Structural Geology.

Nearly every oil field in the world occurs in close relationship to some earth curve or fold. Underground structure is one of the most important features of oil-field geology. So much depends on favorable structure that a careful study of the various types of oil-field structure is necessary. Below is a classification that is sufficient for all practical purposes:

1. Anticlines..... Single — Symmetrical, Asymmetrical, Overturned
   Compound
2. Synclines..... Single — Symmetrical, Asymmetrical, Overturned
   Compound
3. Monoclines..... Terraces
4. Combinations of 1, 2 and 3
5. Domes.
   (a) Anticlinal
   (b) Saline
   (c) Volcanic
6. Faulted forms of any of the above.

Every fold is part of an earth curve and must be considered as continually changing in dip or slope. The cause of folding is problematic. It is thought to be the result of the contraction of the earth's surface due to internal cooling. In places the crust of the earth is forced by folding into arches, and sags or basins. The results of such folding are structures called anticlines, synclines, domes and monoclines. Breaks or faults may affect all the above forms and make still more complicated structures.

Where masses of igneous rocks force the strata upwards, folds very similar to domes are formed. Volcanic necks or plugs may thus lift the formations around them, forming arched structures that are important factors in the accumulation of petroleum. Another form of arching such as the Saline domes of Texas and Louisiana is thought to be due to recrystallization of salt masses. The folds generally decrease with depth. Folding is near-surface phenomenon, as is often noticed the folds become more contracted toward the center and flatten with depth.

1. *Anticlines.*—The distinction between anticlines and domes is at present loosely drawn. In this book anticlines will be differentiated from domes as follows:

An anticline is a long, relatively narrow fold with the dips or slopes of its sides inclining away from a line of folding called an axis. Such a fold will eventually disappear due to gradual flattening or to faulting, merging with other folds, etc. When the fold flattens out, the ends of the fold plunge or dip along the line of the axis resulting in what is designated a plunging anticline. An anticline takes its type name from its cross-section. Folding is not only along a plane vertical or inclined to the horizon, but is also sinuous on the surface. Where folds curve sharply the beds on the inside of the curve are compressed; those on the outside are under tension. This results in localizing the oil at those portions of the fold which are opposite the point of greatest compression.

The simple anticline has but one high place or apex. If two or more high places form on the long fold such high places are designated anticlinal domes. The low places on the anticlines between such domes are called "saddles." Other names for anticlinal domes and saddles are "structural highs" and "structural lows" respectively. A fuller discussion of anticlinal domes is given later in this work. Two other types of domes are also found which will be discussed later.

Anticlines are of many forms or types: Symmetrical anticlines are those anticlines in which the inclinations or dips on both sides of the axis are equal.

Symmetrical or inclined anticlines occur when one of the limbs or flanks has a greater dip than the other. Symmetrical anticlines are the most common type of fold. Folds are overturned when the axes of the folds fall over.

Isoclines belong to a peculiar type of symmetrical anticlines. Such folds are not very common but occasionally occur.

Compound anticlines consist of a system of parallel anticlines which often cover a large area. The California and Pennsylvania oil fields clearly illustrate this condition.

2. *Synclines.* A syncline is a structure the reverse of an anticline, and receives its name because its beds incline toward a common central line.

Synclines are as varied as anticlines, and for every anticline one will nearly always find a simlar syncline.

When the basins are filled with water, oil may be found on the flanks of synclines. When little or no water occurs in the basin, oil may be found close to the bottom of the depression.

3. *Monoclines.* A monocline is a structure with one slope or inclination. Its name comes from mono, one, and clino, sloping.

Monoclines are simple structures. They are often limbs of flanks of giant anticlinal folds or of giant domes, where but one side of the fold is apparent and that dipping in one direction. The northeastern Oklahoma oil-fields are located on minor folds that occur on a great northwestward dipping monocline.

Terrace structure is practically monclinal as the major dip is in one direction. The famous Glen Pool of Oklahoma is on such a structure. Terrace structure is a combination of an anticline and a syncline for with such structures the fold has not been completed to the point where a well-defined reversal of dip has developed. Many times the oil accumulates in sand lenses. The peculiar relations here cause what are termed "oil pools."

4. *Combinations of Monoclines, Synclines and Anticlines.* The combination of a monocline, a syncline, and an anticline into one structure is a very common occurrence. Such fields are well illustrated by the Coalinga and the Simi valley oil fields of California, where one finds barren igneous, or metamorphic measures on one side, and a series of folds in the sedimentaries trending away from the igneous or metamorphic rocks. There is a monocline immediately on the flank of the igneous or metamorphic rocks. The next fold is a syncline and then comes the anticline, or a series of them.

5. *Domes.* A dome or quaquaversal is a structure in which the strata dips from a central point rather than from an axis or line. Domes are circular or elliptical and are divided into three main classes: (a) Anticlinal domes. (b) volcanic domes, and, (c) saline domes.

ANTICLINAL DOMES. Anticlinal domes are those high points or crests along the top of undulating anticlines. Such forms of domes are very common in California, Oklahoma, Wyoming, Pennsylvania and throughout the oil fields of India. In many places one main anticlinal fold may continue for 10 to 60 miles and undulate along its course, forming many anticlinal domes or quaquaversals that localize the accumulation of oil. In some cases anticlines intersect, and in other cases antclines

merge into one another. The resulting structure in each case is generally an anticlinal dome.

Where such a quaquaversal structure stands alone it is simply called a dome. A knowledge of these domes is essential to intelligent prospecting as they make oil territory "spotted." Realization of this condition will save a great deal of money to oil operators who appreciate the value of structural geology.

IMPORTANCE IN RELATION TO PETROLEUM. The dome structure is the most favorable for the accumulation of petroleum, as the oil rises from a large area to the apex of the dome. The concentration of the oil must necessarily be localized as the tendency of the petroleum, where the oil strata are saturated with water, is to rise to the top of the dome, just as in an anticline the oil rise to an axis. As a result of doming, however, the oil is concentrated into a large reservoir around a central point on the axis instead of being concentrated along the line of the anticlinal axis.

IN GENERAL.

Of 267 wells drilled, only 29 were in the old Trenton Rock section of the field, and 238 were in the western section of the State. For several years back very little work was done in the old Trenton Rock fields, but the supposition is that the 1917 season will see much more accomplished than for a good many years. Late developments in parts of the field show some gas and the scarcity of gas has been all that kept work backward as there are many sections of the field that has only been scratched by the drill, and it is this territory that is bound to be drilled with prevailing prices of oil at the wells.

Up to the close of 1916 there have been 36,259 wells completed in the Indiana field, of which 7,723 were either dry holes or gas wells, 18,403 wells have been pulled out and abandoned.

The wells completed in the Indiana field for 1916, by months, were as follows:

MONTH	Comp.	Prod.	Dry.	Gas.	Abd.
January	16	296	6	1	13
February	17	182	7	1	28
March	26	292	11	2	24
April	22	148	13	0	5
May	37	488	14	1	7
June	32	524	10	0	106
July	26	282	10	0	27
August	21	217	7	0	15
September	21	536	5	1	54
October	18	271	2	0	159
November	18	205	8	1	80
December	13	113	5	1	0
Total	267	3,554	98	8	518
For 1915	192	2,521	87	8	721
Difference	75	1,033	11	0	203

The above wells were distributed by counties as follows:

COUNTY.	Comp.	Prod.	Dry.	Gas.	Abd.
Wells	2	18	0	0	64
Blackford	6	35	3	0	26
Jay	4	145	2	0	49
Adams	0	0	0	0	131
Grant	3	23	0	0	77
Huntington	0	0	0	0	72
Delaware	1	5	0	0	80
Randolph	3	150	2	0	6
Gibson	19	155	5	0	6
Pike	70	872	28	3	7
Sullivan	132	1,862	49	4	0
Vigo	11	168	3	0	0
Miami	10	87	4	0	0
Daviess	2	30	0	0	0
Decatur	1	0	0	1	0

Pike County.

In the western part of Indiana, in Monroe township, Pike county, Michael Murphy's test on the Mary McGregor farm, section 27, and 1,320 feet from the south line and 250 from the east line of the farm, pumped two barrels at 1,171 feet. The Emery Petroleum Co.'s test on the northeast corner of the E. T. Fowler farm, section 30, pumped 20 barrels at 1,321 feet. This well is in Madison township. In the same township, McNamara & Donnelly's test on the southwest corner of the M. L. Reded heirs farm, section 20, was dry at a depth of 1,253 feet. At that depth

the hole filled up with Blue Lick water. When this water makes its appearance a well might as well be given up, for no one has been able to cope with it, as has been done with salt water.

In Madison township, Pike county, the Emery Petroleum Co.'s well on the Sarah I. Thomas farm, section 30, and 700 feet from the south line and 190 from the east line of the farm, is among the best of the wells completed in that part of the field, having pumped 50 barrels from a depth of 1,280 feet.

Petersburg gets a good well in a new part of the territory which may open up a new pool. This well is the Bement Oil & Gas Co.'s No. 1 on the L. C. Thomas farm, the southwest quarter of the southwest quarter of section 32, Washington township, about four miles southeast of Petersburg. The well is estimated at 50 to 100 bbls. Whenever the fluid is agitated the well flows over the top of the mast. It stands nearly full of oil and certainly looks good for 50 bbls. The depth is 1,170 feet.

The well is 1,200 feet north of the one drilled some time ago by W. J. Rodgers, of Evansville, and which showed considerable oil. It is west of the well drilled by Rodgers on the Chew farm, which also had some oil and considerable gas. There is some hustling for leases, but there is very little loose, the owners of the well having secured most of it before starting the test.

The Ohio Oil Co. is starting a test in section 15, Ohio township, Warrick county, Indiana, where the geologists have mapped out an anticline.

In Washington township, Pike county, the well of Bement and others on the L. C. Thomas farm, section 32, is making a nice showing and looks like the best well yet drilled in the Petersburg end of the field.

Madison—A. L. Fowler, Michael Murphy, 1	5
E. T. Towler, Emery Pet., 2	dry
Washington—W. M. Chew, Emery Pet., 1	dry
L. C. Thomas, Bement & Co., 1	47

Wells completed	4
Production	52
Dry	2

The Oakland City field was hard hit of late, for out of six wells drilled, four were dry and the other two were mere strippers. In Madison township, Pike county, The Emery Petroleum Co.'s No. 4 on the H. A. Sutton farm, section 29, was dry at 1,362 feet. No. 5 same farm, is drilling. Michael Murphy's second well

on the Eliza D. Tame farm, section 30, pumped five bbls. at 1,303 feet. William Soles is drilling a test on his own farm, section 30. In Patoka township, the Ohio Oil Co.'s No. 16 Alf. Hurt farm, section 14, pumped five bbls. and No. 10 Harlan L. Kays farm section 14, is drilling.

Madison—H. A. Sutton, Emery Pet., 4	dry
Eliza D. Tame, Michael Murphy, 2	5
Washington—Thomas, Bement & Co., 2	dry
L. C. Thomas, Bement & Co., 4	dry
J. R. Chew, Ohio Oil, 2	dry
Patoka-Alf. Hurt, Ohio Oil, 16	5

Wells completed	6
Production	10
Dry	4

Madison—H. A. Sutton, Emery Pet., 5	drg
Wm. Soles, Wm. Soles, 1	drg
Washington—Holland, Bement & Co., 1	drg
Patoka—Harlin L. Kays, Ohio Oil, 10	drg

Wells drilling	4

In Madison township, Pike county, the Emery Petroleum Co.'s test on the Laura C. Stewart farm, section 30, pumped 23 bbls. at 1,287 feet deep. The well is in the northeast corner of the farm.

Madison—H. A. Sutton, Emery, Pet., 5	dry
L. C. Stewart, Emery Pet., 1	15
L. B. Soles, Lillie B. Soles, 1	16
Washington—Hollard, Bement & Co., 1	dry
L. C. Thomas, Ohio Oil, 2	dry
Patoka—Harlan L. Kays, Ohio Oil, 10	dry
Patoka—Harlan L. Kays, Ohio Oil, 10	5

Wells completed	6
Production	36
Dry	3

One well was reported for the week from the Indiana field and that was so small that it is hardly worth mentioning. It is the Ohio Oil Co.'s No. 11 on the Harland L. Kays farm, section 14, Patoka township, Pike county and pumped but one bbl. The hole was drilled to 1,285 feet deep and filled back to 1,236 feet where the oil was found.

A large deal is reported from the Petersburg district, in Pike county, but has not been confirmed. The deal is the sale of the

Emery Petroleum Co.'s property, with leases on about 3,000 acres and at least 10 wells, to the Ohio Oil Co., for a consideration reported as $126,000. The field is practically a new one and the Ohio Oil Co., will start a number of new wells upon the property as fast as drilling tools and material can be assembled. The sale took place shortly after the Emery Co., drilled in its 25 bbl. well on the J. E. Brady farm, section 30, Madison township, Pike county, and near Petersburg. In the same township, the Forest Oil Co., is drilling a test on the E. J. Whitebook farm, section 29, and Henne and others a test on the H. H. Smith farm, section 24. Michael Murphy is drilling No. 3 on the Eliza D. Tame farm, section 30. In Washington township, same county, A. B. Bement is drilling a test on the M. M. Byers farm, section 28, and in Monroe township, closer to Oakland City, J. C. Heydrick and others are drilling close to the sand with a second well on the I. Spellman and others farm, section 35.

In Washington township, Pike county, A. B. Bement's No. 10 on the L. C. Thomas farm, section 32, pumped 20 bbls. from the Brown sand. The top of the sand was struck at 1,123 feet and drilled to a total depth of 1,138 feet. (October).

In Madison township, Pike county, the Ohio Oil Co.'s No. 3 on the southeast corner of the J. C. Brady farm, section 30, pumped 37 bbls. from the Brown sand, which was found at 1,287 feet and drilled four feet in and given a shot of 50 quarts. In Monroe township J. C. Heydrick and others test on the northeast corner of the Hulda Curter farm, section 35, was drilled to a depth of 1,223 feet in the Oakland City sand and produced less than a bbl. a day.

The well of Michael Murphy on the northeast corner of the Dave W. Gladish farm, in section 30, Madison township, Pike county, Indiana, that was reported as doing about a barrel a week ago, has been abandoned as too small to pump. In Washingtin township, same county, A. B. Bement drilled in his No. 11 on the L. C. Thomas farm, section 32, and located 800 feet from the north line and 400 from the east line of the farm, and it is a dry hole at a depth of 1,162 feet.

PETERSBURG OIL FIELD.

Several years ago a strong gas well, known locally as the "Jumbo" well, was drilled west of Petersburg, and during the last two years The Emory Oil Company, acting on the theory that gas comes from oil, started operations in sections 29 and 30 in

Township 1 North, Range 8 West in Pike county. Since that time sixteen wells have been drilled in the above sections that started to producing oil at the rate of from sixty to one hundred barrels per day and pump down to a settled production of about twenty barrels.

The oil is produced from the lower members of the Huron group of sandstones and shales at a depth of about 1,300 feet.

At the same time the above operations have been going on some other operators have been developing another small field east of Petersburg in Section 5, Township 1 South, Range 7 West, and Section 32, Township 1 North, Range 7 West, and up to the present time twenty producing wells have been drilled. The wells compare in production and depth to the wells west of town and are finished in the same formation, but the two fields belong to two separate domes or anticlines.

Sullivan County.

In Sullivan county, Indiana, and in Turman township, A. T. Osborn drilled a test on his farm, section 12, and located 200 feet from the south line and 570 from the east line of the farm, and secured a 25 bbl. pumper. The Ohio Oil Co.'s No. 2, Elwood Brown farm, section 28, and 600 feet from the north line and 200 from the east line of the farm, pumped five bbls. Same company's No. 8 on the southwest corner of the C. H. Walters farm, section 3, produced 75 bbls., and No. 4 on the southwest corner of the Francis Connor farm, section 4, pumped 78 bbls.

In Hamilton township, Sullivan county, E. R. Riggs drilled a test on the F. C. Springer farm, section 7, and 1,320 feet from the north line and 150 from the west line of the farm and secured a gas well that produced 1,500,000 cubic feet.

In Fairbanks township, in this county, the Ohio Oil Co.'s second well on the Alva DeBaum farm, section 35, and 200 feet from the north line and 660 from the east line of the farm, pumped 27 bbls. In Gill township Paul Kuhn's No. 3 on the A. Brokaw farm, section 1, and 300 feet from the north line and 600 from the east line of the farm, was a dry hole, while in Turman township, the Ohio Oil Co.'s No. 10 on the J. and C. Dodd farm, section 9, and 200 feet from the north line and 660 from the east line of the farm, pumped but one barrel.

In the Sullivan county field of Indiana, in Hamilton township, E. R. Riggs drilled a 1,000,000 cubic foot gas well in No. 3 on the F. C. Springer farm, section 7, 200 feet from the north line and

1,120 from the west line of the farm. In Curry township Hammil and others drilled a dry hole in a test in the southeast corner of the H. J. Douglas farm, section 30.

In Turman township, same county, Alexander McKnight and others' test on the W. W. Ladd estate, section 16, 660 feet from the north line and 100 from the west line of the farm, was a dry hole. The Ohio Oil Co.'s No. 3 on the J. F. Houpt No. 1 farm, section 28, 660 feet from the north line and 200 from the west line of the farm, pumped 35 bbls. No. 11 of the same company on the H. E. Bland farm, section 3, 240 feet from the north line and 640 from the east line of the farm, pumped but one barrel, and No. 11 on the M. B. Bland farm, section 36, 960 feet from the north line and 200 from the west line of the farm, pumped 8 bbls., while No. 11 on the W. E. Hardy farm, section 4, 660 feet from the south line and 200 from the west line of the farm, pumped 70 bbls.

Fairbanks—Alva DeBaum, Ohio Oil 3	dry
P. A. Poorman, Ohio Oil 1	dry
A V. Carrithers, Ohio Oil 1	dry
Gill—Oscar Hunt, Ohio Oil 2	dry
Turman—J. & C. Todd, Ohio Oil 12	dry
W. E. Hardy, Ohio Oil 12	60
C. H. Walters, Ohio Oil 9	1
Mary G. Gushman, Ohio Oil 2	7
J. & C. Dodd, Ohio Oil 13	dry
E. H. Ransford, Ohio Oil 1	dry
Clyde Alkire, Steele & Co. 3	30
A. Poe, Hien & Co. 1	25
W. W. Harris, Brawley & Co. 2	dry
Wells completed	13
Production	123
Dry	8

Fairbanks—J. V. Merrill, Ohio Oil 11	drg
C. E. Harrison, Ohio Oil 2	drg
Alva DeBaum, Ohio Oil 4	drg
Gill—P. Huck, McKnight & Co. 1	drg
A Morris, McKnight & Co. 1	drg
Curry—E. Martz, J. Mohlenhour & Co. 3	drg
Turman-Josephine Dix, Ohio Oil 16	drg
Mary A. Coffman, Ohio Oil 13	drg
J. W. Wier, Ohio Oil 1	drg
Francis Connor, Ohio Oil 5	drg
Joel C. Barnes, Ohio Oil 4	drg
Jane McGrew, Ohio Oil 5	drg
C. Brown, Ohio Oil 8	drg
M. H. Dix, Terre Haute Oil 1	drg
Wells drilling	14

A few completions are being made in the fields of the western part of Indiana, especially in Sullivan county, where the drill has been more or less active in the shallow sand for the past couple of years. The latest completions of prominence in that county was located in Fairbanks township, and was the Ohio Oil Co.'s No. 5 on the Alva DeBaum farm, section 35, and 660 feet from the north line and 200 from the east line of the farm. The well produced 120 bbls.

In Gill township, same county, McKnight and others test on the A. Morris farm, section 22, and 200 feet from the north line and 1,120 from the east line of the farm, was a dry hole. In Hamilton township, E. R. Riggs drilled a 1,000,000 cubic foot gas well in a test on the S. Springer farm, section 6, and 500 feet from the south line and 200 from the east line of the farm.

Sullivan County.

In Turman township, same county, the Ohio Oil Co.'s No. 16 on the Josephine Dix farm, section 1, and 1,120 feet from the south line and 660 from the east line of the farm, pumped five bbls. No. 13 on the Mary A. Coffman farm, section 36, and 200 feet from the north line and 660 from the east line of the farm, pumped five bbls. No. 1 on the southeast corner of the J. M. Weir farm, section 28, is a dry hole. No. 5 on the Francis Conover farm, section 4, and 200 feet from the south line and 900 from the west line of the farm, pumped 15 bbls.; No. 4 on the northeast corner of the Joel C. Barnes farm, section 4, pumped five bbls. No. 8 on the C. Brown farm, section 4, and 200 feet from the north line and 660 from the west line of the farm, pumped 60 bbls., while No. 7 on the northwest corner of the same farm, pumped 30 bbls. The Clyde Alkire Oil Co.'s No. 4 on the Clyde Alkire farm, section 12 and 550 feet from the north line and 200 from the west line of the farm, pumped but two bbls.

In Sullivan county, in Fairbanks township, the Ohio Oil Co.'s No. 1 on the Northeast corner of the C. E. Harrison farm, section 17, was a dry at 1,080 feet deep.

Fairbanks—Alva DeBaum, Ohio Oil 4	100
Alva DeBaum, Ohio Oil 5	100
J. V. Merrill, Ohio Oil 11	25
C. E. Harrison, Ohio Oil 1	dry
Gill—A. Morris, McKnight & Co. 1	dry
Hamilton—Springer, E. R. Riggs 1	gas
Buckholder, Riggs & Co. 1	dry
Graham hrs. Dome Gas L	dry

Curry—Martz, J. Mohlenhour & Co. 3	dry
Turman—Josephine Dix, Ohio Oil 16	5
Mary A. Coffman, Ohio Oil 13	5
J. W. Weir, Ohio Oil 1	dry
Francis Connor, Ohio Oil 5	15
Joel C. Barnes, Ohio Oil 4	5
Jane McGrew, Ohio Oil 5	2
C. Brown, Ohio Oil 8	60
C. Brown, Ohio Oil 7	30
W. A. Burton, Ohio Oil 1	dry
W. E. Hardy, Ohio Oil 13	1
E. T. Osborn, Ohio Oil 7	15
C. Brown, Ohio Oil 9	15
Francis Connor, Ohio Oil 6	7
Francis Connor, Ohio Oil 7	25
Alex. Raley, Ohio Oil 17	dry
J. G. Wilson, Sullivan 1	dry
Clyde Alkire, C. Alkire O. & G. 4	2
Wells completed	26
Production	412
Dry	9
Gas	1

Only two completions are reported from the Sullivan county field, October. In Turman township, the Ohio Oil Co.'s No. 4 Woodward farm, section 4, pumped five bbls. and in Fairbanks township, the same company's No. 9 on the southwest corner of the S. A. Merrell farm, section 36 was the same size.

In Fairbanks township, Sullivan county, the Ohio Oil Co.'s No. 10 S. A. Merrill farm, section 36, pumped 40 bbls. and the Bays Oil Co.'s No. 19 M. J. Beard farm, section 36, pumped six bbls. In Gill township, McKnight and others' test on the P. Houk farm, section 27, was a dry hole. In Turman township, the Ohio Oil Co's No. 14 C. H. Walters farn, section 4, pumped five bbls.

Gibson County.

The only well reported from Indiana during the week was the Farmer's Oil Co.'s No. 35 on the C. T. Emerson farm, section 10, Patoka township, Gibson county, and located 1,840 feet from the south line and 400 from the west line of the farm. A heavy dose of salt was struck at 836 feet and the hole was abandoned as worthless.

In the Princeton field in Patoka township, Gibson county, the Farmer's Oil Co.'s test on the A. McLean farm, section 32, is

a dry hole, and this company is now drilling No. 36 on the C. T. Emerson farm, section 10. The Ohio Oil Co.'s No. 31 on the I. Kendall farm, section 9, pumped 10 bbls., and No. 32 is now drilling.

In the Princeton field, Patoka township, Gibson county, western Indiana, the Ohio Oil Co.'s No. 32 on the I. Kendel farm, section 9, and 300 feet from the north line and 1,300 from the west line of the farm, pumped five bbls. at a depth of 856 feet.

Patoka—I. Kendal, Ohio Oil 32	5
Patoka—Miller, Hoosier Prospecting 6	drg
T. C. Emerson, Farmers Oil 36	drg
Patoka—Emerson, Farmers Oil 37	5
I. Kendel, Ohio Oil 33	5
Wells completed	2
Production	10

In the Princeton field, Patoka township, Gibson county, the Patoka Valley Oil & Gas Co.'s No. 13 on the northeast corner of the Harris & Barr farm, section 2, pumped 6 bbls. from the Princeton sand at 871 feet.

LOOGOOTEE OIL FIELD.

In 1913 there were three light oil wells drilled just outside the corporation line of the town of Loogootee which started producing at about ten barrels each, but have at present pumped down to about five barrels each. The wells are about 500 feet deep and are located on the east slope of the anticline and in the same sand that has for so many years furnished Loogootee with gas for fuel and lights. However, the gas at the present time is getting very low.