

## WHY LOCAL OIL WELLS FAILED TO PRODUCE

Careful Study of Geological Structures Necessary—"Logging" of Well Important Factor  
(By W. A. Bartlett.)

In previous articles I have tried to explain the origin of oil and gas, show how they have traveled through porous rocks, and accumulated in domes and anticlines, and how these anticlines are measured out and located by measuring the slope of under-ground strata which outcrop on the surface of the ground.

Although the travels of oil and gas was originally founded on theory and a study of the natural laws of rock pressure and gravity, it has been proven to be one of the surest and most practical studies of natural phenomena. Just as the theory of air-pressure and resistance has made it possible to fly through the clouds; as the study of electricity has made it possible to turn our waterfalls into electric power; and the surveyor's transit has made it possible to reclaim thousands of acres of arid lands with abundant water supply; so has the study of oil geology developed hundreds of producing oil fields which would have never been discovered by chance or accident.

In the selection of and the drilling of a successful oil or gas well there are a number of scientific and practical operations which should be followed. First the geology of the district should be studied to determine whether the surface strata naturally cover oil-bearing sands. Second, the well-site should be located on the top of the anticline, where the oil will be struck at the shallowest depth and in the greatest quantity. Third, the proper drilling equipment should be used to go down to the proper depth and to give an accurate "log" or test of each strata as the well goes down.

### Why Local Wells Failed

The history of oil well drilling in Vale-Ontario-Payette district in the past fifteen years, proves that these operations were not followed, and it is therefore easy to explain why the oil and gas resources of this district have not been successfully developed. Wells were put down without geological advice or structural measurement, were put down on some man's farm because he had a showing of gas, or because he had more money in the company than others, or on some hill so that the drill could be seen from a railroad or wagon road, perhaps to hasten the sale of stock.

Washburne's United States Geological Survey made of this district shows few, if any wells were located on real oil structure. And few of them went down to the required depth, even if they had been properly located.

Then there are rumors of certain wells having been ruined by their drillers, who were said to be secret agents of and under pay of the Standard Oil Company, which at that time did not want new oil fields developed so that it could better control the oil market. How true these stories are I cannot say, but I have heard of some very suspicious occurrences in local oil drilling, and have seen actual evidence of either great ignorance in drilling or the actual purpose of ruining an oil well.

### Why Rotary Rigs Fail

There are several varieties of drilling rigs, the two main differences being between the rotary rigs and Standard or churn drills. In using rotary tools, the oil well is filled with water from the surface of the ground down to the bottom of the steel casing, and if the drill is down 2,000 feet this column of water develops a weight and pressure at the bottom of the hole of 880 pounds to the square inch. If the drill should penetrate an oil sand at that depth this water pressure would drive the oil back, unless the oil pressure was greater than 880 pounds, in which case it would blow the water out of the hole and be a gusher well. The deepest wells in this district were drilled with rotary tools and may have passed through productive oil sands, which would have developed big producers if opened up with churn drills. The churn drill uses only a few buckets of water in the bottom of the hole, and this is bailed out several times a day along with samples of the sand and shale through which the drill is passing.

In explaining why test wells in this district have not been more successful, Robert N. Bell, as State Mine Inspector of the state of Idaho, reports, "There have been a dozen test wells made in this territory, 300 to 1500 feet deep, in addition to the deep test at Ontario, but it is doubtful if much regard was paid before starting them, to the

ESSENTIAL PRELIMINARY GEOLOGICAL AND STRUCTURAL STUDY for favorable doming, and several of the well sites selected, including the most important gassers, are started on strata as flat as a floor.

"There are many details of practical knowledge necessary in the development and progress of a profitable oil or gas well. For instance, it has been repeatedly experienced in drilling wells in the big successful oil fields of the southwest that when working under a high column water pressure in a well using rotary tools, big commercially important gas and oil sands have been muddled up, sealed off and passed through without the driller knowing of their existence, to be later developed as big producers by more closely kept well logs and careful head-work in adjacent wells."

### SQUIRREL POISON WILL NOT ENDANGER LIVE STOCK

Many farmers hesitate to put out poison for fear of killing their stock. Many who do put out poison throw it down the holes and thus decrease its efficiency by wasting a large part of the poison. The proper way to put it out is along the trails and in the grass about the holes. A teaspoonful to a tablespoonful placed to a bait will kill one or more squirrels. It takes eight to ten minutes for the poison to effect a squirrel after it is taken into its mouth. Therefore, scattering the poison so the squirrel is obliged to hunt it up, a grain at a time, decreases the amount he will pick up in a given time.

It takes from 30 to 40 times as

much strychnine to kill a horse, cow, hog or similar animal as it does to kill a squirrel. The possibility of such an animal securing enough poison to harm it is limited. In the experience of the Biological Survey there is no instance of stock being killed by poison put out as recommended.

Chickens, quail, grouse and similar birds are practically immune to the effect of strychnine and one does not need to fear for them in putting it out. However, at 20 to 25 cents a pound it is expensive chicken feed and should of course be scattered where the chickens cannot get at it readily.

Turkeys, ducks, geese and other domestic fowls are easily poisoned and in districts where turkey raising is important care should be taken in distributing poison. Boxes 18 to 20 inches long and open at one end placed over the land with poison kept in the back end have been successfully used in the turkey raising country.

Ira N. Gabrielson,  
Assistant Biologist.  
515 P. O. Bldg., Portland, Oregon.  
February 15, 1921.

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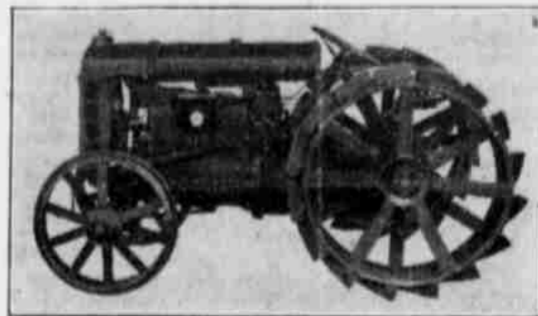
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