

Oil Prospecting in Southwestern Ontario*

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To-day it is self evident that Canada needs petroleum. America needs petroleum, the world needs petroleum, alike for war-time and the more peaceful endeavors. This need is manifest in the rising cost of all petroleum products, and the result has been a great impetus to oil prospecting. At the present time, America is drawing on its stored surplus of petroleum and petroleum products.

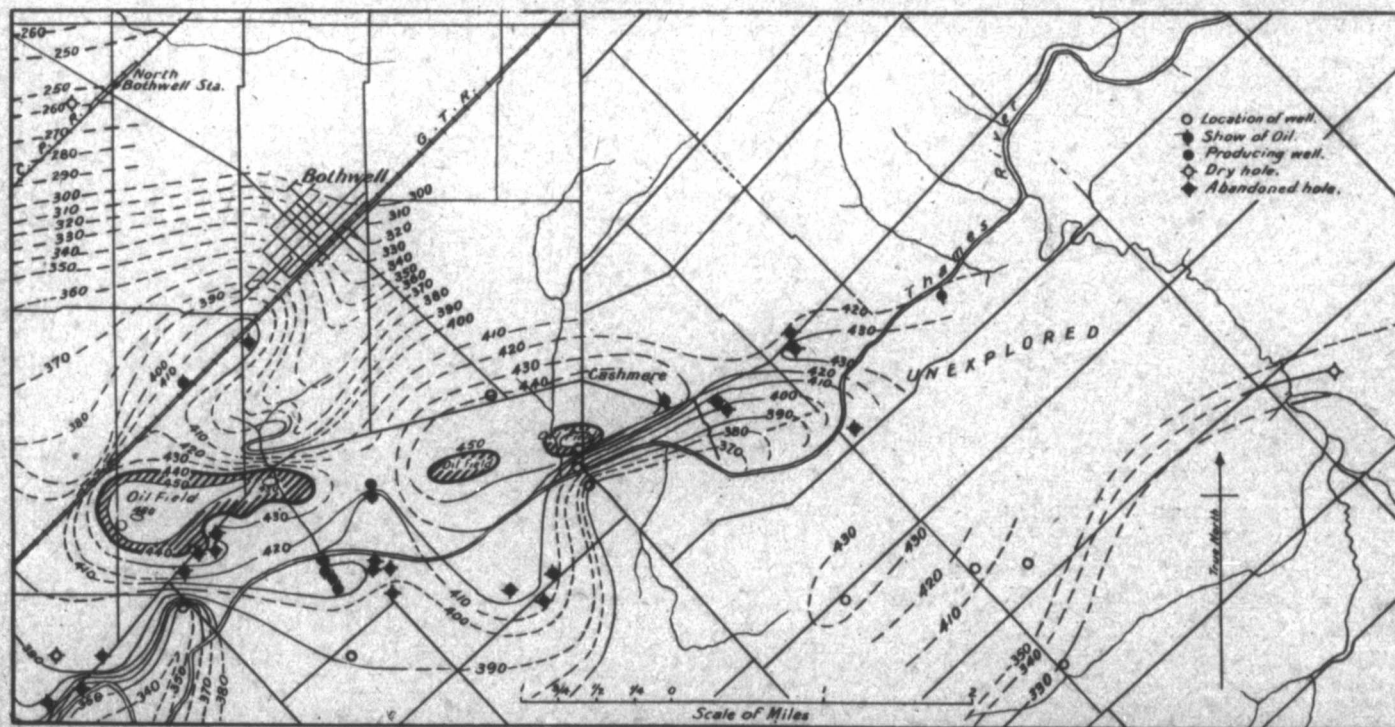
Let us examine the conditions of our Canadian supply. In 1916† Canada paid bounty on 198,123 barrels of crude petroleum valued at \$392,284 which may be taken as the total production exclusive of the small amount of light oil produced in Alberta, which is too low in specific gravity to draw Government bounty. Of the oil upon which bounty was paid, New Brunswick produced 1,345 barrels, and Ontario 196,778 barrels. The value of the total exports of petroleum and its products amounted in 1916 to \$73,771, and of the total imports to \$14,701,521. From the above the urgent need of an increase in our petroleum production is clear, and renewed prospecting is a reflection of the need.

What are the results in Ontario to date? Taken altogether, it is too soon to predict what the real results of the present efforts at increased oil production will be, as these will doubtless be cumulative and spread over several years to come. However, an abandoned prospect north of Glencoe, in Mosa township, Middlesex county, has been turned into a producing oil field by the Ontario Petroleum Company under the careful scientific management of F. J. Carman, of Bothwell. The oil produced here is from the Onondaga (Corniferous) limestone. In Dover West township, Kent county, a well drilled in to the Trenton limestone by the Union Natural Gas Company is changing from a gas well to an oil well, and is producing considerable

quantities of petroleum. Other areas are being tested by the drill and the results will be learned in due time.

Besides the Onondaga (Corniferous) limestone which is the principal formation producing petroleum, the lower Salina and upper Guelph dolomites are producing oil in southwestern Kent, and the eastern part of Essex county. Near Brantford some oil is produced from the Queenston shale just below the Medina (Whirlpool) sandstone. The deepest petroliferous formation is the Trenton limestone which is known to contain some oil on Manitoulin Island, at Milton, and in West Dover township, Kent county. This formation, which is now being tested near Rockwood in Dover township, at Flesherton, at Rondeau and elsewhere, has produced great quantities of oil in Ohio, and is looked upon by Ontario prospectors as a possible source of supply.

Times have changed in the petroleum industry from the 'sixties, when stream beds were considered the most likely places to prospect for oil, (the natural excavation certainly saved much digging in the old fashioned clumsy way), and again from the 'nineties when plenty of water and good board were primary requisites for location with the explorers of the average company. To-day, thanks to pioneering work done by I. C. White in Pennsylvania which was followed later in the Canadian field by E. Coste, F. J. Carman and others, the localization of oil in "inverted" basins of rock, which take the form of domes, anticlines or monoclines, is well established in the average case, in which the strata bearing oil are also water-bearing and are of fairly uniform porosity. This is because oil floats on water and hence is forced to the top of the basin. In cases where the oil-bearing strata do not contain water, the oil tends to gravitate toward the synclines and basins, but as a strong driving force is lacking,



Structure Diagram of the Top of "Corniferous" Delaware limestone, showing the Bothwell Oil Domes. Structure contours are broken where information is insufficient. Contour intervals 10 feet, elevations are above sea level.

*By permission of the Geological Survey, Ottawa. Further information may be looked for in the 1917 Summary Report of the Geological Survey. †Preliminary Report, Mineral Production of Canada, Mines Branch, Department of Mines, pp.20-21.