

The Tertiary rocks lie generally almost flat or dip at very low angles. They are thought to form part of a great monoclinical fold, dipping southerly and westerly from the Mokau country. Minor cross-swells in the form of anticlines and synclines are in evidence in places, and are thought to be of sufficient importance to markedly influence the position of subterranean reservoirs of petroleum. The Tertiary strata, too, have been considerably broken in places by faults—structural breaks which direct the movements of petroleum and allied products from depths beneath the surface.

Overlying the Tertiary rocks is a coating of volcanic material of varying thickness in various parts of the area under review. It consists petrologically mainly of semi-basic volcanic rocks, and occurs as tufas, agglomerates, and lava flows. Much of this material, it is believed, issued from the old dissected lava cone now seen in the Sugar Loaves and either from Mount Egmont or the more ancient vent from which that volcano rose, but probably some of it emanated from fissures in the surface elsewhere.

Near the sea-coast, especially in the neighbourhood of the Sugar Loaves, occur black-sand beds, generally unconsolidated, but in places more or less cemented by iron-oxide. The beds lie in general horizontal, but exhibit false bedding. They show beds composed mainly of black-sand—ilmenite, magnetite, and titanite—interstratified with beds consisting chiefly of lighter material (quartz sand, feldspathic sand, &c.). The black-sand beds are lensoid in shape, and are inconstant both in horizontal and vertical extension. Concentration of the heavier and richer material is constantly proceeding as the result of wind-and-wave action. Thus are produced the heaps of black-sand which collective amount to thousands of tons. These will ultimately be of economic value.

BRIEF HISTORY OF THE FIELD.

It will be impossible in the compass of a paper so brief as this report to give a full description of the various vicissitudes through which the petroleum industry in Taranaki has passed. However, it will be necessary to briefly outline its history in order to appreciate what has been accomplished, and to understand the reasons for the choice of locations of existing bores.

Seepages of petroleum were noted by Dr. Dieffenbach as far back as 1839, near the present site of the breakwater. No attempt, however, at boring for the source of this natural product was made until the end of 1865, when exploration in a primitive way was commenced. A number of wells were drilled in the vicinity of the seepages during the course of the three succeeding years, the deepest being 650 ft. Though at times during these early efforts small quantities of petroleum were obtained, the results were considered so discouraging that twenty years elapsed before renewed efforts were made to exploit the oilfield. In 1888, in great part through the instrumentality of the Hon. Oliver Samuel and the late Sir Julius Vogel, a company was organized in London, which continued operations for about two years. A bore was put down at the rear of the breakwater to a depth of 915 ft. (some authorities say 875 ft.), and a small amount of oil was obtained. Then, for some reason, the company stopped operations, despite the fact that Mr. Booth, the driller of the well, declared that the indications were highly favourable. In 1894 a syndicate known as the New Plymouth Petroleum Company was organized by Mr. Samuel, who remained its moving spirit for some years, during which some eight bores were put down. Of these, the first was put down to a depth of 1,100 ft., within 8 ft. of Booth's drill-hole, and small amounts of oil were raised. The second was sunk on Mr. Mace's farm, at the head of the Herekawa Stream. This bore, called No. 3, was sunk to a depth of 1,534 ft. Not much oil was seen, but large quantities of gas were encountered. The third borehole (known as No. 5) was situated on Putt's farm, on the Spotswood Road. It was sunk to a depth of 2,050 ft., but without the discovery of any favourable indications. The fifth one was somewhat farther inland, being located on Mr. H. Okey's farm, on the Franklyn Road. It was found so difficult to penetrate a mass of loose kidney-shaped stones occurring near the surface that a depth of only 302 ft. was drilled. The sixth bore sunk by the syndicate was on Mr. Veale's farm, some 30 chains from the last site. Drilling was continued by the New Plymouth Petroleum Company to a depth of 1,220 ft., and later by the present Taranaki Petroleum Company to a depth of 1,335 ft. The seventh drill-hole (No. 8 of the Samuel syndicate) was located at the upper end of Honeyfield's farm, Moturoa. It was sunk to a depth of 2,052 ft., but without the discovery of any very encouraging prospects. The eighth bore was situated some 80 ft. from the third borehole put down (called No. 4 by the New Plymouth Petroleum Company), and was sunk to 1,055 ft., when the plant was again moved on to the site of the third bore, which was now continued to a depth of 1,976 ft.

Somewhat previously to these later works, Mr. Samuel's syndicate had dissolved, and their rights, plant, &c., were purchased by Mr. Alexander. He conducted the later operations with a smaller number of shareholders, but eventually closed down, and sold his interests to an Adelaide syndicate, which sent Mr. George Fair to New Plymouth to prosecute further boring in 1904. The first borehole put down was known as the Birthday bore, or the New No. 1. This is situated on Mr. W. J. Honeyfield's property at Moturoa. After getting several small flows of oil the Adelaide syndicate failed to obtain further capital, and went into liquidation. Mr. Fair, however, being sanguine that deeper down were more extensive pools of petroleum, managed to interest a syndicate of local gentleman, who formed the Moturoa Petroleum Company, and the bore was continued. The bore was sunk to a depth of about 2,230 ft., when, in May, 1906, a fair quantity of oil was obtained, and the ever-troublesome water said to be satisfactorily shut off. From this comparative success dates the inauguration of the various other companies still, or until recently, operating in the field. The principal of these are the Moa Petroleum Company, Ltd.; the Inglewood Oil Boring and Prospecting Company, Ltd.; the Standard Oil Company of New Zealand, Ltd.; the Taranaki Oil and Freehold Company, Ltd.; the Bonithon Company, Ltd.; and the New Plymouth Petroleum Company, Ltd.; each of which has put down one borehole, mention of which will be made later in this report. At the same time the Moturoa Petroleum Company underwent reorganization, and has continued operations under the name of the Taranaki