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PETROLEUM IN ILLINOIS IN 1912 AND 1913

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The production of oil in Illinois began to decline early in 1912, and had reached a point in 1913 which almost threatened the rank of the State. Since 1907, the State has held third place for production and has been exceeded only by California and Oklahoma. The production for 1912, according to David T. Day, is 28,601,308 barrels as against 31,317,038\* in 1911, or 8.67 per cent decline. The estimated production for 1913 is 21,600,000 barrels, or a decline from 1912 of about 27 per cent. The following table covers the annual production from 1905 to 1913:

Illinois Oil Production, 1905—1913.†

Year.	Bbls.	Value.
Previous.....	6,576	\$.....
1905.....	181,084	116,561
1906.....	4,379,050	3,274,818
1907.....	24,281,973	16,432,947
1908.....	33,686,238	22,649,561
1909.....	30,898,339	19,788,864
1910.....	33,143,262	19,669,383
1911.....	31,317,038	19,734,339
1912.....	28,601,308	24,332,605
1913 (estimated)	21,600,000	27,432,000
Total.....	208,112,868	\$153,431,078

The sharp decline in State production, beginning in 1913, seems to correspond with the decrease in new development in the deep Lawrence County pools. The sands of this locality have a good staying quality and are expected to yield abundantly for many years. The present rapid drop in their production is normal; later, the decline should continue at a much lower rate. The opening of new fields would probably reverse the situation. The production for 1913 was estimated by adding the pipe-line runs of the Ohio Oil Company and the Tidewater Pipeline Company, assuming that the December runs are equivalent to those of November, and reckoning the tank-car shipments at about 2,000,000 barrels as against 2,674,649 barrels for 1912, according to Day. The tank-car shipments are made from Duncanville, Lawrenceville, Flat Rock, Stoy, Robinson, Bakers Lane, Bridgeport, Sandoval, Carlyle,

\*Day, D. T., The production of petroleum in 1912. Mineral Resources of the U. S., Calendar year 1912. Advance Chapter, 1913, p. 63.  
†All figures, except 1913, by Dr. David T. Day, U. S. Geological Survey.

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1913 DIRECT COPY

Casey, and Allendale, The following table gives the pipeline runs and stocks of the Ohio Oil Company and the runs of the Tidewater Pipeline Company by months, according to Day, for 1912, and by the *Oil City Derrick*, for 1913:

*Illinois Oil Production for 1912 and 1913.*

Month.	RUNS, BARRELS.				STOCKS, BARRELS.	
	Ohio Oil Co.		Tidewater Pipeline Co.		Ohio Oil Co.	
	1912.	1913.	1912.	1913.	1912.	1913.
January.....	1,853,266	1,614,667	94,918	126,945	18,393,303	11,598,519
February.....	1,853,379	1,366,719	96,597	112,266	17,706,835	10,366,955
March.....	1,949,945	1,478,900	97,681	124,473	17,279,112	9,966,083
April.....	1,916,071	1,479,792	101,550	126,079	17,001,576	9,486,416
May.....	2,084,743	1,573,151	109,161	145,629	16,636,329	8,990,143
June.....	2,083,087	1,493,691	91,752	128,683	16,235,353	8,111,629
July.....	2,230,164	1,557,198	98,986	136,618	15,689,994	7,618,891
August.....	1,996,824	1,506,112	100,834	136,306	14,682,823	6,934,310
September.....	1,871,325	1,469,552	95,254	141,854	13,949,064	6,478,499
October.....	1,901,119	1,515,010	106,638	147,262	13,039,507	5,782,397
November.....	1,668,306	1,407,189	101,173	131,883	12,307,725	5,875,837
December.....	1,594,700	.....	121,964	.....	11,591,427	.....

The drain on stored oil in 1912 and 1913 kept pace with the decline in production. The surplus oil in Illinois fields began to accumulate in 1906 and reached the maximum amount about September 1, 1910, with stocks aggregating 29,289,164 barrels. The decline in stocks, until August 1, 1912, averaged about 19,500 barrels per day. From August, 1912, until February, 1913, the daily decline averaged about 23,400 barrels, and since that time about 16,000 barrels per day.

A general advance in prices of Illinois oil has accompanied the decline in production and stocks. This has been due chiefly to the demand for motor fuels and to other prevailing economic conditions. The present price of \$1.45 per barrel as against 67 cents, January 1, 1912, is a large inducement to extensive wild-cat work in the effort to locate new fields. From January 1, 1908, to December 20, 1912, Illinois oil was graded and sold according to difference in specific gravity. Since then the grading has been abolished, and now all of the oil of the State commands one price. The following table shows the advance in prices of Illinois oil:

*Fluctuation in Prices per Barrel of Illinois Oil in 1912-1913.*

Date.	1912.		Date.	1913.
	Above 30°B.	Below 30°B.		
Jan. 1.....	\$0.67	\$0.57	Jan. 1....	\$1.08
Jan. 2.....	.70	.60	Jan. 3....	1.11
Jan. 6.....	.72	.62	Jan. 27...	1.14
Jan. 25.....	.75	.65	Feb. 1....	1.17
Feb. 3.....	.78	.68	Feb. 6....	1.20
Mar. 4.....	.81	.71	Feb. 20...	1.25
Apr. 24.....	.83	.73	Apr. 15...	1.30
May 24.....	.85	.75	Nov. 5....	1.35
June 13.....	.85	.77	Nov. 19...	1.40
June 27.....	.85	.79	Nov. 21...	1.45
July 25.....	.87	.82	Dec. 31...	1.45
Sept. 10.....	.87	.84	.....	.....
Oct. 25.....	.90	.87	.....	.....
Nov. 7.....	.92	.89	.....	.....
Nov. 15.....	.94	.91	.....	.....
Nov. 25.....	.96	.93	.....	.....
Dec. 2.....	.99	.96	.....	.....
Dec. 9.....	1.02	.99	.....	.....
Dec. 16.....	1.05	1.02	.....	.....
Dec. 20.....	1.05	1.05	.....	.....
Dec. 23.....	1.08	1.08	.....	.....

As a result of the advance in prices, the highest annual value of oil in the State is recorded for 1913. The average price per barrel for the year is about \$1.27. The total value of the 21,600,000 barrels produced in 1913 is about \$27,432,000.

## THE SOUTHEASTERN ILLINOIS OIL FIELDS.

*Shallow fields:* The Clark, Cumberland, Coles, and Edgar County fields (shallow oil-sand territory) showed a very low but steady yield of oil in 1912 and 1913. These fields produce from one to three barrels of oil per day per well and still seem to be profitable if a number of them are pumped on one central power. Until within the last month there has been but little active drilling. Several wells were drilled in the area, in 1912, to a depth of about 2500 feet, where small quantities of a high-grade sour oil were found. The producing zone is thought to correspond to the Trenton limestone. The expense of drilling with such small returns is almost prohibitive of extensive development to this horizon; but the presence of oil, however, has induced some recent investigation of the Trenton northward along the LaSalle anticline between Pesotum and Mahomet, where the depth is much less. Very recently a new shallow sand was discovered in Clark County, beneath the old productive sand, and is attracting considerable attention. The production from this pay is not as great as in the old sand, but its shallow depth makes it a profitable venture. The combined daily output of the shallow fields in 1913 was about 5,000 barrels as against 9,000 in 1910.

*Crawford County:* Like the shallow fields, the Crawford County area, with its 900-foot sands, were rapidly developed and drained, and are now maintaining a low but steady yield. The average daily output in 1913 was about 15,000 barrels as against 30,000 barrels in 1910 and 100,000 barrels in 1907. The two chief additions to the field in the last three years were the development of the New Hebron pool, and the deep sand, at 1350 feet, north of Oblong. In 1912 and 1913, the drilling, for the most part, was confined to inside field locations which did not add materially to the general output. At the close of 1913 oil was found on a town lot in the north part of Robinson. Considerable excitement ensued and now about 15 wells are drilling.

*Lawrence County:* Lawrence County is the richest oil-producing area in the State. There are seven sands from 450 to 1985 feet in depth that produce large amounts of high-grade oil. In order of depth they are: The Shallow sand, 450 feet (very limited in areal extent); the Bridgeport sand of three lenses, 750 to 1000 feet; the Buchanan sand, 1250 to 1380 feet; the "Gas" sand, 1200 to 1300 feet; the Kirkwood sand, 1320 to 1985 feet (variableness of depth due to structure); the Tracy sand, 1500 to 1750 feet; and the McClosky limestone, 1600 to 1850 feet. These sands rank in production as follows: McClosky, Kirkwood, Buchanan, Bridgeport, Tracy, "Gas", and Shallow sands. The accumulation of oil in all of the sands is governed by a strong double-plunging anticline. Until late in 1912, the remarkable steady production of the Lawrence County sands did much to retard the decline of general production. Since this time, the initial high yield has given way to a rapid decline that has affected the State yield. In 1912, the drilling in the county was confined mostly inside of the oil fields and consisted of wells which tap the McClosky sand. Many of the new wells were reported with initial productions from 500 to 2400 barrels per day and a large number of the old wells to shallower sands were deepened to the McClosky. Several isolated oil pools were opened late in 1912 and 1913, near Lawrenceville. The largest lies just northwest of this place and produces from the Buchanan sand. Three smaller pools in the Kirkwood sand lie southeast of the town in sections 8, 15, and 17, T. 3 N., R. 11 W. General drilling in the county was greatly handicapped in 1913, because of an extensive summer drought and a consequent shortage of water. The average daily output for the county was about 35,000 barrels as against 45,000 in 1910.

*Wabash County:* A small pool of oil of about 37° Beaume gravity was discovered and defined in 1912, in sections 3, 4, 9 and 10, T. 1 N., R. 12 W. It was named after the nearby town of Allendale. This pool was disappointing in areal extent. There are at present 36 producing wells with a daily production of about 700 barrels. The oil comes from a depth of about 1480 to 1550 feet in a sand which seems to correspond to the Kirkwood sand of Lawrence County. The governing structure of the pool has the appearance of an isolated shelf along the steep western limb of the LaSalle anticline.

## SOUTHERN-CENTRAL AND WESTERN ILLINOIS.

*Clinton County:* The Carlyle pool, three miles northwest of Carlyle, has shown a steady decline in the last two years. There are at present 154 wells with a combined daily production of about 1070 barrels as against 120 wells and 4500 barrels at the close of 1911. Only 14 new wells were added to the field during 1913. Their combined initial yield was 134 barrels.

*Marion County:* The Sandoval pool, just north of Sandoval, has 112 producing wells and a combined daily yield of about 875 barrels, as against 66 wells and 1800 barrels in 1911. There were 23 new wells added to the field in 1913, with an initial production of 492 barrels. Both the Sandoval and Carlyle pools have been profitable because of their continued yield. A small oil well of about 20 barrels initial yield was discovered a mile south of the old Brown well east of Centralia. The producing sand corresponds to the Benoist sand in the Sandoval pool.

*Macoupin County:* The Carlinville pool, two miles south of Carlinville, now has six gas wells and eight oil wells. One of the oil wells is credited with an initial yield of 100 barrels of thick heavy oil which characterizes the field. The daily yield of the field is about 200 barrels. The oil comes from the Pottsville sandstone formation overlying the St. Louis limestone or "Big lime."

## MISCELLANEOUS DRILLING

In 1912, barren wells were drilled near Murphysboro, Ava, Grubbs, Denny, Nashville, Oakdale, O'Fallon, Virden, Watson, Camargo, Keensburg, Jacksonville, Edwardsville, and Villa Grove. In 1913, dry holes were drilled near Equality, Harrisburg, Duquoin, Murphysboro, Hoffman, Hoyleton, Edwardsville, Millstadt, Pinkstaff, Kingman, Lexington, Dundas, Anna, Olive Branch, and Villa Grove. New drilling is going on, or is contemplated, near Allerton, Vandalia, Pesotum, Sadorus, Mahomet, Sorento, Birmingham and Hillsboro.

## SUMMARY TABLES

The following tables compiled from the *Oil City Derrick* and the *Oil and Gas Journal* show the development in Illinois during 1912 and 1913:

*Wells Drilled in Illinois in 1912 and 1913.*

Month.	Completed.		New production.		Dry holes.		Average initial production.		Abandoned wells.		Gas wells.	
	1912	1913	1912	1913	1912	1913	1912	1913	1912	1913	1912	1913
January.....	81	132	3894	4060	7	26	52	38	19	10	0	2
February.....	71	107	4367	3175	15	24	77	38	12	11	0	1
March.....	54	90	2232	2337	8	22	48	34	7	1	0	6
April.....	69	105	3768	3696	17	13	72	40	4	7	0	0
May.....	91	159	4013	4170	21	22	57	32	12	13	0	1
June.....	122	153	10761	3718	24	41	109	33	26	10	2	6
July.....	123	170	6879	4637	44	29	87	33	15	10	2	2
August.....	126	157	6114	3591	30	41	63	31	4	21	1	3
September.....	105	163	4679	4617	13	18	50	31	6	6	3	2
October.....	146	184	7367	4568	21	31	59	29	12	13	1	0
November.....	139	165	7104	3666	31	28	65	27	24	15	1	4
December.....	129	164	4508	4428	26	15	43	29	21	11	1	4
<b>Total.....</b>	<b>1256</b>	<b>1749</b>	<b>65686</b>	<b>46663</b>	<b>257</b>	<b>310</b>	<b>65</b>	<b>32</b>	<b>162</b>	<b>128</b>	<b>11</b>	<b>31</b>

The discovery of the Allendale pool and its rapid development in June and July, 1912, caused the average initial production to exceed that of any month in the last two years. The confinement of drilling to proven territory, which had already suffered considerable drain, is well shown by the difference in the total well completions, new production, and the average initial yield per producing well.

*Wells Drilled by Counties During 1912 and 1913.*

County.	Wells completed.		New production bbls.		Dry holes.	
	1912	1913	1912	1913	1912	1913
Lawrence.....	586	668	51,975	31,999	77	76
Crawford.....	414	689	7,175	9,585	96	126
Clark.....	62	208	1,178	2,565	12	39
Cumberland.....	50	63	800	620	8	16
Marion.....	26	22	610	492	4	1
Clinton.....	48	19	1,127	134	13	5
Wabash.....	42	49	.....	998	20	24
Miscellaneous.....	28	31	2,821*	270†	27	23
<b>Total.....</b>	<b>1,256</b>	<b>1,749</b>	<b>65,686</b>	<b>46,663</b>	<b>257</b>	<b>310</b>

\*Chiefly from Allendale pool.

†From Coles and Jasper counties and the Carlinville pool.

On January 1, 1913, it was estimated that 21,238 wells had been drilled in Illinois. Of these, 3,422, or 16.1 per cent, were barren. In 1913, 1,749 wells were drilled with 310 or 17.7 per cent barren. The total up to January 1, 1914, is 22,987 wells drilled, with 3,732, or 16.2 per cent, dry.

*Eight-year Comparison.*

Year.	Wells completed.	Wells producing.	Initial output bbls.	Dry holes.	Average yield per well.	Total production bbls.
1906.....	3283	2793	113,012	490	40.4	4,397,050
1907.....	4988	4260	139,163	728	32.6	24,281,973
1908.....	3574	3019	78,960	555	26.1	33,686,238
1909.....	3151	2593	89,756	558†	34.0	30,898,339
1910.....	2139	1671	93,256	468	55.8	33,143,362
1911.....	1364	1059	66,919	305	63.1	31,317,038
1912.....	1256	986	65,686	257	66.6	28,601,308
1913.....	1749	1439	46,663	310	32.4	21,600,000

†70 gas wells included.