

Exploration and development continued not only unabated but accelerated. During 1948 rotary bits drilled 1,663,687 ft. into the earth compared with 882,358 ft. in 1947 and 401,920 ft. in 1946. At the end of the year, 65 exploration parties were carrying out operations, most of them north of the North Saskatchewan River. The 1948 revenue to Alberta crude oil producers amounted to \$35,127,751 as compared with \$18,078,907 in 1947.

Early in 1949, the capacity of the Alberta refinery, estimated at 35,250 bbl. daily, was found to be insufficient to handle the average daily production of crude oil, not including natural gasoline, which was 50,673 bbl. at May 1, 1949. To remedy the situation a pipeline with a capacity of 40,000 bbl. daily is being constructed from Edmonton to the Head of the Lakes.

The following table gives production by fields in 1948.

24.—Production of Alberta Oil Fields, 1948

NOTE.—Figures for total production of petroleum for 1922-46 are given at p. 473 of the 1947 Year Book and production in the different fields for 1947 at p. 477 of the 1948-49 edition.

Field	Quantity	Field	Quantity
	bbl.		bbl.
Turner Valley.....	4,900,739	Vermilion.....	112,331
Leduc.....	4,657,371	Redwater.....	36,875 ¹
Lloydminster (Alberta side).....	648,055	Wainwright.....	17,131
Taber.....	201,527	Miscellaneous.....	30,215
Princess.....	189,712		
Conrad.....	179,627	Totals.....	10,973,533

¹ Three months.

*The Tar Sands and Bituminous Developments.**—Alberta, in its bituminous sands deposit at McMurray, has the greatest known oil reserve on the face of the earth. Estimates vary between that of Canadian geologists at 100,000,000,000 tons and that of the United States Bureau of Mines at 250,000,000,000 tons. The yield at present is about one barrel of oil per ton of sands. The exposures of these oil-soaked sands occur not only downstream from McMurray to Bitumount and some five miles beyond (a distance of 60 miles altogether) but also upstream in the opposite direction and eastward along the Christina River which flows into the Clearwater River 15 miles from McMurray, and on the tributaries of the Athabaska River between McMurray and Bitumount. The whole area is approximately 60 miles long and 20 miles wide, i.e., 1,200 square miles.

A processing plant, now operated by the Alberta Government, is situated at Bitumount. Overburden covering the outcrop is very light at this point and the product, being soft, lends itself more readily to separation than the harder outcrop in other parts of the reserve.

Another feature of the Bitumount area is the usage of the separated sand for glass, quantities of which have been transported to points of manufacture.

A rich deposit of 'liquid bitumen' has been uncovered by Federal Government geologists on the west side of the Mildred-Ruth Lakes area, at Waterways, 20 miles north of Fort McMurray in northeastern Alberta. The estimate of bitumen content per acre ranges as high as 350,000 bbl.

Natural Gas.—The producing natural gas wells in Eastern Canada are in southwestern Ontario, and near Moncton, N.B. In Western Canada the principal producing fields are in Alberta and include the Turner Valley (about 35 miles south-

* See footnote to p. 537