

"On the destruction of the derrick at No. 3 bore, the company procured fresh plant and commenced putting down No. 4 bore. This being only about 4 to 5 chains south of No. 3, passed practically through the same strata at the same depth, the difference of surface-levels considered.

"At the 915 ft. horizon of No. 3 bore traces of oil were obtained, but the amount was considerably less than in No. 3 bore. At the greater depth of between 1,900 ft. and 2,000 ft. no oil was obtained, and thus discouraged, No. 4 bore was, for the time being, abandoned, and a site was chosen some distance further to the eastward, where a bore put down some 300 ft. failed, owing to the incoherent nature of the volcanic agglomerate passed through at that depth. The last effort of the company, the present bore (No. 6) is situated on a flat terrace a short distance west of No. 5 bore. This has been successful so far as the piercing of the volcanic agglomerate to the depth reached—about 140 ft; but in this locality it has yet to be ascertained whether the thickness to be bored before reaching the papa rock will be much greater than at Moturoa.

"About five miles east of the Breakwater, and nearly in a line between the Breakwater and the township of Inglewood, numerous gas-springs escape from a stratified formation composed of alternations of fine and coarser sands and volcanic *débris*, in distinct layers that have evidently been arranged under water. Other gas-springs exist in the district, as, for instance, at and near the township of Inglewood; but these were not visited.

"In No. 3 bore, and in all subsequent bores, due precautions have been taken at proper intervals to prevent leakage of oil or water to the lower depths of the wells, and thus in No. 3 bore, while the oil is escaping slowly from the oil-stratum at 900 ft., this does so outside the sheathing, while in the inner pipe inside the sheathing the accumulated gas and oil are under considerable pressure. Ample evidence of the great pressure under which the gas and oil from the deeper part of the well accumulates, and its non-connection with that at 900 ft. was afforded by slightly opening the valve and allowing a portion of the gas and oil to escape.

"Samples of the borings from different depths of No. 3 bore, and now in the company's office, were examined and determined and, as showing the nature of the rocks passed through, the catalogue of the samples examined is here given.

"*New Plymouth Petroleum Company's No. 3 Bore.*—Sample 1, from 50 ft.: Very fine sand with scales of mica. Sample 2, from 100 ft.: Volcanic fragments, same as the Sugar Loaf; solid ash. Sample 3, from 150 ft.: Subangular fragments of volcanic material. Sample 4, from 200 ft.: Subangular fragments of volcanic material. Sample 5, from 250 ft.: Subangular fragments of volcanic rock, more felspathic than No. 2; solid flow. Sample 6, from 300 ft.: Fine sand (papa) with a little magnetite. Sample 7, from 350 ft.: Same as at 300 ft. with clear crystals of quartz. Sample 8, from 400 ft.: Arenaceous clays (papa), not marly, very fine without sand-grains; a deposit in moderately deep water. Sample 9, from 450 ft.: Similar to No. 8, with broken crystals of augite or hornblende. Sample 10, from 500 ft.: Very fine quartz-sand. Sample 11, from 550 ft.: Same as No. 10. Sample 12, from 600 ft.: Extremely fine sand. Sample 13, from 650 ft.: Same as No. 12, with black grains added. Sample 14, from 700 ft.: Same as No. 12. Sample 15, from 810 ft.: Coarse quartz-sand with scales of mica. Sample 16, from 850 ft.: Same as No. 12. Sample 17, from 915 ft.: Very fine quartz-sand; smells strongly of oil. Sample 18, from 950 ft.: Very fine sand with spangles of mica. Sample 19, from 1,000 ft.: Same as No. 18. Sample 20, from 1,100 ft.: Same as No. 18. Sample 21, from 1,150 ft.: Same as No. 18, but finer. Sample 22, from 1,250 ft.: Similar to No. 18, but more clayey. Sample 23, from 1,300 ft.: Similar to No. 18, but more clayey. Sample 24, from 1,350 ft.: Fine sand; similar to No. 18. Sample 25, from 1,400 ft.: Fine sandy clay. Sample 26, from 1,450–1,500 ft.: Fine sand with scales of mica. Sample 27, from 1,550–1,600 ft.: Fine sand. Sample 28, from 1,680–1,750 ft.: Very fine sand. Sample 29, from 1,900 ft.: Moderately coarse sand; oil at or about this horizon. Sample 30, from 1,976 ft.: Moderately coarse sand with mica.

"Somewhere between 1,000 ft. and 1,400 ft. the beds passed through were fossiliferous, broken marine shells forming part of the borings. These were small bivalves that could scarcely be identified, but resembled much a similar shell-bed found at Strathmore, twenty miles north-east of Stratford. The sequence of the rocks passed through in No. 3 bore also corresponds with that of the rocks seen between Toko and Strathmore, with the exception that the coarse shell-limestone of the Toko–Strathmore section is absent in the bore. No. 15, 810 ft., is so similar to 1,900 ft. and 1,976 ft. that the borings cannot be distinguished.

"As regards the prospect of successful boring for oil in the Taranaki District in the vicinity of New Plymouth, this is not of the most hopeful kind; and yet it is perfectly manifest that there exists a source of oil apart from what may be derived from the lignite deposits of Younger Tertiary or Post-Tertiary ages.

"The facts in connection with the sinking of No. 3 bore show that the oil obtained from it is not derived from a superficial source, or from a deposit comparatively near the surface. No oil was found in the upper sands or volcanic agglomerate, and more than 600 ft. of papa rock had been pierced before the first indications of oil were met with. After this first oil-bearing stratum at 915 ft. was passed, no oil-bearing beds were met with till a depth of 1,900 ft. was reached, whence a much stronger flow of oil than from 900 ft. was obtained. The primary source of the oil lies at greater depth than yet reached, or at a distance from any of the wells yet bored. At 900 ft. and 1,900 ft. the oil exists merely stored in the strata, since to a depth of 2,000 ft. there are no beds that in the first instance could have given off the oil, and it does appear that a further 1,000 ft. might be bored without reaching carbonaceous beds likely to afford or capable of yielding the oil stored at higher levels. But it is hardly a question of reaching the carbonaceous strata from which the oil has been derived; much more important is it to determine an abundant supply in the storage-levels at 1,900 ft. and 900 ft., or at lesser or intermediate depths.