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U.S. GEOLOGICAL SURVEY
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STATE OF ILLINOIS
GEOLOGICAL SURVEY [Circular no. 3]
H. FOSTER BAIN, DIRECTOR

DEAR SIR:

The State Geological Survey has as yet published only one report upon the Illinois oil fields. It was issued in 1906 and is descriptive of conditions in the field up to May 10th of that year. This report was prepared for us by Professor W. S. Blatchley. Under the provisions of the law and a resolution of the Geological commission a portion of each edition of the Bulletins of the State Geological Survey is set aside for gratuitous distribution. To meet the wants of libraries and individuals not reached in this first distribution, 500 copies are in each case reserved for sale at cost, including postage. The reports may be obtained upon application to the State Geological Survey, Urbana, Illinois, and checks and money orders should be made payable to H. Foster Bain, Urbana.

The supply of copies of the oil bulletin available for gratuitous distribution is exhausted, but copies may still be supplied upon receipt of 25 cents. In ordering, please ask for Bulletin No. 2: The Petroleum Industry of South-eastern Illinois.

It is expected that additional reports will be issued from time to time and material is now being collected for a second bulletin. In the meantime the statistics of production for 1907 have been collected and were published in the Engineering and Mining Journal for January 4th. Through the courtesy of that publication, this article is reproduced below, having been revised to incorporate later information.

Your name has been placed on file and notice will be sent you of subsequent reports as they become available.

Very respectfully,
H. FOSTER BAIN, Director.

The year just closed was a very prosperous one in the petroleum fields of Illinois. The area was extended rapidly to the southeast, many gaps were filled in, new and lower sands were tapped, additional pipe lines were laid, a new refinery was built and the output was phenomenal.

At the close of 1906 the number of producing wells was estimated at 4185, and 532 dry holes were known to have been drilled. The total number of producing wells January 1, 1907, may be estimated at 9772, with 1260 dry holes. At this rate 88 per cent. of the holes put down have proved productive despite the fact that the outlines of the field are at many points yet to be determined. The new production for the year may be estimated at 139,163 bbl. daily. The detailed figures for the year are given in the accompanying table, being derived from the careful monthly records of the Oil City Derrick.

WELLS DRILLED IN ILLINOIS, 1907.

| Month. | Completed. | Production bbl. | Aver. Initial Production bbl. | Dry Holes. |
|----------------|------------|-----------------|-------------------------------|------------|
| January..... | 253 | 9,433 | 44 | 41 |
| February..... | 356 | 9,842 | 32½ | 55 |
| March..... | 351 | 10,392 | 35½ | 60 |
| April..... | 387 | 11,083 | 32 | 40 |
| May..... | 493 | 13,329 | 31 | 64 |
| June..... | 639 | 18,807 | 33½ | 75 |
| July..... | 521 | 17,375 | 38½ | 72 |
| August..... | 461 | 11,240 | 27½ | 45 |
| September..... | 400 | 10,967 | 32½ | 62 |
| October..... | 363 | 8,157 | 25½ | 82 |
| November..... | 430 | 9,780 | 28½ | 80 |
| December..... | 334 | 8,758 | 31½ | 52 |

The first oil was shipped from this field in June, 1905, and the shipment for that year, all of which went out in tank cars, amounted to 156,502 bbl. In 1906 a pipe line was extended into the territory, and the shipments as reported by the Ohio Oil Co. were as follows:

OIL SHIPMENTS FROM ILLINOIS IN 1906.

| | |
|----------------|----------------|
| January..... | 55,680 bbl. |
| February..... | 65,209 " |
| March..... | 19,352 " |
| April..... | 102,862 " |
| May..... | 267,746 " |
| June..... | 410,654 " |
| July..... | 610,401 " |
| August..... | 778,463 " |
| September..... | 722,168 " |
| October..... | 463,819 " |
| November..... | 350,985 " |
| December..... | 538,130 " |
| Total..... | 4,385,470 bbl. |

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1908

There are now collecting mains extending from north to south throughout the field and four 8-in. lines (or an equivalent) from Martinsville, the central pumping plant, eastward across Indiana. A new line has recently been put in service running westward to a large refinery built this year near Alton, Illinois, by the Standard Oil Company.

The pipe-line runs for 1907, given through the courtesy of the Ohio Oil Company, were as follows:

PIPE-LINE RUNS FROM ILLINOIS, 1907.

| | | |
|----------------|------------|-------|
| January..... | 752,670 | bbls. |
| February..... | 918,620 | " |
| March..... | 1,494,598 | " |
| April..... | 1,823,024 | " |
| May..... | 2,094,194 | " |
| June..... | 1,830,633 | " |
| July..... | 2,376,281 | " |
| August..... | 2,398,895 | " |
| September..... | 2,560,592 | " |
| October..... | 2,818,952 | " |
| November..... | 2,464,980 | " |
| December..... | 2,201,265 | " |
| Total..... | 23,733,790 | bbls. |

To these figures must be added something for the fuel oil shipped by cars from Duncanville, the oil used by the local refinery at Robinson, and the tank car shipments of the Sun, Cornplanter and other independent companies, amounting to something over 800,000 bbl. The recorded production for the year is 24,540,024 bbl. and probably the actual production ran a little over this. The oil, in the main grades 32 deg. or better, and sold at the standard price of 68c per bbl. Only a limited amount was lower and sold at 60c. Of the year's production, 12,610,618 bbl. are stored in the field by the Ohio Oil Company and a large amount is in producers' tanks.

NATURAL GAS.

The situation as relates to natural gas did not change materially in 1907. Gas is found somewhat generally with the oil in Clark and Crawford counties. The wells, while showing good pressure and fair initial capacity, have usually proved short lived and so far the gas has been of local value only. In 1906 gas to the value of \$186,000 was utilized according to the U. S. Geological Survey. Probably not more than \$250,000 worth was sold in 1907. The southern part of the field in Lawrence county has yielded practically no gas. Late in December two wells were brought in here which yielded respectively 3,000,000 and 6,000,000 cu. ft. per day from a depth of 1500 ft. Considerable confidence in their probable life is felt and it is possible that an important gas-field is about to be brought in. A gas main is being laid to Vincennes, Indiana, the largest nearby town.

COMMERCIAL CONDITIONS.

This enormous development was accomplished in a thoroughly business-like and quiet manner. Leases are selling at very good prices and a bonus of \$150 to \$200 an acre with a royalty of one-eighth is not uncommonly demanded in the productive district. At the same time there was little speculation by those not familiar with the oil business and its risks. Practically none of the usual stock-peddling companies were organized, and there is a strong sentiment against them.

Experienced men have found this field an unusually profitable one despite the high bonus asked and certain other drawbacks. One conservative operator estimates that three out of four will make money. It is by no means unusual for a well to flow enough oil to pay for itself by the time it is connected up, and initial productions of 1000 bbl. are not uncommon. So far the wells have stood up well under pumping. The most northerly, or Westfield pool, is the only one which is even approximately drilled in. It was here that oil was first found and the shallow depth, 350 to 400 ft., has made its exploitation rapid. In October, a careful estimate showed that the wells of this pool were yielding an average of about 6 bbl. daily and many of them had been pumped more than two years. The Crawford county wells were at the same time estimated to be yielding 20 bbl., while those of Lawrence county were yielding 40 bbl.

OCCURRENCE.

The oil occurs in a number of isolated pools which, however, are being brought closer together by drilling. It is not improbable that they will eventually be found to overlap. To the north they are higher stratigraphically and also shallower in depth. The Westfield pool is in the upper coal measures. Most of the oil in Crawford county seems to come from the lower coal measures, well down toward the base. In Lawrence county there are three sands, the main production being from the Buchanan sand at 1300 ft. This probably represents the Mansfield sandstone of the Indiana geologists, an approximate equivalent of the Pottsville strata of the east. The Kirkwood sand at 1600 ft. may also be Pottsville, though this is as yet uncertain. Farther south in the Princeton, Indiana, field, a still lower horizon in the Chester group is productive.

THE YEAR'S DEVELOPMENTS.

In general the year's work resulted in extending the field to the south and in connecting up intervening territory. Wild-cattling was active in other parts of the state, but so far without much result. Some gas has been found near Medora, and one or two oil wells have been brought in at Sparta, but as yet too little has been done to test thoroughly any considerable portion of the field.

Within the year the following wells were completed in the different counties of the oil field:

| County. | Completed. | New Production. | Dry Holes. |
|-----------------|------------|-----------------|------------|
| Crawford..... | 2,840 | 83,263 | 376 |
| Clark..... | 1,176 | 20,385 | 201 |
| Lawrence..... | 690 | 30,543 | 70 |
| Cumberland..... | 152 | 3,612 | 13 |
| Coles..... | 56 | 314 | 11 |
| Edgar..... | 25 | 118 | 14 |

Drilling was also carried on less actively in Jasper, Wabash, Edwards, Williamson, Fayette, Clinton, Richland, Clay, Douglas, Madison, Franklin, Washington, Randolph, McLean, Wayne, White, St. Clair, McDonough, Montgomery, Hamilton and Jefferson counties. According to the Oil City Derrick this work resulted in the completion of forty-eight wells, of which five were producers amounting to twenty-eight barrels. It is hoped that these point the way to the discovery of additional fields.

Topographic surveys have been made over parts of the eastern Illinois field and of the area now being prospected in the western part of the state. The maps are now being drawn, preparatory to field use by the geologist.