

REPORT OF THE STATE NATURAL GAS
SUPERVISOR FOR THE YEAR 1910.

By BRYCE A. KINNEY.

LETTER OF TRANSMITTAL.

OFFICE OF GAS INSPECTION DEPARTMENT,
MARION, IND., December 29, 1910.

Hon. W. S. Blatchley, State Geologist of Indiana:

DEAR SIR—I have the honor to submit to you herewith the manuscript of my annual report as State Natural Gas Supervisor, the same being for the 1910 and the nineteenth report issued from this office.

Again acknowledging the cordial support that I have received from you while I have had charge of this office, and thanking you for the same, I am,

Yours sincerely,

BRYCE A. KINNEY,
State Natural Gas Supervisor.

Annual Report of the State Natural Gas Supervisor.

In previous reports I have discussed at length the different phases of the gas situation as it existed in the State of Indiana, and recommended the enactment of laws that would remedy the prevailing evils. My purpose in this report is not to dwell particularly upon those things which are necessary to the preservation of gas fields nor the dangers that confront the producers of gas in the Indiana field, but to give the people of the State an idea of the present conditions of the field and the good that has been wrought by this office because of the greater power vested in it by the acts of the Legislature.

It is impossible for this office to give all of the information required, viz., complete and tabulated statistics of the number of gas wells, with the location and record of geological strata passed through in drilling them; the value of gas produced; the rock pressure, increase or decrease in rock pressure and volume of flow; number of miles; capacity and cost of mains laid; cost of gas as a fuel; number of persons employed in the production of gas, for the reason that the field has developed to such an extent that it is not possible for the Supervisor, with his limited number of assistants, to collect the information necessary.

WELL PLUGGING DEPARTMENT.

As stated in previous reports, the most important duties required of this office are to see that the laws of the State in regard to the drilling and plugging of wells and the consumption of gas be enforced. We have never been able to handle this until the last two years. The last Legislature passed a well-plugging law that is very effective and it has done a lot towards improving the field generally. The gas pressure is increasing, also the volume, and the artesian water is not affected by the salt water as it was two years ago. This proves that the well-plugging law that is now in effect will eventually overcome the evil that was wrought before we were able to cope with the difficulties that confronted us. This

law has cost the State practically nothing, as it has been run on the fee system and each man gets what he collects in fees. For every well plugged the owner of said well, or the lessee, pays to the Treasurer of State five dollars. This five dollars is paid over to the deputy who has plugged said well, and in this way the plugging department has not been an expense to the State.

I am not in favor of a fee job of any kind, but it was the only way we could get at this and have a law passed whereby we could protect the field, as we could not ask the State to appropriate money for the benefit of individuals, and the only recourse left us was for the man or person who owned or leased the land to pay the fee. At that time I did not know how much this would amount to, nor how many deputies would be required, so I could not fix a salary for a deputy. Even at this time it is a hard matter to determine just how many men are needed in the plugging department.

OIL FIELD.

During the history of this field there have been 4,000 gas wells drilled and 2,500 of them are now plugged. There is at the present time a daily production of 50,000,000 cubic feet of gas which is worth .20 per thousand, making the daily production of gas in the Indiana field worth \$10,000, or over \$3,000,000 per year. This gas is produced from twenty-seven different counties, and the field extends from Gibson County on the southern border line to Allen County in the northeast corner, a distance of 250 miles on an air line. The initial pressure runs from 40 pounds to 440 pounds to the square inch. The largest wells are located in Pike County, there being several wells there that will produce more than two million cubic feet a day each.

The southern field has no connection whatever with the northern field. In the northern field, which is known as the "gas belt," gas is produced from what is known as the Trenton rock, which extends from Allen County to Decatur County and as far west as Hendricks County, and to the State line on the east. A well drilled in the Trenton rock may affect another well five miles away; this is one reason the well-plugging law was passed, to prevent the ruining of this Trenton rock field and to protect the oil and gas bearing sand. The fresh water had heretofore been allowed to penetrate the Trenton rock, and this water all had to be handled with pumps and pumped out of the rock before we could reach the gas and oil in this territory. Many wells were ruined here before this law was passed, by the careless plugging.

NEW FIELD.

Conditions in the new field, through Pike and Gibson counties, are much different to those of the old field. The oil and gas is found at a depth of eleven hundred feet, with two layers of salt water, one at about 600 feet and the other at 1,000 feet. This makes the drilling of these wells very slow, as the hole is full of salt water from the time they reach a depth of 600 feet. After reaching 1,000 feet this salt water is cased in with 6½-inch casing and the well is drilled in to the oil sand without reaching any more water. A good "oiler" may be found 500 feet from what is termed a "duster" or a dry hole. A dry hole in the southern field does not indicate that that farm on which it was drilled must be condemned as a dry farm, as there are three different sands in this field—ordinary sand, oil sand and gas bearing sand. The oil seems to lay in pools, also the gas. They are undoubtedly connected in some way, through a crevice, perhaps, but it does not lay in one solid body as the Trenton limestone does. This is a more expensive field to operate. The wells cost more to pipe, they are deeper, and you are not so sure of striking gas and oil in paying quantities. The older oil and gas men throughout the country have great hopes of this field, and are spending thousands of dollars trying to locate what we think will be one of the greatest oil and gas fields that has ever been opened in Indiana. They give this as their reason: Seven years ago the Princeton field was discovered; at this time they had considerable gas there, but the life of this flow was soon extinguished and the oil flowed in until today the wells produce more oil per well than any other field in Indiana outside the new fields now being drilled. This leads the oil and gas men to believe that there is some great pool feeding these wells, and that is why they are spending so much money trying to find the main reservoir. The coming year of 1911 will undoubtedly prove to be the banner year in the history of the Indiana gas and oil field.

There are at the present time no less than 50 strings of tools drilling test wells outside of the field trying to locate this great area which they think exists.

I have included both oil and gas in this report because nine-tenths of the wells now producing oil in the southern part of this State also have plenty of gas to run them, which means a great saving to the oil territory and is the only material that is practical for light and fuel here. The oil men have learned this through experience, as the northern field has practically shut down now on account of the gas failure.

PRESSURE AND FLOW.

The pressure and flow of natural gas varies in different fields and counties; for instance, in some parts of Grant County the pressure runs as low as 20 pounds. In Decatur County it runs as high as 300 pounds, and in Pike County as high as 440 pounds. This variation can easily be accounted for. You take a new field and the pressure is gauged usually by the depth of the well; for instance, in a well 1,100 feet deep you will find the rock pressure between 420 pounds and 480 pounds, which means 40 pounds to one hundred feet. In the oil field where the sand has been penetrated with fresh water and salt water, the gas has not the heat units that the dry gas has in the new field and the water in the gas must affect the pressure. This is the only reason we can give.

In the Trenton rock field you can gauge a well to within ten pounds of what it would actually gauge by the depth of the well. A well 900 feet deep would test about 360 pounds, and that is about what the natural pressure was in the northern field when this field was new.

In Oakland City 522 pounds has been the highest in the well on the M. Burnett farm. This well was tested by me in April, 1908, and had a capacity of 5,000,000 cubic feet and was about 1,150 feet deep. This well was above the average in flow and in pressure and is supplying gas to drillers at the present time.

This field was been watched very carefully by this office and the wells in this field are in very good condition. Where gas only is found the well is immediately closed and kept closed and used for gas only. At the present time the outlook is very bright for several cities to be connected with gas in southern Indiana, namely, Evansville, Washington and Princeton. Of course, Princeton is a city that has been piped for years, but the pressure and the volume has decreased to such an extent that they have had to add an artificial plant to supply the consumers. Several gas men throughout the State have their eyes on this field for a proposition to pipe gas to these cities, and this will undoubtedly be done within the next year. This will mean a great deal for southern Indiana, as it will induce factories to go there and it will be a great convenience for the people at large.

EXPERIENCE A TEACHER.

The people of the State of Indiana have profited by experience in the use of natural gas. In the old days when the natural gas field was booming, the northern part of the State thought we would

never exhaust the supply. They would open their windows, and never think of turning the fire down. Hundreds of farmers had great flambeau lights in their yards and in front of their homes and burned thousands of feet of gas in this way. These lights burned night and day until the Legislature passed what is known as the "Flambeau Law." Meters were unknown at that time; everybody burned what they wanted to, usually at a flat rate, for a dollar or two dollars a stove.

It is the fault of the people and not the fault of this department that the gas of Indiana had failed in what is known as the "gas belt." A great many things have been expected of this department that it was impossible for it to do, such as make laws to protect this precious fuel from being piped out of the State, and trying to regulate the use of gas without the help of the people at large.

The first great mistake made in Indiana regarding the gas and oil, especially the gas, was by the farmer in writing up his contract with the gas corporation. When he leased his farm if he had inserted in this document a clause that would prevent the lessee from piping this gas out of the State or prohibited them from using artificial means whereby they could increase the natural flow, this evil would never have existed and would have saved this department a lot of litigation.

GAS MAINS.

This department has made an extra effort in the last two years to see that all gas mains are in good condition, and we believe that at this time the gas mains and the gas plants in the State of Indiana are in excellent condition, and we feel safe in saying that 50,000,000 cubic feet of gas are being used at the present time.

PIPE LINES.

There is a great deal of gas being pumped throughout the State today, the Fairmount and Greentown pumping stations being still in existence and pumping gas to Chicago.

Anderson, Richmond, Shelbyville and Knightstown and numerous other cities are being supplied with gas by the assistance of pumps.

It has always been my opinion that if a law had been enacted to prohibit the pumping of this gas there would be as much gas used today by its natural flow as there is by the artificial means. However, the gas companies have been allowed to do this, the law being repealed some years ago which prohibited them from doing

this. I have taken the proposition up with the Legislature several times, but have never been able to have the law re-enacted. For the good of the people of the State such a law should be in existence to-day, and would not only benefit what is known as the gas producing rock but would be of great benefit to the people, as the life of this flow would be prolonged if it were allowed to come to the surface by its natural flow.

There are hundreds of thousands of dollars invested in pipe lines, and it is not the intention of this department to take away from the owners anything that rightfully belongs to them; but this, we think, belongs to the people at large and not to any individual. For five miles about these pumping stations a vacuum is being created and gas is being drawn from under land on which no rental is being paid by these corporations. The only way this can be remedied is for the Legislature to enact laws to prohibit the use of these great vacuum pumps, and this department suggests that such a law be enacted.

The money that is invested in the 1,500 wells producing gas in Indiana amounts to more than \$15,000,000. This is a low estimate, and more wells are being drilled every day, which proves that this has been a great industry and will undoubtedly be the cheapest and best fuel for parts of the State for several years to come.