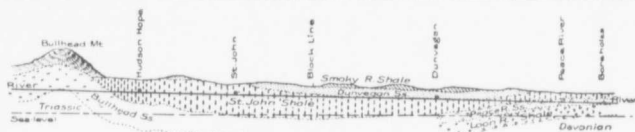


The geological sequence on Peace River itself may be tabulated as follows:—

Upper Peace River.	Dunvegan.	Peace River Crossing.
Remnants	Smoky River shales	Absent.
Dunvegan sands	Dunvegan sands	Absent.
St. John shales	Buried in syncline	St. John shales.
Bullhead sands	Buried in syncline	{ Peace River sands.
Devonian	{ Loon River shale.
		Triassic.



Generalized Cross Section

The Peace River sandstones and Loon River shales are considered to be the eastern, seaward, equivalent of the Bullhead western shore deposits; both are Lower Cretaceous, the one lying on Devonian rocks, the other on Triassic sandstones and shales. Between these two is the great syncline or trough which buries them so deeply at Dunvegan that the upper formations alone rise to the river and prairie levels.

Within the area covered by our traverse on Upper Peace River the Upper Cretaceous formations, Smoky River and Dunvegan, occupy the mountain masses and do not offer a good structure for the retention of oil. The main valleys, however, have been cut quite deeply in some places into the underlying St. John shales. These shales in turn overlie the Bullhead sandstones.

Assuming the Bullhead sandstones, or the Triassic below it, to be the most likely oil-bearers, our work then was to find suitable structure and reasonable depths to reach desired strata. Hence the chief objects of our survey were to get a general knowledge of the localities where the St. John shales were most deeply eroded or cut into, so that the drilling distance might be shortened; also to find such conditions of folding or arching in them as are usually considered requisite for forming oil-reservoirs beneath an impervious shale such as the St. John formation.

On June 20th I received instructions to proceed to Peace River and conduct such examination as was possible during the summer. Three other men were engaged, all of whom were, or had been, Peace River men and knew the country. L. M. Bower, a returned soldier from Finlay Forks, went with me from Vancouver; H. C. Garbitt, packer, and his outfit, and E. Ouelette, cook, were engaged at Hudson Hope. We arrived at Hudson Hope on June 7th, and left it on the 10th for a trip up the Peace River to 12-Mile Creek and to the South Fork of Halfway River, forty-four miles north of Hudson Hope.

On July 23rd, in company with Dr. J. S. Stewart, of the Dominion Geological Survey, we left for a traverse of the country south and south-west of Peace River Block. We returned to Hudson Hope on September 3rd; then came down the Peace River 240 miles in an open boat to the town of Peace River; thence to Victoria on September 18th.

In such work a geologist does not usually find oil; his work is to trace out oil-bearing horizons and favourable structures of the overlying strata, also to examine any seepages, residues, or other evidences. I saw none, and only heard of one occurrence of bitumen or tarry residue which appears to be true.

I do not think that the Imperial Oil geologists doing similar work in adjacent areas, and on some of the same area as myself, found or certified such seepages or residues, excepting in the Dunvegan sandstones on Peace Coupe River within the Peace River Block.

Hence our work was spent on tracing out formations and structures. Assuming that some portion of the Lower Cretaceous sandstones, or the underlying Triassic shales and sandstones, may be an oil horizon, we tried to locate places where these would be within reach of a drill