

## THE MEXICAN OIL INDUSTRY.

WITH the present complications which pervade Mexico, and particularly the vicinity of Tampico, it is very gratifying to be assured that the oil operations there are well removed from danger. The safety of workmen and of storage has been given much attention by Secretary of State Bryan, and his satisfactory assurances to ambassadors of other countries that no danger to the oil operatives ensued, brings an atmosphere of relief.

There are many interesting particulars connected with the Mexican oil industry. Some of them were given in a lecture delivered recently by Mr. R. P. Brousson, in England.

Dealing first with historical features, he mentioned that some oil-springs near Papantla were discovered in 1868 by Dr. Autray, who tapped them by tunnelling into the side of the hill from which the oil exuded. He set up a still, and for some time supplied the local demand for illuminating oil, but the enterprise did not prove profitable, and was eventually abandoned. Many more or less productive wells were drilled by different concerns between 1880 and 1904, but production on a really large scale did not commence until 1907, when Mexico first figured in the world's production statistics with 1 million barrels. At the present time the whole production of the country, which last year amounted to 23 million barrels, comes from twelve fields, six of which, controlled by the Pearson interests, account for about half the total output. Mexican oil is of an asphaltic nature, and that obtained from the north of Tampico has a high specific gravity, and is of such high viscosity that it cannot be economically pumped through pipe-lines. The quality of the oil, however, seems to improve more and more towards the south; at the southern end of the northern belt, for instance, an oil is found with a specific gravity of 0.894, and a viscosity of 143 seconds (Redwood) at 100 deg. Fahr. In the Isthmus of Tehuantepec, or southern belt, representative oils have specific gravities of 0.881, 0.852, and 0.816, with viscosities of 108, 50, and 30 seconds, respectively. These oils contain large quantities of motor spirit and illuminating oil, and some of them are practically free from asphalt, a feature which greatly facilitates the manufacture of high-class lubricants. The Mexican Eagle Oil Company have chiefly devoted themselves to the southern regions, and have control of a very large quantity of middle-grade crude oil, together with practically all the fields producing the lighter oils. Their large refinery at Minatitlan is capable of dealing with 1,400 tons of crude petroleum a day, producing from it motor spirit, burning oils, lubricants, fuel oil, paraffin wax, and asphalt. Another refinery is under construction at Tampico, and will be in partial operation by June of this year; when completed, its capacity will be 4,000 tons a day. The oil is transported by the Eagle Oil Transport Company, which company has twenty large tank steamers, either in service or under construction. Ten of these vessels, among which is the San Fraterno, have dead-weight capacities of over 15,500 tons. The lecturer referred to the very interesting method of loading these vessels at Tuxpan, where the water is too shallow for them to come in close to the shore. Pipe-lines have accordingly been laid on the bed of the sea for a length of about  $1\frac{1}{2}$  miles out, and these pipes are connected by flexible hose to the steamers lying at ocean moorings. By this means three or four vessels can be loaded at once from the storage-tanks and pumping-station on the shore. During 1913 more than 200 steamers were loaded in this way in an average time of  $2\frac{1}{2}$  days each. The lecturer concluded his interesting discourse by pointing out that

the very rapid development of the oil resources of Mexico that has taken place, up to the present, has been confined to the State of Vera Cruz. He, therefore, thought that, as other States are known to be petroliferous, it was safe to assert that the oil industry of Mexico is now only at the beginning of its ultimate prosperity.

## RAIL STATISTICS IN THE UNITED STATES, 1913.

Statistics have been compiled by the Bureau of Statistics of the American Iron and Steel Institute showing the production of rails in the United States during 1913, and comparing this production with that of foregoing years.

In 1913, there were produced 3,502,780 tons of rails of all kinds, against 3,327,915 tons in 1912, an increase of 174,865, or 5.2 per cent. Included in the total for 1913 are 195,659 tons of girder and high T-rails for electric railways, against 174,004 tons in 1912 and 205,409 tons in 1911.

The most significant feature of the bureau's report, is the comparison of manufacture of Bessemer and open-hearth steel rails. In 1906, when the maximum rail production was reached, the production of Bessemer steel rails amounted to 3,701,429 tons, while in 1913 the production had decreased to 817,591. During the same period the production of open-hearth steel rails had increased from 186,413 tons in 1906 to 2,527,710 tons in 1913, which is an increase over 1912 of 422,566 tons, or 20 per cent. Of the total production in 1913 about 72.16 per cent. was rolled from open-hearth steel, about 23.34 per cent. from Bessemer steel and about 4.50 per cent. from electric steel, old steel rails and renewed rails.

In 1913 nearly 29.9 per cent. of the rails weighing less than 50 lb. per yd., nearly 48.7 per cent. of the rails weighing 50 lb. and less than 85 lb., and over 87.2 per cent. of the rails weighing 85 lb. and over, were rolled from open-hearth steel, while in the same year nearly 41 per cent. of the rails weighing less than 50 lb. per yd., over 44.8 per cent. of the rails weighing 50 lb. and less than 85 lb., and nearly 12.1 per cent. of the rails weighing 85 lb. and over were rolled from Bessemer steel. In addition, in 1913, over 29.1 per cent. of the rails weighing less than 50 lb. per yd., over 6.5 per cent. of the rails weighing 50 lb. and less than 85 lb., and less than 1 per cent. of the rails weighing 85 lb. and over were rolled from electric ingots and old steel rails or were renewed rails.

## PROGRESS OF GREATER WINNIPEG WATER SUPPLY LINE.

The preliminary work on the water supply line from Shoal Lake to Winnipeg has been thus far accomplished with general satisfaction. The frozen ground facilitated the making of accurate surveys and the locating of the line approximately on the preliminary alignment through a country almost impenetrable except in winter. A section 37 miles long was run between two points 38 miles apart, with a deviation of not more than 3 miles from the air line and with a perfectly uniform grade of 0.7 ft. per thousand except for two small river crossings.

The location is through a country about 60 per cent. of which is covered with small timber. Half the distance is in muskegs. The concrete aqueduct will be uniformly covered by a fill 4 ft. deep, and it is believed that the invert will at all points be in hard ground below the swampy stratum. A contract of about \$1,000,000 has already been awarded for the construction of 96 miles of standard-gauge service track for the construction of the pipe line. This track will be built in accordance with standard specifications and will have 60-lb. rail on rock or gravel ballast, qualifying it for permanent service. Construction is being advanced on a \$25,000 telephone line connecting the engineering and construction camps with the offices in Winnipeg.

The Canadian Safety Engineering Bureau has been opened in the Mail Building, Toronto, under the management of Mr. Riley Schenck, for the purpose of specializing in the scientific prevention of accidents and fires.