Our Industries.

Petroleum.

Boring for Oil at Moturoa.

(By Our Travelling Representative.)

It was by the courtesy of Mr. Walter Bewley, of New Plymouth, that I was conveyed on that gentleman's motor to the scene of operations, and had the unique opportunity of seeing the oily geysers which have been spouting of late so frequently from the bores. These are still being sunk to tap the principal oil stratum which it is confidently supposed will be met with at a great depth.

The morning was propitious and a few moments were enough to cover the distance to the spot, where I was at once introduced to Mr. L. Keith, the manager in charge, who placed every information at my disposal and showed me over the whole place. There are three bores, all of which we visited, and these I shall now refer to separately.

No. 1, which had been idle for several months, was resumed in the middle of February, 1910. Sinking to a total depth of 2340 had actually been completed, but in the interval between closing and resumption of work silting up had occurred to 2166 feet. At the date of my visit some 20 feet of this had been cleaned off, but it must be some little time before the old depth is reached for the new start. At this bore the flow is now about equal to two barrels (80 gallons) a week. No one who has open eyes can fail to be impressed with the unmistakeable greasiness everywhere apparent. The derricks (56 feet high) are saturated with oily deposits, the ground reeks with petroleum, and the very air is strongly impregnated.

No. 2 bore, which has been continuously worked since November, 1908, has reached a depth of 2740 feet, is still being sunk, and has passed through oil strata after reaching the 2200 feet level. A strong pressure of gas was tapped at 2620 feet, which caused a big blow out of oil water and debris.

During 50 hours the display was practically continuous and some eighty 40-gallon barrels of crude oil were secured. This large flow was shut off by the lowering of the casing, as the manager advises further sinking to reach one of the main sources believed to be in the sandstone country below. This bore has been continuously flowing since the end of January last at the rate of about five gallons a day. The present flow in its crude state is utilised by means of an oil burner as fuel for the 30 h.p. steam boiler which serves the 2-10 horizontal h.p. engines operating Nos. 1 and 2 bores. A saving of fully a ton of coal a day is thus effected.

At No. 2 bore are three storage tanks for the oily product. They are constructed underground and are capable of containing respectively as follows:—No. 1—31,000 gallons now empty. No. 2—21,000 gallons; now containing 18,294 gallons. No. 3—27,000 gallons, now containing 8,000 gallons. There are also 110 barrels, containing 4,400 gallons, on hand, making a total of considerably over 30,000 gallons on hand at the time of my visit.

No. 3 is known as "Samuel's old bore," and was originally put down over ten years ago. Work was commenced here by the company soon after its incorporation in 1906. A six inch casing has been lowered to a depth of 2540 feet, where the bore was shut off dry. Within is a five inch pipe which has been driven to a total depth of 2708 feet. Between 2568 and 2580 there were very strong eruptions of gas and oil, debris being often ejected 30 to 40 feet above the top of the derrick. Since that date gas accompanied by oil is steadily increasing as sinking progresses.

It was here that I saw a strong outburst, the floor and the interior walls of the derrick being thoroughly drenched with the oil, water, and debris forced out of the bore by the violent pressure. On that occasion fully 80 gallons of crude oil was baled out of the sump. An earth tank at this spot with a capacity of 18,000 gallons has been considerably more than half filled, and this brings up the total quantity on hand at the works to upwards of 40,000 gallons. No. 3 is operated by a 15 h.p. boiler and a 10 h.p. steam engine.

Large quantities of gas are escaping from Nos. 2 and 3 bores, and it is estimated that a pressure of fully 600lbs. to the square inch is often reached. The latest strike of oil in No. 3 is richer in quality than any yet found, and strong hopes are entertained that a large and highly payable flow will shortly be reached.

With such a result, when it comes, as the outcome of the plucky and persistent efforts of the shareholders, it is hardly possible to overestimate the value of the industry to Taranaki and the Dominion. The oil bearing country has already been traced over an area of 21 square miles, and may extend indefinitely. Although but 10 or 12 men are at present employed, the ultimate amount of labour when refineries, candle works, and other subsidiary industries are in full swing, cannot more be estimated than the value of the underground wealth which only awaits man's ingenuity and industry to bring to profitable use.

The company's No. 3 bore is on freehold land, but the rest of the land held is either Government or private leasehold.

Crude oil to the value of about £220, representing 12,000 gallons, were sold by the company up to Sept. 12th of last year, at four pence a gallon.

The directors of the company, as I write, are Messrs. C. Carter (chairman), D. Berry (deputy-chaiman), C. E. Bellringer, J. J. Elwin, J. Little, H. Okey, and J. B. Roy (all of Taranaki, and J. J. Craig and S. N. Kingswell, of Auckland. And the secretary is Mr. F. U. Dobell.

The balance-sheet at September last showed the contributing capital of the company to have been £31,672, of which £5822 remained uncalled or uncollected, £15,154 had been actually expended on boring operations, and over £4000 on tools, casing, and general plant, and there was at the company's bankers £2000 available cash.

Some products of the oil wells have been tested within the Dominion, and a parcel was sent to Glasgow. One of the results of these tests, which were very satisfactory, is given below.

COPY OF ANALYSES MADE BY THE DOMINION ANALYST OF OIL FROM THE WELLS OF THE TARANAKI PETROLEUM COY., LTD.

Wellington, Dec. 3rd, 1909.

Report on Specimen No. 236 2 & 3.
Forwarded by H. Okey, Esq., M.P., per Honourable Minister of Mines.
Particulars—From the Taranaki Petroleum Company's Property, in Taranaki.
Sample Marked No. 2 from No. 2 Bore.
Sample marked No. 3 from No. 3 Bore.

CRUDE PETROLEUM.

When distilled, the samples gave the following results:—

	No. 2	Spec. Grav.	No. 3	Spec. Grav.
Oil distilling below 150°C. (benzine, etc.) ...	17.2	.7768	12.4	.7782
Oil distilling between 105° and 300°C. (burning oil)	46.6	.8354	43.6	.8482
Residue left in still (heavy lubricating oil, paraffin, etc.)	36.2	—	44.0	—

No. 3 was solid at original temperatures.

(Signed) J. S. MACLAURIN,
Dominion Analyst.

While the above was being written, the cable brought news of a mysterious enquiry from London about these works. In commercial circles it is thought to be from the Admiralty, which, since the big Welsh strike, has made up its mind to substitute oil fuel for coal as the motive power of the Royal Navy. Of course, there are other possibilities. At the present juncture the utmost circumspection is required from all connected with the industry.

To let the wells fall into the hands of the Standard Oil Trust would be unthinkable. To hand them over to the Germans would be even worse, for in the critical moment of a war with a Power favoured by them, they might refuse to permit the oil to be supplied to the British ships. That would be as bad as being at the mercy of an unreasonable union bent on striking. All this is gratifying to the Taranaki Company. But it enjoins much care on their part.

Mastery of the Air.

High Flying.

The question of height has lately assumed very different proportion from those attained at the beginning of last year. When Wilbur Wright reached at Berlin the height of 564 feet he was acclaimed as having performed a desperate feat. He replied the month following (October) by rising to the height of 1100 feet. Paulhan in November fell short of that performance, getting no higher than 997 feet. In the month of November Latham got as high as 1330 feet, and in December Paulhan reached the height of 1950 feet. But this was thrown into the shade by his attainment of the height of 4156 feet at the Los Angeles meeting. Presently there can be little doubt that the dirigible record (Capazza's 4929) will be beaten. Thus it is plain that the swifter aeroplane will always in war, if both types ever become used for war purposes, get the better of the dirigible.

The effect of the rarer atmosphere on the propellers and engines and the difficulty of descending with a spent engine, are questions receiving attention from aviators as of enormous importance.

As to the power of the engine, it is supposed that it must diminish necessarily in proportion to the density of the atmosphere. So long ago as 1898 the French scientific weekly periodical *La Nature* published an article on the loss of power of ordinary paraffin motors employed on mountains. It estimated the loss at 10 per cent. at an altitude of 2,625 feet, 20 per cent. at 5741 feet, 30 per cent. at 9184 feet, 40 per cent. at 13,120 feet, and 50 per cent. at 18,040 feet. Those are the figures on which, for instance, the Gnome Company bases its calculations for ordinary stationary paraffin motors destined to be used on mountains. It has one working on the Himalayas at an altitude of 13,120 feet, but it does not lose more than between 30 per cent. and 35 per cent. of its power on sea level. It is, however, very evident the motor on an aeroplane must lose a small fraction of its power with every foot it ascends. Therefore the aviator who may seek to attain, as Paulhan did on his Farman biplane furnished with a 50-h.p. Gnome rotary motor, the altitude of nearly 5,000 feet must have on his machine an engine giving a much greater power than is required to raise the aeroplane off the ground. There are also the questions of the diminished thrust of the propeller in a thinner element, the decreased capacity of the bearing surfaces to support the flying apparatus in a rarefied atmosphere, and the diminished resistance to the progress of the machine through the less dense air, which may, however, offer some compensation for the loss of power of the motor and the diminished thrust of the propeller. These problems, like so many others connected with aviation, are not yet solved.

On the other question of the descent with a broken engine, a distinguished authority has placed his views on record. "Most people," he says, "especially those who do not follow very closely all the ex-