

Wawasee State Fish Hatchery—

Made topographic survey and map.

Plans drafted for revamping ponds, water supply and drainage systems.

Stream Pollution—

Made 45 investigations and reports.

Lakes and Lake Levels—

Investigated and reported on lake levels of nine lakes.

Miscellaneous—

Checked and reported on coal mine workings under Wabash River for Division of Geology.

Prepared numerous charts, maps and graphs for other divisions of this department.

Investigated and reported on sand sucker operations in Indiana waters of Lake Michigan.

Checked engineering features of two made-land permits for Department of State.

Prepared drainage map of state for use in explaining flood situation in Indiana before U. S. Congress.

Prepared and sent questionnaires to county engineers for purpose of securing data for "points of interest" map.

REPORT OF THE DIVISION OF GEOLOGY

W. N. LOGAN, State Geologist.

PAUL F. SIMPSON, Supervisor of Natural Gas.

VERNE PATTY, Curator of Museum.

MARY SINK, Clerk and Stenographer.

Members of the Division who acted in an official, technical, or advisory capacity during the year were W. N. Logan, economic geology; E. R. Cumings, stratigraphic geology; C. A. Malott, physiographic geology; S. S. Visher, geography; J. E. Switzer, geography; Ralph E. Esarey, economic geology; and Howard Legge, preparator.

Members of the field party included W. N. Logan, James F. Organ, Joseph Holm, Geo. I. Whitlatch, and Ralph Esarey.

The natural gas inspection corps includes Paul F. Simpson, supervisor; John Ersinger, Sullivan; J. P. Horton, Montpelier; Hershell Ringo, Muncie; C. E. Noble, Princeton; O. H. Hughes, Sharpville; Howard Legge, Bloomington; Marion Brown, Loogootee; Herman Chanley, Laconia; and A. C. Ford, Bryant. The members of the gas inspection force with the single exception of the supervisor, are paid for services from fees collected by them. Only the members of the regular office force draw compensation for services from division funds.

GEOLOGICAL FIELD INVESTIGATIONS

Field investigations include the study of extensive geologic units to determine presence of mineral resources of commercial value to the citizens of those areas. During the field season and at such other periods as relief from other duties would permit, investigations were prosecuted

by members of the Division. Special attention was given to the study of such resources as ceramic materials, building stones, molding sands, ground waters, petroleum, and natural gas.

STUDY OF GROUND WATER CONDITIONS

Systematic studies of ground water conditions in many counties of Indiana were made during the year. Information was obtained regarding the depth of water-bearing strata; the character of the water supply obtained, whether classed as hard or soft; whether abundant or meager in amount; and the nature of the formation which is the source of the supply. The survey has covered more than eighty of the ninety-two counties in the state. Information regarding water supply conditions has been obtained for each township in each of the eighty or more counties.

Information was collected also in reference to the sources of city water supplies in each of the counties. Such information includes depth to water level, depth to bedrock, kind of water, volume of water, size of casing used in wells, abundance and variation of supply, date of construction, quality of water, height of water level, location of springs, and of artesian areas, daily and per capita consumption, and other facts regarding city water supplies.

Counties in which information was obtained regarding ground water supplies during the past year include Newton, Lake, Porter, Jasper, LaPorte, Starke, Pulaski, White, Cass, Fulton, Marshall, St. Joseph, Elkhart, Kosciusko, Wabash, Miami, Huntington, Wells, Allen, Adams, and Jay.

A number of water supply problems were presented to the Division for solution during the year. One of these requests came from the City Council of Salem, which desired advice concerning the obtaining of a water supply in addition to that used at present. Their water comes from wells and a spring in the limestone rocks which outcrop northwest of the town, and because of the character of the collecting area, is in great danger of contamination. The increased use of water which is contemplated for the near future will make necessary the impounding of water in a reservoir. Several sites were inspected to determine which was most suitable for such a reservoir. Two of these sites were recommended, since they are close to the town, one in the valley of a branch of Rush Creek, and the other in the valley of Blue River. In both cases the bed rock upon which the dam would be built is impervious to water.

PUBLICATIONS

Several publications were issued by the Division of Geology during the year. The Oil and Gas News prepared by Mr. Simpson was issued monthly. It contained information regarding oil and gas developments in Indiana.

The "Rock Products of Indiana" by W. N. Logan was published by the Trade Press Corporation. This publication contains a discussion of building stones produced in Indiana, and a description of the raw materials used in the manufacture of lime and of cement which is produced within the State. The materials and fluxers used in the manu-

facture of rock or mineral wool are described. Sand and gravel used for concrete and for ballast and macadam are described and the principal producing areas located. Foundry sands and ceramic materials also receive brief treatment. The report is accompanied by a map which shows the principal centers of production of rock products in Indiana. It also contains a comprehensive list of the producers of rock products in Indiana.

"The Foundry Sands of Indiana," by W. N. Logan was published as Publication No. 92 of the Division of Geology. The report discusses the physical properties of foundry sands, explaining such properties as cohesiveness, refractoriness, fineness of grain, permeability, and durability. It also explains the effects produced by certain chemical ingredients of foundry sands. The characteristics of sands used for molds and for cores are described. Synthetic sands are explained. Typical physical and chemical analyses of Indiana foundry sands are given. The report contains a geological map of the State and a map which shows the distribution of foundry sands in Indiana.

"The Ceramic Materials of Indiana" are discussed in a report prepared by the chief of the Division of Geology. The publication contains a discussion of the essential physical and chemical properties of clays, such as plasticity, fineness of grain, air-shrinkage, fire-shrinkage, bonding power, tensile strength, degrees of refractoriness, and composition. Classes of Indiana ceramic materials are discussed in their relation to geological formations and to types of material. The geological distribution is mainly from Silurian to Pleistocene. The geological and geographical distribution is shown by maps.

The variety of raw materials suitable for the manufacture of ceramic wares in Indiana is listed, together with the locations where each may be found. The rank of Indiana in the production of these wares is given, and the different types of articles which are manufactured are enumerated. Attention is called to the fact that many of the clay deposits occur near supplies of cheap fuel, and these are of sufficient size that expansion can take place easily whenever market conditions warrant.

"The Relation of Geologic Structures in Indiana to Isomagnetic Lines of Vertical Intensity and to the Anomalies of Magnetic Intensity" was published in the proceedings of the Indiana Academy of Science by the chief of the Division of Geology. The report describes the main structural features of Indiana, the northwestern arm of the Cincinnati arch, the southwestern geosyncline, the northeastern geosyncline and the sag across the arch near Logansport. Accumulations of petroleum and of natural gas in Indiana are definitely connected with the principal anticlinal area and with structural irregularities in the synclinal areas. Specific illustrations of these theories are given.

"The Geological History of the Vertebrates of Indiana and Their Position in the Ancient North American Fauna," by Dr. R. L. Moodie, was published as Publication No. 90 of the Division of Geology. A geological map of Indiana by W. N. Logan is included in the report which discusses the range of vertebrates in geological history. The geological history of Indiana is described and the statement made that the geological history of the vertebrates begins with the Devonian. The

problem of the vertebrate origins is treated briefly. The methods used in the collection of vertebrate fossils receives the attention of the author who next describes the pre-Devonian vertebrates of North America and follows with a discussion of the fishes of the Devonian in Indiana and its environs. Descriptions of Devonian ostracoderms, ancient sharks, chimaeroids, armored fishes, lung fishes, enamel-scaled fishes, Crossopterygians, and true lung fishes are described by the author, who also describes the vertebrate life of the Mississippian, Pennsylvanian and Permian periods. Marine and land reptiles flourished during the Triassic and the Jurassic periods and entered upon a decline during the Cretaceous period. The mammals which inhabited Indiana during the Ice Age are pictured and described. Types of early man are described and man's appearance in Indiana discussed.

PETROLEUM AND NATURAL GAS INVESTIGATIONS

At the request of operators and land owners in Clay Township in Pike County a survey was made to determine whether structural conditions favorable to the accumulation of oil and gas existed and to outline if possible the shape of the structure and its form. A study was first made of all available well records in or adjacent to the area and of the drillings from a few wells. The elevation of the surface with reference to sea level was determined for each part of the area and for the mouth of each well. All wells were carefully located with reference to property lines.

The key horizon selected for the determination of the structural condition is a brown limestone which is somewhat easily recognized in drillings and in well records. This limestone has been considered one of the limestone members in the Golconda formation of the Chester series.

Contour lines were drawn on the key horizon at five foot intervals. The structure outlined consists of a narrow, elongated, dome-like structure, which has a total amount of reversal toward the east of twenty or twenty-five feet.

There is an absence of reliable records in some parts of the area. This condition makes it difficult to determine whether the structure is continuous or whether it consists of a number of small anticlines separated by slight synclinal areas.

Some locations which have been made and drilled since the survey was made indicate that general conclusions regarding the structural conditions are correct. The study made of the area should be of value to the operators in future drilling operations. A map has been prepared and is being distributed to those interested.

The Louisville Cement Company operating a quarry at Milltown requested a field examination and a study of the region with a view to obtaining information to aid in further drilling operations. The company is making an attempt to develop a local fuel supply to be used in the operation of their plant.

A study was made of the outcropping formations. The geological formations exposed include the lower members of the Chester series and the upper members of the Mitchell formations. The first well drilled passed through the Mississippian formations, through the Devonian black shale into the Devonian limestone. The second well was drilled to the St. Peter sandstone, encountering small quantities of gas in two

horizons. Advice was given to assist in the further testing of possibilities of obtaining gas.

The structural conditions in an area north of Westfield in Hamilton County was determined for a group of residents in the county after their first test well proved a failure. Their second well, which was located after the information had been compiled struck oil.

A portion of the Loogootee oil field was inspected for an oil company. The report submitted included a structural map and a discussion of the occurrence of oil in the underlying strata. Similar reports for an area in eastern Monroe County were given several companies which have done some drilling there.

Reports on the gas producing areas in Indiana were made to several companies, and many shorter reports were made concerning the amount of gas in producing fields, or the structure and chances of finding gas in areas which have not been tested. Examinations of the properties were necessary in a few instances. Areas reported on include the Dennison anticline, the Mt. Carmel fault zone, the Warren field, the Oakland City field, a strip of land south of Huntington, and the gas fields in Pike and Gibson counties.

Samples of oil shale from different horizons in southern Indiana were received and tested in the laboratory. The oil yield was computed, and in one case the amount of asphaltum present was determined.

Assistance was given two authors who are writing books on petroleum. Tests were made on numerous small samples of oil from many different sources to determine the character and value of each.

GEOLOGICAL INVESTIGATIONS IN THE AID OF INDUSTRIES

Together with members of the Division of Engineering, the writer made an examination of the properties of a coal company which is removing coal from beneath the Wabash River. An estimate was made of the coal removed, so that the amount of royalty due the state might be computed.

Citizens of Brazil were informed of methods of utilizing stripped coal lands. Suitable locations for stripping operations were designated in reply to other requests from interested individuals or companies. Reports on the analyses of Indiana coals were made to several persons.

Thirty-six square miles of potential coal stripping land near Patricksburg were mapped at the request of citizens interested in coal development there. The finished map showed the presence in places of Coal I and the Upper and Lower Block coals. Pre-glacial and post-glacial erosion have removed the coal in places where it would be expected to be present. Section and drainage lines, coal outcrops, and surface features are also shown on the map.

Several building stone quarries were inspected in order that a report might be given on the value of the stone. Most of the quarries were in the Salem or Indiana Oolitic stone. An opinion was given on the value of a chert formation, a sample of which had been sent to the laboratory. Two companies were supplied with information concerning the occurrence of dolomitic limestones in Indiana. A paving products company was advised of the location of outcrops of Silurian limestones in eastern Indiana.

Several areas in which shaly limestones were known to occur were visited in order to determine whether or not the stone could be used in the manufacture of mineral wool. Information concerning the manufacture of mineral wool was supplied to several corporations, including the analyses of the raw materials, the processes of manufacture, and the location of suitable deposits of flux rock. Several areas in Washington County were among those examined.

The intensive investigation of the clays and shales of Indiana was continued during the past year. Samples from outcrops in Greene, Monroe, Brown, Morgan, and other counties were brought into the laboratory and subjected to tests which determined their usefulness.

At the request of the Bureau of Standards at Washington, a collection of samples of terra cotta clays was made and sent to them. Each sample was accompanied by a description of the conditions of its occurrence.

A survey was made of the workable deposits of clay near Huntingburg, and of the closest available supplies of fuel suitable for use in the ceramic plants. A tile plant which is being reconstructed at Bushrod was visited and advice was given regarding the use of the clay and the methods of reconstruction. An Indianapolis tile factory sent a request for information concerning a certain type of clay to fill certain specifications. They were furnished with the location of a deposit of the clay, and a sample of it. At the request of a railroad company, a report was made embodying the results of tests on shales along its right of way in Brown and Monroe counties.

Following requests from various persons, laboratory tests were made on clays and shales collected from the following places; strip mines near Brazil, Borden outcrop near Scottsburg, a coal mine near Ilene, outcrop near Center Point, outcrop near Hillsdale, and many other places.

A manufacturing company in Pittsburgh was given information on molding sands in addition to that published in Publication No. 92. Samples of glass sand from Huntingburg were examined in the laboratory and reported on. Gravel from Williams was tested to determine its value in a concrete aggregate. Sand from the same place was tested to find whether or not it could be used for foundry purposes.

Hundreds of drilling samples from various deep wells in the state were examined in the laboratory to determine their identity and the possibilities of obtaining oil or gas. The samples came from wells in Perry, Lake, Sullivan, Harrison, Vigo, Clay, Crawford, Hamilton, Gibson, Pike, and other counties. Reports on these were often accompanied by a discussion of geological conditions.

A variety of rocks and minerals was received at the laboratory and office for identification. The most common of these were mica and pyrite, which are commonly thought to be gold. Samples of supposed gold ore came from Crawfordsville, South Bend, Noblesville, Peru, Winchester, and many other places. Numerous other minerals were among those identified, and in some instances the reports included an opinion of the value of the specimen or deposit. A supposed fossil stump was viewed in a quarry near Spencer and pronounced a portion of a large stalagmite. A large number of fossils was identified. A report on the minerals of

Warrick County was sent to the editor of the Boonville paper, and a similar report for Lawrence County sent to the Bedford Chamber of Commerce.

Investigations of water supplies or potential water supplies were frequent, especially during the later part of the summer when the drought was felt most. Railroads, municipalities, factories, and farmers requested aid in locating satisfactory supplies of water. The site of a proposed dam in Clifty Falls State Park was one of the projects which required visits. Reports on many of the others were made from the information already compiled in our files.

SHAKAMAK WATER SUPPLY

Surface Drainage—The Shakamak area lies between Eel River, a branch of the west fork of White River, and Busseron Creek, a tributary of the Wabash. The divide between these two drainage systems lies a little west of Jasonville and trends northwest from that point. The proposed reservoir lies near the head of a small tributary of Busseron Creek. The surface drainage of the area is principally toward the south and west.

Ground Water—Shallow well waters may be obtained in the areas beneath the glacial drift at depths ranging from 18 to 25 feet. Ground waters exist also in the Coal Measures which lie beneath the drift. Three important beds of coal lie beneath the area and ground water is usually associated with all of these. Water is usually found in the sandstone or sandy shale above Coal III and in the basal sandstone of the Coal measures, the Mansfield.

Several deep wells have been drilled within the general region and a good many more shallow drillings for coal. The nearest deep well contains, according to the writer's interpretation, the following formations:

Pleistocene—	
Clay, sand and gravel	18 feet
Pennsylvanian (Coal Measures)—	
Limestone	5 feet
Black shale .....	.2 feet
Coal (V)	7 feet
Under clay (so-called fire clay) .....	.3 feet
Shale .....	.55 feet
Coal (IV) .....	.5 feet
Shale, sandy .....	.75 feet
Coal (III) .....	.5 feet
Shale .....	.225 feet
Sandstone .....	.45 feet
Shale, sandy .....	.130 feet
Shale .....	.55 feet
Mississippian—	
Limestone .....	.10 feet
Shale .....	.40 feet
Shale, sandy .....	.200 feet
Shales and limestones .....	.650 feet
Shale .....	.200 feet

Devonian—

Shale, black (New Albany)	100 feet
Limestone	65 feet
Sandstone and sandy limestone	54 feet

Silurian—

Limestone	16 feet
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Possible Sources of Ground Supplies—

1. Drift, water in sand and gravel, depth 18 to 25 feet, supply usually small.
2. Sandstone above Coal III, depth 75 to 100 feet, supply abundant in places, usually at least slightly mineralized.
3. Mansfield sandstone, depth 400 to 500 feet, water probably mineralized, usually abundant.
4. All coals are likely sources of water but water is usually mineralized.
5. Formations below the Coal Measures are likely to contain strong mineral waters.

MINERAL AND ROCK DETERMINATIONS

The following specimens of rocks or minerals have been received at the office and laboratory from drillers, collectors, and other citizens. Analyses or identifications were made of them, and in many cases a report was made concerning their commercial value. The number of drilling samples was larger than usual, due to solicitation by the members of the Division.

Well drillings	2207	Bronzite	4
Mica	43	Gravel	3
Pyrite	43	Gypsum	3
Clay	36	Sandstone	3
Fossils	36	Gold ore	3
Shale	31	Spodumene	2
Limestone	26	Tin ore	2
Granite	24	Sand	2
Water	22	Chert	2
Iron ore	13	Kaolin	2
Oil	13	Peat	2
Marcasite	12	Calcite	2
Quartz	12	Galena	1
Schist	11	Lava	1
Marl	10	Soda ash	1
Concretions	9	Onyx	1
Copper ore	8	Soil	1
Geodes	7		
Ochre	7	Total	2,611
Coal	6		

MINERAL PRODUCTION IN INDIANA

In 1928 Indiana ranked fourteenth among the states of the Union in the value of mineral production, although she ranks thirty-seventh in size. The total value of nearly one hundred million dollars would be more than tripled by the addition of the value of the pig iron, coke, and petroleum products produced in Indiana, since the state ranks fourth, second, and fourth respectively in their production. In order of their value, the

principal mineral products, excluding the above, are coal, stone, cement, and clay products. The following table gives the values for 1928, the last year for which complete data are available; it was compiled and published by the United States Bureau of Mines.

PRODUCT	1928	
	Quantity	Value
Cement.....barrels.....	(1)	(1)
Clay products.....		(2) \$16,546,711
Clay, raw.....short tons.....	170,512	(3) 202,215
Coal.....short tons.....	16,378,580	29,212,900
Coke.....short tons.....	6,094,201	(3) 38,237,790
Iron, pig.....long tons.....	3,842,762	(3) 63,622,330
Lime.....short tons.....	107,209	734,915
Mineral paints, zinc and lead.....short tons.....	(1, 3)	(1, 3)
Mineral waters.....gallons sold.....	(4)	(4)
Natural gas.....M cubic feet.....	1,290,000	639,000
Peat.....short tons.....	(4)	(4)
Petroleum.....barrels.....	1,052,000	1,580,000
Potassium salts.....short tons.....	(1)	(1)
Whetstones and other abrasives.....short tons.....	171	23,394
Sand and gravel.....short tons.....	11,086,331	5,375,058
Sand-lime brick.....thousands.....	(1, 2)	(1, 2)
Stone.....short tons.....	(5) 5,102,280	(5) 22,720,411
Sulphuric acid (6).....short tons.....	(1, 3)	(1, 3)
Miscellaneous (7).....		24,395,264
Total value, eliminating duplications.....		\$98,583,915

(1) Value included under "Miscellaneous."

(2) Figures obtained through co-operation with Bureau of the Census.

(3) Value not included in total value for State.

(4) No Canvass.

(5) Exclusive of unclassified stone, value for which is included under "Miscellaneous."

(6) From zinc smelting.

(7) Includes minerals indicated by "1" and "5" above.

OFFICE WORK

Work in the office of the division has consisted mainly of answering correspondence, receiving callers, and preparing reports, maps, and statistics. All inquiries were answered as completely as possible, and the value of the information thus given out exceeded the cost of its collection. Development of Indiana's mineral resources is sought whenever it is thought that such development would be profitable.

Copies of "The History of the Vertebrates in Indiana" were received early in the year. Proof was corrected and copies received also of Publications No. 45, No. 90, and No. 91. Distribution of each of these reports was attended to. Two other blank forms were originated and mimeographed or printed. Structural maps of a number of oil producing areas were drafted, blueprinted, and placed on sale. Several other maps were constructed or corrected. A complete supply of United State Geological Survey topographic maps was acquired and placed on sale.

Many publications have been added to our library, including a complete set of the soil survey reports for Indiana counties. Several older reports of the Indiana state geologist have been obtained to complete our reserve sets of these volumes. A set of minerals was presented to the

Children's Museum of Indianapolis, and other Indiana rocks and minerals are being collected to supplement it.

Several talks were made in Indianapolis, and a number of newspaper articles were written to bring before the public the work of the division. Statistics and references were furnished a number of individuals, and a summary of the oil developments in the state during 1929 was written for publication by the American Institute of Mining and Metallurgy. Due to the severe drought during the past summer, many requests concerning adequate water supplies were answered for individuals and municipalities. Reports were made on the oil and gas possibilities of almost every area in the state.

A summary of the office work follows:

Letters received	2,361
Packages received	861
Letters mailed	5,604
Packages mailed	496
Reports distributed	2,194
Handbook of Indiana Geology	76
Kaolin in Indiana	11
Geological Conditions in the Oil Fields of Southwestern Indiana	46
Geology of the Deep Wells of Indiana	62
Geology of the Silurian Rocks of Northern Indiana	25
Maps	27
Annual and other reports	1,085
History of the Vertebrates of Indiana	346
Well logs	366
Topographic sheets	94
Parts of Handbook	5
Monroe County Fault Reports	45
Coal maps	1
Limestone maps	5
Oral reports	788

STATE MUSEUM

During the last session of the State Legislature a tax was voted which made possible a building to house and a fund to care for the State Library. This action precluded the introduction of a bill to care for the needs of the Indiana State Museum but it is ardently hoped that the coming session will take action to care for museum needs. School and college students have worked at a decided disadvantage for years when they wished to study the collection in connection with their work. Visual education should be made possible in this connection and also afford better facilities for the thousands of visitors who annually visit the State Capitol to see the collection.

The collection where it is possible to exhibit it is in good condition, but storage facilities remain very bad. About one-fifth of the collection is shown.

Among the noted donations during the year are the Dawson-Wirick collection, Mr. and Mrs. Keese collection, Col. John G. Clark collection and the John A. Bense collection. Negotiations will go forward to securing the most noted private collection in the State during the coming year.

DONATIONS

One 5-franc note and one 20-mark note, donated by J. A. Williams and Mrs. Edna Graham, R. F. D. 1, Roachdale.

Petoskey stone and mummified sweet potato, donated by J. L. Norwood, 962 N. Penn. Street, Indianapolis.

Banana spider found in bunch of bananas and presented by Oliver Davis, 2006 College Ave., Indianapolis.

Three tax receipts 1843, 1846, and 1847; clipping of news—freak apple tree; badge of R. R. Club, Harrison S. Morton; spectacles and case of Mrs. Dinah Spray—150 years old; pocketbook purchased in 1826 in Indianapolis by George W. Norwood; donated by J. L. Norwood, 962 North Penn. Street, Indianapolis.

Grocery bill of 1839 made to John Richmond at Rising Sun, Indiana, the great-grandfather of the donor, Myron L. Milender, Ivy Hotel, Pasadena, California.

Granite boulder found at Ellenberger Park, donated by W. A. Boyce, Sr., 608 E. 12th Street, Indianapolis.

Flint point, donated by A. W. McKenzie.

Beaver hat, type worn by Quakers; has been in the Carey family for five generations. Donated by Leroy J. Patty, Carmel, Indiana.

Philippine bolo, captured at an attack on Laoag, Luzon, April 17, 1900; badge of Raper Commanding meeting in Chicago in 1880, presented by Miss Mary Alice Sloan, Indianapolis.

Three censored world war envelopes; fringed cord; fringed book "The Royal Invitation"; 3 name cards; primary certificate 1879; primary report 1879; postal card 1875; picture card 1864; fashions; Red Cross card, 4th Liberty Loan Food Administration cards of World War; log cabin badge worn during Benjamin Harrison's Presidential campaign; presented by Mrs. Nellie Wells, Indianapolis.

Four bound volumes of the Indiana Daily State Sentinel 1861 to 1863, presented by Hon. James Brewster, Corydon, Indiana.

Illustrations from Peterson's magazine; souvenir of Major Robert Anderson Post G. A. R.; old book mark; attendance report 1864; graduation program Indianapolis High School 1871; very old valentine; S. S. card; magnolia leaf from Mt. Vernon; photograph taken at the Centennial at Philadelphia; book "The Old Landmarks of Stratford-On-Avon" with spray of rosemary from Shakespeare's house and spray of sweetbriar from Ann Hathway's cottage; fashion plates 1864, 1865 and 1872; box of 26 fossils and 4 geological specimens; cake dish of colonial glass. Given by Mrs. Kitty Thompson Wirick; owned formerly by her mother, Mrs. Lavina Dawson Thompson.

Philippine bolo; Indian ax from southern part of Putnam County, presented by Burton T. Anderson, Indianapolis.

Combs for wool, 1819, given by Miss Elizabeth D. Alexander, Indianapolis; used by her grandmother, Elizabeth Keneaster Alexander.

Bones of mammoth from near Brownstown, Indiana. Two teeth, two tusks, part of jaw bone and fragments. Taken out by Ralph Esarey and assistants of Bloomington, Indiana.

Stereopticon and 15 views; old window prop; knit wristlet; pen wiper; lace collar; German silver butter knife and large spoon; map of

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Stereopticon and 15 views; old window prop; knit wristlet; pen wiper; lace collar; German silver butter knife and large spoon; map of

hammerhead from Michigan; hatchet made by Phineas Ira, owned by Mahlon Paxon for 70 years; "Battle of Freedom" song sheet; 16 letters; poem written by Mahlon Paxon; Civil War envelope. All belonged to Mahlon Paxon, and were given by his daughter, Mrs. Florence Paxon Keese, Marion, Indiana. Also a baby plate that belonged to donor, given by Mrs. Keese.

New Testament in phonetic English; pocket book; hearth broom made by Thos. Gray, all the property of Nathan R. Keese; a sheet made in Wayne County, Kentucky, by Mrs. L. M. Keese when 14 years old. She raised the flax, hand picked, joined, corded, spun, and wove the sheet. Letter, two drawings and card of Matilda E. Keese. U. S. Civil War sabre and belt, extra equipment left in house at Jamestown, Tennessee. Given by Lilburn Keese, son of Nathan Keese, Marion, Indiana.

Four iron pictures, made of iron by Mr. Wong, at Anwei, China, 200 years ago. Back ground of blue silk, hand twisted and loom spun. Frames of Chinese Redwood. Loaned by O. C. Brown, Richmond, Indiana.

Stoddard's "Napoleon from Corsica to St. Helena," pictorial in three parts. Donated by L. Jenkins, Indianapolis.

Thirteenth Reunion Army of the Tennessee at Chicago; a program, menu and souvenir. Donated by A. Henderson, 514 Blackford Street, Indianapolis.

Leather punch, carried through the Civil War by Reeves McDaniel, 19th Ind. Battery. Donated by W. W. Baine, Indianapolis.

Child's dress, sacque and bonnet made in 1864 for boy one year old. Donated for the mother who is in her 87th year, by L. M. Keese, Marion, Indiana.

Dress made in 1870 on the first sewing machine sold in Penn Twp., Jay County; child's dress made in 1866, all hand stitching; child's dress made in 1868, all hand stitching. Donated by Mrs. Florence Paxon Keese, Marion, Indiana.

Fossilized wood from Scott County. Donated by H. W. Legge, Bloomington, Indiana.

Fossil bryozoa; cast of fossil brachiopod. Donated by Mattie Trimble, Madison, Indiana.

Two cartoons of Roger Bean. Donated by Chic Jackson, The Star, Indianapolis.

Jaw of horse and deer antlers found in a gravel pit in Decatur County; two fossils from quarry and one Indian point from mound in same county; donated by McNeely Bros., St. Paul, Indiana.

Collection of 47 points, axe, pestle, celt, and collection of over 400 fossils from Lawrence County. Presented by J. V. Garrison, Heltonville, Indiana.

Wolf trap, presented by George Hardesty, R. F. D., Lebanon, Indiana.

Land grant, government deed, presented by Ralph Wilcox, State Forester, Indianapolis, Indiana.

Indian stone for pushing needle through hide, two fossilized wood arrow points, three flint arrow points, from Smith and Cheyenne Counties, Texas. Presented by P. H. Walser, Tyler, Texas.

Indian axe and 16 points, broken geode, 5 pieces of quartz, piece of granite, 4 pebbles, 2 fossils from Wayne County, Ind., 2 specimens of lead ore (galena); presented by F. W. Cochran, Spiceland, Indiana.

Two Indian axes, 5 celts, 2 ceremonial stones, one broken, 7 scrapers, 17 knives, 59 points, 51 broken points, 1 broken rolling stone, 2 drills, 3 fossils, 2 water washed rocks. Loaned by Luther F. Symons, Chief Bank Examiner, Indianapolis.

Hunting knife, Spanish-American War Bayonet. Requested that no name be given as donor.

Masonic apron, approximately 100 years old. Made of lamb skin. Owned by donor's grandmother. Donated by Samuel F. Zufall, Indianapolis.

Four, five, and seven-leaf clovers; white walnuts or butternuts in hull, and with hull removed; framed drawing of remarkable solar phenomena of 1880; flower from oleander bush of 1897, framed, grown by Mrs. Mahalah Denny; blue grass going to seed on Christmas day 1889, gathered by Robert Denny, framed; geode from Washington County. Presented by Miss Adaline Denny, Indianapolis.

Bone of prehistoric animal from Butler's Cut, Jackson Twp., Brown County, Indiana. Loaned by James W. Stuart, Fruitdale, Indiana.

Five French centimes, and one Canadian cent, given by Mrs. Lizzie Wicker, Indianapolis.

A purchase of a cache of 26 pieces near Greencastle. Secured through the courtesy of Dr. Frank M. Vreeland, Depauw University.

English farthing 1838; two 5 groszy pieces, presented by F. Colin Swallow, of Tankersley, England.

Collection of 27 foreign stamps, presented by Wright Keyser, 1202 North Capitol Avenue, Indianapolis.

Extra large hen's egg, presented by Mrs. Rosa Haas, 60 E. Wilkins Street, Indianapolis.

Dobson fly, presented by James McLaughlin, Indianapolis.

Gold ore from Mohave Desert, California, and lead ore from near Phoenix, Arizona, presented by George Epperson.

Silver ring given to Albert S. Wright by his wife, Mary M. Wright, and worn by him throughout the Civil War; souvenir post card, carried by airship, which was the first known record of mail ever being so carried. Bible carried through the Civil War by Albert S. Wright; song sheet of Civil War songs; discharge of Albert S. Wright, Co. C, 72nd Indiana Vol. Inf., presented by Wright Brothers, Indianapolis.

Rattlesnake rattles from snake killed in Texas recently by Dr. H. F. Emick, ass't. State Veterinarian, Indianapolis.

A purchase by the Museum of two Indian axes, 1 Indian pestle, 3 arrow points, broken, 1 fossil tooth, and 2 pieces of fossilized wood from Jefferson County, Indiana.

Indian arrow point, found in Michigan near the straits. Donated by George Callaway, Linton, Indiana.

Cecropia moth, donated by George Hawkins, Indianapolis.

Gold and silver quartz from Niagara mine, Shasta, Cal. Donated by Chas. M. Reagan, Atty., Indianapolis. Specimens given Mr. Reagan by Mr. and Mrs. Wm. Heigh, Chicago, Illinois.

Collection of old envelopes showing stamps and postmarks. Presented by office of State Superintendent of Public Instruction.

French "75" shell, donated by Clarence Newsom, Indianapolis.

Shoes 80 years old, worn by Mrs. Helen E. D. Cornelius, old book of 1819 in German "Songs and Sonnets of Southern Germany." Donated by George G. Cornelius, 2214 N. New Jersey Street, Indianapolis, Indiana.

Book "The Works of Dr. Benjamin Franklin" consisting of essays and his life, written by himself, 1824. Loaned by Denzil Doggett, Indianapolis.

\$5.00 Note (Currency) issued by the Madison & Indianapolis R. E. Presented by Ralph E. Jones, Atty., 204 Indiana Trust Bldg., Indianapolis.

Small Bible, date unknown, presented to Maggie Smith at Little Rock, Ark., in 1842; "The Book of Nouns" published in 1802, 2x2½ inches, belonged to Mrs. Maggie Smith. Both donated by Hayden Webster, Indianapolis.

Collection of minerals from the Black Hills, donated by the Burlington Route, as follows; Lime crystals, from Jewel Cave, serpentine, rose quartz, beryl, fossilized wood from the fossilized forest, quartz with small amount of gold ore, mica, lime crystals, gypsum and calcite crystals, mica schist, bacculite, amblygonite, lapidolite, white quartz, cassiterite, (tin ore), sandstone, tourmaline crystals, feldspar, apatite, needle spar, mica, spodumene, mica in sheets.

Canada one cent piece 1912, France, Cinq. centimes, 1864, English one penny, 1917. Donated by Herman Peavler, Crothersville, Indiana.

Spanish dollar, 1800; Spanish 20cs, 1885; Spanish 10cs, 1885; two Japanese coins. Donated by Major D. I. McCormick, Indianapolis.

Army desk carried through the Civil War with its contents; two blank books; proceedings Republican state convention of 1868; Volumes 1, 2, 3 of Casey's Infantry Tactics; U. S. Cavalry Tactics, 1841; General Orders Volunteer Force, 1863; Regulations for the Recruiting Service, 1863; Instructions for Officers and Non-commissioned Officers, 1863; orders, vouchers, receipts, trial records, equipment lists and blanks, of the 26th Indiana Vet. Vols.; sectional map Neosha Valley lands; message of Governor Oliver P. Morton, 1865; speech of Hon. Roscoe Conkling, 1862; commissions of John G. Clark as Major, Lt. Col., and Col.; commissions of Thomas L. Hayman and Thomas De LaHunt as First Lieutenants; powder flask, can of powder, box of gun caps; 3 bullet and ball molds; bunch of tow; desk rule and measure rule; ivory ruler; 2 keys; pen holder with pen; pen point box; ink bottle; letter wax; sewing kit; 3 pipe cases with one pipe and bowl; tobacco; 6 shoulder straps; 33 army buttons; Fremont and Dayton Campaign badge; uniform coat; cap; sword with sword straps. All owned and carried during the Civil War by Col. John G. Clark, 26th Indiana Vet. Vols. Donated by Mrs. J. S. Hadley, Indianapolis, Indiana.

Piece of Constitution Elm. Secured over fifteen years ago. Presented by Clarence W. Nichols, Indianapolis.

Two dresses, chemise and jacket, all hand work; made by Mrs. Mary Belle Orr, and presented by Mrs. Gertrude Orr Beeson, Indianapolis.

Snake eggs found in sand on banks of streams. Given by Billy Burns, Indianapolis.

Two Lindberg seals, one Camp Dewey souvenir stamp, and one Lights Golden Jubilee Edison seal. Donated by Raymond Hnshaw, Carmel, Indiana.

Thirty-three Indian axes; 11 pestles; 30 celts; 13 problematical stones; 7 butterfly stones; 1 carved stone; 2 plummet; 2 talc tubes; 2 stone pipes; 1 catlanite pipe; 14 hoes; 64 scrapers and knives; 2 turkey backs; 2 game balls; 1 wedge-shaped stone; 14 drills; 15 broken drills; 2 perforators; 100 points; many broken points; 5 cup stones; 2 iron concretions worked by Indians to useful implements; 225 sea shells; 1 dice cup; shell formation; 1 cartridge; 2 gun shells; 2 saw fish bills; 1 freak hens egg; 1 pair sandals; Chinese shoe; turtle shell; tin type of mammoth tooth; 3 pieces of mastodon teeth; 1 cup iron concretion; pieces of geodes; many fossils; 1 crystal; fossil fish from Wyoming; fossil shark's tooth embedded in limestone; 1 cone on cone formation; piece of redwood; 6 iron concretions; 2 polished agate specimens; 1 limestone cave formation; several geological specimens; Mexican Indian effigy; Indian stone wedge; American bull dog boot jack; 2 puzzles; counting device; beaver's teeth; pink coral; Indian beads; 2 game stones; a small iron hatchet and many notes, deeds, and checks of historical nature. Collection of John A. Bense, Greencastle. Presented by William Houck, of Greencastle, Indiana.

Revolutionary War sword, marked "Light Horse," which belonged to George Washington McClure. Donated by his grandson George William McClure, Indianapolis.

Civil War sword, presented by Wilbur Henry McClure, Indianapolis.

Sea plume; sea fan; star fish; saw fish bill. Presented by Mrs. F. William Cornelius, 686 Middle Drive, Woodruff Place, Indianapolis.

Nail from the Friends Church at Westfield, Indiana, erected in 1834. Presented by C. C. Moon, Indianapolis.

State Stock Bank Note of \$5. Donated by Frank A. Bruce, Atty., Indianapolis, Indiana.

White squirrel from Brown County, near Morgantown. Donated by W. J. Kesterton, Indianapolis.

NATURAL GAS SUPERVISION

The state gas supervisor and deputies have pursued their duties by inspecting gas wells and lines and making sure that natural gas is not allowed to escape, investigating reports of violations of the conservation laws, supervising the plugging of abandoned or dry wells, and collecting and compiling information relative to the geology of Indiana.

Many wells have been inspected, including about 50 in Decatur county. Some of them were ordered repaired or plugged, and in many cases the recommendations have already been carried out. Records are kept of the others to insure compliance with the law in a reasonable length of time. The investigations in Jay county were continued, and a new deputy was appointed to take charge of the area. Mr. A. C. Ford of Bryant, Indiana, is the deputy.

The progress of all uncompleted wells is followed as closely as possible, and the information is kept in a card file. Each month a summary

of developments is printed in the Oil and Gas News, a mimeographed news letter which now is being mailed to about 310 addresses.

Two series of letters requesting well logs were mailed to operators, and by this means nearly all of the logs desired were received. Our files now contain about 800 unpublished logs. Much typing is required to keep extra copies of these logs available for sale. Two blank forms, one for notification of intention to drill, and one for recording well logs, have been devised and distributed. Both of these have proven helpful in keeping complete and accurate information on the individual wells.

In the case of several important test wells, it has been possible to obtain a set of drilling samples. Cloth sacks have been supplied for the collection of these, supplanting the paper envelopes which were formerly used, but which proved unsatisfactory.

During the fiscal year ending Sept. 30, 1930, the state supervisor and deputies plugged 209 wells.

NEW REGULATIONS

Included in the new regulations below are the two which became effective at the end of the fiscal year.

Regulation Concerning the Plugging of Abandoned Gas or Oil Wells.

—Pursuant to Section 6 of an act creating a department of conservation, approved March 11, 1919, the conservation commission of the State of Indiana hereby makes the following regulation: That all abandoned wells drilled for oil or gas in the State of Indiana shall be plugged; that in case of dispute as to whether or not a well has been abandoned the decision shall be made by the state geologist or his authorized representative; that the plugging shall be done by the holder of the lease on which the well is located, or in case the lease has expired or the land has not been leased then by the land owner. This regulation to take effect September 15, 1927.

Regulation Defining Method of Plugging Abandoned Wells.—Pursuant to Section 6 of an act creating a department of conservation, approved March 11, 1919, the conservation commission of the State of Indiana hereby makes the following regulation:

That before the casing shall be drawn from any oil, gas, or test well for the purpose of abandoning the same, it shall be the duty of any person, firm, or corporation having the custody of such well, or having charge of removing the casing therefrom for the purpose of abandoning the same, at the time of such abandonment, to properly and securely stop and plug the well so abandoned in the following manner: Such hole shall first be solidly filled from the bottom thereof to a point at least twenty-five (25) feet above the top of such gas or oil-bearing or tested stratum with sand, clay, drillings, or mud-laden fluid weighing at least 25 per cent more than an equal volume of water; on the top of this filling shall be seated a dry pine wood plug not less than two (2) feet long and having a diameter of one-half of an inch less than the inside diameter of the casing in such well; above such wooden plug such well shall be solidly filled for at least twenty-five (25) feet with the above mentioned filling material; immediately above this shall be seated another wooden plug of the same kind and size as above provided, and such well shall

again be solidly filled with such filling material to the point where the largest string of casing was seated. After the casing has been drawn from such well, there shall immediately be seated at the point in said well where the largest string of casing was seated a cast iron ball or a dry pine wood plug not less than two feet long, the diameter of either of which shall be greater than that of the hole below the point where such casing was seated, and above such ball or plug such well shall again be solidly filled with the above mentioned filling material for a distance of at least fifteen (15) feet, provided that all oil, gas, or water shall be confined in the strata in which they occur.

Provided, that the well may be filled only to a fresh water level in case the same is desired to be used as a fresh water well.

Provided further, that the state supervisor of natural gas or his duly authorized representative shall be empowered to prescribe, when necessary, any specific procedure required to properly and securely stop and plug any oil, gas, or test well, in addition to the procedure described above. This regulation to take effect October 1, 1930.

Regulation Requiring Notification of Intention to Drill.—Pursuant to Section 6 of an act creating a department of conservation, approved March 11, 1919, the conservation commission of the State of Indiana hereby makes the following regulation:

The owner or operator of any lease shall, at least five days before beginning the work of drilling or deepening any oil, gas, or test well, cause to be filed with the state supervisor of natural gas a written notice of the intention to commence drilling. Such notice shall set forth:

(a) The number or other designation by which such well shall be known, which number or designation shall not be changed after filing the notice provided for in this section, without the written consent of the supervisor being obtained therefor.

(b) The exact location of the well or test hole giving the section, township and range in unplatted land, the lot or portion thereof, the block, the recorded plat, and municipality in platted land; the nearest property lines and the distance in two directions from the nearest section corner, quarter post, or lot corner.

(c) The name of the farm or property, and the name of the owner of the fee therein.

(d) The name and address of the oil or gas lessee or lessees.

(e) The name and address of the drilling contractor.

(f) The date actual drilling is expected to start.

(g) The intended depth of the well.

(h) The elevation of the mouth of the proposed well above sea level.

This regulation to take effect October 1, 1930.

OIL AND GAS OPERATIONS IN INDIANA

The number of oil and gas wells drilled during the past fiscal year has shown some increase over the number for the preceding year, despite the unfavorable conditions in the petroleum market, and the depression in financial circles. The greater part of the drilling was in the south-western part of the state, which already is producing more than 90 per

cent of Indiana's oil. The percentage of completed wells which were producers was higher than in 1929. The increased number of producing wells was reflected in the gross production for the state, though the totals for 1930 will doubtless be reduced somewhat because of the curtailment orders which became generally effective late in the summer of 1930.

Several new gas pipe lines have been planned for Indiana, and actual work has started on some of them. The largest of these projects is a line which will enter and probably cross the state. It will be supplied mainly with gas from Texas and Oklahoma fields. The pipe lines will supply markets for all gas found near them, and this fact has led to considerable testing for new gas deposits. Though several small discoveries have been made, nothing of great significance has been revealed.

Nearly a dozen wells were drilled along the eastern edge of Monroe County, testing the possibilities of finding oil or gas in the structures coincident to the Mt. Carmel fault, which parallels the county line. A good showing of oil was reported in only one of these, although several of the wells near Unionville struck gas in the Corniferous limestone. No use has been made of the gas as yet, but the possibility of obtaining more gas is indicated.

A small gas field near Bristow in Perry County was tapped by several shallow wells. Each of these showed an open flow potential of a quarter of a million cubic feet per day. There is no good market close to the wells, and the quantity of gas is not sufficient to make profitable the construction of a longer pipe line.

Development of the new gas field east of Alford proceeded rapidly and all of the best territory has now been drilled. Each of the wells has shown itself capable of making 1,000,000 to 5,000,000 cubic feet of gas daily, open flow. The gas from these wells helps supply the cities of southwestern Indiana, many of which have now been piped for natural gas. Evansville and Tell City were among those which have had natural gas available to them during the past year for the first time.

A wildcat well south of Huntington found a small supply of gas, but not enough to be of commercial importance. Two wells found larger supplies of gas south of Washington in Daviess County. One of these is the largest gas well yet found in the county, and may be the cause of the development of a valuable gas field there.

Scattered wells drilled for oil in the old Trenton field have been fairly successful. A deeper horizon which was penetrated near Pennville will likely cause the deepening of several of the old wells in Penn township. Production in the entire Trenton field has continued its slow decrease, and many more wells have been abandoned than have been drilled.

One of the most important of the recent oil discoveries was the finding of a new deeper horizon in the already valuable Siosi field southwest of Terre Haute, on the Vigo-Sullivan County line. Estimates of the initial production of the discovery well were from 200 to 400 barrels. Several large wells also were found in Pike County, west of Petersburg; one of these started at 225 barrels per day.

Perry County entered the list of oil-producing counties during the past year with the finding of small quantities of oil at two places. Several of the wells were northwest of Troy in the southwest corner of the

county, while the others were near Gerald in Tobin township. The latter were very shallow, averaging only 140 feet in depth. Extensive development or large production is not predicted for either location.

An uncompleted deep test in Gibson County is commanding much attention because of the reported finding of gas under high pressure at a depth of nearly 3,500 feet, in a formation which had never before been tested in the southwestern counties. It is being drilled deeper. The pools in southwestern Indiana are the only ones in the state in which deeper production is probable, yet less deep testing has been done in them than in any of the others.

The summary shows that 236 wells were completed during the fiscal year ending Sept. 30, 1930. Of these, 88 produced oil and 53 produced gas; 95 failed to produce valuable quantities of either oil or gas. In addition, 25 wells remained uncompleted on the above date.

The following are preliminary statistics released by the Petroleum Economics Division of the Bureau of Mines, United States Department of Commerce:

Northeastern Indiana produced 65,000 barrels of petroleum in 1929 as compared to 89,000 in 1928. Southwestern Indiana produced 912,000 barrels in 1929, though 963,000 barrels had been produced in 1928. Thus the state's total production dropped from 1,052,000 to 977,000 barrels in the same period.

The following is a summary of the drilling operations in Indiana from October 1, 1929, to September 30, 1930, inclusive:

COUNTY	Township	Section	Farm and Well Number	Result
Adams	Jefferson	14	Otto Baker No. 4	Oil
Adams	Jefferson	3	Wm. C. Baker heirs No. 1	Oil
Adams	Jefferson	3	Wm. C. Baker heirs No. 2	Oil
Adams	Blue Creek	34	Bollenbacher heirs No. 1	Oil
Adams	Blue Creek	34	Bollenbacher heirs No. 2	Abandoned
Adams	Jefferson	3	Sam Easley No. 3	Oil
Adams	Wabash	34	Clark Stanley No. 5	Oil
Adams	Jefferson	6	John Teeter No. 1	Abandoned
Adams	Jefferson	6	John Teeter No. 2	Oil
Allen	Maumee	20	Gerhard	Gas
Clay	Posey	34	A. J. Butt	Abandoned
Crawford	Whiskey Run	19	Perry Byrum	Abandoned
Crawford	Whiskey Run	19	Speed No. 1	Abandoned
Crawford	Whiskey Run	19	Speed No. 2	Uncompleted
Daviess	Harrison	33	C. F. Ageton No. 1	Gas
Daviess	Harrison	33	C. F. Ageton No. 2	Uncompleted
Daviess	Barr	35	Frank McCord	Gas
Daviess	Veale	16	National City Bank No. 1	Abandoned
Daviess	Veale	16	National City Bank No. 2	Abandoned
Daviess	Veale	28	J. M. Peek No. 3	Oil
Daviess	Veale	32	Perey Ross No. 2	Abandoned
Daviess	Veale	28	S. Swan No. 2	Abandoned
Daviess	Veale	21	Otis Wildman	Oil
Daviess	Harrison	33	Mort Wilson No. 1	Gas
Decatur	Marion	12	Ira Hutchinson No. 3	Gas
Decatur	Marion	12	Ira Hutchinson No. 4	Gas
Decatur	Marion	12	Ira Hutchinson No. 5	Gas
Decatur	Marion	12	Ira Hutchinson No. 6	Gas
Decatur	Marion	12	Ira Hutchinson No. 7	Gas
Decatur	Marion	2	Wm. Leimgruber No. 1	Gas
Dekalb	Smithfield	6	Conrad No. 1	Uncompleted
Dubois	Cass	3	Henry Langebrake	Abandoned
Dubois	Patoka		Mutchman	Uncompleted
Floyd	Franklin	24	W. H. Collev	Abandoned
Floyd	Franklin	28	Y. L. Farnsley	Abandoned
Floyd	New Albany	29	Diek Morton	Abandoned
Gibson	Columbia	22	George Allen No. 2	Gas

COUNTY	Township	Section	Farm and Well Number	Result
Gibson	Columbia	22	George Allen No. 3	Uncompleted
Gibson	Barton	10	Ben Buck	Abandoned
Gibson	Washington	6	Perry Colvin	Abandoned
Gibson	Washington	13	Thomas Duncan	Gas
Gibson	Barton	5	Tom Fleener	Abandoned
Gibson	Columbia	25	L. W. Gudgell	Uncompleted
Gibson	Barton	8	Eliza Harper No. 3	Abandoned
Gibson	Washington	19	John Jones	Abandoned
Gibson	Barton	10	S. McCullough No. 1	Gas
Gibson	Barton	10	S. McCullough No. 2	Oil
Gibson	Center	30	Sam Mitchell No. 1	Gas
Gibson	Center	30	Sam Mitchell No. 2	Gas
Gibson	Center	30	Sam Mitchell No. 3	Abandoned
Gibson	Barton	10	Riley No. 1	Uncompleted
Gibson	Washington	18	C. T. Sloan No. 3	Abandoned
Gibson	Washington	18	C. T. Sloan No. 4	Oil
Gibson	Washington	18	Charles White No. 1	Gas
Gibson	Barton	5	J. D. Williams No. 4	Oil
Hamilton	Washington	20	Sturdevant	Abandoned
Hancock	Jackson	21	Sam McClannon	Abandoned
Hancock	Brown	35	M. Overman	Gas
Hancock	Jackson	22	Charles Ramsey No. 3	Gas
Hancock	Jackson	22	Charles Ramsey No. 4	Gas
Harrison	Taylor	10	David Farnsley	Gas
Harrison	Boone		Funk	Uncompleted
Harrison	Boone	21	James Shields	Gas
Harrison	Boone	34	Alfred Stephens No. 1	Gas
Harrison	Boone	34	Alfred Stephens No. 2	Gas
Henry	Wayne	16	Mary Reed No. 2	Gas
Huntington	Huntington	26	Jacob Bussard No. 1	Abandoned
Huntington	Huntington	26	Jacob Bussard No. 2	Abandoned
Huntington	Huntington	26	Jacob Bussard No. 3	Uncompleted
Huntington	Jackson	10	(Roanoke Company)	Abandoned
Jasper	Gilliam	10	(Mich-Olio Company)	Abandoned
Jay	Jackson	14	P. F. Edgington	Gas
Jay	Penn.	16	C. C. Harris	Oil
Jay	Richland	24	W. O. Hoppes	Uncompleted
Jay	Wayne	32	Smith Stone Quarry	Gas
Jay	Penn.	9	James Sutton No. 3	Oil
Jay	Penn.	9	James Sutton No. 4	Uncompleted
Knox	Johnson	Sur. 11	John Emison No. 2	Abandoned
Knox	Johnson	28	Lewis Shultz No. 1	Abandoned
Lagrange	Clay		Clair Shoup	Uncompleted
Lake	North	29	C. W. Houk	Uncompleted
Madison	Fall Creek	15	Taylor Brown	Gas
Madison	Lawrence	27	L. C. Pickle	Gas
Marshall	Center		Frank Lamson No. 2	Abandoned
Monroe	Salt Creek	20	Mahala Baxter	Abandoned
Monroe	Polk	32	F. L. Deckard	Abandoned
Monroe	Polk	4	Durbin Hesler	Uncompleted
Monroe	Polk	33	R. Howell	Abandoned
Monroe	Salt Creek		C. E. Kinzer	Abandoned
Monroe	Benton	8	T. W. Peterson	Gas
Monroe	Benton	5	Mary E. Shirley No. 1	Gas
Monroe	Benton	5	Mary E. Shirley No. 2	Gas
Monroe	Salt Creek		State Life Insurance Co.	Abandoned
Monroe	Benton	10	Alex Young	Abandoned
Monroe	Benton	8	John Young heirs No. 1	Gas
Morgan	Ray		E. S. Langford	Abandoned
Morgan	Monroe		Bill Moon	Abandoned
Morgan	Ashland	12	T. J. Ratts	Abandoned
Perry	Troy	13	John Baeker No. 1	Oil
Perry	Troy	13	John Baeker No. 2	Oil
Perry	Troy	13	John Baeker No. 3	Abandoned
Perry			August Braunicker	Uncompleted
Perry	Clark	25	Frank Cassidy No. 1	Gas
Perry	Clark	25	Frank Cassidy No. 2	Gas
Perry	Clark	25	Frank J. Delaise No. 1	Gas
Perry	Clark	25	Frank J. Delaise No. 2	Gas
Perry	Leopold	7	Alphonse Dupont	Abandoned
Perry	Anderson	8	Wm. Epple	Abandoned
Perry	Tobin	18	Adam Glenn No. 2	Abandoned
Perry	Tobin	18	Walter Haefele No. 1	Oil
Perry	Tobin	18	Walter Haefele No. 2	Oil
Perry	Tobin	18	Walter Haefele No. 3	Oil
Perry	Tobin	18	Walter Haefele No. 4	Oil
Perry	Tobin	11	Paul Hyde No. 1	Abandoned
Perry	Clark	36	J. C. Harbaville	Abandoned
Perry	Clark	31	Victor James	Abandoned

COUNTY	Township	Section	Farm and Well Number	Result
Perry	Anderson	31	Frank Lucke	Abandoned
Perry	Tobin	18	John Ramsey	Abandoned
Perry	Troy	12	Reichardt	Abandoned
Perry	Leopold	11	John Ward	Oil
Perry	Troy	7	Welborn	Abandoned
Pike	Washington	30	Frank Anderson	Oil
Pike	Washington	17	John Arnold	Abandoned
Pike	Logan	23	A. Atkinson No. 10	Oil
Pike	Logan	23	A. Atkinson No. 11	Oil
Pike	Logan	22	M. J. Atkinson No. 6	Oil
Pike	Logan	15	F. Chandler No. 5	Abandoned
Pike	Washington	25	Charles B. Crow	Abandoned
Pike	Patoka	25	Everett Crow	Uncompleted
Pike	Jefferson	7	Frank DeMotte	Gas
Pike	Clay	Loc. 9	John Ford No. 1	Uncompleted
Pike	Clay	31	Ford & Hill No. 1	Oil
Pike	Clay	31	Ford & Hill No. 2	Oil
Pike	Clay	31	Ford & Hill No. 3	Oil
Pike	Clay	31	Ford & Hill No. 4	Oil
Pike	Clay	31	Ford & Hill No. 5	Oil
Pike	Lockhart	35	Wm. Fritz	Abandoned
Pike	Washington	29	Aaron George No. 5	Gas
Pike	Washington	29	Lew George No. 4	Gas
Pike	Washington	30	Ada Hale No. 1	Gas
Pike	Clay		Birkley Hill No. 1	Oil
Pike	Clay		Birkley Hill No. 2	Abandoned
Pike	Washington	30	Wm. Hill No. 1	Oil
Pike	Clay	31	R. C. Hyneman No. 1	Oil
Pike	Clay	31	R. C. Hyneman No. 2	Gas
Pike	Logan	22	M. Ingler No. 1	Oil
Pike	Logan	22	M. Ingler No. 2	Oil
Pike	Clay	Loc. 12	Della Kime No. 5	Abandoned
Pike	Clay	Loc. 12	Della Kime No. 6	Abandoned
Pike	Clay	31	Fred Lindy No. 1	Oil
Pike	Clay	31	Fred Lindy No. 2	Oil
Pike	Clay	31	Fred Lindy No. 3	Oil
Pike	Clay	31	Fred Lindy No. 4	Abandoned
Pike	Clay	Sur. 9	Jess Lindy No. 1	Oil
Pike	Clay	Sur. 9	Jess Lindy No. 2	Oil
Pike	Clay	31	Neal Lindy No. 2	Oil
Pike	Clay	31	W. H. Lindy No. 2	Oil
Pike	Clay	31	W. H. Lindy No. 3	Oil
Pike	Clay	31	W. H. Lindy No. 4	Oil
Pike	Clay	14	Everett Loveless No. 1	Oil
Pike	Clay	Loc. 146	Chas. McAtee No. 1	Oil
Pike	Clay	Loc. 146	Chas. McAtee No. 2	Gas
Pike	Clay	Loc. 146	Chas. McAtee No. 3	Gas
Pike	Clay	Loc. 146	Chas. McAtee No. 4	Abandoned
Pike	Clay	Loc. 16	John McAtee No. 2	Abandoned
Pike	Clay	Loc. 12	Mary McAtee No. 1	Oil
Pike	Clay	Loc. 12	Mary McAtee No. 2	Gas
Pike	Clay	Loc. 12	Mary McAtee No. 3	Oil
Pike	Clay	Loc. 12	Mary McAtee No. 4	Gas
Pike	Clay	Loc. 12	Mary McAtee No. 5	Oil
Pike	Clay	Loc. 12	Mary McAtee No. 6	Abandoned
Pike	Madison	Loc. 31	Bessie Miller No. 1	Oil
Pike	Madison	Loc. 31	Bessie Miller No. 2	Oil
Pike	Madison	Loc. 31	Bessie Miller No. 3	Oil
Pike	Madison	Loc. 31	Bessie Miller No. 4	Oil
Pike	Logan	26	C. E. Miller No. 1	Abandoned
Pike	Washington	30	W. Morrison	Oil
Pike	Washington	19	R. & F. Morrison No. 1	Oil
Pike	Washington	30	R. & F. Morrison No. 2	Abandoned
Pike	Logan	22	T. D. Phillips No. 3	Oil
Pike	Logan	23	Wm. Phillips No. 6	Oil
Pike	Logan	23	Wm. Phillips No. 7	Oil
Pike	Washington	30	Byron Preston No. 1	Oil
Pike	Washington	30	Byron Preston No. 2	Oil
Pike	Clay	31	N. Rohrshieb No. 1	Oil
Pike	Washington	29	Chas. Ruff No. 1	Gas
Pike	Washington	20	Chas. Ruff No. 2	Gas
Pike	Logan	Loc. 13	Chas. Rumble	Oil
Pike	Washington	30	Ed. Seales No. 1	Abandoned
Pike	Madison	Loc. 18	W. H. Shawhan No. 3	Oil
Pike	Washington	19	J. C. Shea No. 1	Gas
Pike	Logan	23	George Stewart No. 4	Abandoned
Pike	Logan	23	George Stewart No. 5	Abandoned
Pike	Washington	30	J. M. Thomas No. 1	Oil
Pike	Washington	30	J. M. Thomas No. 2	Abandoned