–359, 365–374; 50, pp. 38–47.

[9] Reservoir oil content included with Walton Field (69).

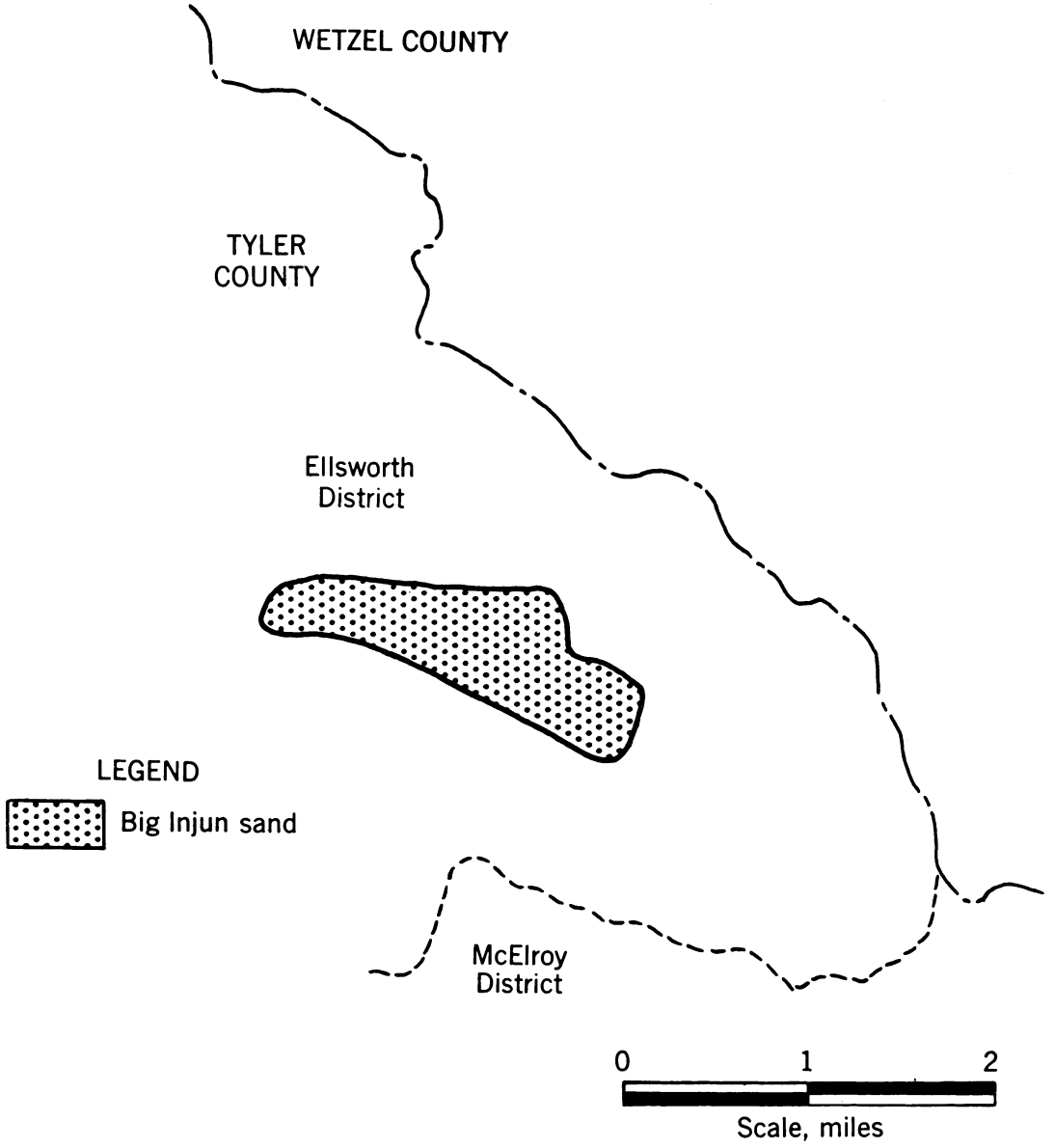

FIGURE 29.—Map of Conaway Oilfield, Tyler County, W. Va.

CONAWAY FIELD (29)

LOCATION:

Ellsworth Dist., Tyler County.

QUADRANGLE:

New Martinsville (W. Va.-Ohio).

DATE DISCOVERED: 1896. APPROXIMATE ACREAGE: 620. AVERAGE WELL SPACING, FEET: 500.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Big Injun sand	1,600–1,900	103–178	8

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	6,000
Oilfield size	acres	620
Original oil content	barrels	3,720,000
Total oil production	do	777,000
Reservoir oil content	do	2,943,000

RESERVOIR ROCK CHARACTERISTICS:

The Big Injun sand varies from a fine-grained, friable sandstone to a coarse conglomerate.

SECONDARY RECOVERY METHOD:

Gas Injection:
Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 750,000 bbl. About 10 producing wells remain in the field.

BIBLIOGRAPHY:

18, p. 42; 35, pp. 478–481, 500–510.

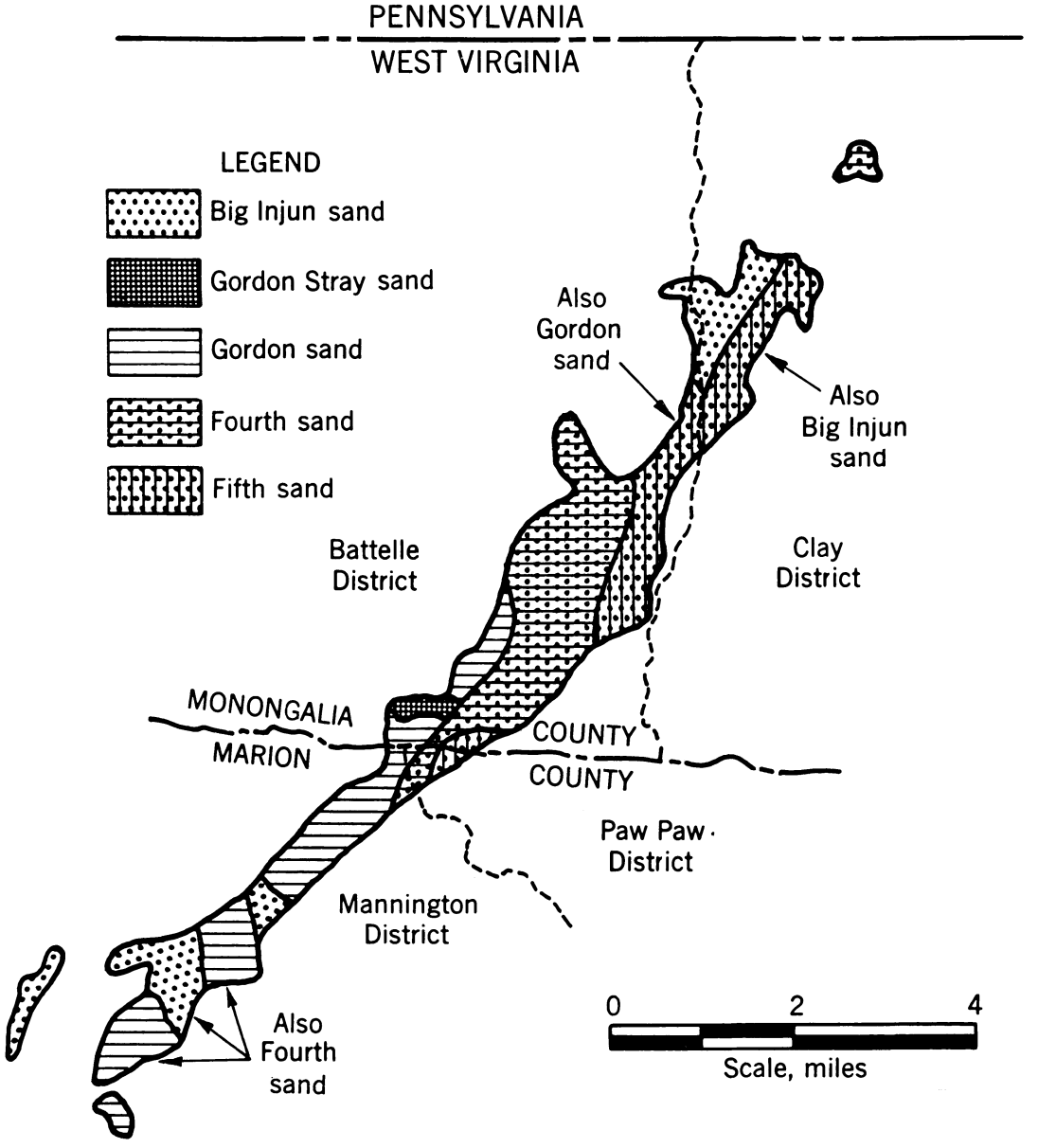

FIGURE 30.—Map of Condit-Ragtown Oilfield, Monongalia and Marion Counties, W. Va.

CONDIT-RAGTOWN FIELD (19)

LOCATION:

Clay and Batelle Dists., Monongalia County; Paw Paw and Mannington Dists., Marion County.

QUADRANGLES:

Blacksville and Mannington (W. Va.-Pa.).

DATE DISCOVERED: 1895. APPROXIMATE ACREAGE: 6,450. AVERAGE WELL SPACING, FEET: 600.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Big Injun sand	1, 570–2, 501	180–260	---
Gordon Stray sand	2, 370–3, 154	15–39	---
Gordon sand	2. 425–3. 311	15–47	5
Fourth sand	2, 530–3, 500	10–52	3
Fifth sand	2, 595–3, 663	15–45	---

ESTIMATED RESERVOIR OIL CONTENT AS OF 1954:

Original oil content	barrels per acre	5, 400
Oilfield size	acres	6, 450
Original oil content	barrels	34, 830, 000
Total oil production	do	11, 996, 000
Reservoir oil content	do	22, 834, 000

RESERVOIR ROCK CHARACTERISTICS:

The Gordon and Fourth sands are visibly conglomeratic.

SECONDARY RECOVERY METHOD:

Gas Injection:
Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 11,595,000 bbl. Maximum initial oil production was reported as 2,000 b.p.d. from the Gordon sand and 40 b.p.d. from the Fourth sand. Field was reported as abandoned about 1954.

BIBLIOGRAPHY:

19, pp. 43, 46; 29, p. 20; 37, pp. 398–409, 415–487, 530–541, 546–597.

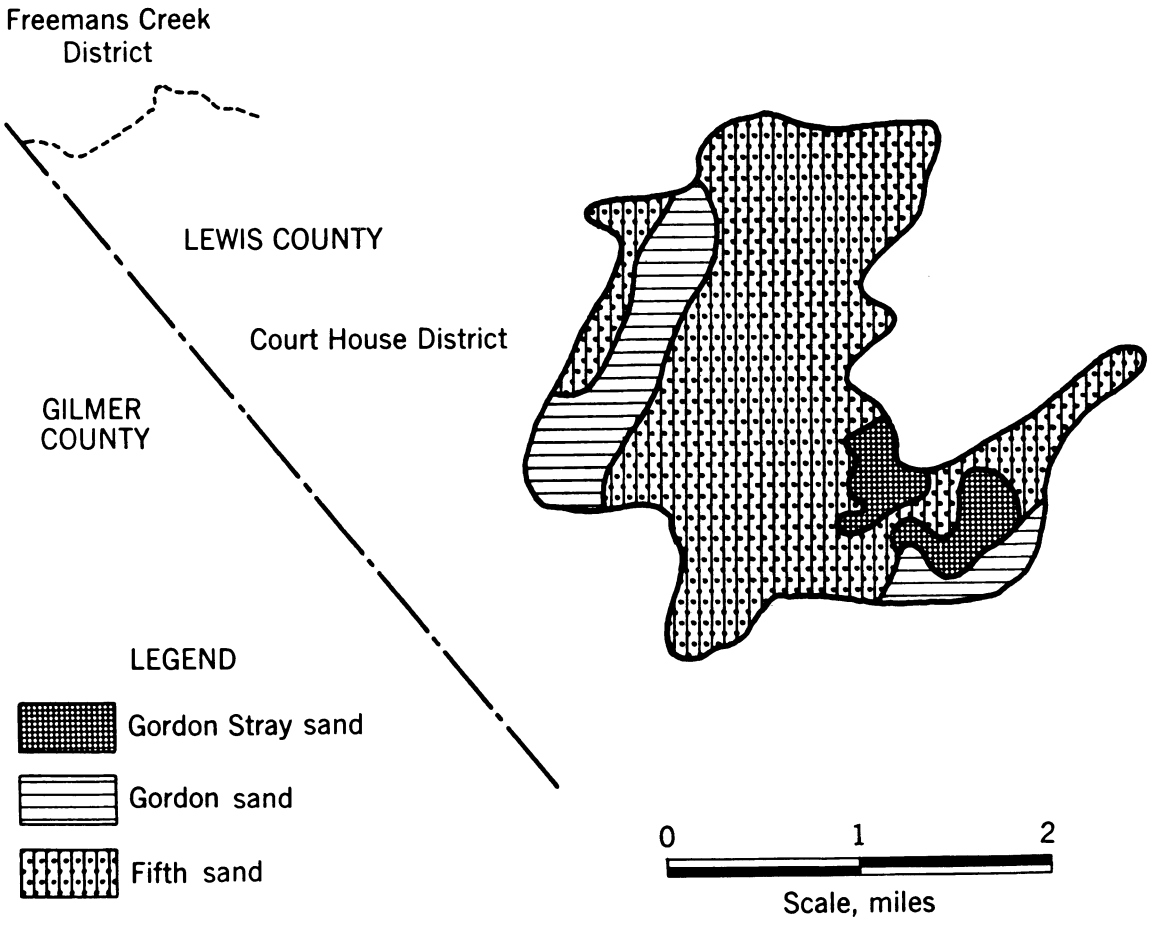

FIGURE 31.—Map of Copley Oilfield, Lewis County, W. Va.

COPLEY FIELD (61)

LOCATION:
Court House Dist., Lewis County.

QUADRANGLE:
Burnsville (W. Va.).

DATE DISCOVERED: 1900. APPROXIMATE ACREAGE: 2,720. AVERAGE WELL SPACING, FEET: 660.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Gordon Stray sand	2, 200–2, 895	12	---
Gordon sand	2, 325–2, 990	9–27	---
Fifth sand	2, 445–3, 075	7–14	4

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	3, 000
Oilfield size	acres	2, 720
Original oil content	barrels	8, 160, 000
Total oil production	do	2, 973, 000
Reservoir oil content	do	5, 187, 000

RESERVOIR ROCK CHARACTERISTICS:
The Gordon sand is a dark, fine-grained sandstone.

SECONDARY RECOVERY METHOD:
Gas Injection: Started in 1927 in Gordon and Fifth sands; no record of results.
Waterflooding:

REMARKS:
Estimated volume of oil produced to November 1935: 2,475,000 bbl. The discovery well was reported to have produced 12,000 b.p.d. of oil from the Gordon and Gordon Stray sands.

BIBLIOGRAPHY:
17, pp. 11–13; 23, pp. 469, 473, 476; 25, pp. 4–5, 10–11; 26, pp. 4–5; 27, pp. 4–5; 29, p. 23; 30, pp. 119, 120; 57, pp. 194–201, 335–406; 58, pp. 440–461; 64, pp. 6, 11, 19–20; 72, p. 54; 73, p. 5.

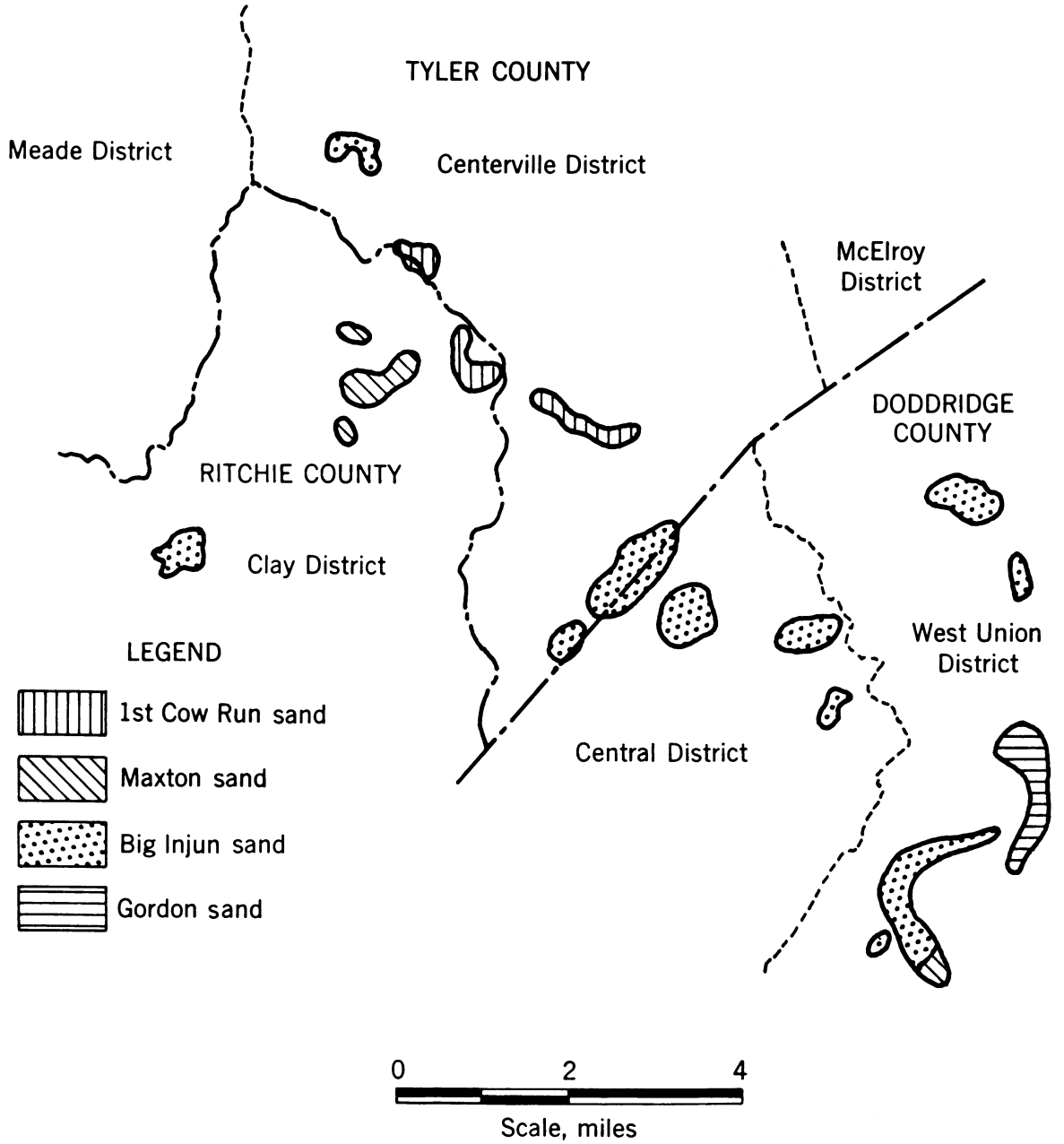

FIGURE 32.—Map of Deep Valley Oilfield, Doddridge, Ritchie, and Tyler Counties, W. Va.

DEEP VALLEY FIELD (31)

LOCATION:

West Union and Central Dists., Doddridge County; Clay Dist., Ritchie County; Centerville Dist., Tyler County.

QUADRANGLE:

West Union (W. Va.)

DATE DISCOVERED: Unknown. APPROXIMATE ACREAGE: 2,534. AVERAGE WELL SPACING, FEET: 600.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
1st Cow Run sand	825–1, 060	15–30	----------
Maxton sand	1, 470–1, 646	20–40	----------
Big Injun sand	1, 640–1, 985	30–127	9
Gordon sand	2, 300–2, 383	8–35	----------

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	3, 750
Oilfield size	acres	2, 534
Original oil content	barrels	9, 502, 000
Total oil production	do	2, 084, 000
Reservoir oil content	do	7, 418, 000

RESERVOIR ROCK CHARACTERISTICS:

The Big Injun sand is a fine-grained, friable sandstone.

SECONDARY RECOVERY METHOD:

Gas Injection:
Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 1,688,000 bbl.

BIBLIOGRAPHY:

13, pp. 148–157; 15, p. 19; 34, pp. 294–299, 350–369; 35, pp. 482–485, 520–524.

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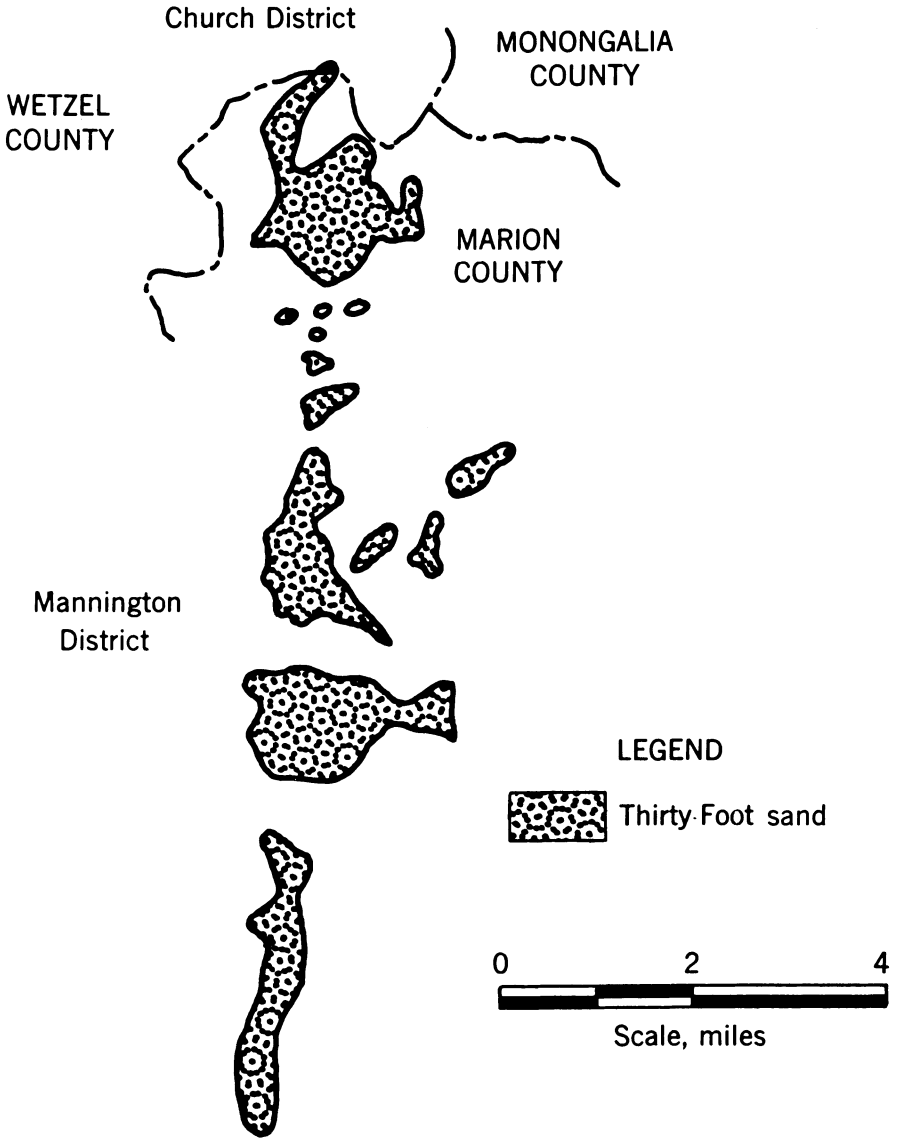

FIGURE 33.—Map of Dents Run Oilfield, Marion and Wetzel Counties, W. Va.

DENTS RUN FIELD (36)

LOCATION:

Mannington Dist., Marion County; Church Dist., Wetzel County.

QUADRANGLES:

Mannington (W. Va.-Pa.) and Clarksburg (W. Va.).

DATE DISCOVERED: 1904. APPROXIMATE ACREAGE: 5,478. AVERAGE WELL SPACING, FEET: 425.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Thirty Foot sand	2, 855–3, 300	10–36	11

ESTIMATED RESERVOIR OIL CONTENT AS OF 1950:

Original oil content	barrels per acre	4, 000
Oilfield size	acres	5, 478
Original oil content	barrels	21, 912, 000
Total oil production	do	5, 049, 000
Reservoir oil content	do	16, 863, 000

RESERVOIR ROCK CHARACTERISTICS:

The Thirty Foot sand is a white, conglomeratic sandstone.

SECONDARY RECOVERY METHOD:

Gas Injection: Started in 1926; no record of results.
Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 4,725,000 bbl. Field was reported as abandoned about 1950.

BIBLIOGRAPHY:

Appendix; *19, pp. 43–44, 46; 27, pp. 2–3; 29, p. 20; 35, pp. 445–460; 37, pp. 546–589; 64, p. 19.*

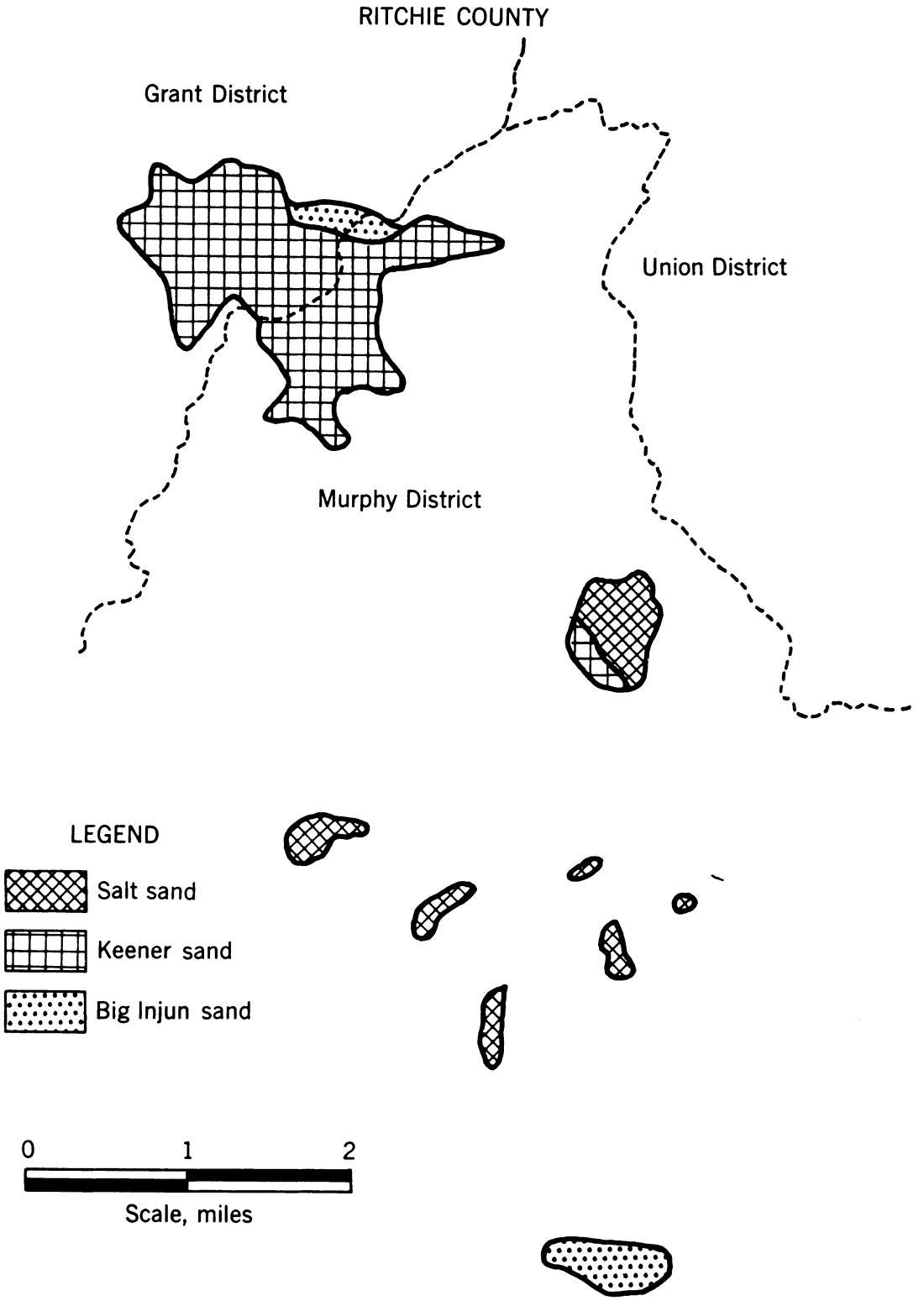

FIGURE 34.—Map of Elm Run Oilfield, Ritchie County, W. Va.

ELM RUN FIELD (48)

LOCATION:

Murphy and Grant Dists., Ritchie County.

QUADRANGLE:

Harrisville (W. Va.).

DATE DISCOVERED: 1906. APPROXIMATE ACREAGE: 1,370. AVERAGE WELL SPACING, FEET: 500.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Salt sand	1, 400–1, 840	20–125	----------
Keener sand	1, 535–1, 945	10– 40	10
Big Injun sand	1, 560–1, 980	45–135	----------

ESTIMATED RESERVOIR OIL CONTENT AS OF 1955:

Original oil content	barrels per acre	3, 750
Oilfield size	acres	1, 370
Original oil content	barrels	5, 137, 000
Total oil production	do	1, 416, 000
Reservoir oil content	do	3, 721, 000

RESERVOIR ROCK CHARACTERISTICS:

The Big Injun sand is a friable sandstone.

SECONDARY RECOVERY METHOD:

Gas Injection: Started in 1929 in Keener and Big Injun sands; no record of results.

Waterflooding: Pilot operation started in 1956 in Keener and Big Injun sands; no record of results.

REMARKS:

Estimated volume of oil produced to November 1935: 1,125,000 bbl. Maximum initial oil production was reported as 50 b.p.d. from the Big Injun sand. Field was reported as abandoned about 1955.

BIBLIOGRAPHY:

13, pp. 158–204; 27, pp. 2–3, 6–7; 29, p. 22.

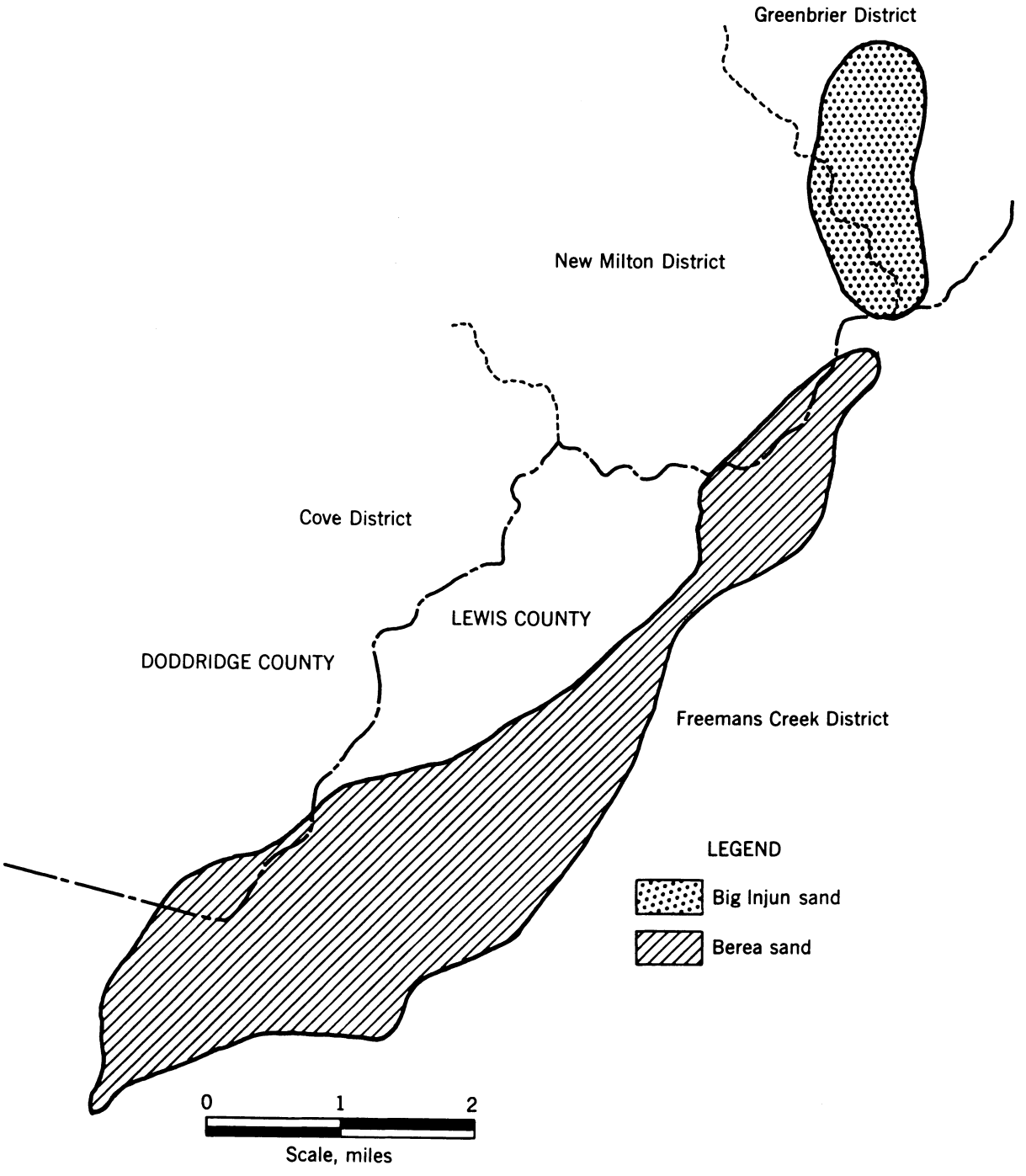

FIGURE 35.—Map of Fink Oilfield, Doddridge and Lewis Counties, W. Va.

FINK FIELD (56)

LOCATION:

Cove, New Milton, and Greenbrier Dists., Doddridge County; Freemans Creek Dist., Lewis County.

QUADRANGLE:

Vadis (W. Va.).

DATE DISCOVERED: 1894. APPROXIMATE ACREAGE: 5,196. AVERAGE WELL SPACING, FEET: 700.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Big Injun sand	1, 178–2, 325	74–125	8
Berea sand	1, 480–2, 619	20– 34	8

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	4, 000
Oilfield size	acres	5, 196
Original oil content	barrels	20, 784, 000
Total oil production	do	7, 132, 000
Reservoir oil content	do	13, 652, 000

RESERVOIR ROCK CHARACTERISTICS:

The Berea sand is a fine-grained, friable sandstone.

SECONDARY RECOVERY METHOD:

Gas Injection: Combination gas-injection and gas-storage pool started in 1938.
Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 6,352,500 bbl. Maximum initial oil production was reported as 40 b.p.d. from the Big Injun sand and 45 barrels of oil from the Berea sand. Water is produced from both sands.

BIBLIOGRAPHY:

15, p. 19; 17, pp. 10–13; 23, pp. 469, 473, 476; 25, pp. 6–7, 12–13; 26, pp. 4–5; 27, pp. 4–5; 30, pp. 118–119; 34, pp. 298–303, 381–405; 57, pp. 186–195, 251–335.

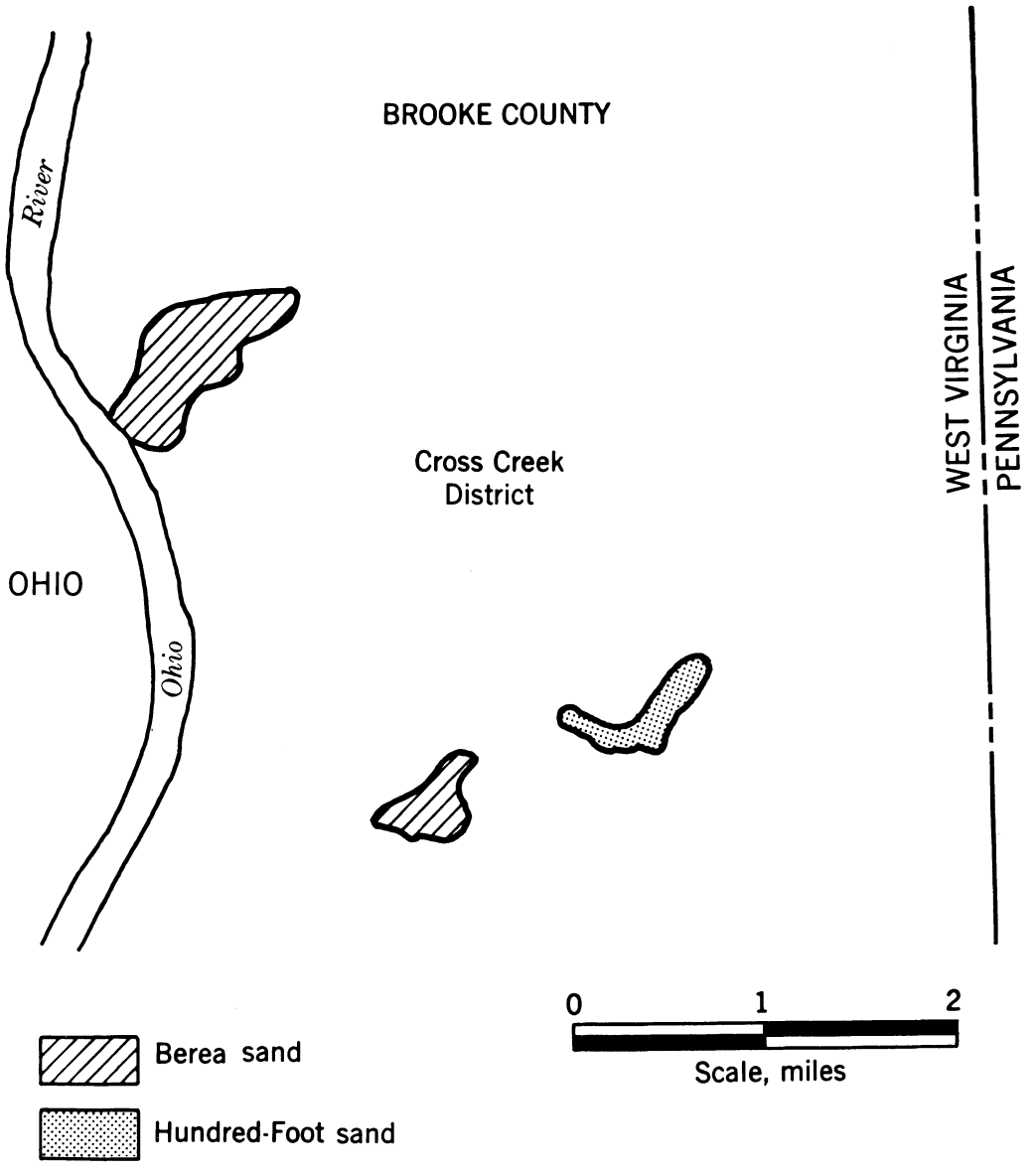

FIGURE 36.—Map of Follansbee Oilfield. Brooke County, W. Va.

FOLLANSBEE FIELD (4)

LOCATION:

Cross Creek Dist., Brooke County.

QUADRANGLE:

Steubenville (W. Va.-Ohio-Pa.).

DATE DISCOVERED: 1905. APPROXIMATE ACREAGE: 384. AVERAGE WELL SPACING, FEET: 425.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Berea sand	1,300	18	5
Hundred Foot sand	1,780	----------	2

ESTIMATED RESERVOIR OIL CONTENT AS OF 1952:

Original oil content	barrels per acre	3,000
Oilfield size	acres	384
Original oil content	barrels	1,152,000
Total oil production	do	333,000
Reservoir oil content	do	819,000

RESERVOIR ROCK CHARACTERISTICS:

The Berea sand is a friable, fine-grained sandstone.

SECONDARY RECOVERY METHOD:

Gas Injection: Started prior to 1942; reported as successful.
Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 300,000 bbl. Maximum initial oil production was reported as 20 b.p.d. Field was reported as abandoned about 1952.

BIBLIOGRAPHY:

26, pp. 2–3; 27, pp. 2–3.

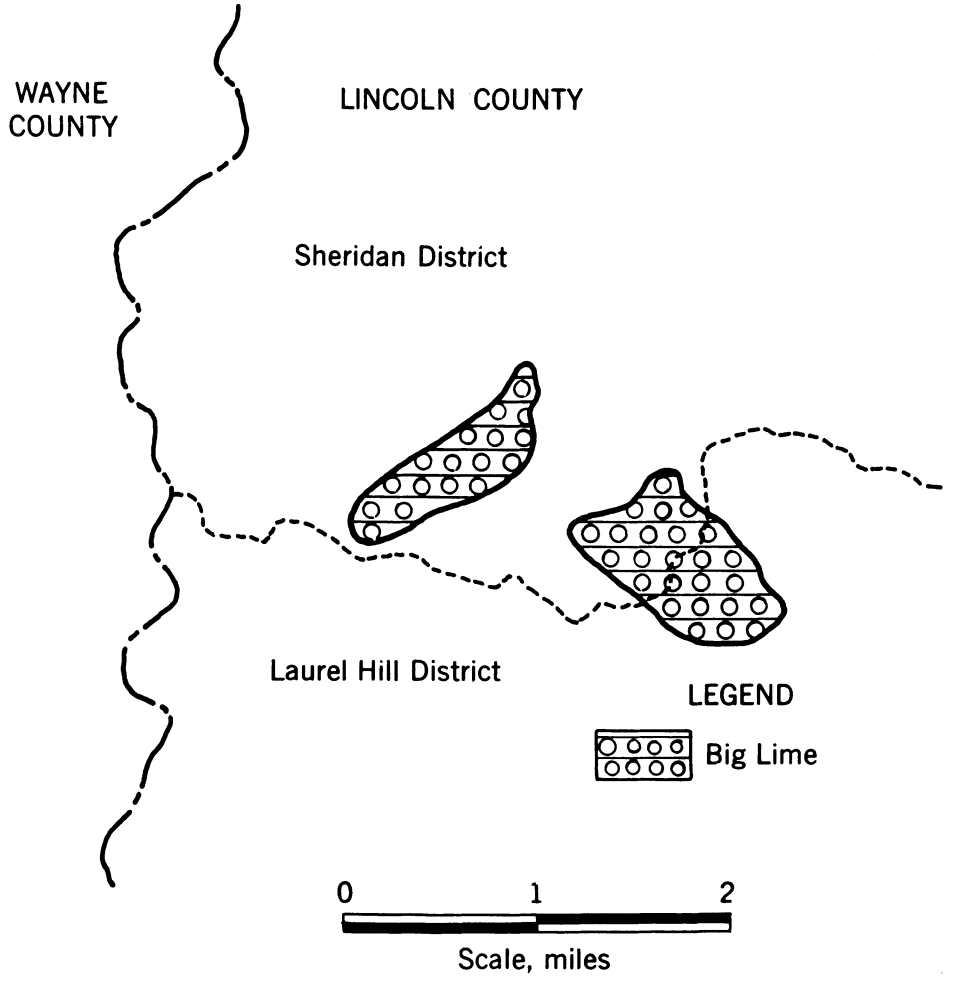

FIGURE 37.—Map of Fourmile-Branchland Oilfield, Lincoln County, W. Va.

FOURMILE-BRANCHLAND FIELD (74)

LOCATION:

Sheridan and Laurel Hill Dists., Lincoln County.

QUADRANGLES:

Midkiff and Wayne (W. Va.).

DATE DISCOVERED: 1907. APPROXIMATE ACREAGE: 525. AVERAGE WELL SPACING, FEET: 600.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Big Lime	1,015–1,455	163–241	5

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	3,200
Oilfield size	acres	525
Original oil content	barrels	1,680,000
Total oil production	do	484,000
Reservoir oil content	do	1,196,000

RESERVOIR ROCK CHARACTERISTICS:

SECONDARY RECOVERY METHOD:

Gas Injection:

Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 475,000 bbl. Maximum initial oil production was reported as 75 b.p.d.

BIBLIOGRAPHY:

21, p. 24; 45, pp. 357–364, 366–367; 76, pp. 3–5.

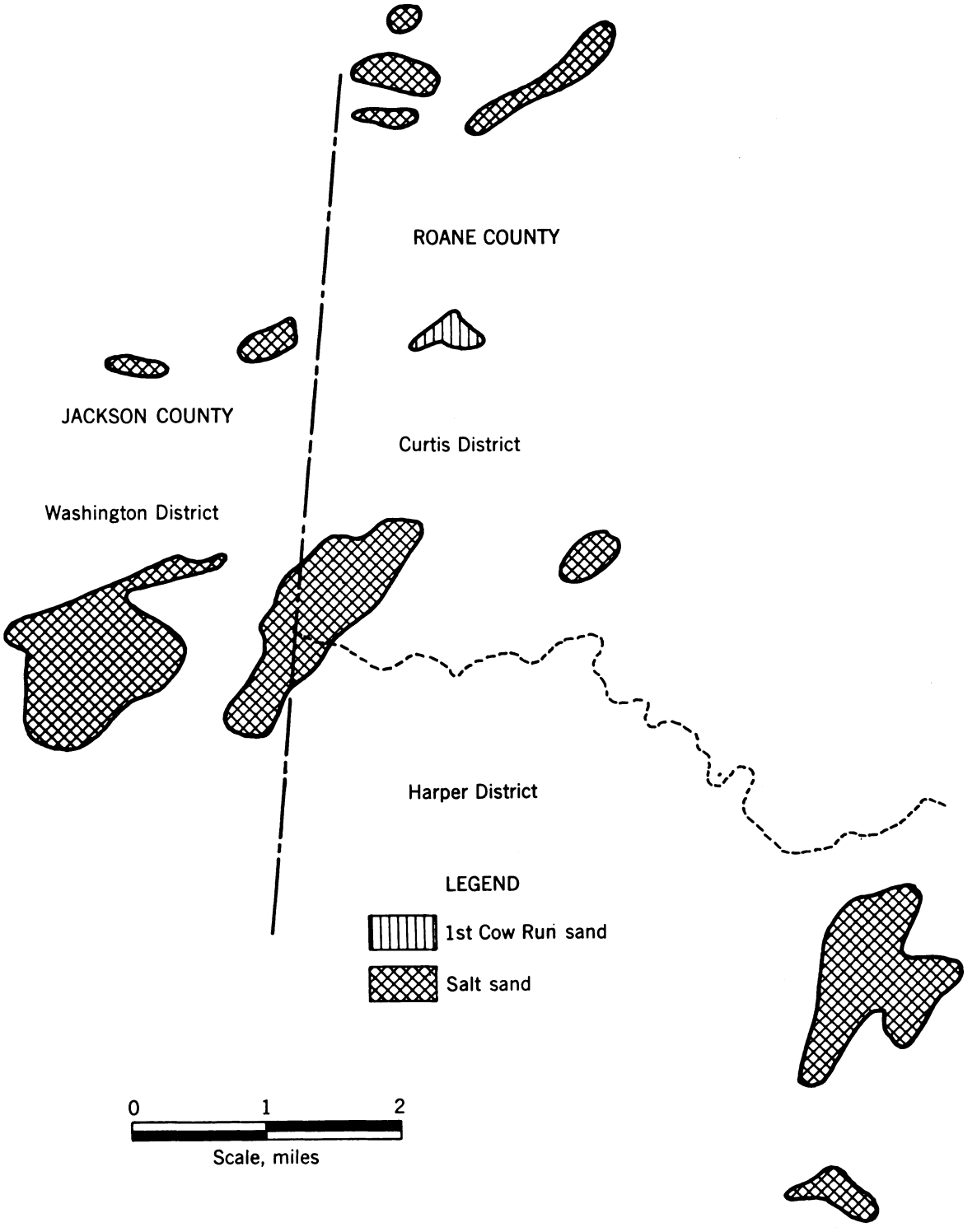

FIGURE 38.—Map of Gay Oilfield, Jackson and Roane Counties, W. Va.

GAY FIELD (67)

LOCATION:

Washington Dist., Jackson County; Curtis and Harper Dists., Roane County.

QUADRANGLES:

Ripley, Spencer, and Walton (W. Va.).

DATE DISCOVERED: 1921. APPROXIMATE ACREAGE: 2,553. AVERAGE WELL SPACING, FEET: 600.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
1st Cow Run sand			
Salt sand	1,560	105	9

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	2,200
Oilfield size	acres	2,553
Original oil content	barrels	5,617,000
Total oil production	do	1,685,000
Reservoir oil content	do	3,932,000

RESERVOIR ROCK CHARACTERISTICS:

SECONDARY RECOVERY METHOD:

Gas Injection:

Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 1,255,000 bbl.

BIBLIOGRAPHY:

31, pp. 806–829.

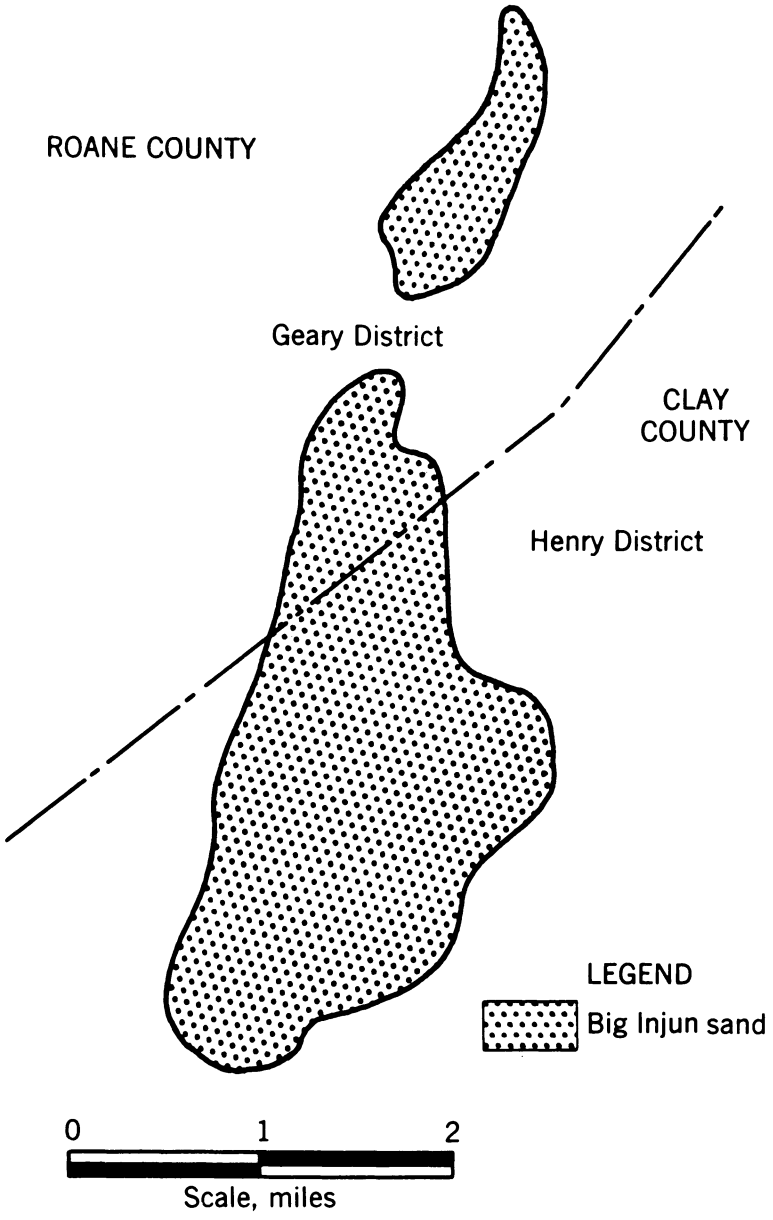

FIGURE 39.—Map of Granny Creek-Stockly Oilfield, Clay and Roane Counties, W. Va.

GRANNY CREEK-STOCKLY FIELD (71)

LOCATION:

Henry Dist., Clay County; Geary Dist., Roane County.

QUADRANGLE:

Otter (W. Va.).

DATE DISCOVERED: 1925. APPROXIMATE ACREAGE: 2,803. AVERAGE WELL SPACING, FEET: 500.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Big Injun sand	1,950–2,250	40	20

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content per acre	barrels	6,000
Oilfield size	acres	2,803
Original oil content	barrels	16,818,000
Total oil production	do	6,466,000
Reservoir oil content	do	10,352,000

RESERVOIR ROCK CHARACTERISTICS:

The Big Injun sand is a tight, friable sandstone.

SECONDARY RECOVERY METHOD:

Gas Injection: Started in 1943; reported as successful.
Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 3,358,000 bbl. Maximum initial oil production was reported as 50 b.p.d.

BIBLIOGRAPHY:

6, pp. 575–576; 23, pp. 470, 474, 476; 25, pp. 6–7, 10–11; 27, pp. 4–5; 29, p. 24; 72, p. 41.

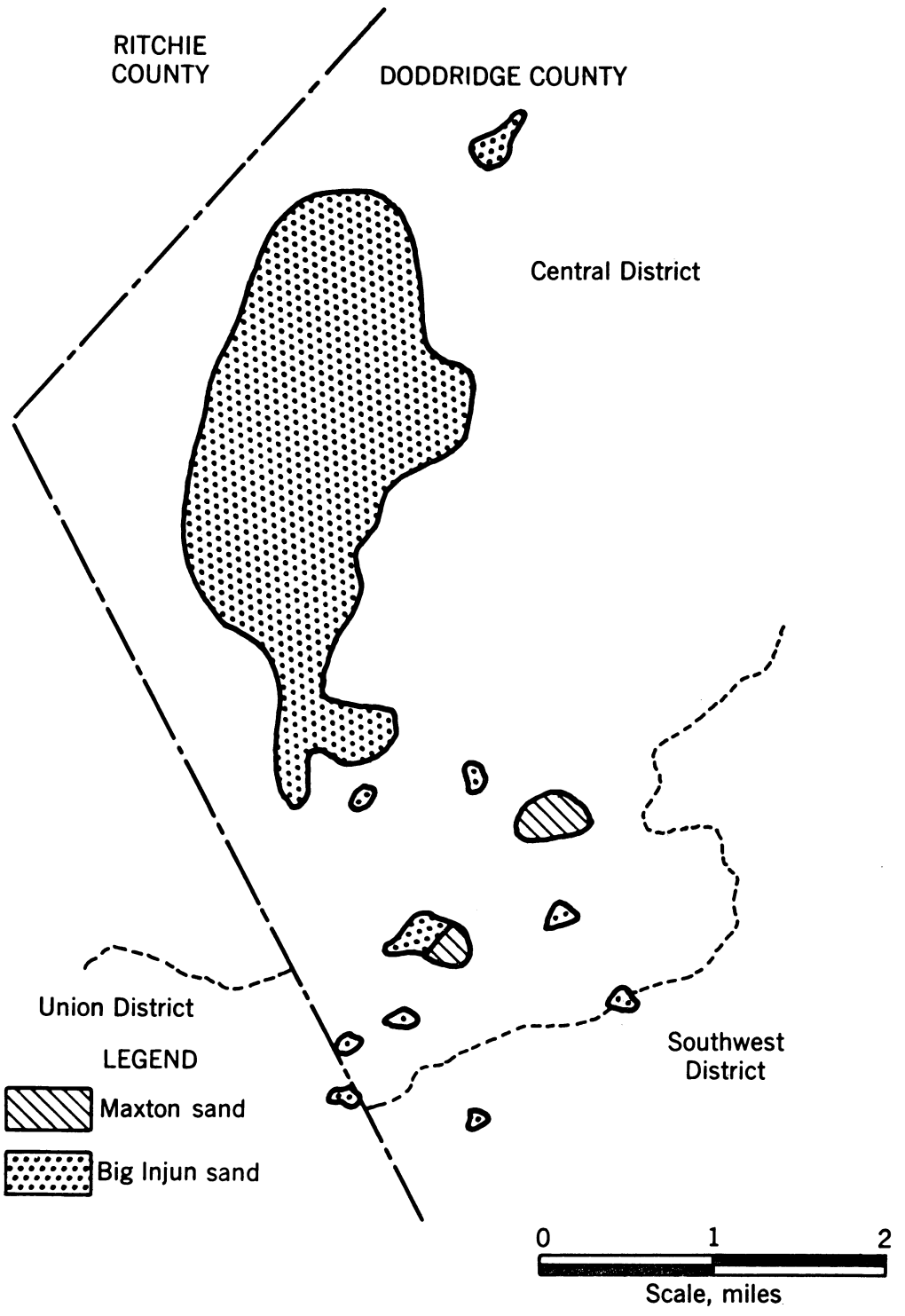

FIGURE 40.—Map of Greenwood Oilfield, Doddridge and Ritchie Counties, W. Va.

GREENWOOD FIELD (53)

LOCATION:

Central and Southwest Dists., Doddridge County; Union Dist., Ritchie County.

QUADRANGLES:

West Union and Holbrook (W. Va.).

DATE DISCOVERED: 1920. APPROXIMATE ACREAGE: 2,253. AVERAGE WELL SPACING, FEET: 700.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Maxton sand	1,500–1,985	15– 70	---
Big Injun sand	1,640–2,085	15–120	8

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content per acre	barrels	6,000
Oilfield size	acres	2,253
Original oil content	barrels	13,518,000
Total oil production	do	2,682,000
Reservoir oil content	do	10,836,000

RESERVOIR ROCK CHARACTERISTICS:

The Big Injun sand is a friable sandstone.

SECONDARY RECOVERY METHOD:

Gas Injection:
Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 2,364,800 bbl. Maximum initial oil production was reported as 10 b.p.d. Water is produced from the Big Injun sand. The majority of the field was reported abandoned.

BIBLIOGRAPHY:

13, pp. 188–204; 15, pp. 13, 19; 29, p. 21; 34, pp. 296–299, 363–380.

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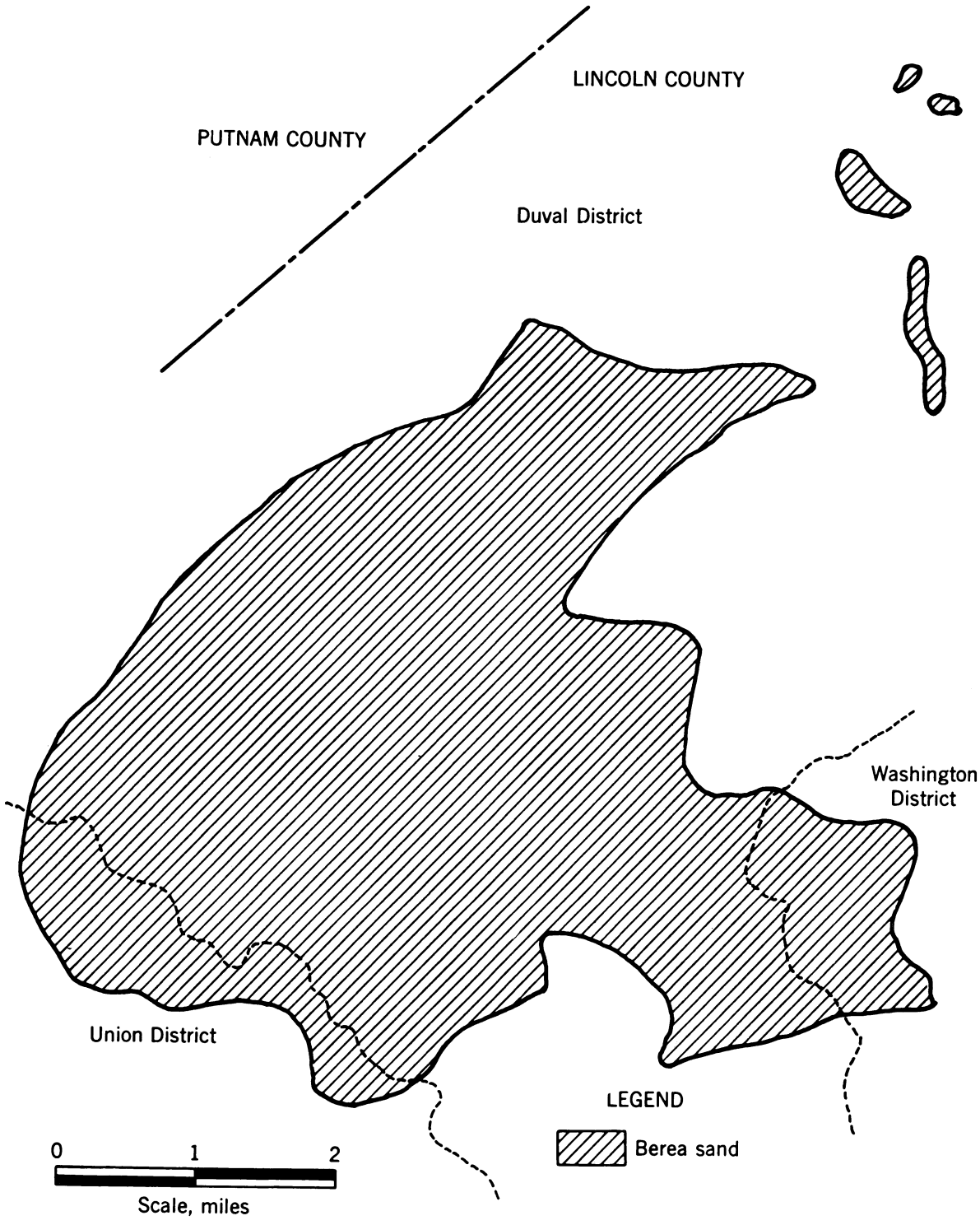

FIGURE 41.—Map of Griffithsville Oilfield, Lincoln County, W. Va.

GRIFFITHSVILLE FIELD (75)

LOCATION:

Duval, Washington, and Union Dists., Lincoln County.

QUADRANGLES:

St. Albans, Midkiff, and Madison (W. Va.).

DATE DISCOVERED: 1907. APPROXIMATE ACREAGE: 12,877. AVERAGE WELL SPACING, FEET: 550.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Berea sand	2,113–2,595	18–26	10

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	5,750
Oilfield size	acres	12,877
Original oil content	barrels	74,043,000
Total oil production	do	14,790,000
Reservoir oil content	do	59,253,000

RESERVOIR ROCK CHARACTERISTICS:

The Berea sand is a white, fine-grained, closely cemented sandstone.

SECONDARY RECOVERY METHOD:

Gas Injection: Started in 1926; reported as successful.
Waterflooding: Started in 1945; still in operation.

REMARKS:

Estimated volume of oil produced to November 1935: 12,525,000 bbl. Maximum initial oil production was reported as 75 b.p.d.

BIBLIOGRAPHY:

Appendix; *6, pp. 571–573; 21, pp. 16–17, 22; 23, pp. 470, 474, 476; 25, pp. 6–7, 12–13; 26, p. 6; 27, pp. 6–7; 29, pp. 24, 26; 30, p. 121; 45, pp. 312–325, 328–329, 332–334, 338–357; 65, pp. 16–18; 72, p. 48; 76, 12 pp.*

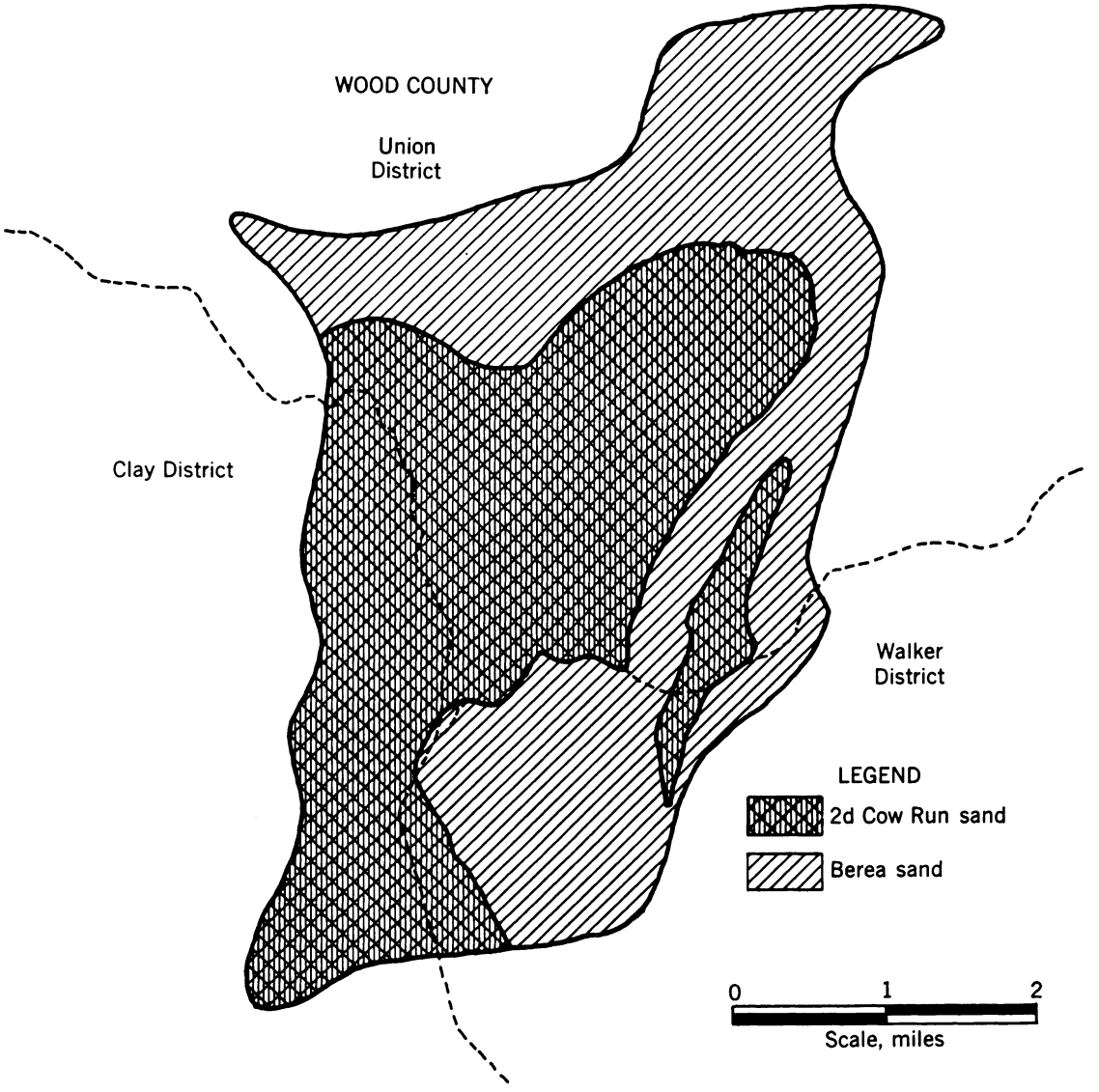

FIGURE 42.—Map of Hendershot Oilfield, Wood County, W. Va.

HENDERSHOT FIELD (43)

LOCATION:

Union, Clay, and Walker Dists., Wood County.

QUADRANGLES:

Marietta (Ohio-W. Va.) and Elizabeth (W. Va.).

DATE DISCOVERED: 1864. APPROXIMATE ACREAGE: 11,712. AVERAGE WELL SPACING, FEET: 350.

PRODUCING INFORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
2d Cow Run sand	900–1, 100	10–30	10
Berea sand	2, 000–2, 292	7–20	5

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content, per acre	barrels	4, 800
Oilfield size	acres	11, 712
Original oil content	barrels	56, 218, 000
Total oil production	do	14, 379, 000
Reservoir oil content	do	41, 839, 000

RESERVOIR ROCK CHARACTERISTICS:

The 2d Cow Run sand is a coarse, conglomeratic sandstone. The Berea sand is a uniformly fine-grained sandstone.

SECONDARY RECOVERY METHOD:

Gas Injection:
Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 12,000,000 bbl. Maximum initial oil production was reported as 10 b.p.d. from the 2d Cow Run sand and 60 b.p.d. from the Berea sand. Water is produced from the 2d Cow Run formation.

BIBLIOGRAPHY:

13, pp. 122–128, 130–133, 138–146; 29, p. 21; 65, pp. 16–18; 72, p. 48.

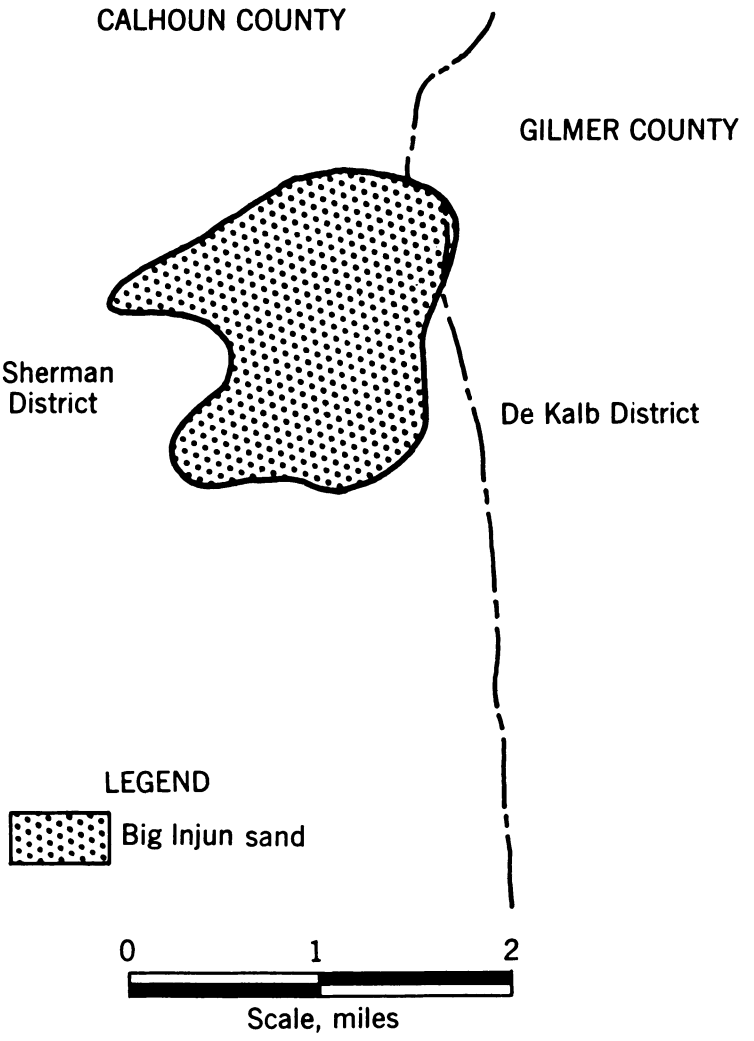

FIGURE 43.—Map of Henrietta Oilfield, Calhoun and Gilmer Counties, W. Va.

HENRIETTA FIELD (64)

LOCATION:

Sherman Dist., Calhoun County; De Kalb Dist., Gilmer County.

QUADRANGLE:

Arnoldsburg (W. Va.).

DATE DISCOVERED: 1917. APPROXIMATE ACREAGE: 1,216. AVERAGE WELL SPACING, FEET: 600.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Big Injun sand	2,000	42	15

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	4,500
Oilfield size	acres	1,216
Original oil content	barrels	5,472,000
Total oil production	do	1,382,000
Reservoir oil content	do	4,090,000

RESERVOIR ROCK CHARACTERISTICS:

The Big Injun sand is a tightly cemented sandstone.

SECONDARY RECOVERY METHOD:

Gas Injection:
Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 1,155,600 bbl. Maximum initial oil production was reported as 20 b.p.d.

BIBLIOGRAPHY:

17, p. 10; 29, p. 23; 64, p. 21; 72, p. 41.

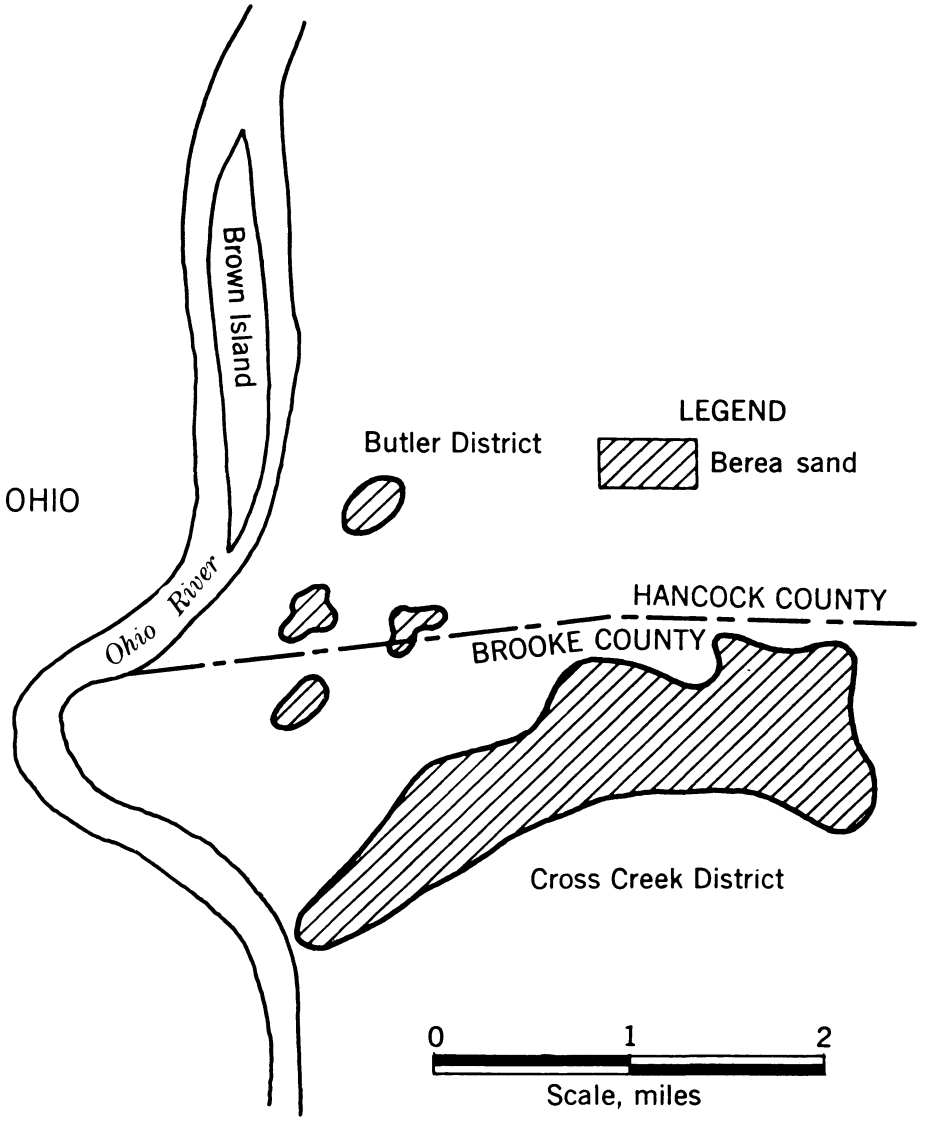

FIGURE 44.—Map of Hollidays Cove Oilfield, Brooke and Hancock Counties, W. Va.

HOLLIDAYS COVE FIELD (3)

LOCATION:

Cross Creek Dist., Brooke County; Butler Dist., Hancock County.

QUADRANGLE:

Steubenville (W. Va.-Ohio-Pa.).

DATE DISCOVERED: 1907. APPROXIMATE ACREAGE: 1,254. AVERAGE WELL SPACING, FEET: 500.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Berea sand	1,254	22	5

ESTIMATED RESERVOIR OIL CONTENT AS OF 1952:

Original oil content	barrels per acre	3,000
Oilfield size	acres	1,254
Original oil content	barrels	3,762,000
Total oil production	do	1,273,000
Reservoir oil content	do	2,489,000

RESERVOIR ROCK CHARACTERISTICS:

The Berea sand is a fine-grained, hard sandstone.

SECONDARY RECOVERY METHOD:

Gas Injection: Started in 1919; reported as unsuccessful.
Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 1,089,000 bbl. Maximum initial oil production was reported as 20 b.p.d. Field was reported as abandoned about 1952.

BIBLIOGRAPHY:

25, p. 2.

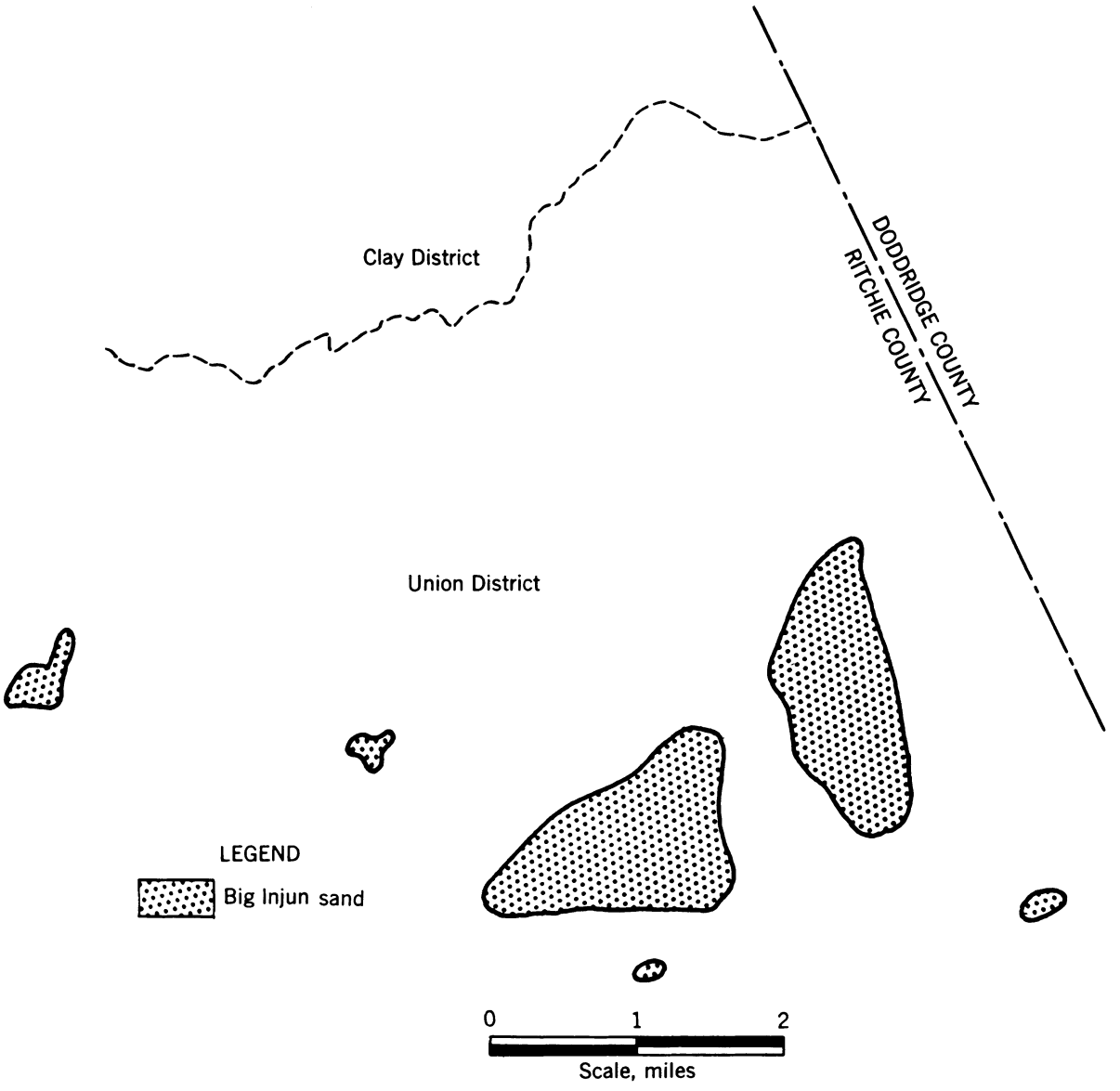

FIGURE 45.—Map of Ireland Oilfield, Ritchie County, W. Va.

IRELAND FIELD (51)

LOCATION:
Union Dist., Ritchie County.

QUADRANGLE:
Holbrook (W. Va.).

DATE DISCOVERED: 1900. APPROXIMATE ACREAGE: 1,798. AVERAGE WELL SPACING, FEET: 550.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Big Injun sand	1,660–2,085	15–105	---

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	3,000
Oilfield size	acres	1,798
Original oil content	barrels	5,394,000
Total oil production	do	1,511,000
Reservoir oil content	do	3,883,000

RESERVOIR ROCK CHARACTERISTICS:
The Big Injun sand is a friable sandstone.

SECONDARY RECOVERY METHOD:
Gas Injection: Reported as successful.
Waterflooding:

REMARKS:
Estimated volume of oil produced to November 1935: 1,362,000 bbl. Maximum initial oil production was reported as 40 b.p.d.

BIBLIOGRAPHY:
13, pp. 188–204; 15, p. 19; 25, pp. 10–11.

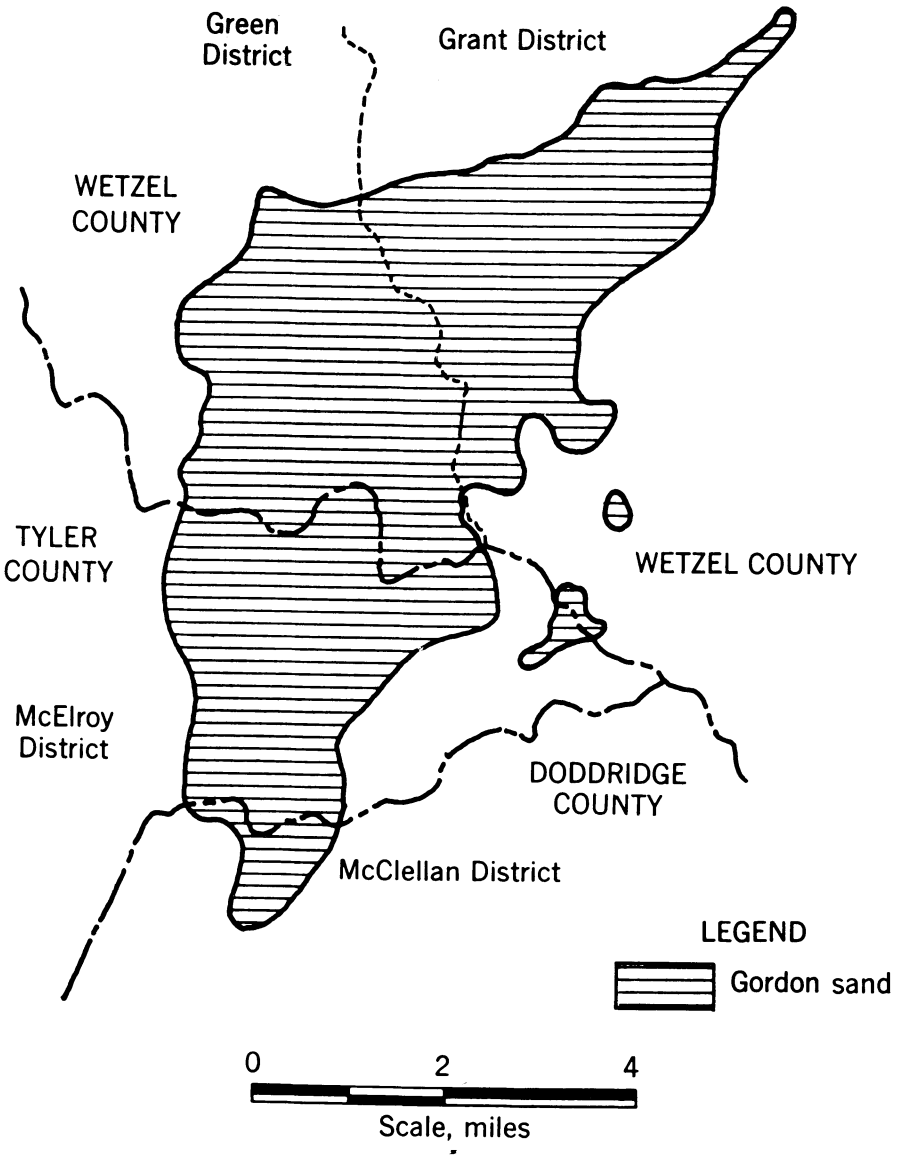

FIGURE 46.—Map of Jacksonburg-Stringtown Oilfield, Wetzel, Tyler, and Doddridge Counties, W. Va.

JACKSONBURG-STRINGTOWN FIELD (32)

LOCATION:

Grant and Green Dists., Wetzel County; McElroy Dist., Tyler County, McClellan Dist., Doddridge County.

QUADRANGLES:

Littleton (W. Va.-Pa.) and Centerpoint (W. Va.).

DATE DISCOVERED: 1895. APPROXIMATE ACREAGE: 15,386. AVERAGE WELL SPACING, FEET: 750.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Gordon sand	2,537–2,980	10–35	4–5

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	5,750
Oilfield size	acres	15,386
Original oil content	barrels	88,469,000
Total oil production	do	20,458,000
Reservoir oil content	do	68,011,000

RESERVOIR ROCK CHARACTERISTICS:

The Gordon sand is a conglomerate sandstone.

SECONDARY RECOVERY METHOD:

Gas injection: Started in 1936; reported as successful.
Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 19,325,000 bbl.

BIBLIOGRAPHY:

Appendix; *15, p. 19; 18, pp. 38, 43–44; 23, p. 473; 25, pp. 4–9, 19, 22; 26, pp. 2–5; 27, pp. 2–5; 29, p. 21; 34, pp. 290–293, 304–326; 35, pp. 408–415, 445–466, 480–483, 510–520.*

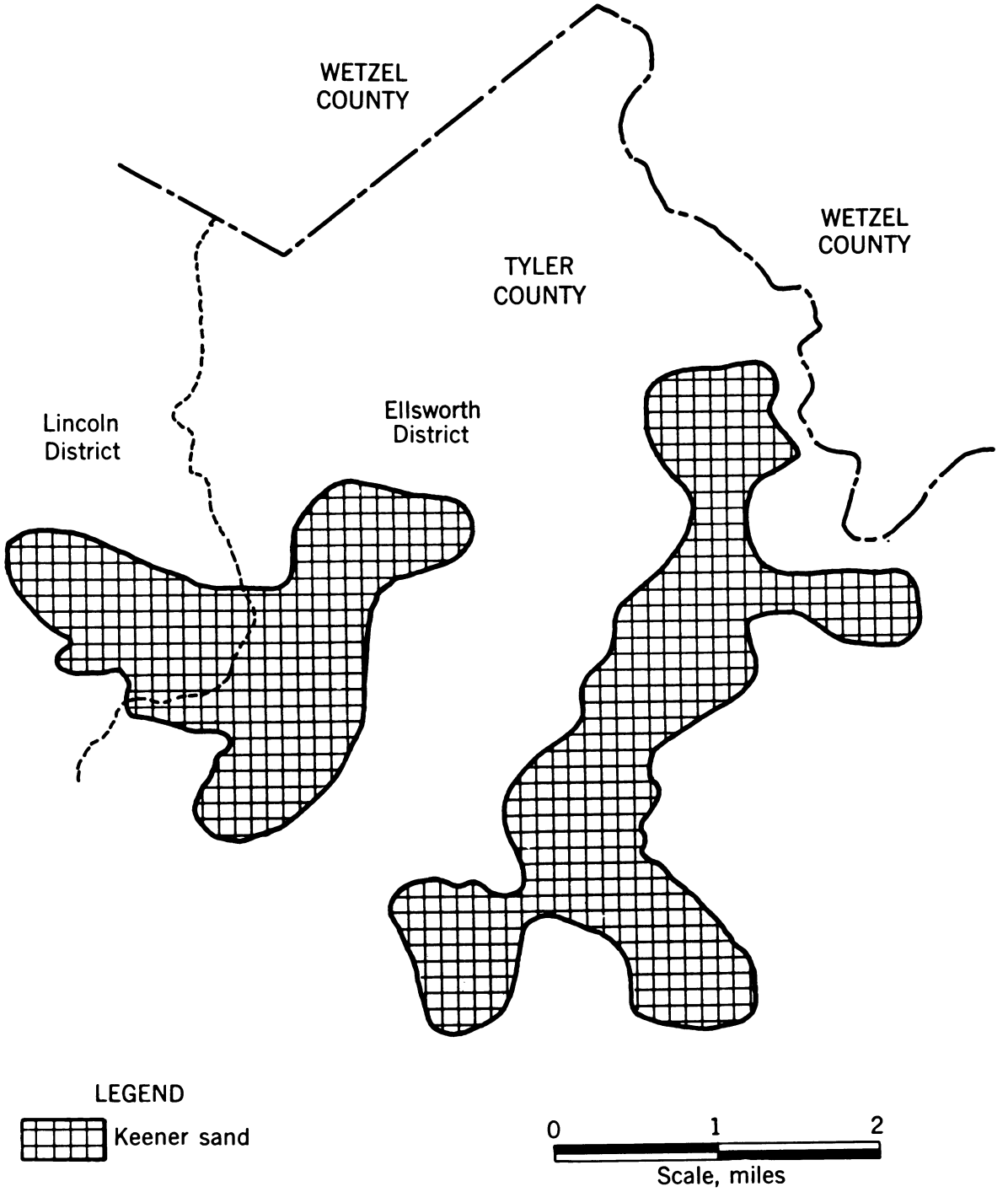

FIGURE 47.—Map of Kidwell-Elkfork Oilfield, Tyler County, W. Va.

KIDWELL-ELKFORK FIELD (28)

LOCATION:

Lincoln and Ellsworth Dists., Tyler County.

QUADRANGLE:

New Martinsville (W. Va.-Ohio).

DATE DISCOVERED: 1897. APPROXIMATE ACREAGE: 4,282. AVERAGE WELL SPACING, FEET: 500.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Keener sand	1,615–1,938	15–31	8

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	6,000
Oilfield size	acres	4,282
Original oil content	barrels	25,692,000
Total oil production	do	6,775,000
Reservoir oil content	do	18,937,000

RESERVOIR ROCK CHARACTERISTICS:

The Keener sand is a fine-grained, tightly cemented sandstone.

SECONDARY RECOVERY METHOD:

Gas Injection: Started in 1934; reported as successful.

Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 5,600,000 bbl. Maximum initial oil production was reported as 2,000 b.p.d. About 340 producing wells remain in the field.

BIBLIOGRAPHY:

18, p. 42; 23, pp. 468, 473, 476; 25, pp. 2, 4–5, 8–9; 26, pp. 2–3; 27, pp. 2–3; 30, p. 114; 35, pp. 475–493, 500–510.

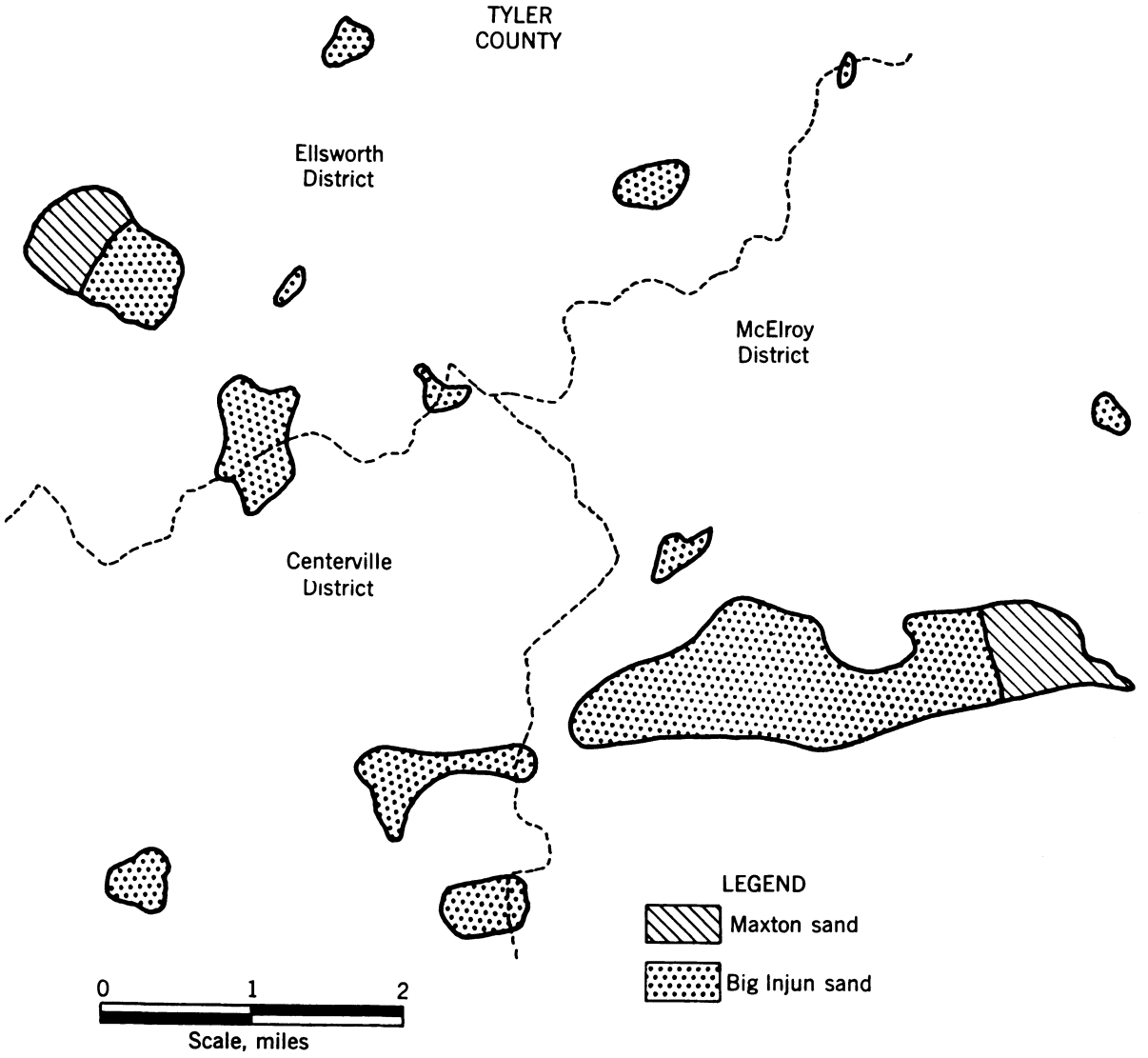

FIGURE 48.—Map of Kyle Oilfield, Tyler County, W. Va.

KYLE FIELD (30)

LOCATION:

McElroy, Centerville, and Ellsworth Dists., Tyler County.

QUADRANGLE:

West Union (W. Va.).

DATE DISCOVERED: 1894. APPROXIMATE ACREAGE: 2,419. AVERAGE WELL SPACING, FEET: 500.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Maxton sand	1, 540–1, 800	6–40	------
Big Injun sand	1, 600–2, 159	160–178	7

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	4, 511
Oilfield size	acres	2, 419
Original oil content	barrels	10, 912, 000
Total oil production	do	2, 749, 000
Reservoir oil content	do	8, 163, 000

RESERVOIR ROCK CHARACTERISTICS:

The Big Injun sand is a friable sandstone.

SECONDARY RECOVERY METHOD:

Gas Injection: Started in 1938; reported as successful.
Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 2,137,500 bbl. Maximum initial oil production was reported as 1,800 b.p.d. from the Big Injun sand. About 135 producing wells remain in the field.

BIBLIOGRAPHY:

18, p. 45; 23, pp. 473, 476; 25, pp. 4–5, 8–9; 26, pp. 2–3; 27, pp. 2–3; 29, p. 21; 35, pp. 500–524; 64, pp. 6, 18.

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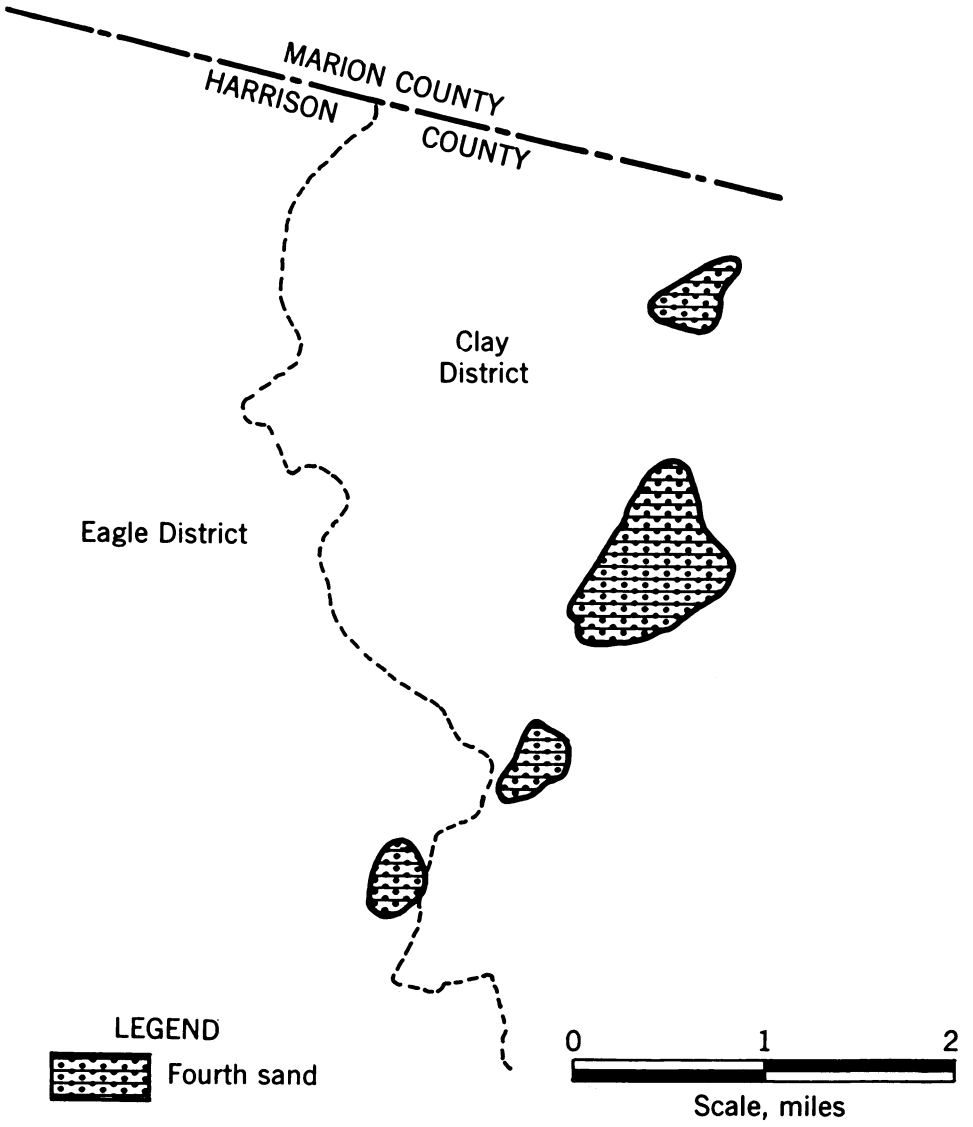

FIGURE 49.—Map of Lambert Run Oilfield, Harrison County, W. Va.

LAMBERT RUN FIELD (37)

LOCATION:

Eagle and Clay Dists., Harrison County.

QUADRANGLE:

Clarksburg (W. Va.).

DATE DISCOVERED: 1910. APPROXIMATE ACREAGE: 207. AVERAGE WELL SPACING, FEET: 700.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Fourth sand	2, 115–2, 490	10–55	8

ESTIMATED RESERVOIR OIL CONTENT AS OF 1950: [10]

Original oil content	barrels per acre	----------
Oilfield size	acres	----------
Original oil content	barrels	----------
Total oil production	do	----------
Reservoir oil content	do	----------

RESERVOIR ROCK CHARACTERISTICS:

The Fourth sand is a dark-colored, tightly cemented, pebbly sandstone.

SECONDARY RECOVERY METHOD:

Gas Injection:

Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935.

BIBLIOGRAPHY:

15, pp. 16, 19; 23, p. 469; 29, p. 22; 34, pp. 484–528.

[10] Reservoir oil content included with Lucas field (39). Field was reported as abandoned about 1950.

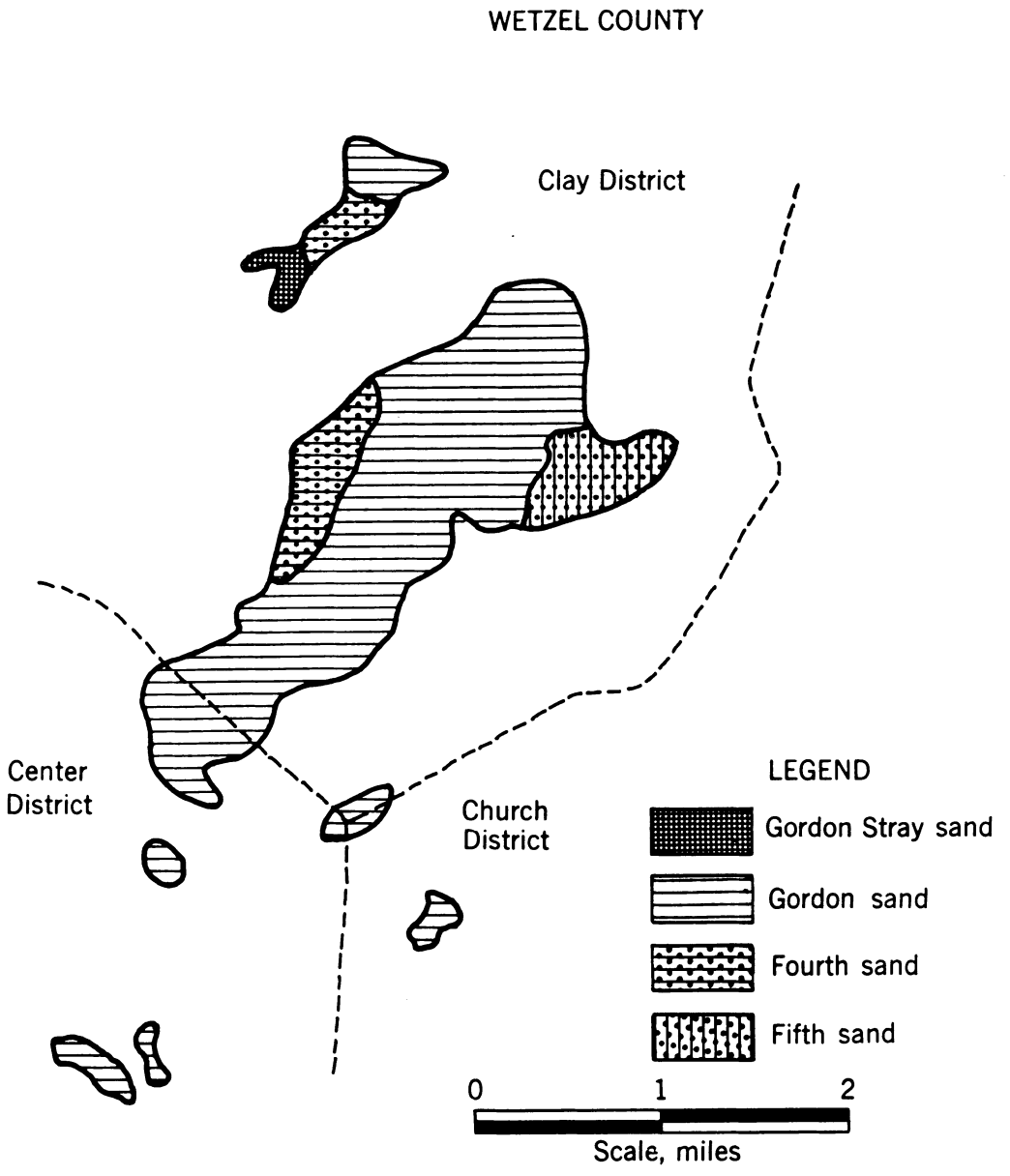

FIGURE 50.—Map of Littleton Oilfield, Wetzel County, W. Va.

LITTLETON FIELD (13)

LOCATION:

Center, Clay, and Church Dists., Wetzel County.

QUADRANGLES:

Littleton and Mannington (W. Va.-Pa.).

DATE DISCOVERED: 1902. APPROXIMATE ACREAGE: 1,937. AVERAGE WELL SPACING, FEET: 700.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Gordon Stray sand	2, 620–3, 380	15–30	----------
Gordon sand	2, 670–3, 470	11–145	4
Fourth sand	2, 830–3, 390	5–15	----------
Fifth sand	2, 945–3, 570	5–30	4

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	4, 750
Oilfield size	acres	1, 937
Original oil content	barrels	9, 200, 000
Total oil production	do	2, 020, 000
Reservoir oil content	do	7, 180, 000

RESERVOIR ROCK CHARACTERISTICS:

The Gordon sand is a tightly cemented, conglomeratic sandstone. The Fifth sand is a fine-grained, uniform sandstone.

SECONDARY RECOVERY METHOD:

Gas Injection:

Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 1,500,000 bbl. Maximum initial oil production was reported as 25 b.p.d. from the Gordon sand.

BIBLIOGRAPHY:

18, p; 43; 29, pp. 20, 25; 35, pp. 404–445.

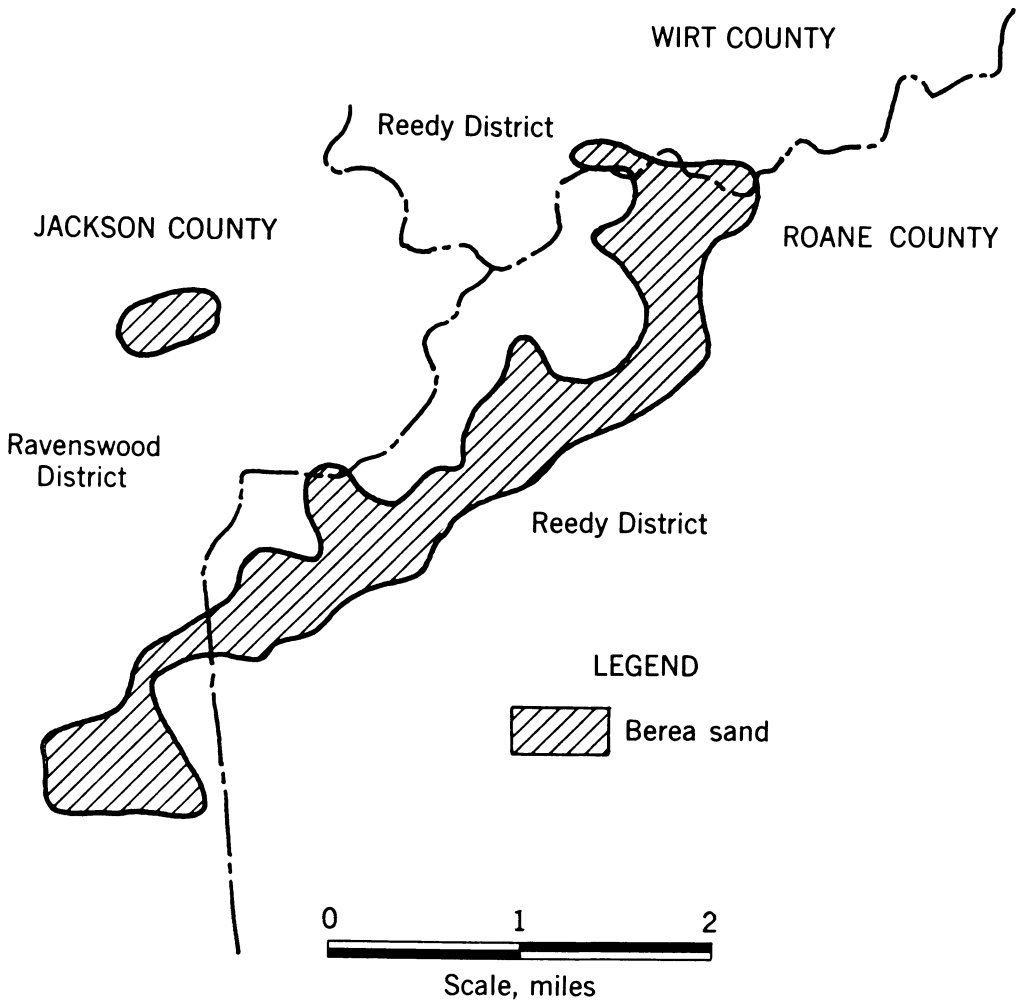

FIGURE 51.—Map of Liverpool Oilfield, Wirt, Roane, and Jackson Counties, W. Va.

LIVERPOOL FIELD (62)

LOCATION:

Reedy Dist., Wirt County; Reedy Dist., Roane County; Ravenswood Dist., Jackson County.

QUADRANGLES:

Ripley and Spencer (W. Va.).

DATE DISCOVERED: 1919. APPROXIMATE ACREAGE: 1,363. AVERAGE WELL SPACING, FEET: 700.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Berea sand	2, 400–2, 545	12–20	5

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	4, 000
Oilfield size	acres	1, 363
Original oil content	barrels	5, 452, 000
Total oil production	do	1, 624, 000
Reservoir oil content	do	3, 828, 000

RESERVOIR ROCK CHARACTERISTICS:

The Berea sand is a fine-grained, tightly cemented sandstone.

SECONDARY RECOVERY METHOD:

Gas Injection: Started in 1939; no record of results.
Waterflooding.

REMARKS:

Estimated volume of oil produced to November 1935: 1,035,000 bbl. Maximum initial oil production was reported as 50 b.p.d.

BIBLIOGRAPHY:

23, pp. 469, 473, 476; 25, pp. 4–5; 26, pp. 4–5; 27, pp. 4–5; 29, p. 23; 30, p. 120; 64, p. 18; 72, p. 48.

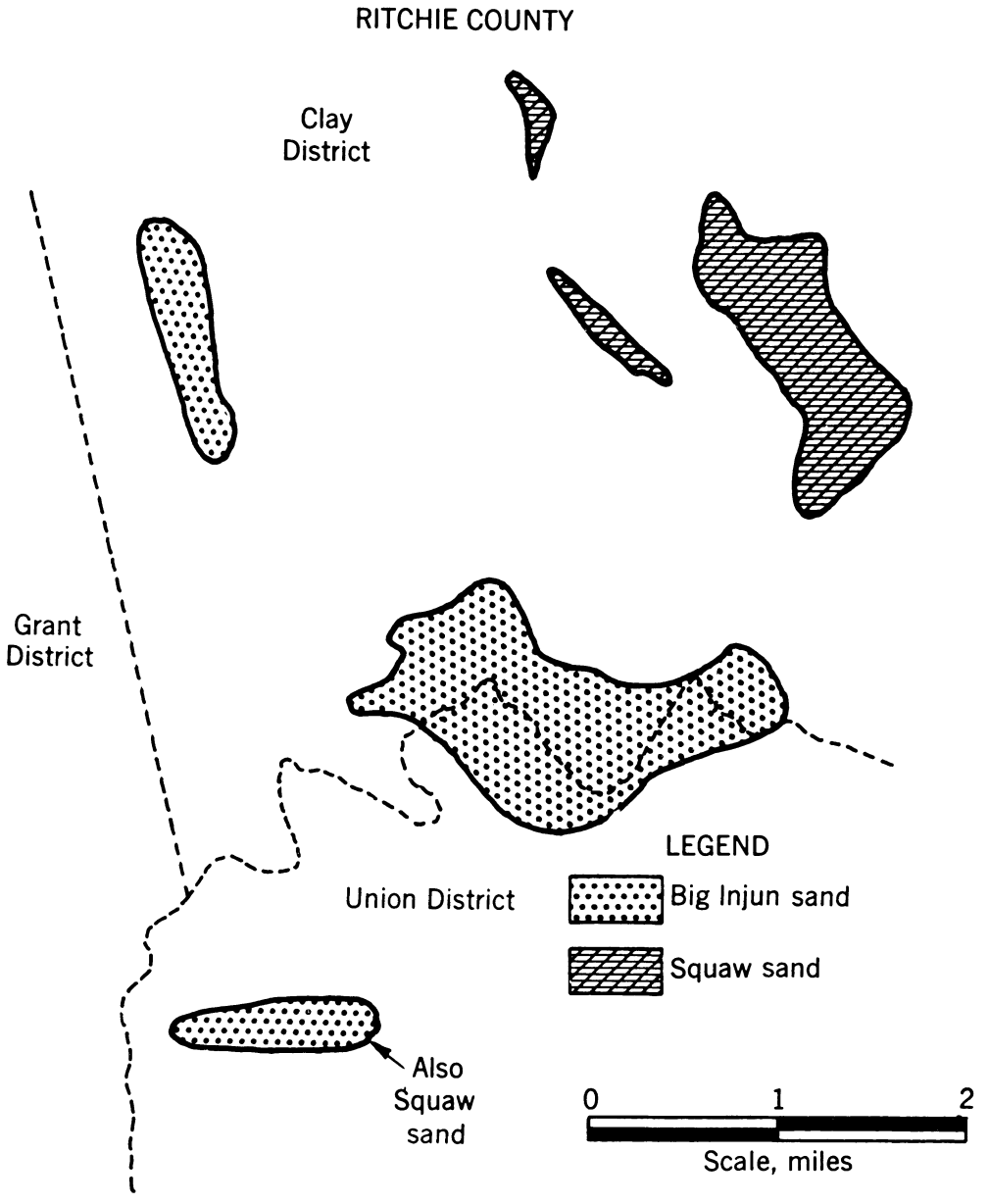

FIGURE 52.—Map of Lost Run-Gooseneck Oilfield, Ritchie County, W. Va.

LOST RUN-GOOSENECK FIELD (49)

LOCATION:

Clay and Union Dists., Ritchie County.

QUADRANGLES:

St. Marys (W. Va.-Ohio), Harrisville, West Union, and Holbrook (W. Va.).

DATE DISCOVERED: 1897. APPROXIMATE ACREAGE: 1,811. AVERAGE WELL SPACING, FEET: 350.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Big Injun sand	1, 680–1, 955	25–110	8½
Squaw sand	1, 750–1, 975	5– 25	---

ESTIMATED RESERVOIR OIL CONTENT AS OF 1955:

Original oil content	barrels per acre	3, 000
Oilfield size	acres	1, 811
Original oil content	barrels	5, 433, 000
Total oil production	do	1, 573, 000
Reservoir oil content	do	3, 860, 000

RESERVOIR ROCK CHARACTERISTICS:

The Big Injun sand is a fine-grained friable sandstone.

SECONDARY RECOVERY METHOD:

Gas Injection:
Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 1,350,000 bbl. Maximum initial oil production was reported as 35 b.p.d. Field was reported as abandoned about 1955.

BIBLIOGRAPHY:

Appendix; (*13*), *pp. 148–157, 188–204.*

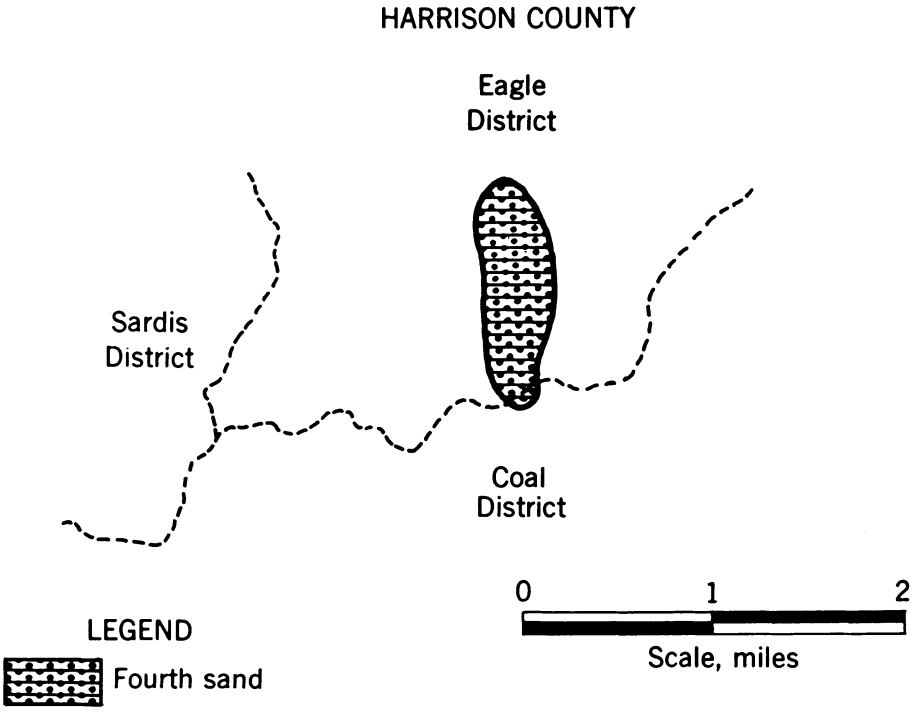

FIGURE 53.—Map of Lucas Oilfield, Harrison County, W. Va.

LUCAS FIELD (38)

LOCATION:

Coal and Eagle Dists., Harrison County.

QUADRANGLE:

Clarksburg (W. Va.).

DATE DISCOVERED: 1910. APPROXIMATE ACREAGE: 509. AVERAGE WELL SPACING, FEET: 700.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Fourth sand	2, 115–2, 490	10–55	8

ESTIMATED RESERVOIR OIL CONTENT FOR LUCAS FIELD (38) AND LAMBERT RUN FIELD (37) AS OF 1950:

	Lucas	*Lambert Run*	
Original oil content—barrels per acre	6, 000	3, 000	----------
Oilfield size—acres	509	207	----------
Original oil content—barrels	--------	--------	3, 675, 000
Total oil production—do	--------	--------	1, 772, 000
Reservoir oil content—do	--------	--------	1, 903, 000

RESERVOIR ROCK CHARACTERISTICS:

The Fourth sand is a dark-colored, tightly cemented, pebbly sandstone.

SECONDARY RECOVERY METHOD:

Gas Injection:

Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 1,740,000 bbl. Field was reported as abandoned about 1950.

BIBLIOGRAPHY:

15, pp. 16, 19; 23, p. 469; 29, p. 22; 34, pp. 484–528.

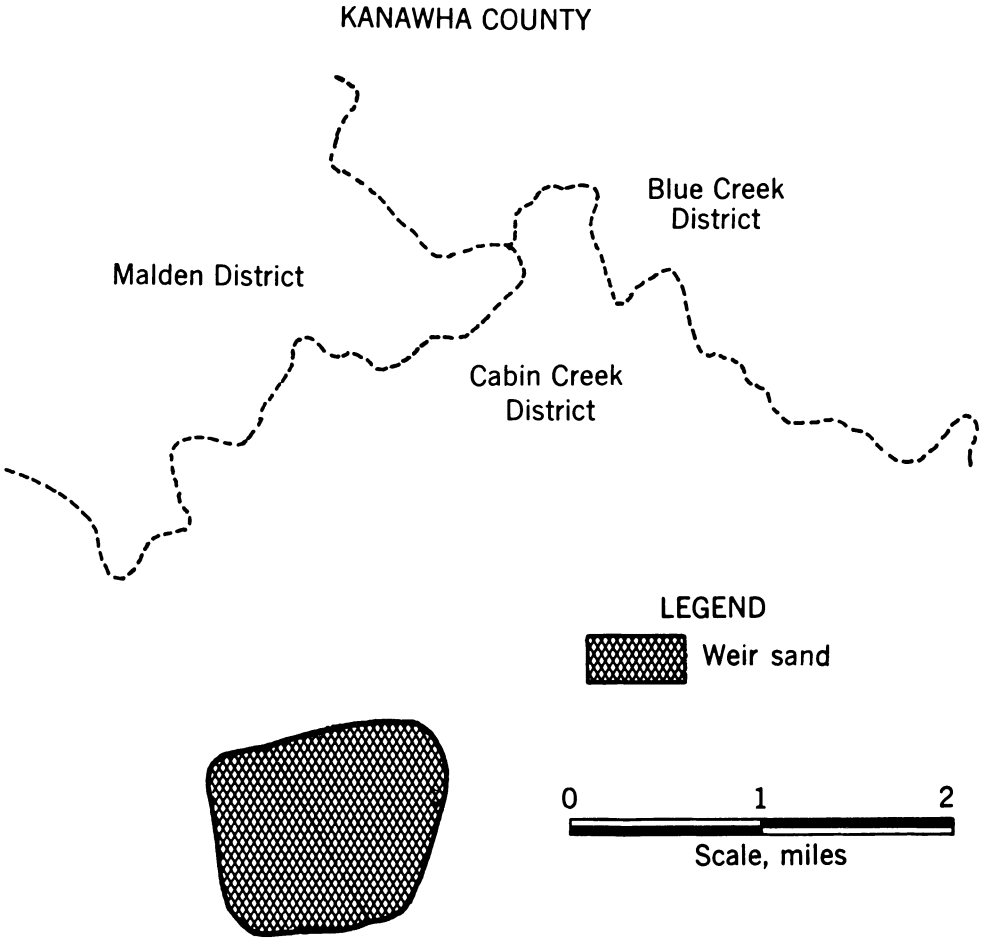

FIGURE 54.—Map of Mammoth Oilfield, Kanawha County, W. Va.

MAMMOTH FIELD (76)

LOCATION:

Cabin Creek Dist., Kanawha County.

QUADRANGLE:

Clendenin (W. Va.).

DATE DISCOVERED: 1915. APPROXIMATE ACREAGE: 717. AVERAGE WELL SPACING, FEET: 550.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Weir sand	1,950	180	10

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	4,250
Oilfield size	acres	717
Original oil content	barrels	3,047,000
Total oil production	do	628,000
Reservoir oil content	do	2,419,000

RESERVOIR ROCK CHARACTERISTICS:

SECONDARY RECOVERY METHOD:

Gas Injection: Started in 1925; reported as successful.
Waterflooding: Started in 1925; reported as unsuccessful.

REMARKS:

Estimated volume of oil produced to November 1935: 600,000 bbl. Maximum initial oil production was reported as 50 b.p.d.

BIBLIOGRAPHY:

21, p. 24; 23, pp. 470, 474, 476; 25, pp. 6–7, 12–13, 18–19; 30. pp. 121–122.

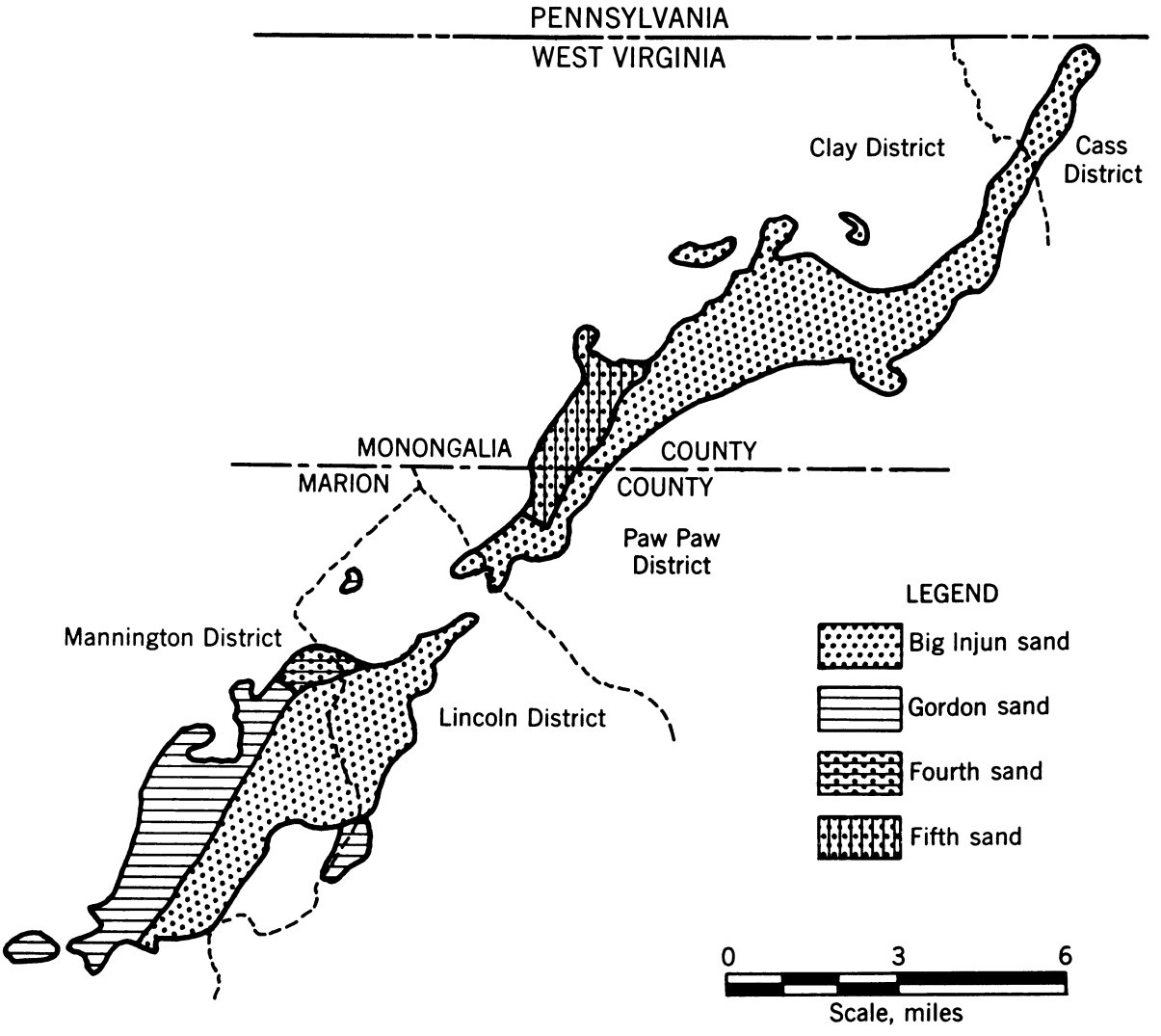

FIGURE 55.—Map of Mannington-Mt. Morris Oilfield (No. 20), Monongalia and Marion Counties, W. Va.

MANNINGTON-MT. MORRIS FIELD (20)

LOCATION:

Clay and Cass Dists., Monongalia County; Paw Paw, Mannington, and Lincoln Dists., Marion County.

QUADRANGLES:

Blacksville and Mannington (W. Va.-Pa.), Clarksburg (W. Va.).

DATE DISCOVERED: 1886. APPROXIMATE ACREAGE: 22,003. AVERAGE WELL SPACING, FEET: 700.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Big Injun sand	1, 614–2, 390	112–181	18
Gordon sand	2, 610–3, 150	15–43	5
Fourth sand	2, 655–3, 185	10–32	---
Fifth sand	2, 733–3, 188	10–40	7

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	5, 800
Oilfield size	acres	22, 003
Original oil content	barrels	127, 617, 000
Total oil production	do	32, 017, 000
Reservoir oil content	do	95, 600, 000

RESERVOIR ROCK CHARACTERISTICS:

The Big Injun sand is a fine-to-medium-grained sandstone. The Gordon sand is a conglomeratic sandstone. The Fifth sand is a medium-to-coarse-grained sandstone.

SECONDARY RECOVERY METHOD:

Gas Injection: Started in 1925 in the Big Injun sand; reported as successful.

Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 30,320,000 bbl. Maximum initial oil production was reported as 50 b.p.d.

BIBLIOGRAPHY:

Appendix; *19, pp. 43, 46; 23, pp. 468, 473, 476; 25, pp. 4–5, 8–9; 26, pp. 2–3; 27, pp. 2–3; 29, pp. 20–21; 30, pp. 115–116; 37, pp. 402–411, 454–503, 530–543, 546–606; 65, pp. 16–18; 69, pp. 30–32; 73, pp. 27–30.*

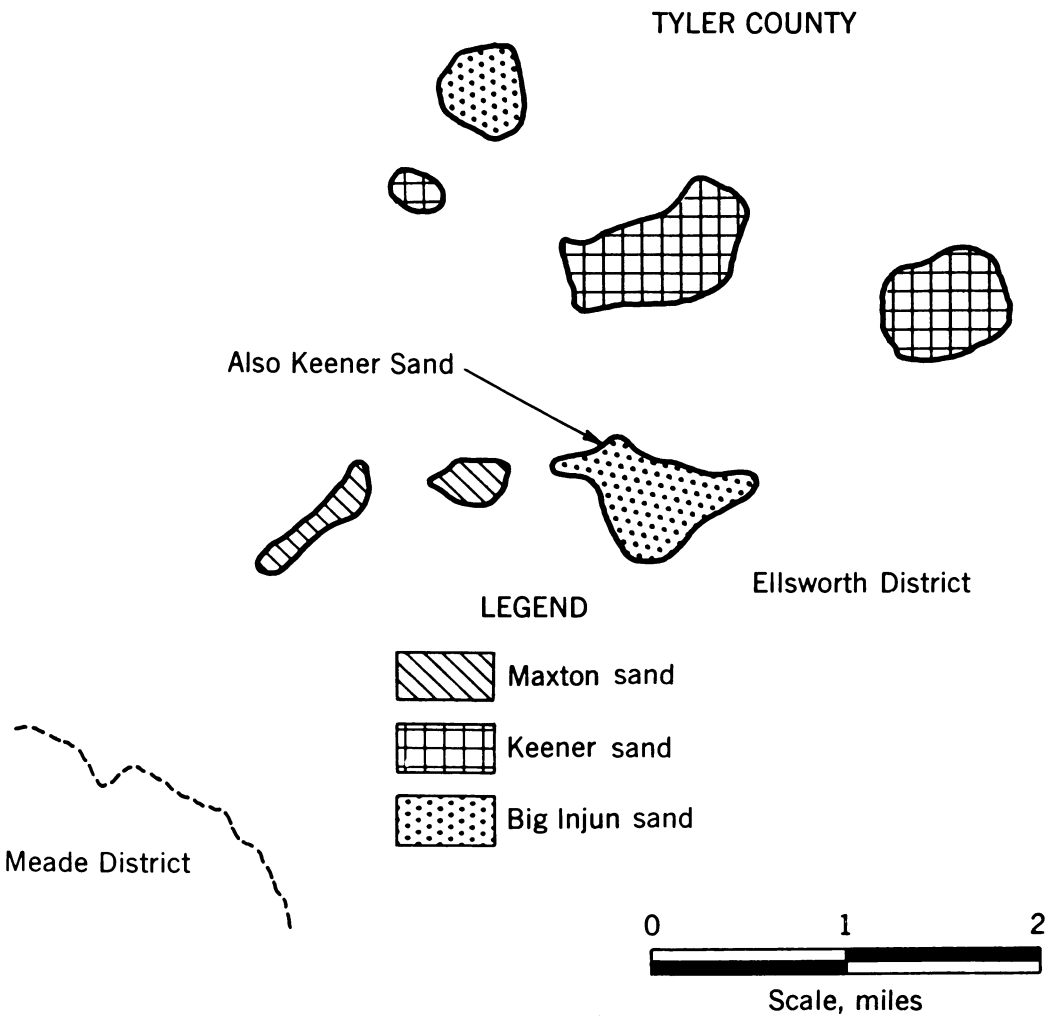

FIGURE 56.—Map of Middlebourne Oilfield, Tyler County, W. Va.

MIDDLEBOURNE FIELD (25)

LOCATION:
Ellsworth Dist., Tyler County.

QUADRANGLES:
New Martinsville (W. Va.-Ohio) and West Union (W. Va.).

DATE DISCOVERED: 1903. APPROXIMATE ACREAGE: 877. AVERAGE WELL SPACING, FEET: 500.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Maxton sand	1, 440–1, 705	10–23	----------
Keener sand	1, 615–1, 938	22–40	8
Big Injun sand	1, 643–1, 957	90–120	----------

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	6, 000
Oilfield size	acres	877
Original oil content	barrels	5, 262, 000
Total oil production	do	2, 791, 000
Reservoir oil content	do	2, 471, 000

RESERVOIR ROCK CHARACTERISTICS:
The Keener sand is friable and varies from fine to coarse grained.

SECONDARY RECOVERY METHOD:
Gas Injection:
Waterflooding:

REMARKS:
Estimated volume of oil produced to November 1935: 2,587,500 bbl. Maximum initial oil production was reported as 125 b.p.d. About 75 producing wells remain in the field.

BIBLIOGRAPHY:
18, p. 42; 29, p. 20; 35, pp. 500–510.

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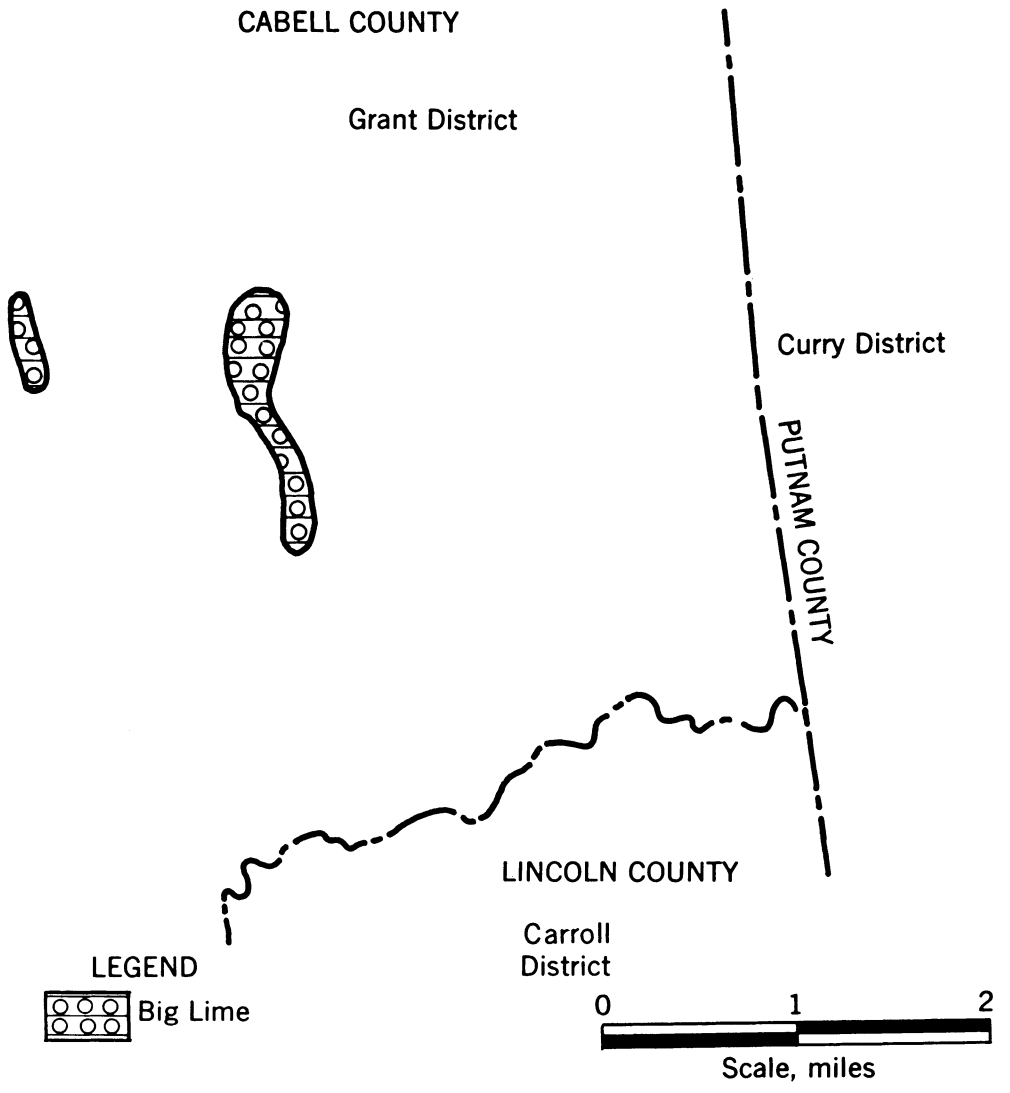

FIGURE 57.—Map of Milton Oilfield Cabell County, W. Va.

MILTON FIELD (78)

LOCATION:
Grant Dist., Cabell County.

QUADRANGLE:
Milton (W. Va.).

DATE DISCOVERED: 1903. APPROXIMATE ACREAGE: 378. AVERAGE WELL SPACING, FEET: 300.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Big Lime	1, 250–1, 600	130	15

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	2, 900
Oilfield size	acres	378
Original oil content	barrels	1, 096, 000
Total oil production	do	406, 000
Reservoir oil content	do	690, 000

RESERVOIR ROCK CHARACTERISTICS:

SECONDARY RECOVERY METHOD:
Gas Injection:
Waterflooding:

REMARKS:
Estimated volume of oil produced to November 1935: 290,000 bbl. Maximum initial oil production was reported as 247 b.p.d.

BIBLIOGRAPHY:
21, pp. 12, 24, 29; 44, pp. 290–305.

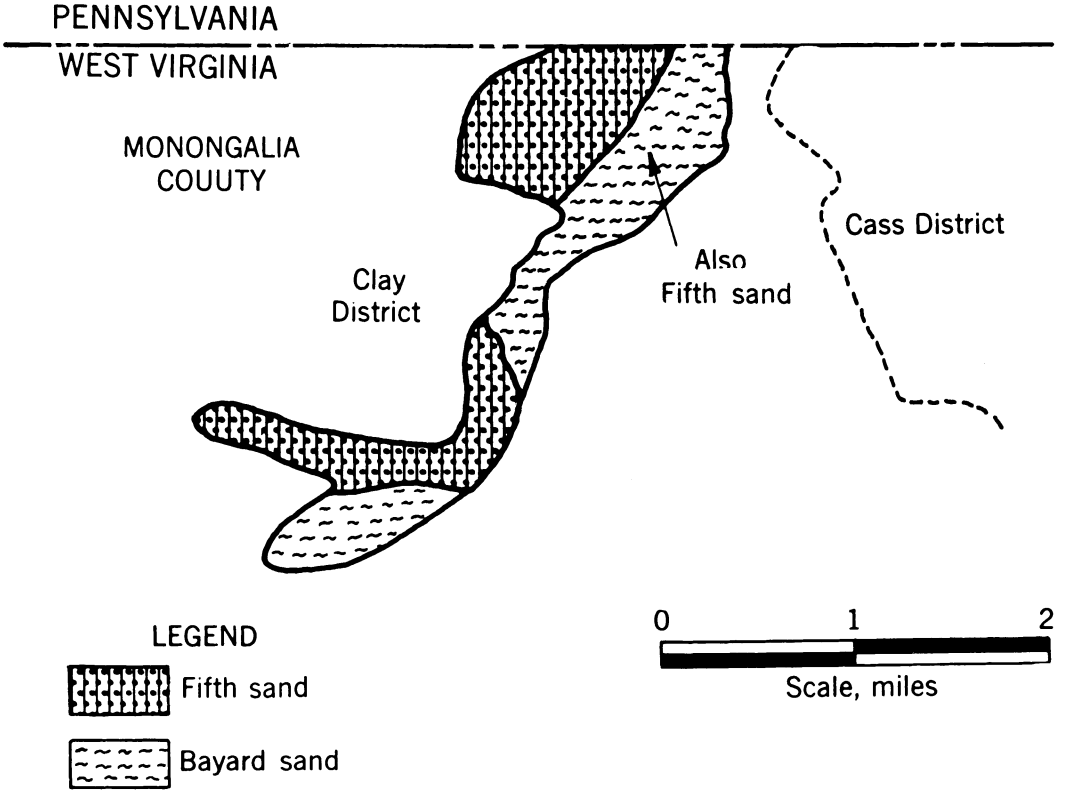

FIGURE 58.—Map of Mooresville Oilfield, Monongalia County, W. Va.

MOORESVILLE FIELD (18)

LOCATION:

Clay Dist., Monongalia County.

QUADRANGLE:

Blacksville (W. Va.-Pa.).

DATE DISCOVERED: 1915. APPROXIMATE ACREAGE: 1,312. AVERAGE WELL SPACING, FEET: 500.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Fifth sand	2, 815–3, 070	5–29	5
Bayard sand	2, 900–3, 345	3–25	3

ESTIMATED RESERVOIR OIL CONTENT AS OF 1950:

Original oil content	barrels per acre	8, 000
Oilfield size	acres	1, 312
Original oil content	barrels	10, 496, 000
Total oil production	do	2, 575, 000
Reservoir oil content	do	7, 921, 000

RESERVOIR ROCK CHARACTERISTICS:

The Fifth sand is composed of small pebbles tightly cemented.

SECONDARY RECOVERY METHOD:

Gas Injection:
Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 2,500,000 bbl. Maximum initial oil production was reported as 25 b.p.d. Field was reported as abandoned about 1950.

BIBLIOGRAPHY:

19, pp. 44, 46; 29, p. 21; 37, pp. 454–487

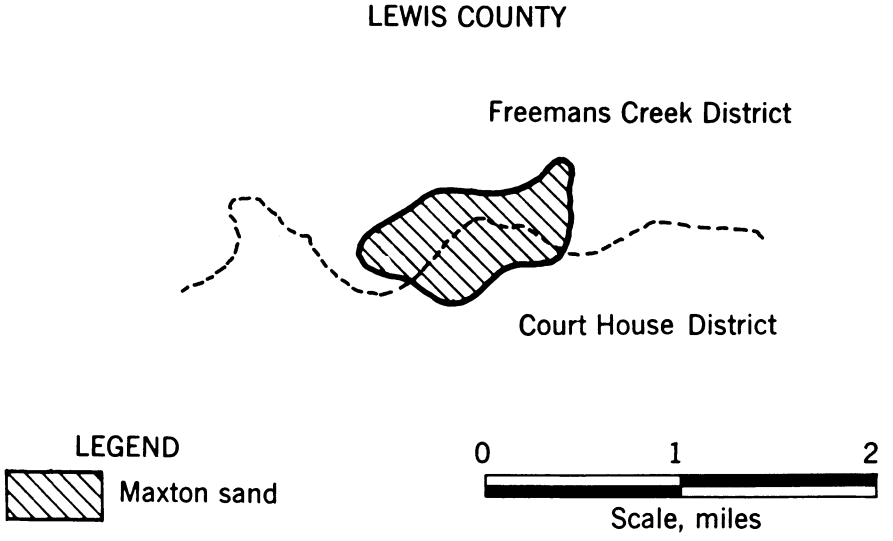

FIGURE 59.—Map of Murphy Creek Oilfield, Lewis County, W. Va.

MURPHY CREEK FIELD (57)

LOCATION:

Freemans Creek and Court House Dists., Lewis County.

QUADRANGLE:

Vadis (W. Va.).

DATE DISCOVERED: 1916. APPROXIMATE ACREAGE: 288. AVERAGE WELL SPACING, FEET: 500.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Maxton sand	1, 400–2, 204	8–25	8

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	3, 500
Oilfield size	acres	288
Original oil content	barrels	1, 008, 000
Total oil production	do	368, 000
Reservoir oil content	do	640, 000

RESERVOIR ROCK CHARACTERISTICS:

SECONDARY RECOVERY METHOD:

Gas Injection:

Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 300,000 bbl. Maximum initial oil production was reported as 12 b.p.d.

BIBLIOGRAPHY:

17, p. 13; 57, pp. 251–406.

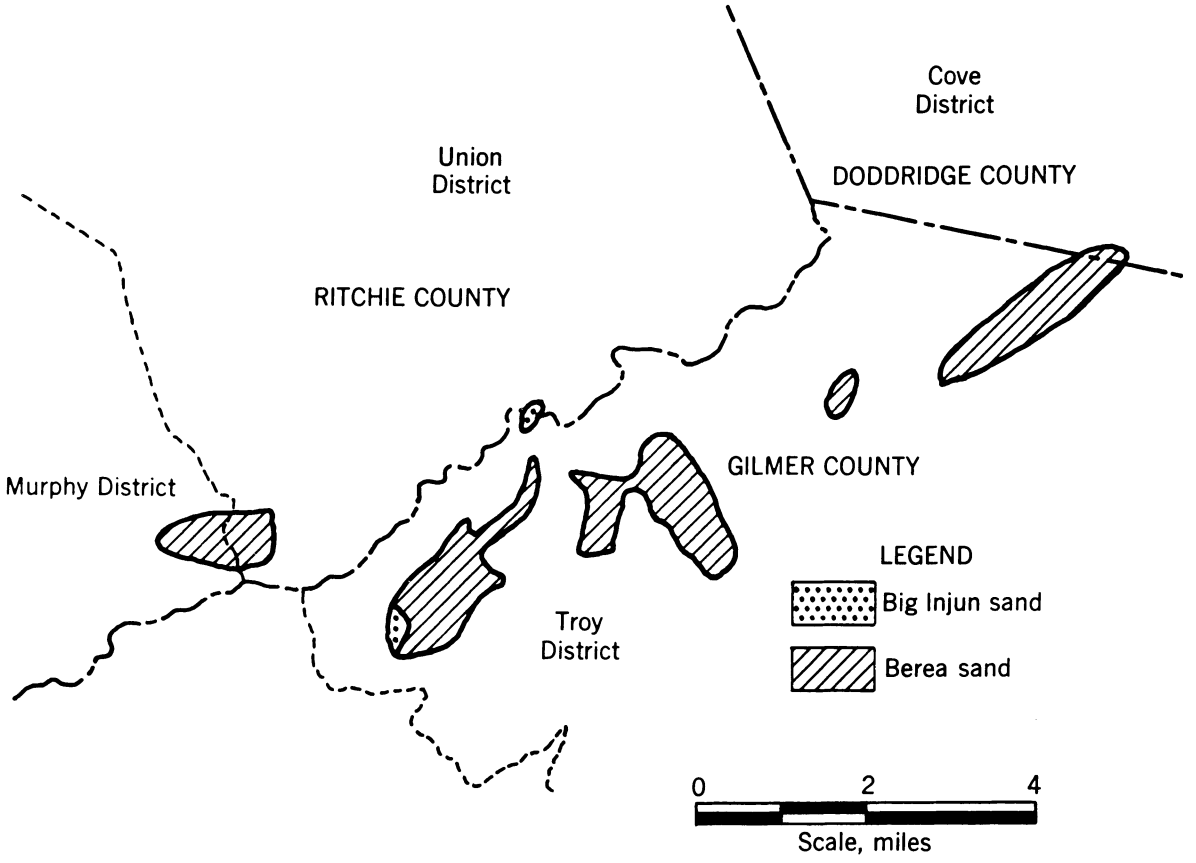

FIGURE 60.—Map of Newberne Oilfield, Ritchie, Gilmer, and Doddridge Counties, W. Va.

NEWBERNE FIELD (52)

LOCATION:

Murphy and Union Dists., Ritchie County; Troy Dist., Gilmer County; Cove Dist., Doddridge County.

QUADRANGLES:

Holbrook and Vadis (W. Va.).

DATE DISCOVERED: 1900. APPROXIMATE ACREAGE: 3,097. AVERAGE WELL SPACING, FEET: 700.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Big Injun sand	1, 625–2, 085	15–105	----------
Berea sand	2, 000–2, 385	5–35	8

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	4, 200
Oilfield size	acres	3, 097
Original oil content	barrels	13, 007, 000
Total oil production	do	3, 569, 000
Reservoir oil content	do	9, 438, 000

RESERVOIR ROCK CHARACTERISTICS:

The Berea sand is a uniformly, coarse-grained sandstone.

SECONDARY RECOVERY METHOD:

Gas Injection: Converted to gas-storage pool.
Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 3,275,400 bbl. Maximum initial oil production was reported as 75 b.p.d.

BIBLIOGRAPHY:

13, pp. 181–204; 15, p. 19; 17, pp. 9–10; 29, p. 22; 34, pp. 298–301, 382–386; 57, pp. 436–437, 442–451.

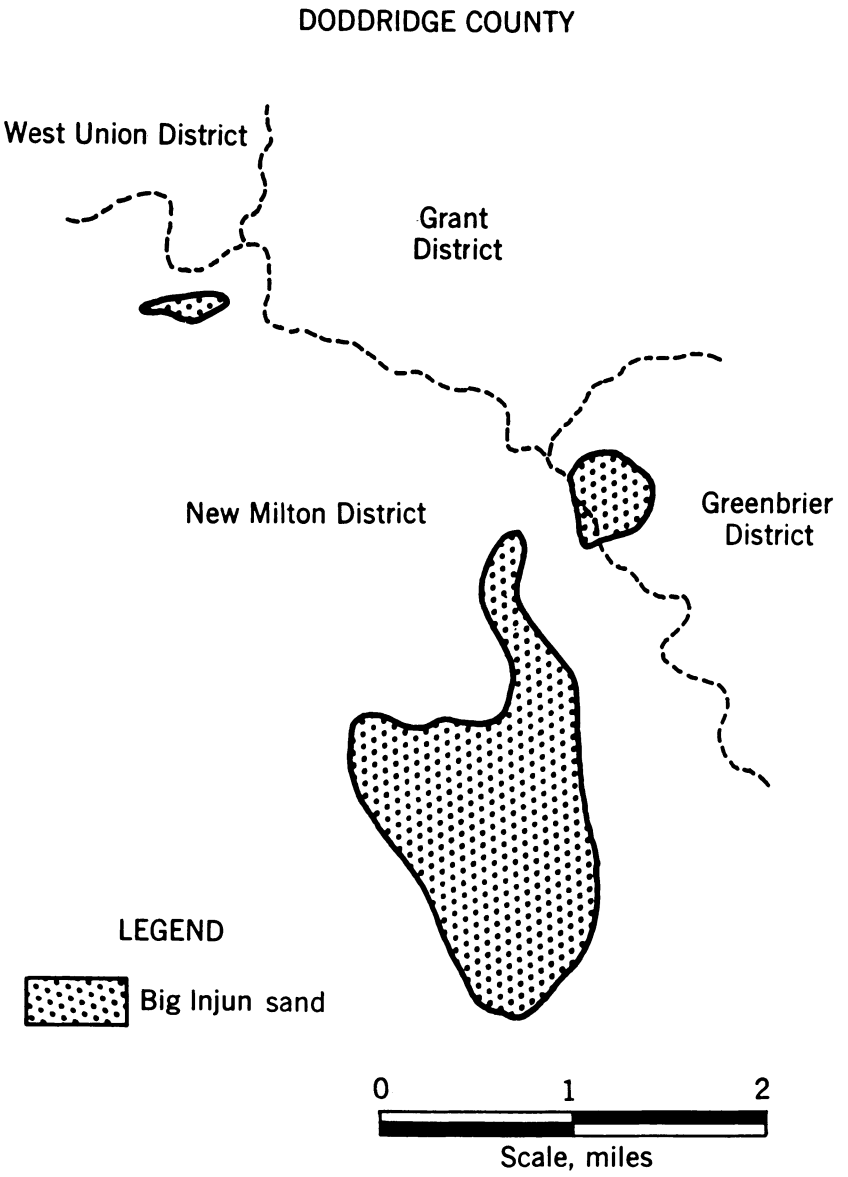

FIGURE 61.—Map of New Milton Oilfield, Doddridge County, W. Va.

NEW MILTON FIELD (55)

LOCATION:

New Milton and Greenbrier Dists., Doddridge County.

QUADRANGLES:

Vadis and Centerpoint (W. Va.).

DATE DISCOVERED: 1920. APPROXIMATE ACREAGE: 1,101. AVERAGE WELL SPACING, FEET: 500.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Big Injun sand	1, 880–2, 140	74–115	10

ESTIMATED RESERVOIR OIL CONTENT AS OF 1950:

Original oil content	barrels per acre	6, 000
Oilfield size	acres	1, 101
Original oil content	barrels	6, 606, 000
Total oil production	do	1, 046, 000
Reservoir oil content	do	5, 560, 000

RESERVOIR ROCK CHARACTERISTICS:

The Big Injun sand is a fine-grained, friable sandstone.

SECONDARY RECOVERY METHOD:

Gas Injection:
Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 975,000 bbl. Maximum initial oil production was reported as 65 b.p.d. Field was reported as abandoned about 1950.

BIBLIOGRAPHY:

15, pp. 13–14, 19; 29, p. 22.

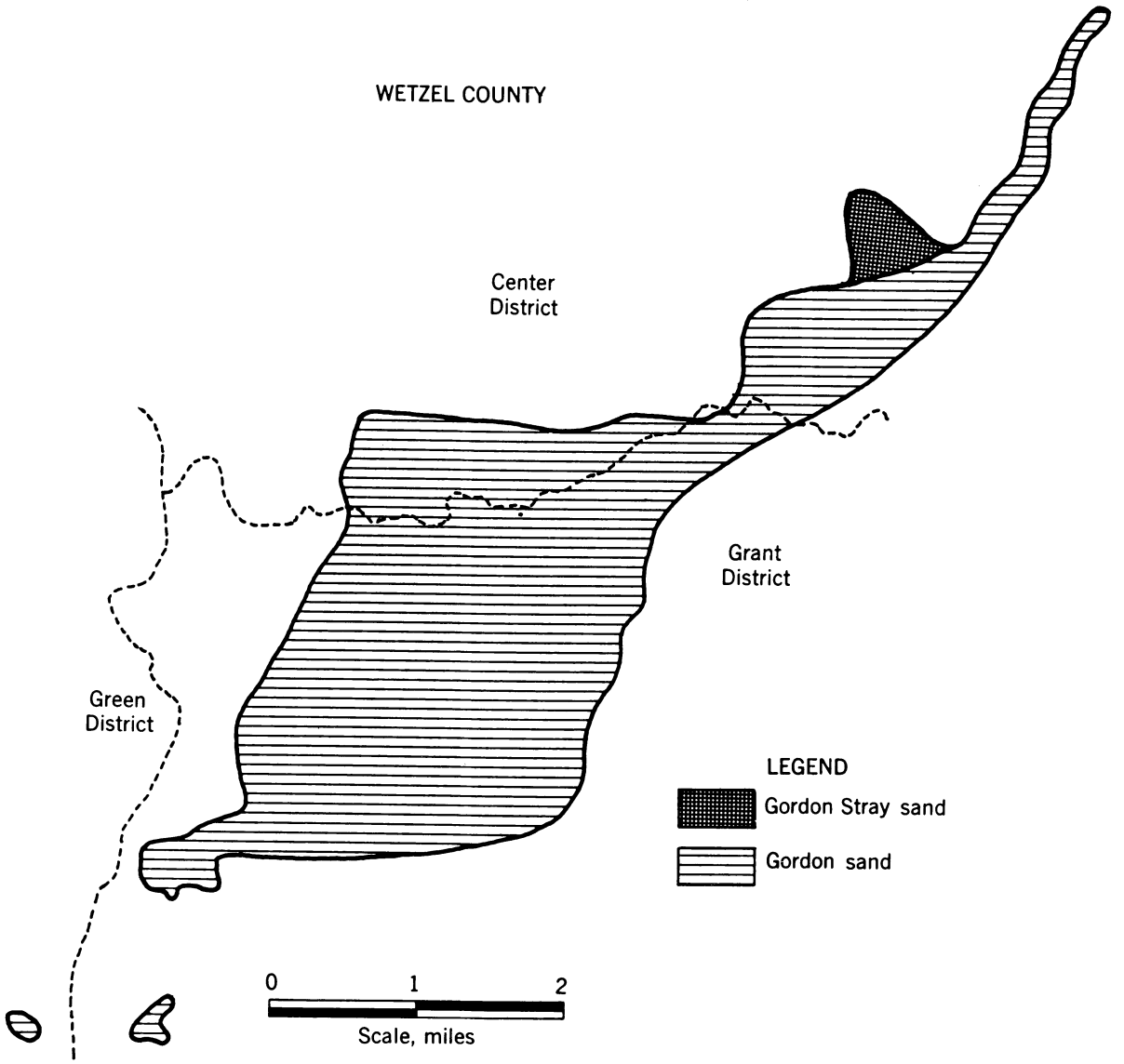

FIGURE 62.—Map of Pine Grove Oilfield, Wetzel County, W. Va.

PINE GROVE FIELD (11)

LOCATION:

Grant, Center, and Green Dists.; Wetzel County.

QUADRANGLE:

Littleton (W. Va.-Pa.).

DATE DISCOVERED: 1899. APPROXIMATE ACREAGE: 5,485. AVERAGE WELL SPACING, FEET: 700.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Gordon Stray sand	2, 528–3, 448	20–40	---
Gordon sand	2, 553–3, 470	10–70	5

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	6, 000
Oilfield size	acres	5, 485
Original oil content	barrels	32, 910, 000
Total oil production	do	1, 575, 000
Reservoir oil content	do	31, 335, 000

RESERVOIR ROCK CHARACTERISTICS:

The Gordon sand is a conglomeratic sandstone.

SECONDARY RECOVERY METHOD:

Gas Injection: Started prior to 1942 in the Gordon sand; reported as successful.
Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 900,000 bbl. Maximum initial oil production was reported as 50 b.p.d. from the Gordon sand. About 150 producing wells remain in the field.

BIBLIOGRAPHY:

18, p. 43; 25, pp. 4–5; 26, pp. 2–3; 29, p. 20; 35, pp. 406–415, 440–466.

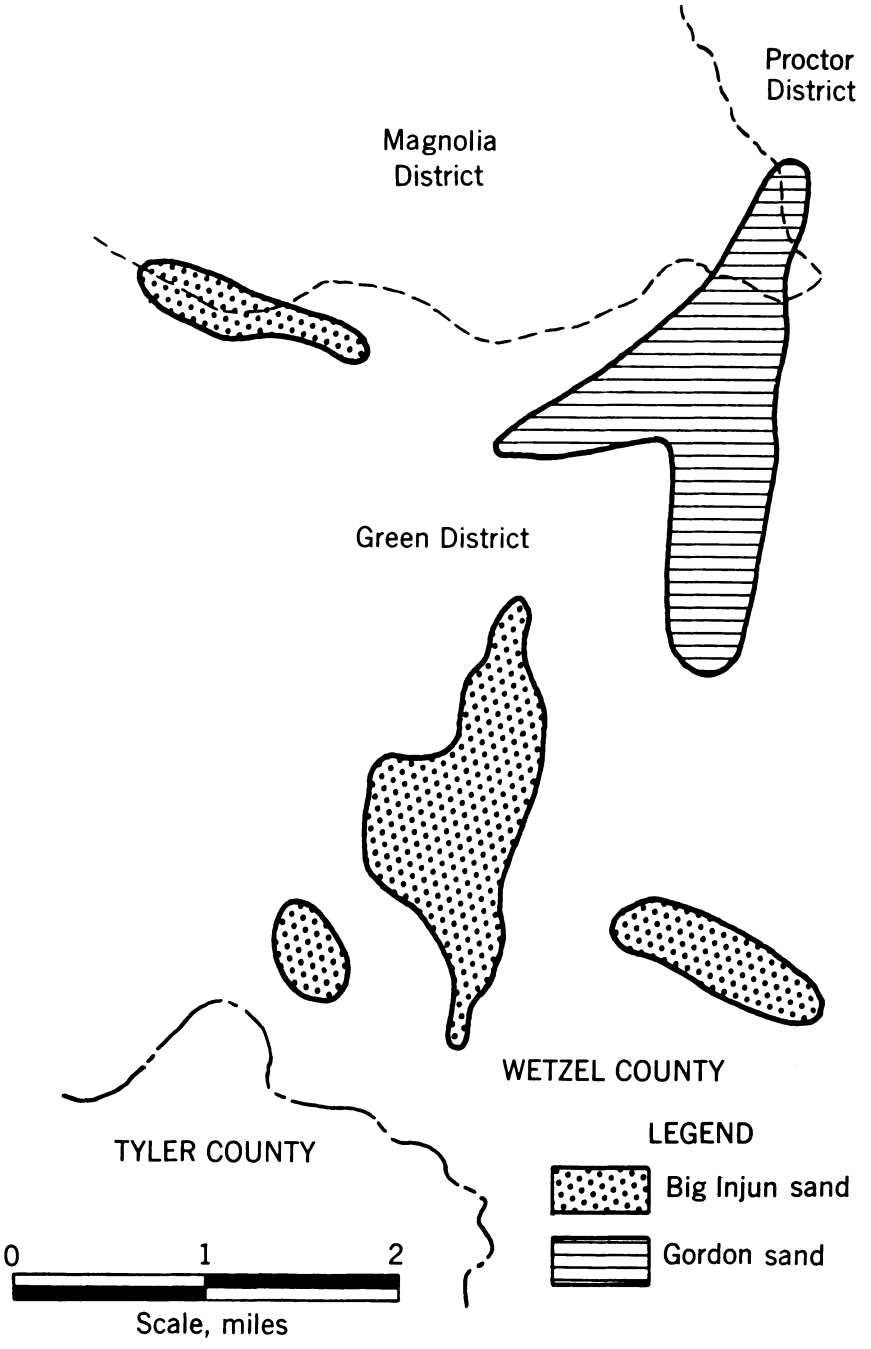

FIGURE 63.—Map of Porters Falls Oilfield. Wetzel County, W. Va.

PORTERS FALLS FIELD (9)

LOCATION:

Green, Magnolia, and Proctor Dists., Wetzel County.

QUADRANGLE:

New Martinsville (W. Va.-Ohio).

DATE DISCOVERED: 1914. APPROXIMATE ACREAGE: 1,895. AVERAGE WELL SPACING, FEET: 600.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Big Injun sand	1,950	----------	5
Gordon sand	2,800	----------	5

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	4,000
Oilfield size	acres	1,895
Original oil content	barrels	7,580,000
Total oil production	do	1,522,000
Reservoir oil content	do	6,058,000

RESERVOIR ROCK CHARACTERISTICS:

The Big Injun sand varies from fine-grained sandstone to a conglomerate. The Gordon sand is a small, well-rounded quartz-pebble sandstone that is well cemented.

SECONDARY RECOVERY METHOD:

Gas Injection:
Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 1,250,000 bbl. Maximum initial oil production was reported as 800 b.p.d. from the Big Injun sand and 60 b.p.d. from the Gordon sand. About 50 producing wells remain in the field.

BIBLIOGRAPHY:

18, p. 46; 64, pp. 6, 10–11, 17; 72, p. 41.

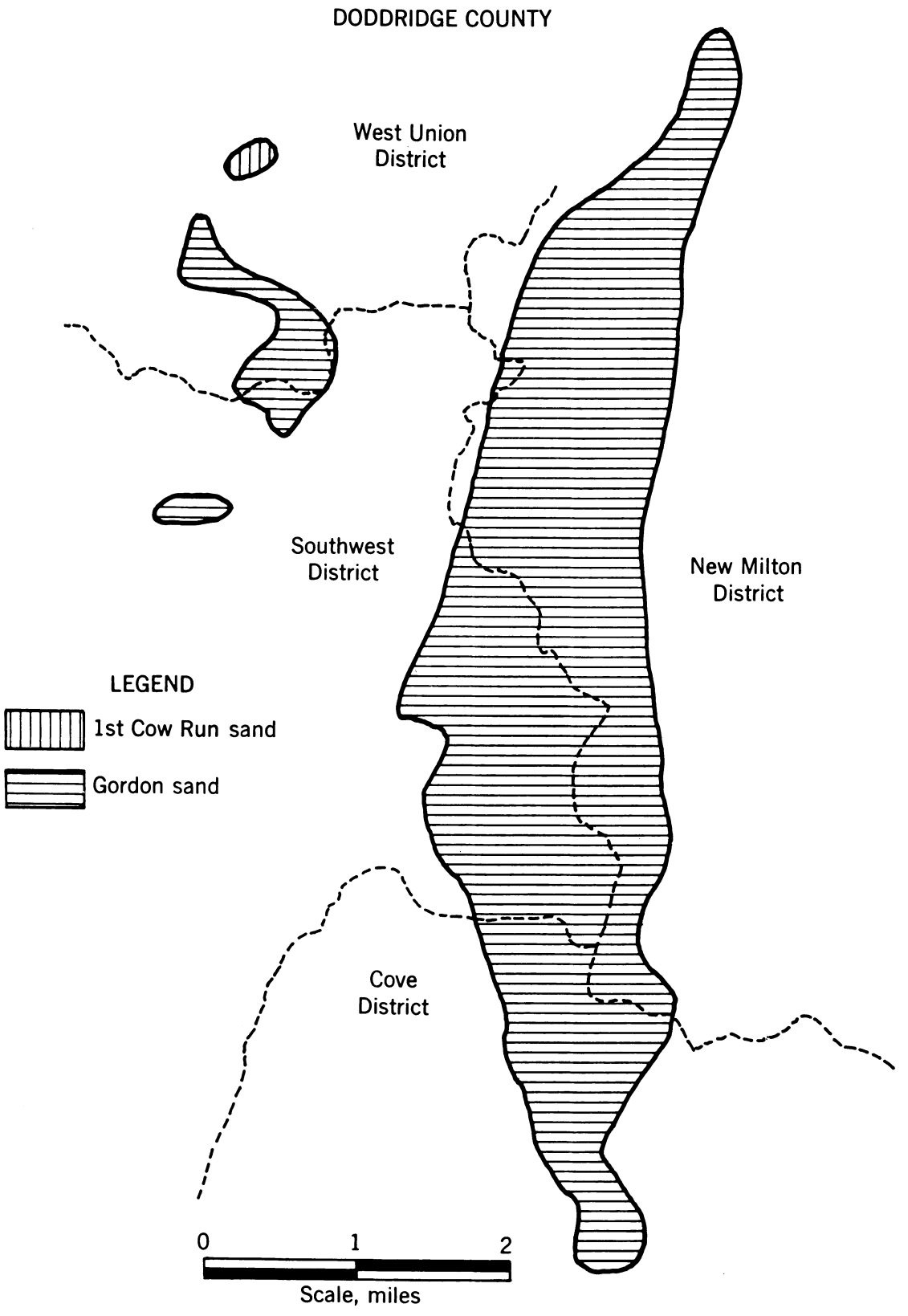

FIGURE 64.—Map of Porto Rico Oilfield. Doddridge County, W. Va.

PORTO RICO FIELD (54)

LOCATION:

Southwest, Cove, New Milton, and West Union Dists., Doddridge County.

QUADRANGLES:

Holbrook and Vadis (W. Va.).

DATE DISCOVERED: 1899. APPROXIMATE ACREAGE: 5,587. AVERAGE WELL SPACING, FEET: 750.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
1st Cow Run sand	825–1, 165	20–50	---
Gordon sand	2, 270–2, 755	5–20	4

ESTIMATED RESERVOIR OIL CONTENT AS OF 1950:

Original oil content	barrels per acre	6, 500
Oilfield size	acres	5, 587
Original oil content	barrels	36, 315, 000
Total oil production	do	6, 791, 000
Reservoir oil content	do	29, 524, 000

RESERVOIR ROCK CHARACTERISTICS:

The 1st Cow Run sand is a coarse-grained conglomeratic sandstone.

SECONDARY RECOVERY METHOD:

Gas Injection:
Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 6,587,500 bbl. Maximum initial well production was reported as 200 barrels of oil per day. Field was reported as abandoned about 1950.

BIBLIOGRAPHY:

15, pp. 13, 19; 29, p. 22; 34, pp. 350–362, 370–396.

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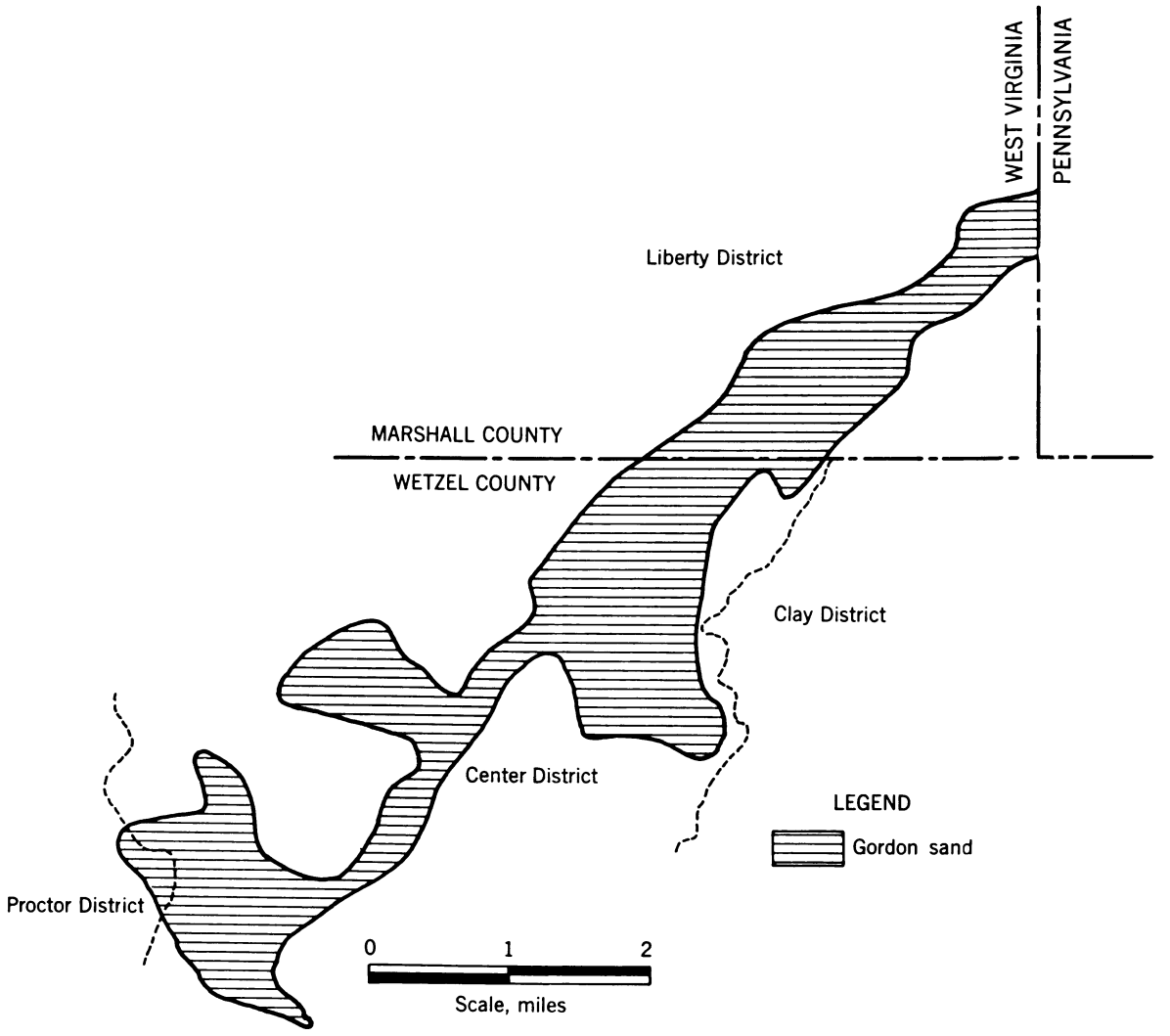

FIGURE 65.—Map of Rockport Oilfield, Marshall and Wetzel Counties, W. Va.

ROCKPORT FIELD (10)

LOCATION:
Liberty Dist., Marshall County; Center and Proctor Dists.; Wetzel County.

QUADRANGLE:
Littleton (W. Va.-Pa.).

DATE DISCOVERED: 1895. APPROXIMATE ACREAGE: 1,536. AVERAGE WELL SPACING, FEET: 700.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Gordon sand	2, 360–3, 470	10–20	5

ESTIMATED RESERVOIR OIL CONTENT AS OF 1954:

Original oil content	barrels per acre	4, 000
Oilfield size	acres	1, 536
Original oil content	barrels	6, 144, 000
Total oil production	do	1, 469, 000
Reservoir oil content	do	4, 675, 000

RESERVOIR ROCK CHARACTERISTICS:
The Gordon sand is a hard, conglomeratic sandstone.

SECONDARY RECOVERY METHOD:
Gas Injection:
Waterflooding:

REMARKS:
Estimated volume of oil produced to November 1935: 1,050,000 bbl. Maximum initial oil production was reported as 30 b.p.d. Field reported as abandoned about 1954.

BIBLIOGRAPHY:
18, pp. 42–43; 29, pp. 20, 25; 35, pp. 381–391, 406–417, 440–445, 466–471.

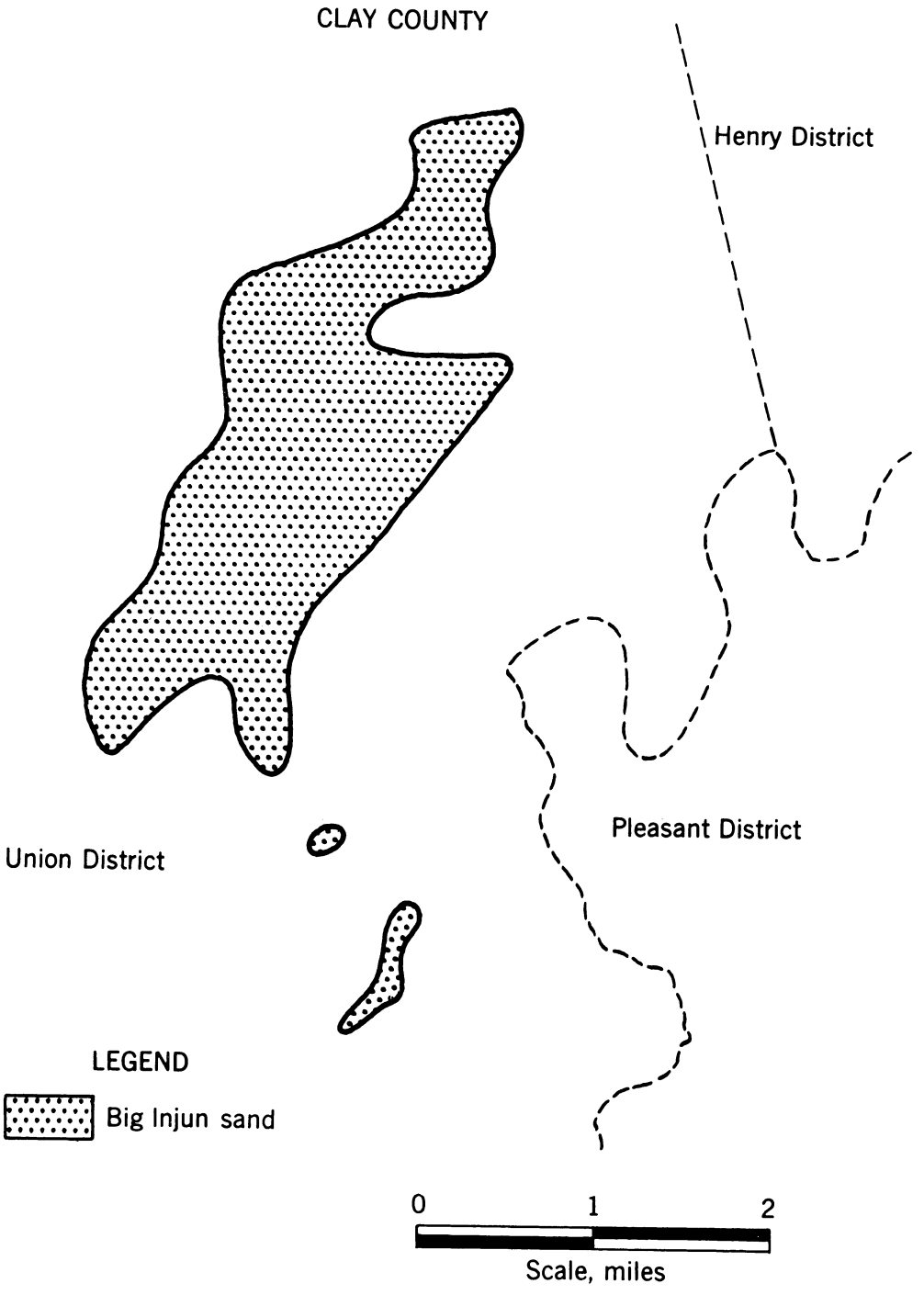

FIGURE 66.—Map of Rouzer Oilfield, Clay County, W. Va.

ROUZER FIELD (73)

LOCATION:
Union Dist., Clay County.

QUADRANGLE:
Clay (W. Va.).

DATE DISCOVERED: 1912. APPROXIMATE ACREAGE: 2,483. AVERAGE WELL SPACING, FEET: 600.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Big Injun sand	1, 650–2, 087	20–63	30

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	6, 000
Oilfield size	acres	2, 483
Original oil content	barrels	14, 898, 000
Total oil production	do	3, 951, 000
Reservoir oil content	do	10, 947, 000

RESERVOIR ROCK CHARACTERISTICS:
The Big Injun sand color varies from white to gray.

SECONDARY RECOVERY METHOD:
Gas Injection:
Waterflooding:

REMARKS:
Estimated volume of oil produced to November 1935: 3,600,000 bbl. Maximum initial oil production was reported as 100 b.p.d.

BIBLIOGRAPHY
6, pp. 575–576; 29, p. 24; 33, pp. 346–349, 381–454; 64, p. 17; 72, p. 41.

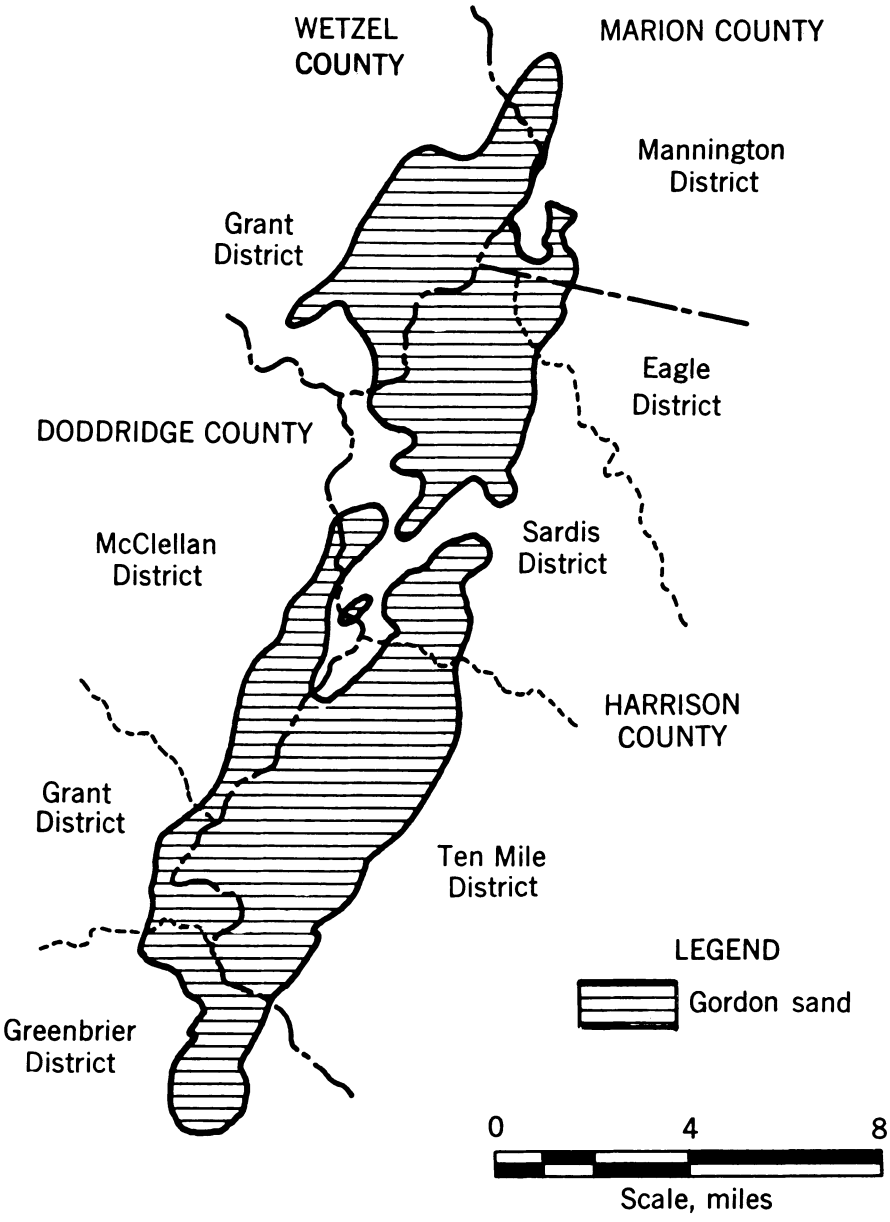

FIGURE 67.—Map of Salem-Wallace Oilfield, Doddridge, Harrison, Marion, and Wetzel Counties, W. Va.

SALEM-WALLACE FIELD (35)

LOCATION:

Greenbrier, Grant, and McClellan Dists., Doddridge County; Eagle, Sardis, and Tenmile Dists., Harrison County; Mannington Dist., Marion County; Grant Dist., Wetzel County.

QUADRANGLES:

Vadis, Centerpoint, and Clarksburg (W. Va.), Mannington (W. Va.-Pa.).

DATE DISCOVERED: 1899. APPROXIMATE ACREAGE: 41,800. AVERAGE WELL SPACING, FEET: 800.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Gordon sand	2, 500–3, 150	5–50	8

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	5, 800
Oilfield size	acres	41, 800
Original oil content	barrels	242, 440, 000
Total oil production	do	41, 162, 000
Reservoir oil content	do	201, 278, 000

RESERVOIR ROCK CHARACTERISTICS:

The Gordon sand is a hard, conglomeratic sandstone.

SECONDARY RECOVERY METHOD:

Gas Injection: Started in 1936; reported as successful.
Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 38,047,500 bbl. Maximum initial oil production was reported as 1,400 b.p.d.

BIBLIOGRAPHIES:

15, pp. 14–16, 19; 19, pp. 44, 46; 25, pp. 4–5; 26, pp. 4–5; 27, pp. 4–5; 29, p. 22; 34, pp. 290–295, 300–350, 396–405, 408–419, 426–473, 484–505; 35, pp. 408–413, 445–460; 37, pp. 530–539, 546–589; 55, pp. 12–15.

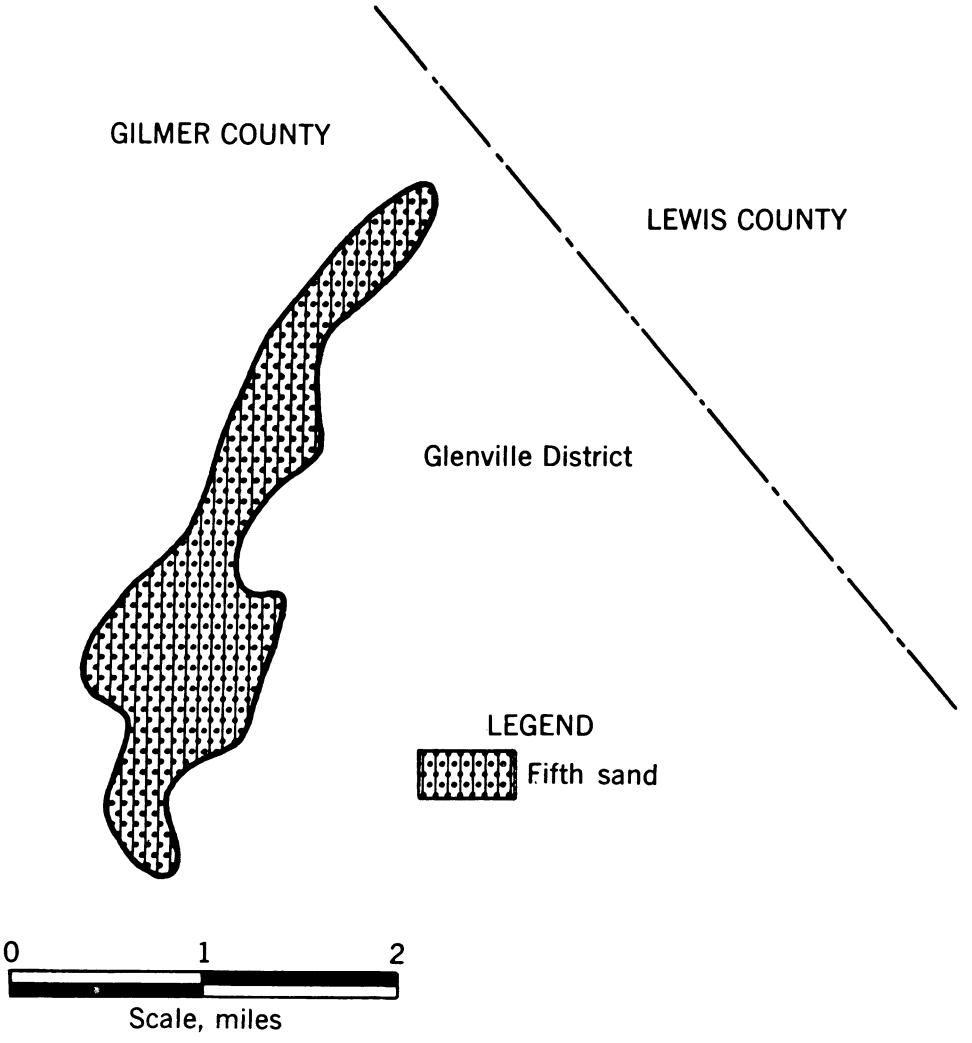

FIGURE 68.—Map of Sand Fork Oilfield, Gilmer County, W. Va.

SAND FORK FIELD (60)

LOCATION:
Glenville Dist., Gilmer County.

QUADRANGLES:
Burnsville (W. Va.).

DATE DISCOVERED: 1901. APPROXIMATE ACREAGE: 1,088. AVERAGE WELL SPACING, FEET: 750.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Fifth sand	2, 750–3, 166	6–12	5

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	3, 500
Oilfield size	acres	1, 088
Original oil content	barrels	3, 808, 000
Total oil production	do	1, 072, 000
Reservoir oil content	do	2, 736, 000

RESERVOIR ROCK CHARACTERISTICS:
The Fifth sand is a dark-colored, fine-grained sandstone.

SECONDARY RECOVERY METHOD:
Gas Injection: Started in 1942; no record of results.
Waterflooding:

REMARKS:
Estimated volume of oil produced to November 1935: 950,000 bbl. Maximum initial oil production was reported as 20 b.p.d.

BIBLIOGRAPHY:
17, pp. 8, 10; 25, p. 3; 29, p. 23; 57, pp. 438–439, 466–484.

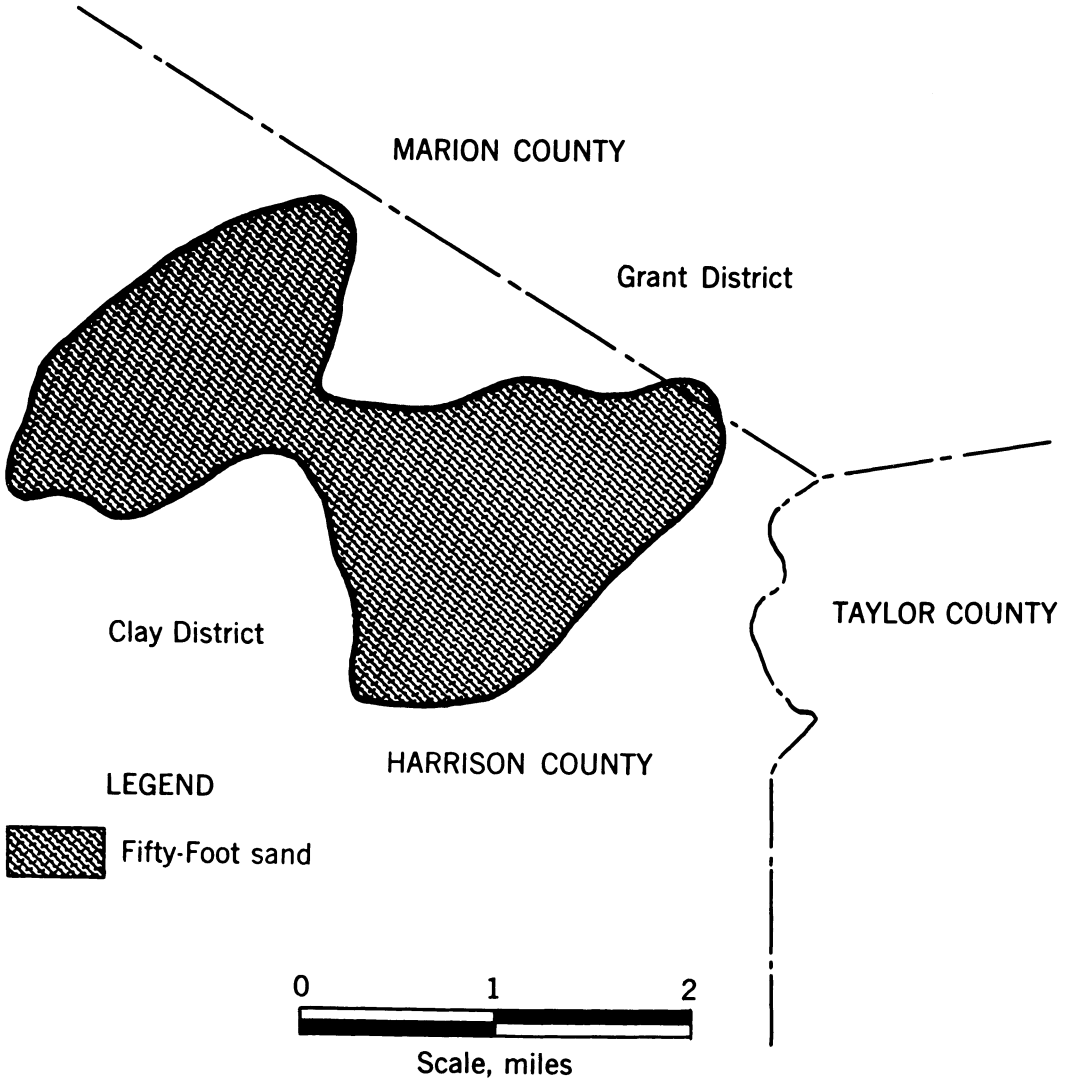

FIGURE 69.—Map of Shinnston oilfield, Harrison and Marion Counties, W. Va.

SHINNSTON FIELD (39)

LOCATION:

Clay Dist., Harrison County; Grant Dist., Marion County.

QUADRANGLES:

Clarksburg and Fairmont (W. Va.).

DATE DISCOVERED: 1908. APPROXIMATE ACREAGE: 2,700. AVERAGE WELL SPACING, FEET: 600.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Fifty-Foot sand	1, 835–2, 172	40–110	15

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	4, 000
Oilfield size	acres	2, 700
Original oil content	barrels	10, 800, 000
Total oil production	do	5, 144, 000
Reservoir oil content	do	5, 656, 000

RESERVOIR ROCK CHARACTERISTICS:

SECONDARY RECOVERY METHOD:

Gas Injection: Started in 1930; reported as successful.

Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 4,407,500 bbl. Maximum initial oil production was reported as being 10,800 b.p.d.

BIBLIOGRAPHY:

15, pp. 16, 19; 23, pp. 469, 473, 476; 25, pp. 4–5, 8–9; 26, pp. 4–5; 27, pp. 4–5; 29, p. 22; 30, pp. 117–118; 34, pp. 505–522; 37, pp. 613–615; 59, pp. 830–846; 72, p. 54.

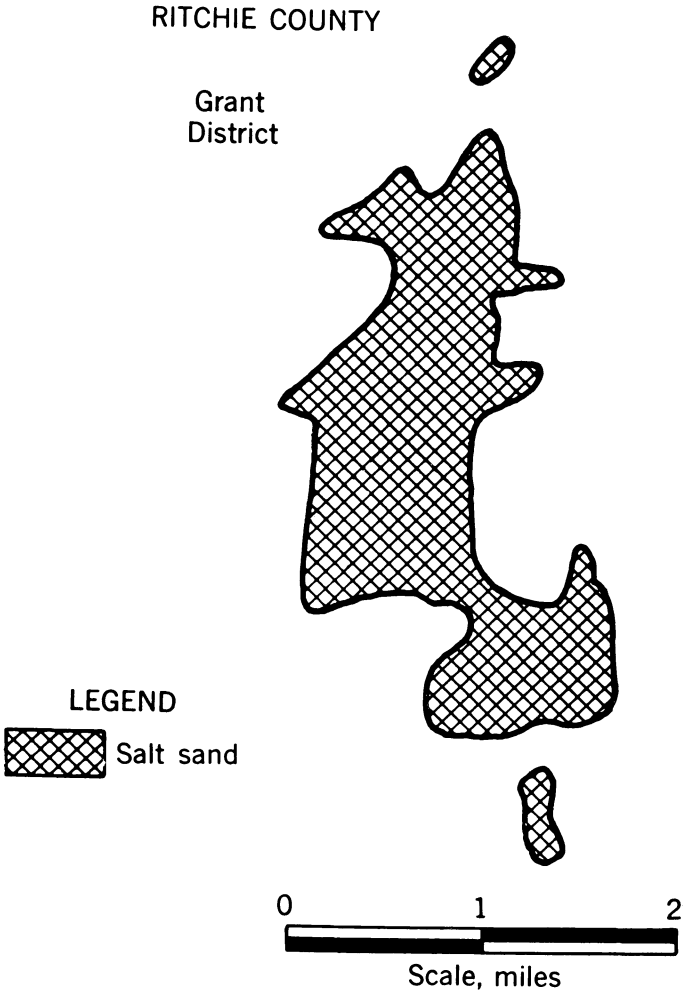

FIGURE 70.—Map of Silver Run Oilfield, Ritchie County, W. Va.

SILVER RUN FIELD (46)

LOCATION:

Grant Dist., Ritchie County.

QUADRANGLE:

Harrisville (W. Va.).

DATE DISCOVERED: 1903. APPROXIMATE ACREAGE: 1,664. AVERAGE WELL SPACING, FEET: 350.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Salt sand	1, 405–1, 800	20–70	8

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	5, 400
Oilfield size	acres	1, 664
Original oil content	barrels	8, 986, 000
Total oil production	do	2, 148, 000
Reservoir oil content	do	6, 838, 000

RESERVOIR ROCK CHARACTERISTICS:

The Salt sand varies from a fine-grained to a conglomeratic sandstone.

SECONDARY RECOVERY METHOD:

Gas Injection: Started prior to 1944; no record of results.
Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 1,922,000 bbl. Maximum initial oil production was reported as 100 b.p.d.

BIBLIOGRAPHY:

13, pp. 158–181; 23, pp. 473, 476; 25, pp. 6–7.

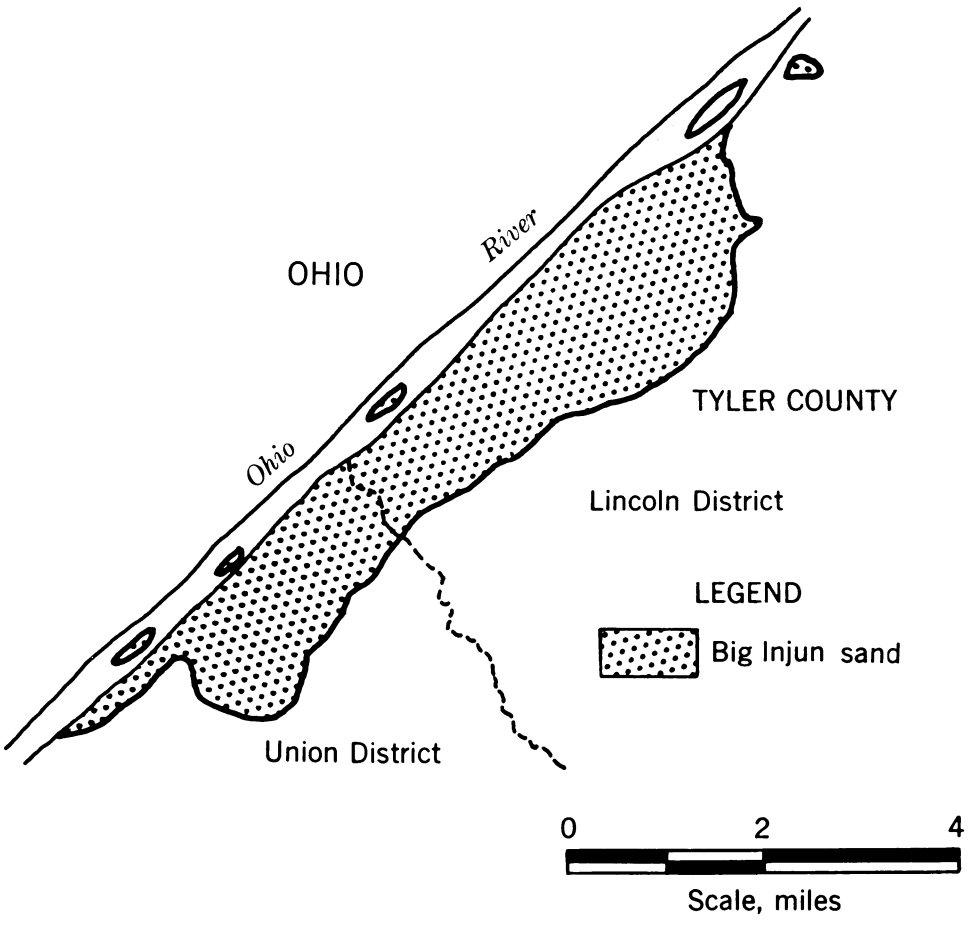

FIGURE 71.—Map of Sistersville Oilfield, Tyler County, W. Va.

SISTERSVILLE FIELD (21)

LOCATION:

Lincoln and Union Dists., Tyler County.

QUADRANGLES:

New Matamoras (Ohio-W. Va.), New Martinsville (W. Va.-Ohio).

DATE DISCOVERED: 1890. APPROXIMATE ACREAGE: 6,554. AVERAGE WELL SPACING, FEET: 400.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Big Injun sand	1,325–1,783	75–118	10

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	9,000
Oilfield size	acres	6,554
Original oil content	barrels	58,986,000
Total oil production	do	14,633,000
Reservoir oil content	do	45,353,000

RESERVOIR ROCK CHARACTERISTICS:

The Big Injun sand is very coarse-grained, conglomeratic sandstone.

SECONDARY RECOVER METHOD:

Gas Injection: Started in 1933; reported as successful.
Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 12,500,000 bbl. Maximum initial well production was reported as 1,100 b.p.d. The field is now being abandoned. About 250 wells remain in the field.

BIBLIOGRAPHY:

18, pp. 36, 41–42; 23, pp. 468, 473, 476; 25, pp. 4–5, 8–9; 26, pp. 2–3; 27, pp. 2–3; 29, pp. 20, 25; 30, p. 114; 35, pp. 476–479, 488–499; 64, p. 18; 72, pp. 38–40; 73, pp. 12–13.

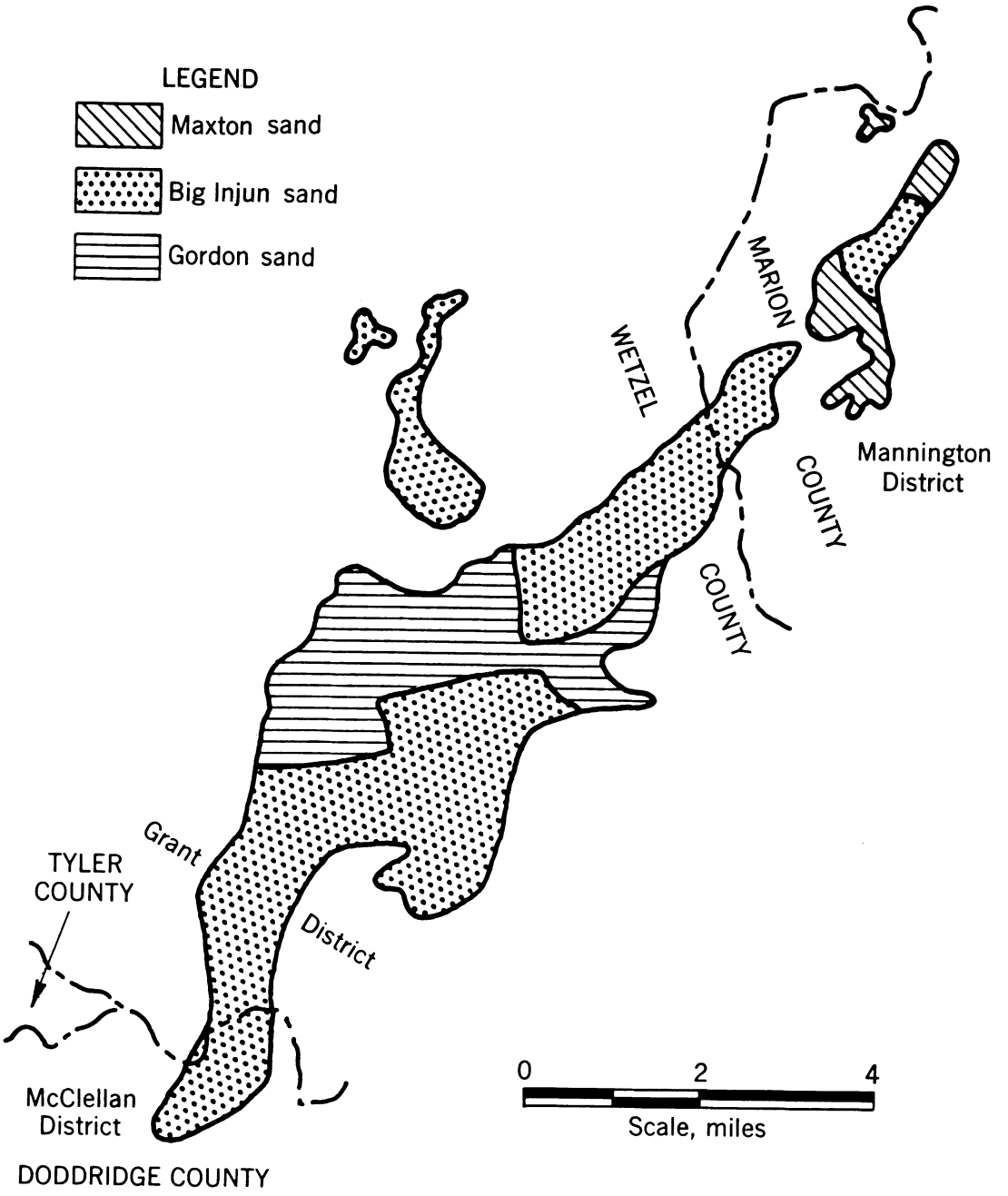

FIGURE 72.—Map of Smithfield Oilfield, Wetzel, Marion, and Doddridge Counties, W. Va.

SMITHFIELD FIELD (34)

LOCATION:

Grant Dist., Wetzel County; Mannington Dist., Marion County; McClellan Dist., Doddridge County.

QUADRANGLES:

Mannington and Littleton (W. Va.-Pa.), Centerpoint (W. Va.).

DATE DISCOVERED: 1893. APPROXIMATE ACREAGE: 13,030. AVERAGE WELL SPACING, FEET: 700.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Maxton sand	1, 690–2, 160	10–54	----------
Big Injun sand	1, 745–2, 304	70–190	10
Gordon sand	2, 530–3, 094	5–38	4

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	6, 400
Oilfield size	acres	13, 030
Original oil content	barrels	83, 392, 000
Total oil production	do	11, 646, 000
Reservoir oil content	do	71, 746, 000

RESERVOIR ROCK CHARACTERISTICS:

The Big Injun sand is a fine-grained friable sandstone. The Gordon sand is a conglomeratic sandstone.

SECONDARY RECOVERY METHOD:

Gas Injection: Started in 1936; reported as successful.
Waterflooding.

REMARKS:

Estimated volume of oil produced to November 1935: 10,015,000 bbl. Maximum initial oil production was reported as 300 b.p.d. from the Big Injun sand. About 320 oil wells remain in the field.

BIBLIOGRAPHY:

15, p. 19; 18, p. 44; 19, pp. 44, 46; 23, pp. 469, 473, 476; 25, pp. 4–5; 26, pp. 4–5; 27, pp. 4–5; 29, p. 22; 30, p. 115; 34, pp. 290–293, 304–326; 35, pp. 408–413, 445–460; 37, pp. 530–539, 546–589.

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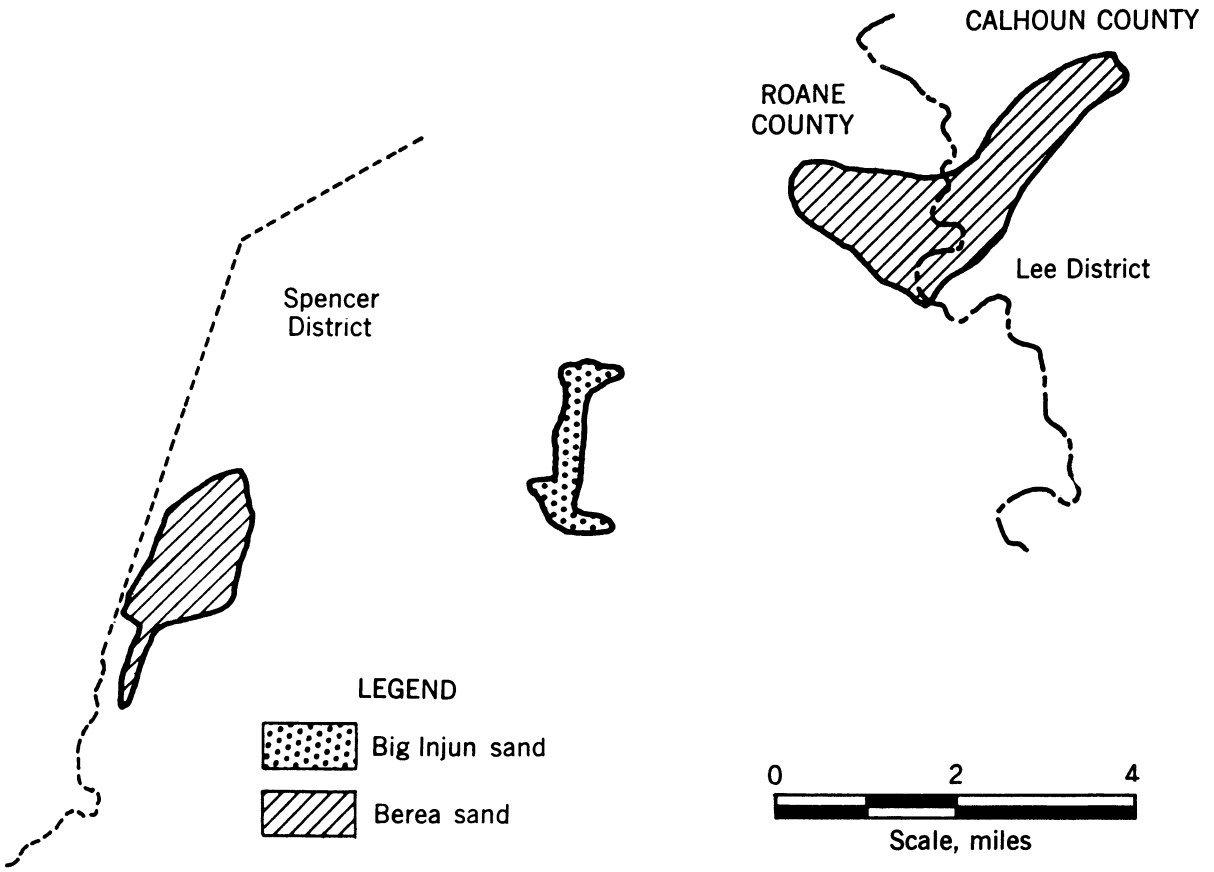

FIGURE 73.—Map of Spencer-Richardson Oilfield, Calhoun and Roane Counties, W. Va.

SPENCER-RICHARDSON FIELD (66)

LOCATION:

Lee Dist., Calhoun County; Spencer Dist., Roane County.

QUADRANGLES:

Spencer and Arnoldsburg (W. Va.).

DATE DISCOVERED: 1902. APPROXIMATE ACREAGE: 3,814. AVERAGE WELL SPACING, FEET: 700.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Big Injun sand	1, 744–1, 950	10–65	10
Berea sand	2, 300–2, 770	5–30	10

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	4, 500
Oilfield size	acres	3, 814
Original oil content	barrels	17, 163, 000
Total oil production	do	4, 450, 000
Reservoir oil content	do	12, 713, 000

RESERVOIR ROCK CHARACTERISTICS:

The Big Injun sand is a fine-grained, friable sandstone. The Berea sand is a fine-grained, uniform sandstone.

SECONDARY RECOVERY METHOD:

Gas Injection: Started in 1926; reported as successful.
Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 3,720,000 bbl. Maximum initial oil production was reported as 20 b.p.d. from the Big Injun sand and 250 b.p.d. from the Berea sand.

BIBLIOGRAPHY:

Appendix; *23, pp. 469, 473, 476; 25, pp. 4–5, 10–11, 15–17, 22; 26, pp. 4–5; 27, pp. 4–5; 29, p. 23; 30, p. 120; 31, 806–829; 36, pp. 328–329, 339–359, 422–425, 443–457; 66, 31 pp.; 80, pp. 32–34.*

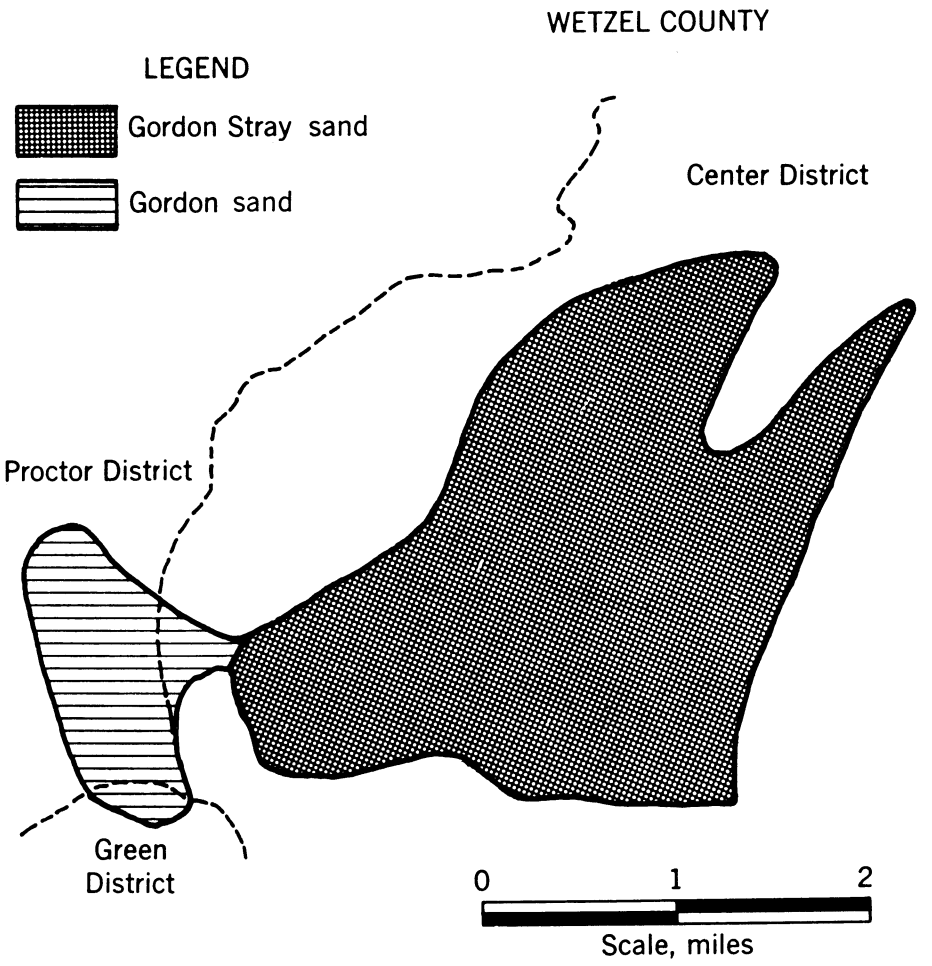

FIGURE 74.—Map of Steel Run Oilfield, Wetzel County, W. Va.

STEEL RUN FIELD (12)

LOCATION:

Center, Proctor, and Green Dists., Wetzel County.

QUADRANGLE:

Littleton (W. Va.-Pa.).

DATE DISCOVERED: 1902. APPROXIMATE ACREAGE: 4,050. AVERAGE WELL SPACING, FEET: 850.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Gordon Stray sand	2, 528–3, 448	15–28	5
Gordon sand	2, 553–3, 470	10–40	5

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	6, 575
Oilfield size	acres	4, 050
Original oil content	barrels	26, 629, 000
Total oil production	do	3, 969, 000
Reservoir oil content	do	22, 660, 000

RESERVOIR ROCK CHARACTERISTICS:

The Gordon Stray sand is a loosely cemented, conglomeratic sandstone. The Gordon sand is a tightly cemented, conglomeratic sandstone.

SECONDARY RECOVERY METHOD:

Gas Injection:
Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 3,675,000 bbl. Maximum initial oil production was reported as 500 b.p.d. About 100 wells remain in the field.

BIBLIOGRAPHY:

18, p. 43; 29, pp. 20, 25; 35, pp. 406–409, 412–417, 440–445, 460–471.

662769 O—62——11

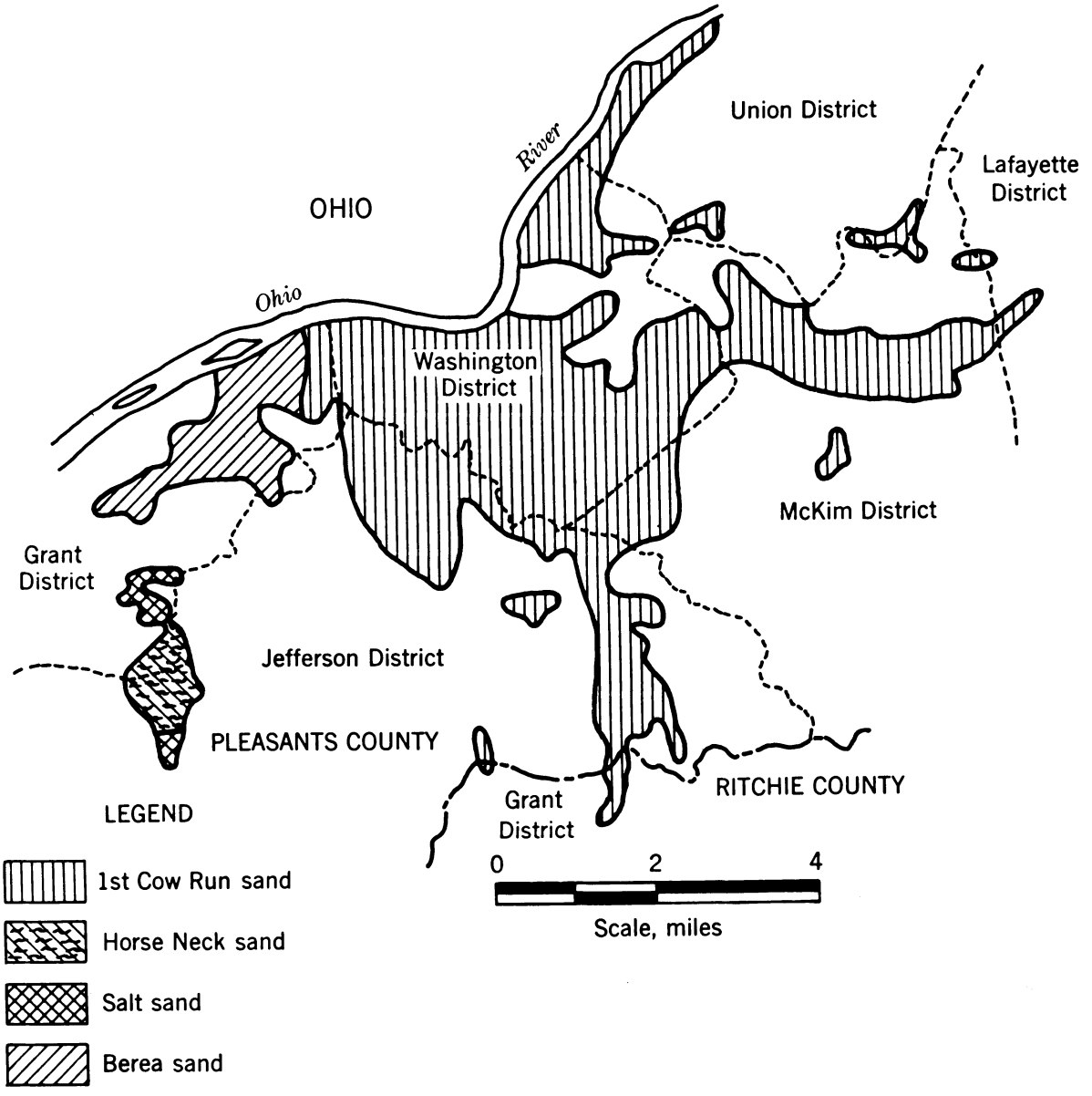

FIGURE 75.—Map of St. Marys Oilfield, Pleasants and Ritchie Counties, W. Va

ST. MARYS FIELD (23)

LOCATION:

Grant, Washington, Jefferson, Lafayette, Union, and McKim Dists., Pleasants County; Grant Dist., Ritchie County.

QUADRANGLES:

St. Marys (W. Va.-Ohio), Marietta (Ohio-W. Va.).

DATE DISCOVERED: 1868. APPROXIMATE ACREAGE: 14,848. AVERAGE WELL SPACING, FEET: 300.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
1st Cow Run sand	702–978	10–29	10
Horse Neck sand	400–500	----------	---------
Salt sand	1, 140–1, 460	60–150	---------
Berea sand	1, 338–1, 480	10–29	4

ESTIMATED RESERVOIR OIL CONTENT AS OF 1956:

Original oil content	barrels per acre	2, 750
Oilfield size	acres	14, 848
Original oil content	barrels	40, 832, 000
Total oil production	do	22, 361, 000
Reservoir oil content	do	18, 471, 000

RESERVOIR ROCK CHARACTERISTICS:

The First Cow Run sand is a coarse-grained, conglomeratic sandstone. The Berea sand is a fine-grained, uniform sandstone.

SECONDARY RECOVERY METHOD:

Gas Injection: Started in 1903; reported as successful.
Waterflooding: Started in 1956; abandoned in 1959 as unsuccessful.

REMARKS:

Estimated volume of oil produced to November 1935: 13,317,500 bbl. Maximum initial well production was reported as 300 b.p.d. from the 1st Cow Run sand and 2,000 b.p.d. from the Berea sand. Field was reported as abandoned about 1956.

BIBLIOGRAPHY:

13, pp. 91–113, 158–181; 23, pp. 468, 473, 476; 25, pp. 4–5, 8–9; 26, pp. 2–3; 27, pp. 2–3, 6–7; 29, p. 21; 30, p. 117; 56, p. 24; 64, pp. 6, 11, 16, 28; 77, 14 pp.

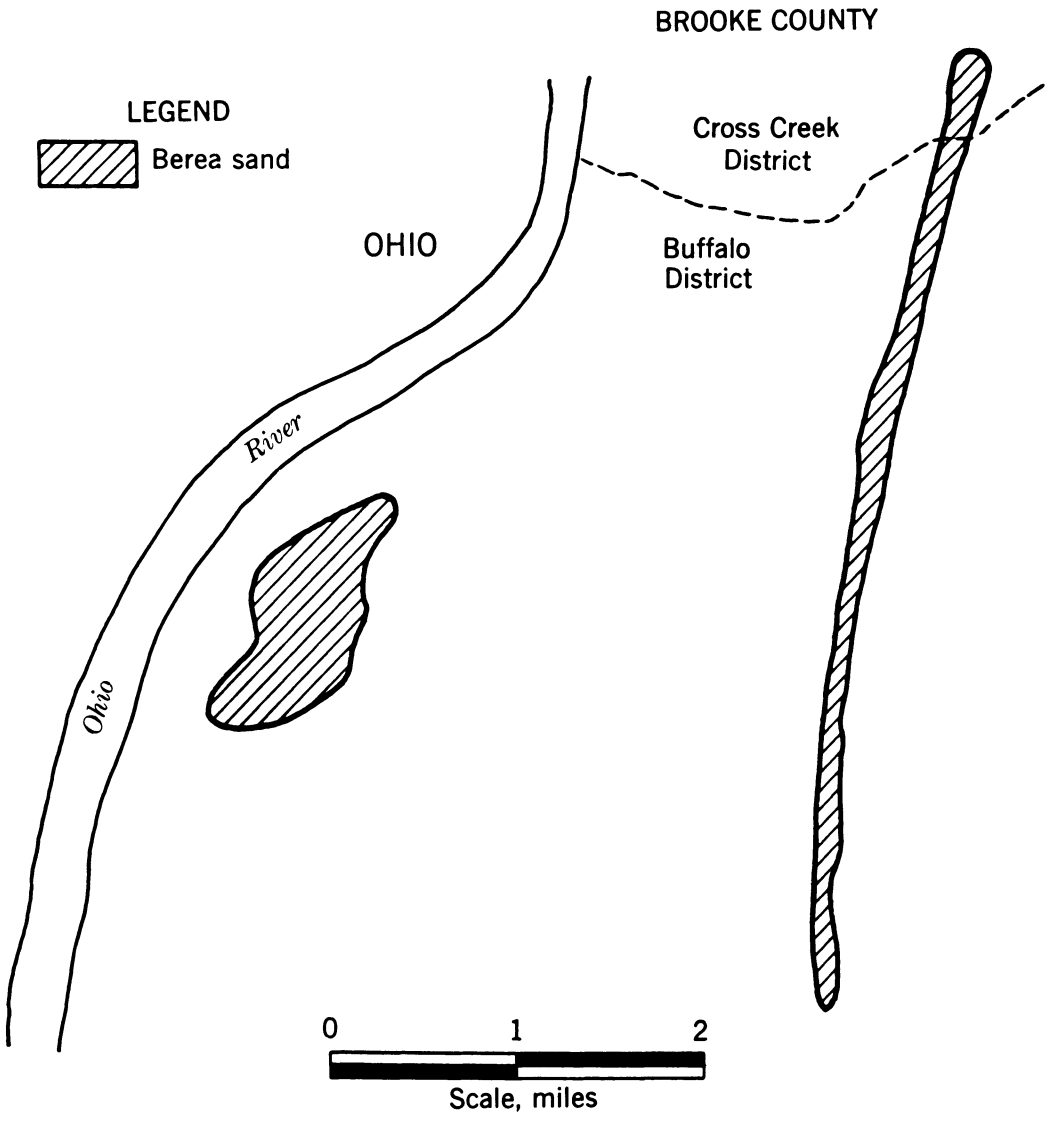

FIGURE 76.—Map of Sucker Rod Oilfield, Brooke County, W. Va.

SUCKER ROD FIELD (5)

LOCATION:

Cross Creek and Buffalo Dists., Brooke County.

QUADRANGLES:

Steubenville and Wheeling (W. Va.-Ohio-Pa.).

DATE DISCOVERED: 1902. APPROXIMATE ACREAGE: 819. AVERAGE WELL SPACING, FEET: 400.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Berea sand	1,725	10–20	8

ESTIMATED RESERVOIR OIL CONTENT AS OF 1952:

Original oil content	barrels per acre	2,500
Oilfield size	acres	819
Original oil content	barrels	2,047,000
Total oil production	do	733,000
Reservoir oil content	do	1,314,000

RESERVOIR ROCK CHARACTERISTICS:

The Berea sand is a hard, fine-grained sandstone.

SECONDARY RECOVERY METHOD:

Gas Injection:

Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 700,000 bbl. Maximum initial oil production was reported as 50 b.p.d. Field was reported as abandoned about 1952.

BIBLIOGRAPHY:

12, pp. 259–264.

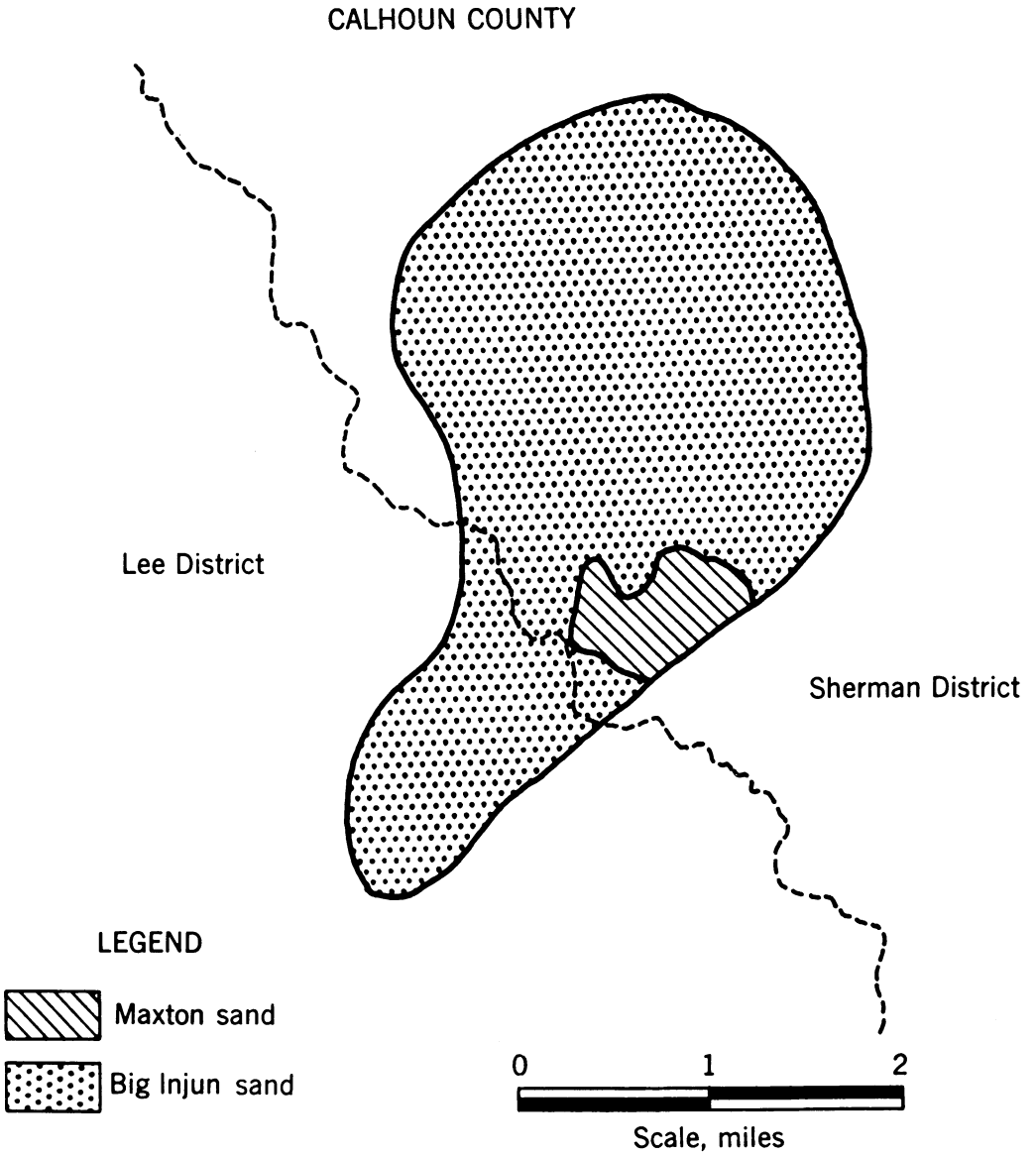

FIGURE 77.—Map of Sycamore Oilfield, Calhoun County, W. Va.

SYCAMORE FIELD (65)

LOCATION:
Sherman and Lee Dists., Calhoun County.

QUADRANGLE:
Arnoldsburg (W. Va.).

DATE DISCOVERED: 1939. APPROXIMATE ACREAGE: 4,294. AVERAGE WELL SPACING, FEET: Unknown.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Maxton sand	1, 400–1, 685	10–48	----------
Big Injun sand	1, 725–1, 975	10–80	30

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960: [11]

Original oil content	barrels per acre	----------
Oilfield size	acres	----------
Original oil content	barrels	----------
Total oil production	do	----------
Reservoir oil content	do	----------

RESERVOIR ROCK CHARACTERISTICS:

SECONDARY RECOVERY METHOD:
Gas Injection:
Waterflooding:

REMARKS:
Maximum initial oil production was reported as 7 b.p.d.
About 90 wells remain in the field.

BIBLIOGRAPHY:
29, pp. 23, 25; 54, p. 20.

[11] No estimate available.

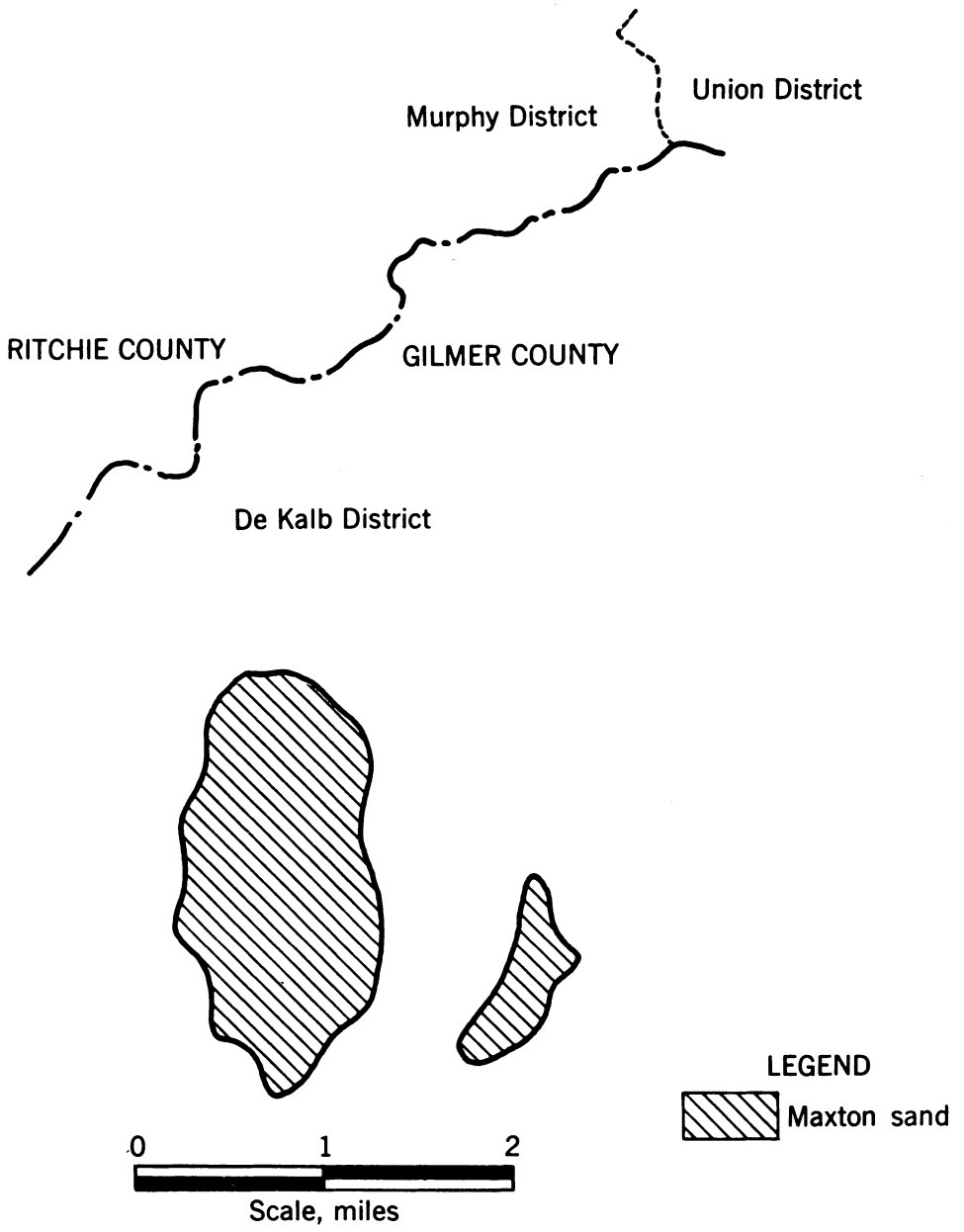

FIGURE 78.—Map of Tanner Oilfield, Gilmer County, W. Va.

TANNER FIELD (59)

LOCATION:

De Kalb Dist., Gilmer County.

QUADRANGLES:

Holbrook and Glenville (W. Va.).

DATE DISCOVERED: 1919. APPROXIMATE ACREAGE: 1,274. AVERAGE WELL SPACING, FEET: 450.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Maxton sand	1, 550–1, 800	30–40	4

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	6, 500
Oilfield size	acres	1, 274
Original oil content	barrels	8, 281, 000
Total oil production	do	2, 604, 000
Reservoir oil content	do	5, 677, 000

RESERVOIR ROCK CHARACTERISTICS:

The Maxton sand is a hard, white sandstone.

SECONDARY RECOVERY METHOD:

Gas Injection: Started in 1935; reported as successful.

Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 1,743,500 bbl. Maximum initial oil production was reported as 225 b.p.d.

BIBLIOGRAPHY:

16, pp. 573–574; 17, pp. 9–10; 23, pp. 469, 473, 476; 25, pp. 4–5, 10–11; 26, pp. 4–5; 27, pp. 4–5; 29, p. 23; 30, p. 119; 64, pp. 6, 17, 28–29; 72, p. 54.

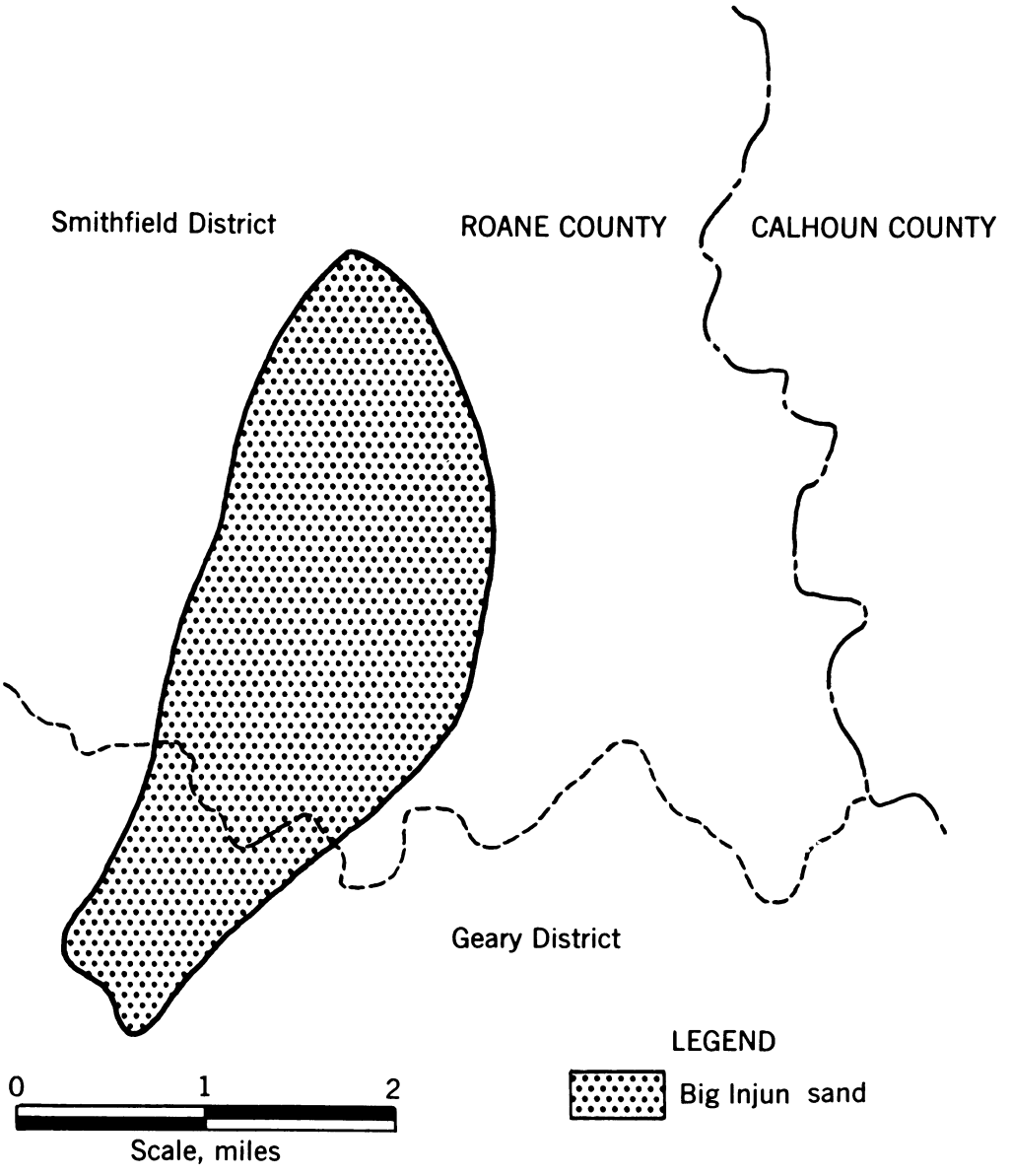

FIGURE 79.—Map of Tariff Oilfield, Roane County, W. Va.

TARIFF FIELD (70)

LOCATION:

Geary and Smithfield Dists., Roane County.

QUADRANGLE:

Otter (W. Va.).

DATE DISCOVERED: 1909. APPROXIMATE ACREAGE: 2,938. AVERAGE WELL SPACING, FEET: 700.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Big Injun sand	1, 433–2, 012	24–67	12

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	4, 700
Oilfield size	acres	2, 938
Original oil content	barrels	13, 809, 000
Total oil production	do	3, 170, 000
Reservoir oil content	do	10, 639, 000

RESERVOIR ROCK CHARACTERISTICS:

The Big Injun sand is friable, and well cemented.

SECONDARY RECOVERY METHOD:

Gas Injection: Started prior to 1940; no record of results.
Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 3,000,000 bbl. Maximum initial oil production was reported as 150 b.p.d.

BIBLIOGRAPHY:

27, pp. 4–5; 29, p. 24; 30, p. 120; 36, pp. 330–333, 365–390; 64, pp. 6, 11, 17; 72, p. 41.

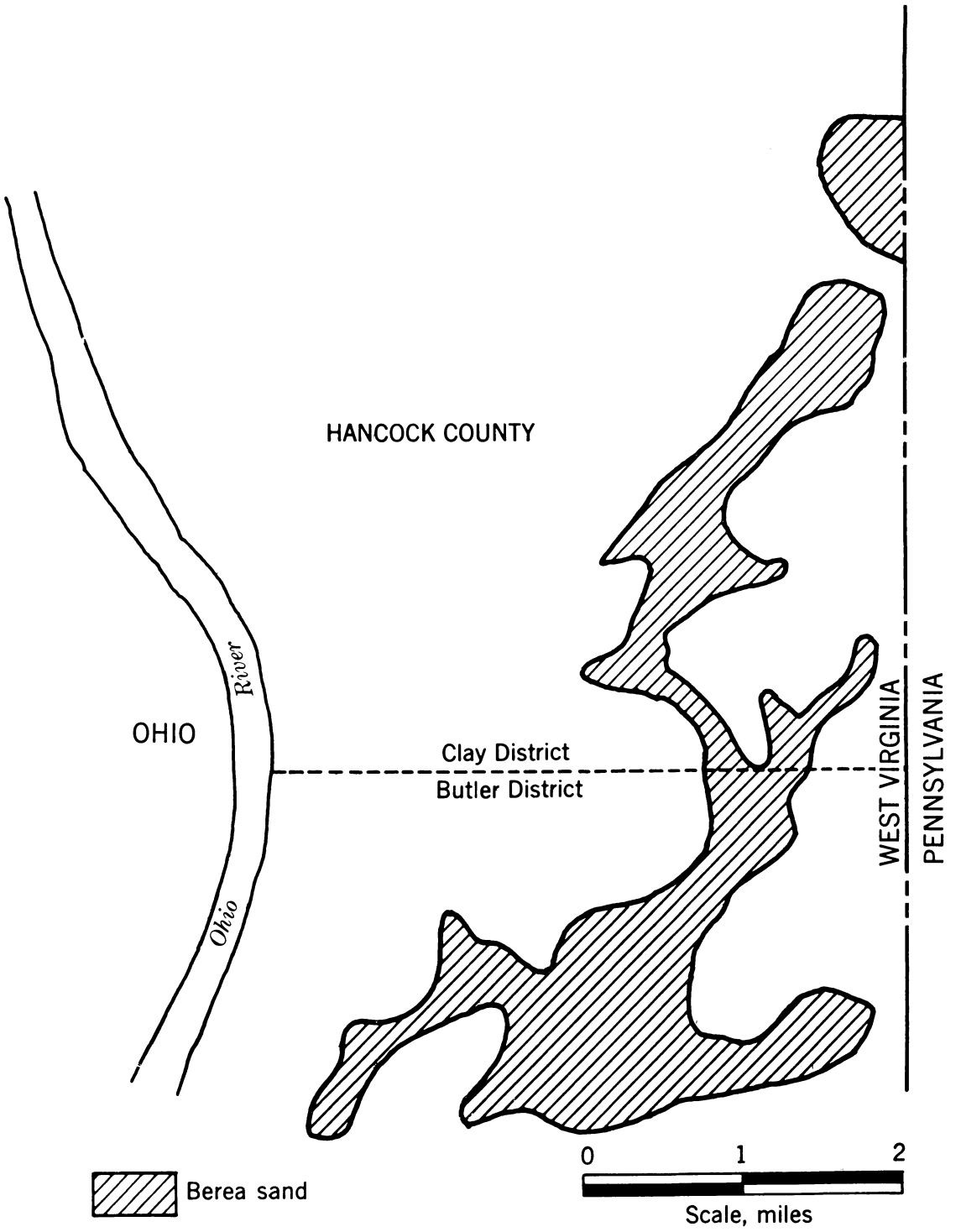

FIGURE 80.—Map of Turkey Foot Oilfield, Hancock County, W. Va.

TURKEY FOOT FIELD (2)

LOCATION:

Clay and Butler Dists., Hancock County.

QUADRANGLES:

Wellsville and Steubenville (W. Va.-Ohio-Pa.).

DATE DISCOVERED: 1888. APPROXIMATE ACREAGE: 3,059. AVERAGE WELL SPACING, FEET: 500.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Berea sand	1, 050–1, 350	20–50	6

ESTIMATED RESERVOIR OIL CONTENT AS OF 1952:

Original oil content	barrels per acre	3, 000
Oilfield size	acres	3, 059
Original oil content	barrels	9, 177, 000
Total oil production	do	2, 120, 000
Reservoir oil content	do	7, 057, 000

RESERVOIR ROCK CHARACTERISTICS:

The Berea sand is a hard uniform, fine-grained sandstone.

SECONDARY RECOVERY METHOD:

Gas Injection: Started prior to 1940; no record of results.
Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 1,993,000 bbl. Maximum initial oil production was reported as 20 b.p.d. Field reported as abandoned about 1952.

BIBLIOGRAPHY:

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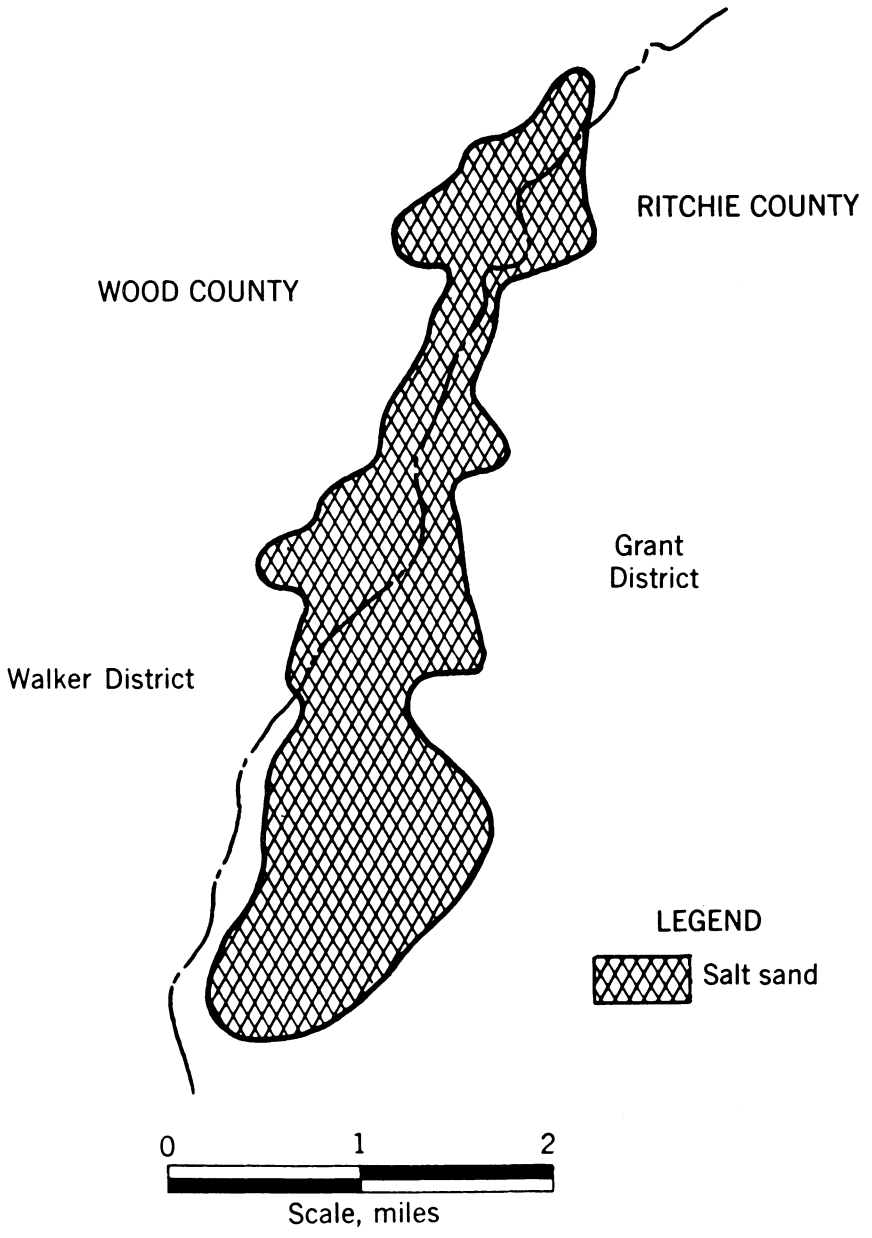

FIGURE 81.—Map of Volcano Oilfield, Wood and Ritchie Counties, W. Va.

VOLCANO FIELD (44)

LOCATION:

Walker Dist., Wood County; Grant Dist., Ritchie County.

QUADRANGLES:

Marietta (Ohio-W. Va.), Elizabeth (W. Va.).

DATE DISCOVERED: 1860. APPROXIMATE ACREAGE: 2,355. AVERAGE WELL SPACING, FEET: 200.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Salt sand	360	10–50	----------

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	4, 300
Oilfield size	acres	2, 355
Original oil content	barrels	10, 126, 000
Total oil production	do	2, 523, 000
Reservoir oil content	do	7, 603, 000

RESERVOIR ROCK CHARACTERISTICS:

The Salt sand varies from a fine-grained to a conglomeratic sandstone.

SECONDARY RECOVERY METHOD:

Gas Injection:
Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 2,183,200 bbl. Maximum initial oil production was reported as 15 b.p.d.

BIBLIOGRAPHY:

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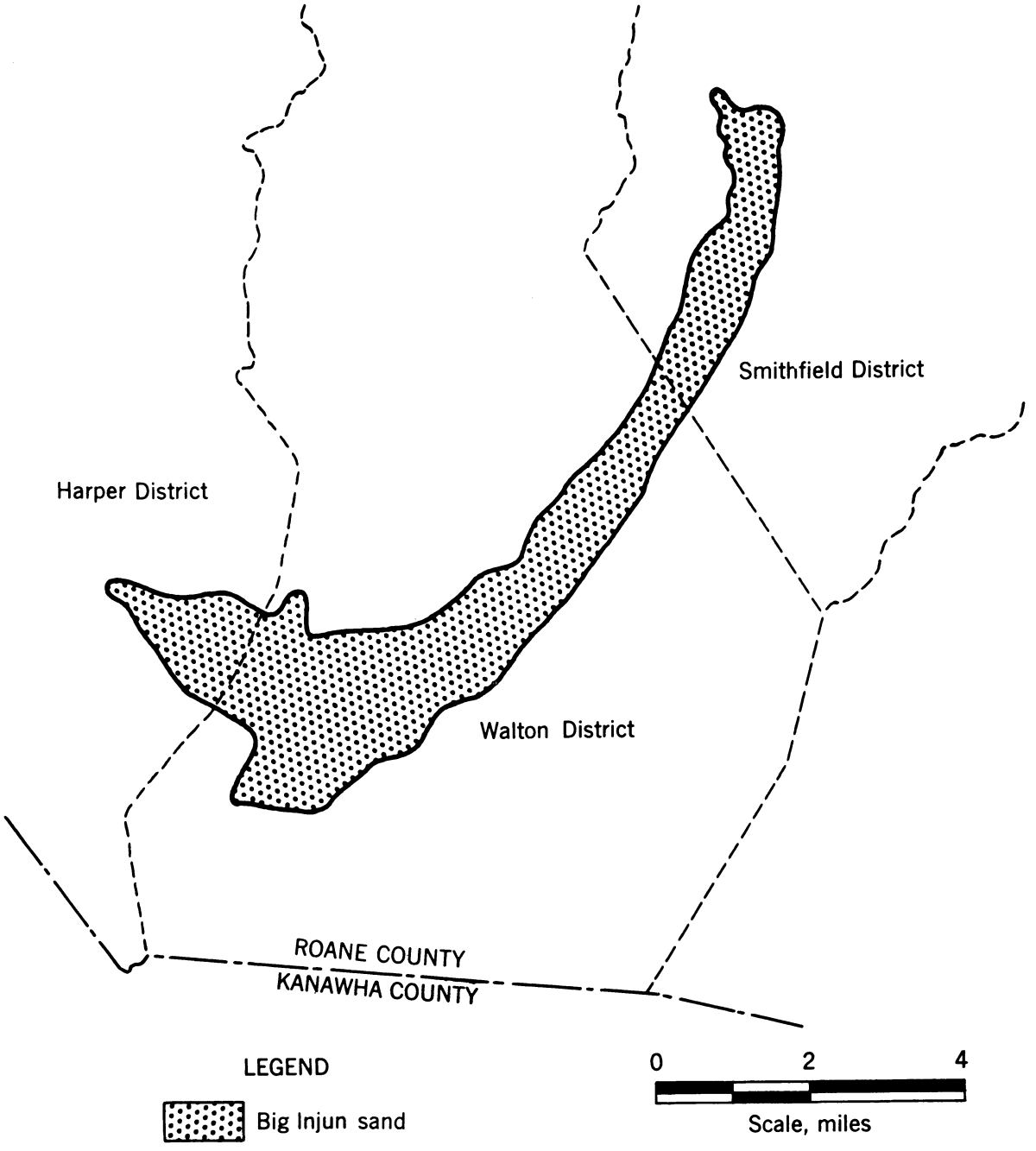

FIGURE 82.—Map of Walton Oilfield, Roane County, W. Va.

WALTON FIELD (69)

LOCATION:

Smithfield, Walton, and Harper Dists.; Roane County.

QUADRANGLE:

Walton (W. Va.).

DATE DISCOVERED: 1907. APPROXIMATE ACREAGE: 8,780. AVERAGE WELL SPACING, FEET: 700.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Big Injun sand	1, 950–2, 150	10–60	21

ESTIMATED RESERVOIR OIL CONTENT FOR THE WALTON FIELD (69) AND CLOVER-RUSH RUN FIELD (68) AS OF 1960:

Original oil saturation	barrels per acre	4, 250
Oilfield size:		
Walton oilfield	acres	8, 780
Clover-Rush Run oilfield	do	4, 200
Total oilfield size	do	12, 980
Original oil saturation	barrels	54, 165, 000
Total oil production	do	18, 097, 000
Reservoir oil content	do	36, 068, 000

RESERVOIR ROCK CHARACTERISTICS:

The Big Injun sand is a hard, friable sandstone.

SECONDARY RECOVERY METHOD:

Gas Injection: Started in 1937; reported as successful.
Waterflooding: Started in 1954; reported as unsuccessful.

REMARKS:

Estimated volume of oil produced to November 1935: 13,000,000 bbl. Maximum initial oil production from Walton field wells was reported as 100 b.p.d.

BIBLIOGRAPHY:

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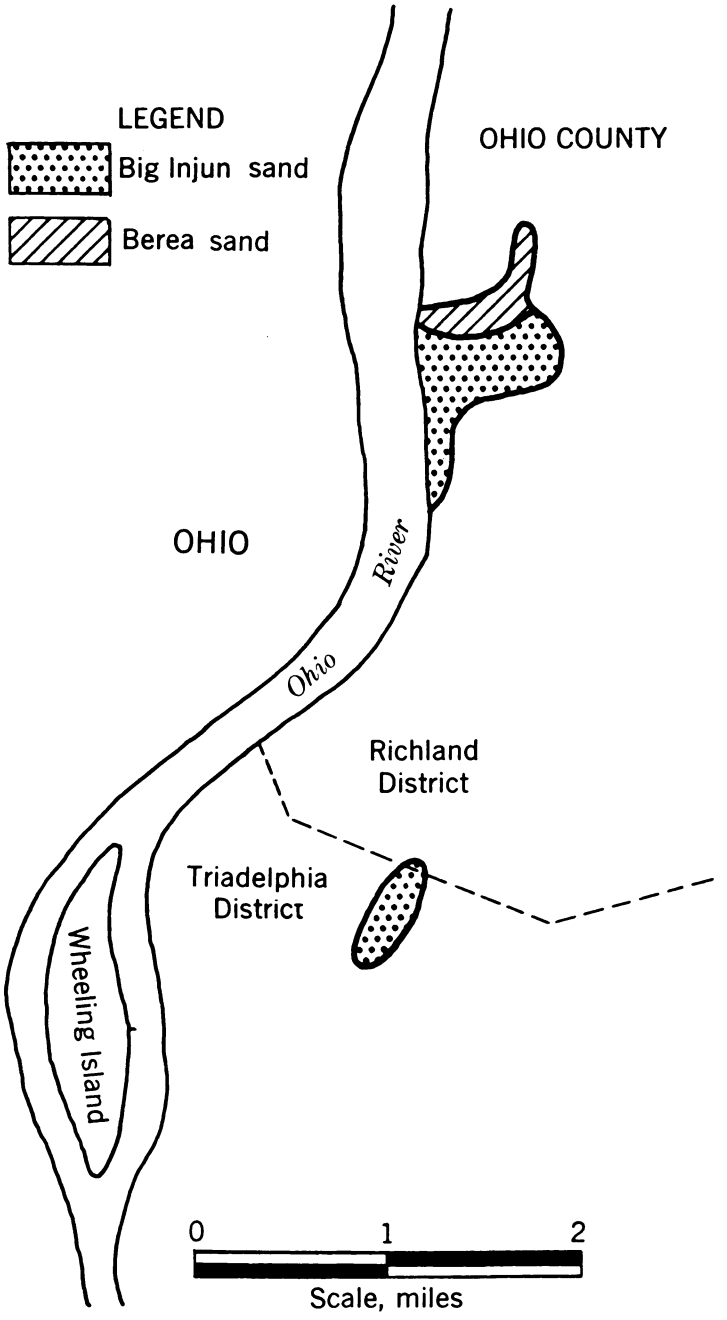

FIGURE 83.—Map of Warwood Oilfield, Ohio County, W. Va.

WARWOOD FIELD (6)

LOCATION:
Richland and Triadelphia Dists., Ohio County.

QUADRANGLE:
Wheeling (W. Va.-Ohio-Pa.).

DATE DISCOVERED: 1910. APPROXIMATE ACREAGE: 365. AVERAGE WELL SPACING, FEET: 400.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Big Injun sand	1,050	----------	----------
Berea sand	1,595	----------	----------

ESTIMATED RESERVOIR OIL CONTENT AS OF 1952:

Original oil content	barrels per acre	2,500
Oilfield size	acres	365
Original oil content	barrels	913,000
Total oil production	do	288,000
Reservoir oil content	do	625,000

RESERVOIR ROCK CHARACTERISTICS:

SECONDARY RECOVERY METHOD:
Gas Injection:
Waterflooding:

REMARKS:
Estimated volume of oil produced to November 1935: 225,000 bbl. Field was reported as abandoned about 1952.

BIBLIOGRAPHY:

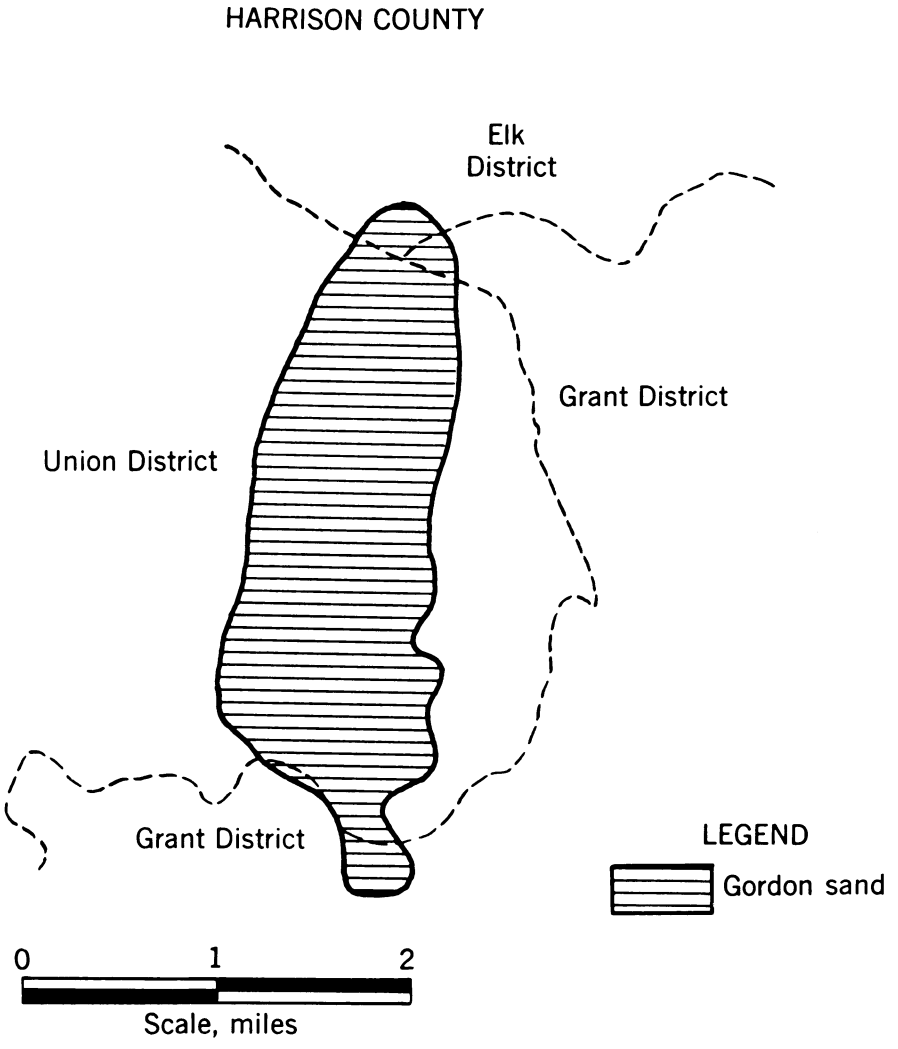

FIGURE 84.—Map of West Milford Oilfield, Harrison County, W. Va.

WEST MILFORD FIELD (41)

LOCATION:

Union, Grant, and Elk Dists., Harrison County.

QUADRANGLE:

Weston (W. Va.)

DATE DISCOVERED: 1909. APPROXIMATE ACREAGE: 1,850. AVERAGE WELL SPACING, FEET: 650.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Gordon sand	1, 927–2, 795	10–45	---

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	3, 500
Oilfield size	acres	1, 850
Original oil content	barrels	6, 475, 000
Total oil production	do	1, 276, 000
Reservoir oil content	do	5, 199, 000

RESERVOIR ROCK CHARACTERISTICS:

The Gordon sand is a well-cemented, conglomeratic sandstone.

SECONDARY RECOVERY METHOD:

Gas Injection:

Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 1,175,000 bbl. Maximum initial oil production was reported as 100 b.p.d.

BIBLIOGRAPHY:

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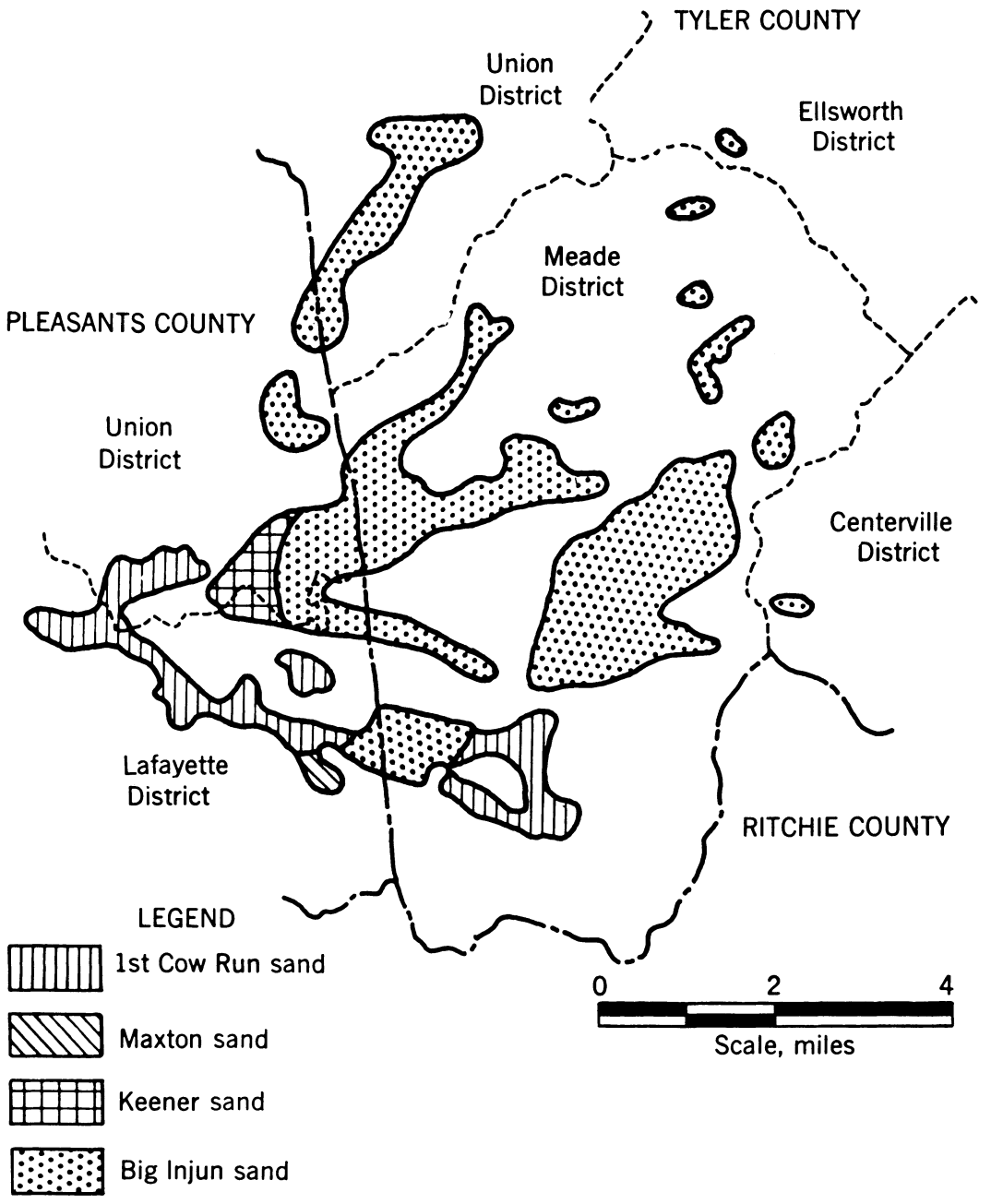

FIGURE 85.—Map of Wick Oilfield, Pleasants and Tyler Counties, W. Va.

WICK FIELD (27)

LOCATION:

Lafayette and Union Dists., Pleasants County; Union, Meade, Ellsworth, and Centerville Dists., Tyler County.

QUADRANGLES:

West Union (W. Va.), St. Marys (W. Va.-Ohio).

DATE DISCOVERED: 1896. APPROXIMATE ACREAGE: 9,267. AVERAGE WELL SPACING, FEET: 400.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
1st Cow Run sand	800–1, 080	20–40	----------
Maxton sand	1, 150–1, 845	13–85	----------
Keener sand	1, 635–1, 950	10–46	8
Big Injun sand	1, 660–1, 998	80–117	----------

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	4, 400
Oilfield size	acres	9, 267
Original oil content	barrels	40, 775, 000
Total oil production	do	9, 162, 000
Reservoir oil content	do	31, 613, 000

RESERVOIR ROCK CHARACTERISTICS:

The Big Injun sand is a coarse-grained friable sandstone.

SECONDARY RECOVERY METHOD:

Gas Injection:
Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 8,057,500 bbl. Maximum initial oil production was reported as 40 b.p.d.

BIBLIOGRAPHY:

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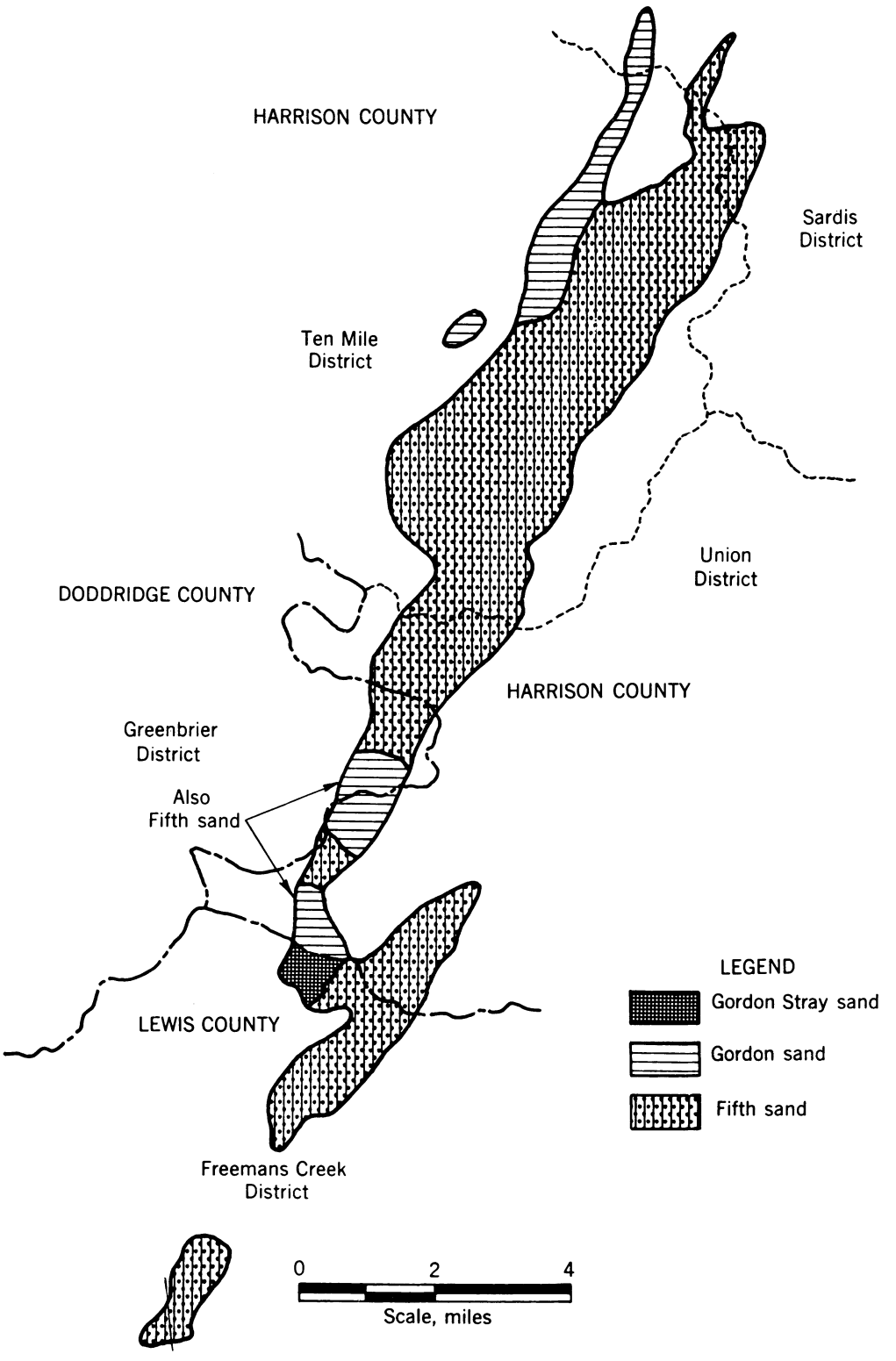

FIGURE 86.—Map of Wolf Summit-Big Isaac Oilfield, Doddridge, Harrison, and Lewis Counties, W. Va.

WOLF SUMMIT-BIG ISAAC FIELD (40)

LOCATION:

Greenbrier Dists., Doddridge County; Sardis, Union, and Tenmile Dists., Harrison County; Freemans Creek Dist., Lewis County.

QUADRANGLES:

Centerpoint, Clarksburg, Vadis, and Weston (W. Va.).

DATE DISCOVERED: 1896. APPROXIMATE ACREAGE: 17,229. AVERAGE WELL SPACING, FEET: 800.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Gordon Stray sand	1, 900–2, 850	10–50	---
Gordon sand	1, 986–3, 165	10–50	---
Fifth sand	2, 100–3, 205	5–30	5

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	4, 000
Oilfield size	acres	17, 229
Original oil content	barrels	68, 916, 000
Total oil production	do	12, 629, 000
Reservoir oil content	do	56, 287, 000

RESERVOIR ROCK CHARACTERISTICS:

The Fifth sand is a coarse-grained, well-cemented sandstone.

SECONDARY RECOVERY METHOD:

Gas Injection: Started in 1930; no record of results.
Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 11,270,000 bbl. Maximum initial well production was reported as 50 b.p.d.

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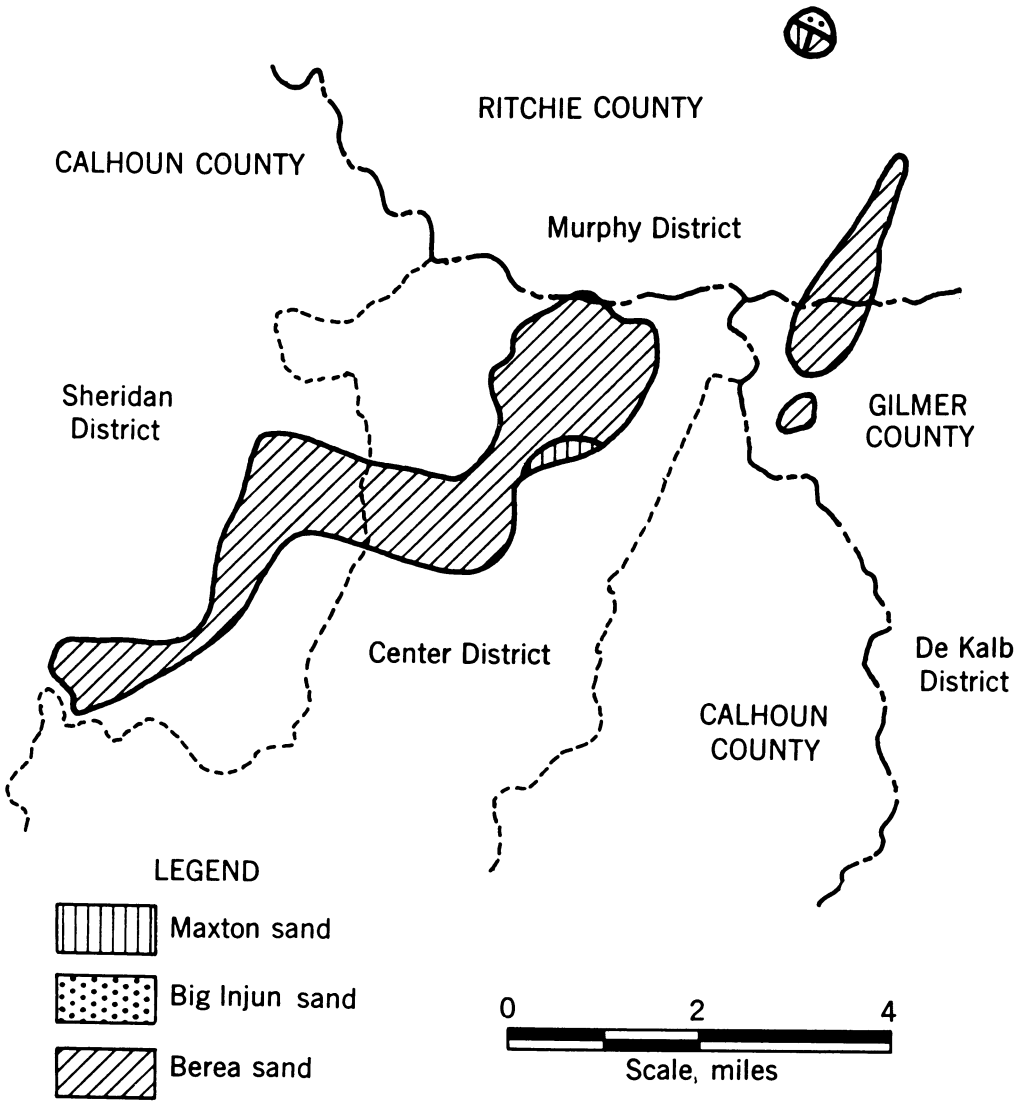

FIGURE 87.—Map of Yellow Creek-Revere Oilfield, Calhoun and Gilmer Counties, W. Va.

YELLOW CREEK-REVERE FIELD (58)

LOCATION:

Sheridan and Center Dists., Calhoun County; Murphy Dist., Ritchie County; De Kalb Dist., Gilmer County.

QUADRANGLES:

Harrisville and Arnoldsburg (W. Va.).

DATE DISCOVERED: 1904. APPROXIMATE ACREAGE: 4,812. AVERAGE WELL SPACING, FEET: 650.

PRODUCING FORMATION:

Name:	*Range of depth to top of formation, feet*	*Range of thickness, feet*	*Average pay, feet*
Maxton sand	1, 500–1, 890	35–60	---
Big Injun sand	1, 630–2, 030	60–83	---
Berea sand	2, 105–2, 431	27–34	8

ESTIMATED RESERVOIR OIL CONTENT AS OF 1960:

Original oil content	barrels per acre	4, 500
Oilfield size	acres	4, 812
Original oil content	barrels	21, 654, 000
Total oil production	do	6, 165, 000
Reservoir oil content	do	15, 489, 000

RESERVOIR ROCK CHARACTERISTICS:

SECONDARY RECOVERY METHOD:

Gas Injection:

Waterflooding:

REMARKS:

Estimated volume of oil produced to November 1935: 4,670,000 bbl. Maximum initial oil production was reported as 200 b.p.d.

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APPENDIX—BUREAU OF MINES ROUTINE CRUDE PETROLEUM ANALYSES

CRUDE PETROLEUM ANALYSIS

Bureau of Mines Bartlesville, Okla., Laboratory
Sample 33155

Identification

Bens Run Field (22)
1st Cow Run sand-Conemaugh-Pennsylvanian

Union District
Tyler County
West Virginia

General Characteristics

Gravity, specific, 0.756 Gravity, ° API, 55.7 Color, N.P.A. 5
Sulfur, percent, less than 0.10
Viscosity, Saybolt Universal at 100° F., less than 32 seconds

Distillation, Bureau of Mines Routine Method

STAGE 1—Distillation at atmospheric pressure, 746 mm. Hg
First drop, 90° F.

Fraction No.	Cut temp. ° F.	Percent	Sum, percent	Sp. gr., 60/60° F.	° API, 60° F.	C.I.	S.U. visc., 100° F.	Cloud test, ° F.
1	122	6.3	6.3	0.640	89.6			
2	167	5.7	12.0	.649	86.5	2.5		
3	212	6.6	18.6	.685	75.1	4.7		
4	257	9.6	28.2	.714	66.7	9.4		
5	302	8.3	36.5	.732	61.8	10		
6	347	8.0	44.5	.748	57.7	11		
7	392	8.1	52.6	.764	53.7	13		
8	437	7.5	60.1	.777	50.6	13		
9	482	7.9	68.0	.788	48.1	13		
10	527	7.7	75.7	.801	45.2	14		
STAGE 2—Distillation continued at 40 mm. Hg								
11	392	5.3	81.0	0.821	40.9	20	40	25
12	437	6.3	87.3	.827	39.6	19	45	40
13	482	3.7	91.0	.837	37.6	20	56	55
14	527	3.2	94.2	.845	36.0	21	77	70
15	572	2.3	96.5	.859	33.2	25	135	85
Residuum		1.7	98.2	.915	23.1			

Carbon residue, Conradson: Residuum, 2.6 percent; crude, less than 0.1 percent.

Approximate Summary

	Percent	Sp. gr.	° API	Viscosity
Light gasoline	18.6	0.659	83.2	
Total gasoline and naphtha	52.6	.710	67.8	
Kersine distillate	23.1	.789	47.8	
Gas oil	10.3	.825	40.0	
Nonviscous lubricating distillate	7.7	.831–.850	38.8–35.0	50–100
Medium lubricating distillate	2.8	.850–.865	35.0–32.1	100–200
Viscous lubricating distillate				Above 200
Residuum	1.7	.915	23.1	
Distillation loss	1.8			

CRUDE PETROLEUM ANALYSIS

Bureau of Mines Bartlesville, Okla., Laboratory
Sample 33154

Identification

Bens Run Field (22)
Maxton sand-Mauch Chunk-Mississippian

Union District
Tyler County
West Virginia

General Characteristics

Gravity, specific, 0.791 Gravity, ° API, 47.4 Color, green
Sulfur, percent, less than 0.10
Viscosity, Saybolt Universal at 100° F., 36 seconds

Distillation, Bureau of Mines Routine Method

STAGE 1—Distillation at atmospheric pressure, 746 mm. Hg
First drop, 82° F.

Fraction No.	Cut temp. ° F.	Percent	Sum, percent	Sp. gr., 60/60° F.	° API, 60° F.	C.I.	S.U. visc., 100° F.	Cloud test, ° F.
1	122							
2	167	6.0	6.0	0.645	87.9			
3	212	6.1	12.1	.687	74.5	5.6		
4	257	7.6	19.7	.721	64.8	13		
5	302	6.3	26.0	.741	59.5	15		
6	347	6.2	32.2	.756	55.7	15		
7	392	5.1	37.3	.769	52.5	15		
8	437	5.3	42.6	.779	50.1	14		
9	482	5.6	48.2	.791	47.4	14		
10	527	6.4	54.6	.806	44.1	17		

STAGE 2—Distillation continued at 40 mm. Hg

11	392	4.4	59.0	0.827	39.6	23	41	20
12	437	5.8	64.8	.831	38.8	21	45	40
13	482	5.0	69.8	.840	37.0	22	55	55
14	527	4.8	74.6	.846	35.8	22	72	70
15	572	5.1	79.7	.853	34.4	22	105	90
Residuum		18.2	97.9	.889	27.7			

Carbon residue, Conradson: Residuum, 1.2 percent; crude, 0.2 percent.

Approximate Summary

	Percent	Sp. gr.	° API	Viscosity
Light gasoline	12.1	0.666	81.0	
Total gasoline and naphtha	37.3	.719	65.3	
Kerosine distillate	17.3	.793	46.9	
Gas oil	10.0	.830	39.0	
Nonviscous lubricating distillate	11.8	.835–.851	38.0–34.8	50–100
Medium lubricating distillate	3.3	.851–.856	34.8–33.8	100–200
Viscous lubricating distillate				Above 200
Residuum	18.2	.889	27.7	
Distillation loss	2.1			

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CRUDE PETROLEUM ANALYSIS

Bureau of Mines Bartlesville, Okla., Laboratory
Sample 23375

Identification

Blue Creek Field (72)
Weir sand-Pocono-Mississippian

Elk District
Kanawha County
West Virginia

General Characteristics

Gravity, specific, 0.772 Gravity, ° API, 51.8 Color, N.P.A. 2
Sulfur, percent, less than 0.10
Viscosity, Saybolt Universal at 100° F., 36 seconds

Distillation, Bureau of Mines Routine Method

STAGE 1—Distillation at atmospheric pressure, 748 mm. Hg
First drop, 86° F.

Fraction No.	Cut temp. ° F.	Percent	Sum, percent	Sp. gr., 60/60° F.	° API, 60° F.	C.I.	S.U. visc., 100° F.	Cloud test, ° F.
1	122	1. 4	1. 4					
2	167	3. 6	5. 0	0. 675	78. 1			
3	212	6. 3	11. 3	. 698	71. 2	11		
4	257	9. 4	20. 7	. 727	63. 1	16		
5	302	7. 6	28. 3	. 744	58. 7	16		
6	347	6. 2	34. 5	. 759	54. 9	16		
7	392	5. 1	39. 6	. 772	51. 8	16		
8	437	5. 3	44. 9	. 783	49. 2	16		
9	482	5. 9	50. 8	. 795	46. 5	16		
10	527	6. 4	57. 2	. 809	43. 4	18		

STAGE 2—Distillation continued at 40 mm. Hg

11	392	3. 6	60. 8	0. 831	38. 8	25	41	20
12	437	6. 3	67. 1	. 835	38. 0	23	46	35
13	482	4. 3	71. 4	. 845	36. 0	24	59	60
14	527	3. 9	75. 3	. 854	34. 2	25	77	70
15	572	5. 4	80. 7	. 863	32. 5	27	110	90
Residuum		16. 4	97. 1	. 887	28. 0			

Carbon residue, Conradson: Residuum, 0.8 percent; crude, 0.1 percent.

Approximate Summary

	Percent	Sp. gr.	° API	Viscosity
Light gasoline	11. 3	0. 688	74. 2	
Total gasoline and naphtha	39. 6	0. 730	62. 3	
Kerosine distillate	17. 6	. 796	46. 3	
Gas oil	8. 5	. 834	38. 2	
Nonviscous lubricating distillate	11. 0	. 839–. 860	37. 2–33. 0	50–100
Medium lubricating distillate	4. 0	. 860–. 868	33. 0–31. 5	100–200
Viscous lubricating distillate				Above 200
Residuum	16. 4	. 887	28. 0	
Distillation loss	2. 9			

CRUDE PETROLEUM ANALYSIS

Bureau of Mines Bartlesville, Okla., Laboratory
Sample 26346

Identification

Brave Field (17)
Big Injun sand-Pocono-Mississippian

Clay District
Monongalia County
West Virginia

General Characteristics

Gravity, specific, 0.796 Gravity, ° API, 46.3 Color,_____
Sulfur, percent, less than 0.10
Viscosity, Saybolt Universal at 100° F., 37 seconds

Distillation, Bureau of Mines Routine Method

STAGE 1—Distillation at atmospheric pressure, 743 mm. Hg
First drop, 93° F.

Fraction No.	Cut temp. ° F.	Percent	Sum, percent	Sp. gr., 60/60° F.	° API, 60° F.	C.I.	S.U. visc., 100° F.	Cloud test, ° F.
1	122							
2	167	3.7	3.7	0.666	81.0			
3	212	4.7	8.4	.694	72.4	8.9		
4	257	8.5	16.9	.723	64.2	14		
5	302	8.1	25.0	.743	58.9	16		
6	347	6.0	31.0	.756	55.7	15		
7	392	6.2	37.2	.767	53.0	14		
8	437	8.7	45.9	.779	50.1	14		
9	482	6.5	52.4	.791	47.4	14		
10	527	7.3	59.7	.805	44.3	16		

STAGE 2—Distillation continued at 40 mm. Hg

11	392	4.2	63.9	0.827	39.6	23	40	30
12	437	6.4	70.3	.831	38.8	21	44	50
13	482	5.4	75.7	.846	35.8	25	54	65
14	527	4.7	80.4	.855	34.0	26	71	80
15	572	5.2	85.6	.864	32.3	27	105	95
Residuum		14.3	99.9	.891	27.3			

Carbon residue, Conradson: Residuum, 1.1 percent; crude, 0.2 percent.

Approximate Summary

	Percent	Sp. gr.	° API	Viscosity
Light gasoline	8.4	0.682	76.0	
Total gasoline and naphtha	37.2	0.731	62.1	
Kerosine distillate	22.5	.791	47.4	
Gas oil	11.0	.833	38.4	
Nonviscous lubricating distillate	11.5	.840–.862	37.0–32.7	50–100
Medium lubricating distillate	3.4	.862–.869	32.7–31.3	100–200
Viscous lubricating distillate				Above 200
Residuum	14.3	.891	27.3	
Diltillation loss	0.1			

CRUDE PETROLEUM ANALYSIS

Bureau of Mines Bartlesville, Okla., Laboratory
Sample 33151

Identification

Burton Field (15)
Maxton sand-Mauch Chunk-Mississippian

Church District
Wetzel County
West Virginia

General Characteristics

Gravity, specific, 0.812 Gravity, ° API, 42.8 Color, N.P.A. 5
Sulfur, percent, less than 0.10
Viscosity, Saybolt Universal at 100° F., 42 seconds

Distillation, Bureau of Mines Routine Method

STAGE 1—Distillation at atmospheric pressure, 754 mm. Hg
First drop, 93° F.

Fraction No.	Cut temp. ° F.	Percent	Sum, percent	Sp. gr., 60/60° F.	° API, 60° F.	C.I.	S.U. visc., 100° F.	Cloud test, ° F.
1	122							
2	167							
3	212	2. 6	2. 6	0. 687	74. 5			
4	257	4. 3	6. 9	. 715	66. 4	9. 9		
5	302	4. 8	11. 7	. 734	61. 3	11		
6	347	5. 3	17. 0	. 749	57. 4	12		
7	392	5. 0	22. 0	. 762	54. 2	12		
8	437	5. 5	27. 5	. 774	51. 3	12		
9	482	6. 7	34. 2	. 787	48. 3	13		
10	527	7. 6	41. 8	. 800	45. 4	14		

STAGE 2—Distillation continued at 40 mm. Hg

11	392	6. 4	48. 2	0. 821	40. 9	20	40	25
12	437	7. 5	55. 7	. 829	39. 2	20	45	45
13	482	7. 1	62. 8	. 836	37. 8	20	55	65
14	527	6. 5	69. 3	. 842	36. 6	20	70	80
15	572	8. 2	77. 5	. 849	35. 2	20	100	95
Residuum		21. 9	99. 4	. 881	29. 1			

Carbon residue, Conradson: Residuum, 0.7 percent; crude, 0.1 percent.

Approximate Summary

	Percent	Sp. gr.	° API	Viscosity
Light gasoline	2. 6	0. 687	74. 5	
Total gasoline and naphtha	22. 0	0. 735	61. 0	
Kerosine distillate	19. 8	. 788	48. 1	
Gas oil	13. 8	. 825	40. 0	
Nonviscous lubricating distillate	17. 8	. 833–. 849	38. 4–35. 2	50–100
Medium lubricating distillate	4. 1	. 849–. 853	35. 2–34. 4	100–200
Viscous lubricating distillate				Above 200
Residuum	21. 9	. 881	29. 1	
Distillation loss	0. 6			

CRUDE PETROLEUM ANALYSIS

Bureau of Mines Bartlesville, Okla., Laboratory
Sample 44128

Identification

Cabin Creek Field (77)
Berea sand-Pocono-Mississippian

Sherman District
Boone County
West Virginia

General Characteristics

Gravity, specific, 0.808 Gravity, ° API, 43.6 Color, N.P.A. 3
Sulfur, percent, lest than 0.10
Viscosity, Saybolt Universal at 100° F., 40 seconds

Distillation, Bureau of Mines Routine Method

STAGE 1—Distillation at atmospheric pressure, 751 mm. Hg
First drop, 135° F.

Fraction No.	Cut temp. ° F.	Percent	Sum, percent	Sp. gr., 60/60° F.	° API, 60° F.	C. I.	S. U. visc., 100° F.	Cloud test, ° F.
1	122							
2	167	0. 9	0. 9					
3	212	3. 8	4. 7	0. 696	71. 8			
4	257	7. 8	12. 5	. 727	63. 1	16		
5	302	7. 5	20. 0	. 745	58. 4	17		
6	347	7. 8	27. 8	. 761	54. 4	17		
7	392	6. 9	34. 7	. 773	51. 6	17		
8	437	6. 8	41. 5	. 783	49. 2	16		
9	482	6. 6	48. 1	. 795	46. 5	16		
10	527	7. 8	55. 9	. 809	43. 4	18		

STAGE 2—Distillation continued at 40 mm. Hg

11	392	4. 7	60. 6	0. 826	39. 8	22	40	15
12	437	6. 2	66. 8	. 836	37. 8	23	45	30
13	482	5. 2	72. 0	. 842	36. 6	23	55	45
14	527	4. 9	76. 9	. 851	34. 8	24	80	65
15	572	5. 0	81. 9	. 864	32. 3	27	125	80
Residuum		17. 9	99. 8	. 889	27. 7			

Carbon residue, Conradson: Residuum, 1.0 percent; crude, 0.2 percent.

Approximate Summary

	Percent	Sp. gr.	° API	Viscosity
Light gasoline	4. 7	0. 696	71. 8	
Total gasoline and naptha	34. 7	. 743	58. 9	
Kerosine distillate	21. 2	. 796	46. 3	
Gas oil	10. 7	. 830	39. 0	
Nonviscous lubricating distillate	10. 1	. 839–. 857	37. 2–33. 6	50–100
Medium lubricating distillate	5. 2	. 857–. 870	33. 6–31. 1	100–200
Viscous lubricating distillate				Above 200
Residuum	17. 9	. 889	27. 7	
Distillation loss	. 2			

CRUDE PETROLEUM ANALYSIS

Bureau of Mines Bartlesville, Okla., Laboratory
Sample 33156

Identification

Cairo Field (47)
Salt sand-Pottsville-Pennsylvanian.

Grant District
Ritchie County
West Virginia

General Characteristics

Gravity, specific, 0.801 Gravity, ° API, 45.2 Color, green
Sulfur, percent, less than 0.10
Viscosity, Saybolt Universal at 100° F., 37 seconds

Distillation, Bureau of Mines Routine Method

STAGE 1—Distillation at atmospheric pressure, 750 mm. Hg
First drop, 86° F.

Fraction No.	Cut temp. ° F.	Percent	Sum, percent	Sp. gr., 60/60° F.	° API, 60° F.	C.I.	S.U. visc., 100° F.	Cloud test, ° F.
1	122							
2	167	4.2	4.2	0.658	83.6			
3	212	5.3	9.5	.691	73.3	7.5		
4	257	7.9	17.4	.724	63.9	14		
5	302	6.9	24.3	.744	58.7	16		
6	347	6.3	30.6	.760	54.7	17		
7	392	5.6	36.2	.772	51.8	16		
8	437	5.1	41.3	.782	49.5	15		
9	482	5.5	46.8	.794	46.7	16		
10	527	6.5	53.3	.808	43.6	18		
STAGE 2—Distillation continued at 40 mm. Hg								
11	392	4.7	58.0	0.830	39.0	24	40	20
12	437	5.8	63.8	.834	38.2	22	45	40
13	482	5.3	69.1	.843	36.4	23	55	55
14	527	4.5	73.6	.850	35.0	23	72	70
15	572	5.4	79.0	.858	33.4	24	105	90
Residuum		20.2	99.2	.894	26.8			

Carbon residue, Conradson: Residuum, 1.4 percent; crude, 0.3 percent.

Approximate Summary

	Percent	Sp. gr.	° API	Viscosity
Light gasoline	9.5	0.676	77.8	
Total gasoline and naphtha	36.2	0.729	62.6	
Kerosine distillate	17.1	.796	46.3	
Gas oil	10.4	.834	38.2	
Nonviscous lubricating distillate	11.8	.839–.857	37.2–33.6	50–100
Medium lubricating distillate	3.5	.857–.862	33.6–32.7	100–200
Viscous lubricating distillate				Above 200
Residuum	20.2	.894	26.8	
Distillation loss	0.8			

CRUDE PETROLEUM ANALYSIS

Bureau of Mines Bartlesville, Okla., Laboratory
Sample 33152

Identification

Dents Run Field (36)
Thirty foot sand-Hampshire-Upper Devonian

Church District
Wetzel County
West Virginia

General Characteristics

Gravity, specific, 0.813 Gravity, ° API, 42.6 Color, N.P.A. 6
Sulfur percent, less than 0.10
Viscosity, Saybolt Universal at 100° F., 42 seconds

Distillation, Bureau of Mines Routine Method

STAGE 1—Distillation at atmospheric pressure, 754 mm. Hg
First drop, 97° F.

Fraction No.	Cut temp. ° F.	Percent	Sum, percent	Sp. gr., 60/60° F.	° API, 60° F.	C.I.	S.U. visc., 100° F.	Cloud test, ° F.
1	122							
2	167							
3	212	4. 1	4. 1	0. 680	76. 6			
4	257	5. 4	9. 5	. 718	65. 6	11		
5	302	6. 9	16. 4	. 742	59. 2	15		
6	347	6. 0	22. 4	. 758	55. 2	16		
7	392	5. 7	28. 1	. 770	52. 3	15		
8	437	5. 5	33. 6	. 780	49. 9	15		
9	482	6. 1	39. 7	. 791	47. 4	14		
10	527	7. 3	47. 0	. 804	44. 5	16		

STAGE 2—Distillation continued at 40 mm. Hg

11	392	9. 3	56. 3	0. 828	39. 4	23	42	25
12	437	5. 4	61. 7	. 837	37. 6	24	50	45
13	482	6. 7	68. 4	. 844	36. 2	24	65	65
14	527	6. 8	75. 2	. 854	34. 2	25	99	85
15	572	7. 0	82. 2	. 864	32. 3	27	170	95
Residuum		17. 4	99. 6	. 894	26. 8			

Carbon residue, Conradson: Residuum, 1.8 percent; crude, 0.3 percent.

Approximate Summary

	Percent	Sp. gr.	° API	Viscosity
Light gasoline	4. 1	0. 680	87. 6	
Total gasoline and naphtha	28. 1	0. 737	60. 5	
Kerosene distillate	18. 9	. 793	46. 9	
Gas oil	12. 0	. 830	39. 0	
Nonviscous lubricating distillate	12. 9	. 837–. 854	37. 6–34. 2	50–100
Medium lubricating distillate	9. 7	. 854–. 868	34. 2–31. 5	100–200
Viscous lubricating distillate	0. 6	. 868–. 869	31. 5–31. 3	Above 200
Residuum	17. 4	. 894	26. 8	
Distillation loss	0. 4			

CRUDE PETROLEUM ANALYSIS

Bureau of Mines Bartlesville, Okla., Laboratory

Sample 23376

Identification

Griffithsville Field (75)
Berea sand-Pocono-Mississippian

Duval District
Lincoln County
West Virginia

General Characteristics

Gravity, specific, 0.836 Gravity, ° API, 37.8 Color, N.P.A. 2
Sulfur, percent, less than 0.10
Viscosity, Saybolt Universal at 100° F., 50 seconds

Distillation, Bureau of Mines Routine Method

STAGE 1—Distillation at atmospheric pressure, 748 mm. Hg
First drop, 165° F.

Fraction No.	Cut temp. ° F.	Percent	Sum, percent	Sp. gr., 60/60° F.	° API, 60° F.	C.I.	S.U. visc., 100° F.	Cloud test, ° F.
1	122							
2	167							
3	212	1. 9	1. 9					
4	257	4. 0	5. 9	0. 728	62. 9			
5	302	6. 3	12. 2	. 747	57. 9	18		
6	347	6. 7	18. 9	. 762	54. 2	18		
7	392	6. 0	24. 9	. 774	51. 3	17		
8	437	6. 0	30. 9	. 787	48. 3	18		
9	482	6. 0	36. 9	. 800	45. 4	19		
10	527	6. 0	42. 9	. 813	42. 6	20		

STAGE 2—Distillation continued at 40 mm. Hg

11	392	5. 0	47. 9	0. 836	37. 8	27	41	Below 5
12	437	5. 7	53. 6	. 840	37. 0	25	46	30
13	482	6. 5	60. 1	. 844	36. 2	24	60	45
14	527	6. 0	66. 1	. 864	32. 3	30	87	65
15	572	6. 0	72. 1	. 871	31. 0	30	135	85
Residuum		27. 9	100. 0	. 908	24. 3			

Carbon residue, Conradson: Residuum, 2.2 percent; crude, 0.6 percent.

Approximate Summary

	Percent	Sp. gr.	° API	Viscosity
Light gasoline	1. 9			
Total gasoline and naphtha	24. 9	0. 753	56. 4	
Kerosine distillate	18. 0	. 800	45. 4	
Gas oil	9. 5	. 837	37. 6	
Nonviscous lubricating distillate	12. 4	. 841–. 866	36. 8–31. 9	50–100
Medium lubricating distillate	7. 3	. 866–. 875	31. 9–30. 2	100–200
Viscous lubricating distillate				Above 200
Residuum	27. 9	. 908	24. 3	
Distillation loss	0. 0			

CRUDE PETROLEUM ANALYSIS

Bureau of Mines Bartlesville, Okla., Laboratory

Sample 33158

Identification

Jacksonburg-Stringtown Field (32)
Gordon sand-Hampshire-Upper Devonian

McClellan District
Doddridge County
West Virginia

General Characteristics

Gravity, specific, 0.817 Gravity, ° API, 41.7 Color, N.P.A. 5
Sulfur, percent, less than 0.10
Viscosity, Saybolt Universal at 100° F., 44 seconds

Distillation, Bureau of Mines Routine Method

STAGE 1—Distillation at atmospheric pressure, 750 mm. Hg
First drop, 93° F.

Fraction No.	Cut temp. ° F.	Percent	Sum, percent	Sp. gr., 60/60° F.	° API, 60° F.	C.I.	S.U. visc., 100° F.	Cloud test, ° F.
1	122							
2	167							
3	212	5. 2	5. 2	0. 662	82. 2			
4	257	2. 5	7. 7	. 706	68. 9	5. 6		
5	302	3. 9	11. 6	. 734	61. 3	11		
6	347	4. 9	16. 5	. 755	55. 9	14		
7	392	6. 4	22. 9	. 770	52. 3	15		
8	437	6. 3	29. 2	. 782	49. 5	15		
9	482	6. 6	35. 8	. 793	46. 9	15		
10	527	8. 4	44. 2	. 805	44. 3	16		
STAGE 2—Distillation continued at 40 mm. Hg								
11	392	4. 9	49. 1	0. 829	39. 2	24	41	20
12	437	6. 9	56. 0	. 854	38. 2	22	46	40
13	482	7. 1	63. 1	. 844	36. 2	24	58	55
14	527	6. 0	69. 1	. 853	34. 4	25	85	75
15	572	5. 9	75. 0	. 860	33. 0	25	140	90
Residuum		23. 8	98. 8	. 893	27. 0			

Carbon residue, Conradson: Residuum, 1.2 percent; crude, 0.3 percent.

Approximate Summary

	Percent	Sp. gr.	° API	Viscosity
Light gasoline	5. 2	0. 662	82. 2	
Total gasoline and naphtha	22. 9	. 729	62. 6	
Kerosine distillate	21. 3	. 794	46. 7	
Gas oil	10. 7	. 832	38. 6	
Nonviscous lubricating distillate	12. 9	. 837–. 855	37. 6–34. 0	50–100
Medium lubricating distillate	7. 2	. 855–. 863	34. 0–32. 5	100–200
Viscous lubricating distillate				Above 200
Residuum	23. 8	. 893	27. 0	
Distillation loss	1. 2			

CRUDE PETROLEUM ANALYSIS

Bureau of Mines Bartlesville, Okla., Laboratory
Sample 33157

Identification

Lost Run-Gooseneck Field (49)
Big Injun sand-Pocono-Mississippian

Clay District
Ritchie County
West Virginia

General Characteristics

Gravity, specific, 0.781 Gravity, ° API, 49.7 Color, N.P.A. 4
Sulfur, percent, less than 0.10
Viscosity, Saybolt Universal at 100° F., 34 seconds

Distillation, Bureau of Mines Routine Method

STAGE 1—Distillation at atmospheric pressure, 750 mm. Hg
First drop, 93° F.

Fraction No.	Cut temp. ° F.	Percent	Sum, percent	Sp. gr., 60/60° F.	° API, 60° F.	C.I.	S.U. visc., 100° F.	Cloud test, ° F.
1	122	4. 6	4. 6	0. 647	87. 2			
2	167	4. 5	9. 1	. 656	84. 2	0. 8		
3	212	7. 0	16. 1	. 692	73. 0	8. 0		
4	257	9. 1	25. 2	. 724	63. 9	14		
5	302	7. 5	32. 7	. 743	58. 9	16		
6	347	7. 0	39. 7	. 758	55. 2	16		
7	392	5. 5	45. 2	. 770	52. 3	15		
8	437	5. 3	50. 5	. 780	49. 9	15		
9	482	5. 6	56. 1	. 791	47. 4	14		
10	527	6. 8	62. 9	. 803	44. 7	15		
STAGE 2—Distillation continued at 40 mm. Hg								
11	392	3. 6	66. 5	0. 826	39. 8	22	41	20
12	437	5. 1	71. 6	. 832	38. 6	21	46	40
13	482	4. 5	76. 1	. 839	37. 2	21	55	55
14	527	3. 9	80. 0	. 845	36. 0	21	74	70
15	572	4. 4	84. 4	. 853	34. 4	22	110	90
Residuum		14. 7	99. 1	. 888	27. 9			

Carbon residue, Conradson: Residuum, 1.1 percent; crude, 0.2 percent.

Approximate Summary

	Percent	Sp. gr.	° API	Viscosity
Light gasoline	16. 1	0. 669	80. 0	
Total gasoline and naphtha	45. 2	. 718	65. 6	
Kerosine distillate	17. 7	. 792	47. 2	
Gas oil	8. 3	. 829	39. 2	
Nonviscous lubricating distillate	9. 8	. 835–. 851	38. 0–34. 8	50–100
Medium lubricating distillate	3. 4	. 851–. 857	34. 8–33. 6	100–200
Viscous lubricating distillate				Above 200
Residuum	14. 7	. 888	27. 9	
Distillation loss	. 9			

CRUDE PETROLEUM ANALYSIS

Bureau of Mines Bartlesville, Okla., Laboratory

Sample 33149

Identification

Mannington-Mt. Morris Field (20)
Big Injun sand-Pocono-Mississippian

Mannington District
Marion County
West Virginia

General Characteristics

Gravity, specific, 0.806 Gravity, ° API, 44.1 Color, N.P.A. 5
Sulfur, percent, less than 0.10
Viscosity, Saybolt Universal at 100° F., 40 seconds

Distillation, Bureau of Mines Routine Method

STAGE 1—Distillation at atmospheric pressure, 755 mm. Hg

First drop, 93° F.

Fraction No.	Cut temp. ° F.	Percent	Sum, percent	Sp. gr., 60/60° F.	° API, 60° F.	C.I.	S.U. visc., 100° F.	Cloud test, ° F.
1	122							
2	167	2. 1	2. 1	0. 683	75. 7			
3	212	3. 2	5. 3	. 683	75. 7	3. 7		
4	257	6. 1	11. 4	. 719	65. 3	12		
5	302	7. 1	18. 5	. 739	60. 0	14		
6	347	6. 9	25. 4	. 755	55. 9	14		
7	392	6. 7	32. 1	. 768	52. 7	14		
8	437	6. 3	38. 4	. 778	50. 4	14		
9	482	6. 5	44. 9	. 790	47. 6	14		
10	527	7. 9	52. 8	. 804	44. 5	16		

STAGE 2—Distillation continued at 40 mm. Hg

11	392	5. 1	57. 9	0. 824	40. 2	21	41	25
12	437	7. 0	64. 9	. 829	39. 2	20	46	45
13	482	6. 5	71. 4	. 839	37. 2	21	58	65
14	527	5. 5	76. 9	. 849	35. 2	23	87	80
15	572	6. 3	83. 2	. 859	33. 2	25	140	95
Residuum		16. 6	99. 8	. 892	27. 1			

Carbon residue, Conradson: Residuum, 1.5 percent; crude, 0.3 percent.

Approximate Summary

	Percent	Sp. gr.	° API	Viscosity
Light gasoline	5. 3	0. 683	75. 7	
Total gasoline and naphtha	32. 1	. 735	61. 0	
Kerosine distillate	20. 7	. 792	47. 2	
Gas oil	10. 9	. 827	39. 6	
Nonviscous lubricating distillate	11. 9	. 832–. 851	38. 6–34. 8	50–100
Medium lubricating distillate	7. 6	. 851–. 864	34. 8–32. 3	100–200
Viscous lubricating distillate				Above 200
Residuum	16. 6	. 892	27. 1	
Distillation loss	0. 2			

CRUDE PETROLEUM ANALYSIS

Bureau of Mines Bartlesville, Okla., Laboratory

Sample 33150

Identification

Mannington-Mt. Morris Field (20)
Gordon sand-Hampshire-Upper Devonian

Mannington District
Marion County
West Virginia

General Characteristics

Gravity, specific, 0.814 Gravity,° API, 42.3 Color, N.P.A. 6
Sulfur, percent, less than 0.10
Viscosity, Saybolt Universal at 100° F., 46 seconds

Distillation, Bureau of Mines Routine Method

STAGE 1—Distillation at atmospheric pressure, 754 mm. Hg
First drop 90° F.

Fraction No.	Cut temp. ° F.	Percent	Sum, percent	Sp. gr., 60/60° F.	° API, 60° F.	C.I.	S.U. visc., 100° F.	Cloud test, ° F.
1	122							
2	167	1. 7	1. 7	0. 674	78. 4			
3	212	2. 8	4. 5	. 674	78. 4	0. 5		
4	257	4. 8	9. 3	. 713	67. 0	8. 9		
5	302	4. 9	14. 2	. 735	61. 0	12		
6	347	5. 5	19. 7	. 752	56. 7	13		
7	392	4. 9	24. 6	. 766	53. 2	14		
8	437	5. 3	29. 9	. 777	50. 6	13		
9	482	5. 6	35. 5	. 790	47. 6	14		
10	527	6. 7	42. 2	. 802	44. 9	15		

STAGE 2—Distillation continued at 40 mm. Hg

11	392	4. 7	46. 9	0. 823	40. 4	21	40	25
12	437	6. 6	53. 5	. 830	39. 0	20	45	45
13	482	8. 1	61. 6	. 839	37. 2	21	56	60
14	527	4. 3	65. 9	. 848	35. 4	22	80	75
15	572	6. 7	72. 6	. 855	34. 0	23	115	90
Residuum		26. 2	98. 8	. 891	27. 3			

Carbon residue, Conradson: Residuum, 1.7 percent; crude, 0.5 percent.

Approximate Summary

	Percent	Sp. gr.	° API	Viscosity
Light gasoline	4. 5	0. 674	78. 4	
Total gasoline and naphtha	24. 6	0. 730	62. 3	
Kerosine distillate	17. 6	. 791	47. 4	
Gas oil	11. 3	. 827	39. 6	
Nonviscous lubricating distillate	13. 4	. 834–. 852	38. 2–34. 6	50–100
Medium lubricating distillate	5. 7	. 852–. 859	34. 6–33. 2	100–200
Viscous lubricating distillate				Above 200
Residuum	26. 2	. 891	27. 3	
Distillation loss	1. 2			

CRUDE PETROLEUM ANALYSIS

Bureau of Mines Bartlesville, Okla., Laboratory
Sample 26344

Identification

Spencer-Richardson Field (66)
Berea sand-Pocono-Mississippian

Spencer District
Roane County
West Virginia

General Characteristics

Gravity, specific, 0.814 Gravity, ° API, 42.3 Color,_____
Sulfur, percent, 0.12
Viscosity, Saybolt Universal at 100° F., 41 seconds

Distillation, Bureau of Mines Routine Method

STAGE 1—Distillation at atmospheric pressure, 732 mm. Hg
First drop, 90° F.

Fraction No.	Cut temp. ° F.	Percent	Sum, percent	Sp. gr., 60/60° F.	° API, 60° F.	C.I.	S.U. visc., 100° F.	Cloud test, ° F.
1	122	0. 9	0. 9					
2	167	2. 7	3. 6	0. 667	80. 6			
3	212	3. 7	7. 3	. 697	71. 5	10		
4	257	6. 1	13. 4	. 725	63. 7	15		
5	302	5. 5	18. 9	. 745	58. 4	17		
6	347	5. 3	24. 2	. 760	54. 7	17		
7	392	5. 9	30. 1	. 772	51. 8	16		
8	437	5. 7	35. 8	. 784	49. 0	16		
9	482	5. 6	41. 4	. 794	46. 7	16		
10	527	6. 5	47. 9	. 808	43. 6	18		

STAGE 2—Distillation continued at 40 mm. Hg

11	392	3. 3	51. 2	0. 835	38. 0	27	40	30
12	437	6. 3	57. 5	. 836	37. 8	23	45	40
13	482	6. 1	63. 6	. 848	35. 4	26	55	60
14	527	5. 1	68. 7	. 860	33. 0	28	80	75
15	572	6. 0	74. 7	. 868	31. 5	29	115	90
Residuum		24. 7	99. 4	. 893	27. 0			

Carbon residue, Conradson: Residuum, 1.3 percent; crude, 0.3 percent.

Approximate Summary

	Percent	Sp. gr.	° API	Viscosity
Light gasoline	7. 3	0. 682	76. 0	
Total gasoline and naphtha	30. 1	0. 734	61. 3	
Kerosine distillate	17. 8	. 796	46. 3	
Gas oil	9. 7	. 838	37. 4	
Nonviscous lubricating distillate	11. 7	. 842–. 865	36. 6–32. 1	50–100
Medium lubricating distillate	5. 4	. 865–. 872	32. 1–30. 8	100–200
Viscous lubricating distillate				Above 200
Residuum	24. 7	. 893	27. 0	
Distillation loss	0. 6			

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