

1947 has been a banner year for oil exploration in Wyoming. Ten new fields have been discovered and deeper producing zones have been discovered in six old fields. Important extensions have been made in some of the fields discovered during the past several years.

The most significant discoveries, perhaps, are those in the central parts of the major basins. The first discovery in the Powder River Basin proper was made near Adon, northwest of Gillette. Regardless of the outcome of the well, which is still drilling, the encouraging showings are sufficient to indicate that oil occurs in the central part of the basin, opening up 15,000 square miles of prospective oil land which has never been prospected by drilling. Major oil fields encircle the basin--Salt Creek on the west, Lance Creek on the south, and Osage on the east--but no drilling had previously been undertaken to test the deep sands in the central part of the basin.

The central part of the Green River Basin has been proved for gas and distillate production. The discovery well in the Church Buttes field was completed in 1946, with production between 12,560 and 12,574 feet. Two additional wells were completed in 1947, one located over four miles from the discovery well. The third well produces from a depth of 12,993 to 13,050 feet and is the deepest well in Wyoming and the deepest producer in the Rocky Mountain region.

A second significant factor is that geophysical prospecting can be employed in Wyoming to locate structures which can not be observed from the surface. Seismograph surveys have resulted in the discovery of a number of new fields, such as Church Buttes, Worland, South Fork, Adon, and others.

A third factor of importance is that sandstones and limestones are sufficiently porous at great depths to contain oil. At one time many geologists felt that rocks in Wyoming below a depth of 7,000 or 8,000 feet would lack sufficient pore space to be effective reservoir rocks. This speculation has been completely disproved. There are at present, three fields producing from depths greater than 10,000 feet; Church Buttes, Heiber, and Sand Creek; others produce from depths ranging from 8,000 to 10,000 feet.

New fields were discovered in Albany, Campbell, Carbon, Natrona, Niobrara, Park and Washakie. The new fields in Washakie County at the moment appear to offer the greatest promise of being large important producers. Deeper production was discovered in old fields in Albany, Bighorn, Carbon, Park and Washakie counties. These deeper discoveries are as important in adding new oil to the state's reserves as if they were completely new fields.

Washakie County led in new discoveries. Three new fields were found and two of them rank among the State's deepest producers. On Heiber dome, the G and G Drilling Company completed a discovery well at a depth of 10,980 feet in January. Production is from the Phosphoria dolomite at 10,025-10,189 feet and the well tested 281 barrels per hour of high gravity oil testing 41 degrees A. P. I. At the present time the well is flowing 930 barrels a day through a 3/8" choke. Only the one well has been completed on the structure. Heiber dome is a large structure and the producing area may prove to be large. Another deep discovery was made in May by the General Petroleum Corporation on

the South Fork dome. The discovery well was completed in the Phosphoria at a depth of 10,046-10,110 feet. The well pumped 200 barrels per day of 29 gravity oil per day. No other wells have been drilled in the field as yet. In September, General Petroleum discovered the New Sand Creek field with a well completed in the Third Frontier sand at 6,692 feet. The well flowed 882 barrels per day of high gravity oil testing 45 degrees A. P. I. A second well extended the field a half-mile and was completed in December for an initial guage of 435 barrels per day. No deeper sands have been tested in this field. Important new extensions were made in the deep Worland field. Six wells have been completed below depths of 10,000 feet, producing from the Phosphoria dolomite. Commercial production was found in the underlying Tensleep sand in 1947, but the well was plugged back and completed in the Phosphoria.

Two new fields and one deeper pay were discovered in Albany County. The Herrick field was discovered by the Superior Oil Company in March, the discovery well producing 225 barrels of 21 gravity oil in 15 hours from the Casper sandstone at a depth of 5,662-5,678 feet. Two additional wells were completed in the field and one dry hole was drilled. Oil was discovered in the Seven Mile field by the California Company and Phillips Petroleum in October at a depth of 5,818-5,883 feet. The well pumped 98 barrels in 22 hours; the oil is 33 gravity. Deeper sands tested by this well carried water. The new deep pay was the discovery of Tensleep production in the Quealy field. The Tensleep discovery well was completed in February and pumped 287 barrels per day of 21 gravity oil from a depth of 5,480-5,510 feet. Additional Tensleep wells have been drilled in the field.

Carbon County exploration yielded one new gas field and two deep pay discoveries. The East Antelope gas field was discovered on October in a well drilled by the Continental Oil Company and the General Petroleum Corporation. Gas was encountered in commercial quantities in a Tertiary sand, at 2,157 feet. Deeper sands tested to a depth of over 6,800 feet were non-productive. The most important deeper pay discovery is in the Lost Soldier field. A well now drilling has indicated commercial oil production in the Amsden sand, a new producing horizon for the entire region, and in the Madison limestone. This is the southernmost Madison limestone production in the State and there are numerous fields in southern Wyoming which have not been tested to the Madison. Deep oil production was found in the old Hatfield gas field in October when an Ohio Oil Company well flowed 250 barrels a day from the Tensleep sand at a depth of 5,480-5,510 feet. The oil is of unusually high gravity for Tensleep oil.

Park County yielded one new field and one important deep extension. The new field, Silvertip, was discovered by the Seaboard Oil Company in its first venture in Wyoming. The well is still drilling but in November, a drill stem test of the Phosphoria at 8,495 feet showed 800 feet of high gravity oil and a million cubic feet of sour gas. The new discovery is located east of Elk Basin and is a fault trap type field. Madison production in the Elk Basin field was extended two miles south of the discovery well by Stanolind Oil and Gas Company's well 95-M which flowed through casing for as much as 70 barrels per hour. Tensleep production was also extended to the south by Carter Oil's No. 8 Johnson well, which is still drilling and headed for the Madison limestone.

Another Bighorn Basin field, in Bighorn County, was proved for deeper production by the discovery of oil in the Tensleep sand in the old Torchlight field. Stanolind Oil and Gas Company completed its No. 1 Unit well for 1,600 barrels of oil per day in November at a depth of 3,045 feet. The field was discovered in 1913 and produced from shallow sands, but by 1947 had been virtually abandoned.

A new gas field was discovered in November in Natrona County when the U. S. Oil and Development Company completed a gas well in the Tensleep sandstone on Pine Mountain dome for 23 million cubic feet per day at a depth of 1800 feet.

A new oil field, North Ant Hills, was opened in Niobrara County by the Arrow Oil Company. The discovery well was completed in the Muddy sand at a depth of 4,725 to 4,732 feet for 104 barrels per day.

The first Campbell County oil field has apparently been discovered by a well being drilled by the Texas Company on the Adon structure. Shows of probable commercial oil were found during November in the Minnelusa sand at a depth of 9,006 feet. On a test, 2000 feet of oil rose in the drill pipe. Drilling was continued to a depth of 9,945 feet and water was found in the Madison limestone. The shows will be tested, probably before the first of the year.

In Weston County there have been encouraging extensions to the Mush Creek field which was discovered in 1944. Drilling was renewed in 1947 and a number of good extension wells resulted, one producing as much as 1,740 barrels per day. Nine dry holes have been drilled, however, indicating spotty production.