

Electricity

NOTES.

Mr. P. R. Bailie, a member of the successful tenderers for the new Wanganui tramways contract left for Australia on the 6th ult. on business connected with his firm.

Messrs Whitcombe and Tombs have placed a contract in the hands of Mr. Francis Clark, electrical engineer, of Christchurch, for the total electric equipment of their new printing works in Wellington.

The much-talked-of electric traction for Invercargill has ended, we understand, in the Borough deciding in favour of steam tramways. Having gone that far, the Council will no doubt eventually adopt the more desirable system.

The new 70 h.p. gas-producer plant at the *New Zealand Times* office, Wellington operates a National engine belted to a 30-k.w. 110-volt, direct-current General Electric generator. The engine is used for both lighting and power purposes.

The Wellington City Council have ordered an electrically driven multi-stage turbine pump for the Kelburne water supply. The motor will be direct coupled and operated from the 500-volt direct current generated at the local cable tramway power house. There is little doubt that the turbine pump is fast becoming recognised as the best method of dealing with water supply where high lifts have to be surmounted.

Regarding the proposed electric traction for the Arthur's Pass Tunnel, it is interesting to learn that the grade of 1 in 33 throughout the tunnel's length of 5½ miles is an easily negotiable one for electric haulage, and compared to some of the Wellington grades, notably those of Brooklyn and Kelburne, which are 1 in 12, there should be little difficulty in coping with the heavy traffic running through from the east and west coasts of the South Island.

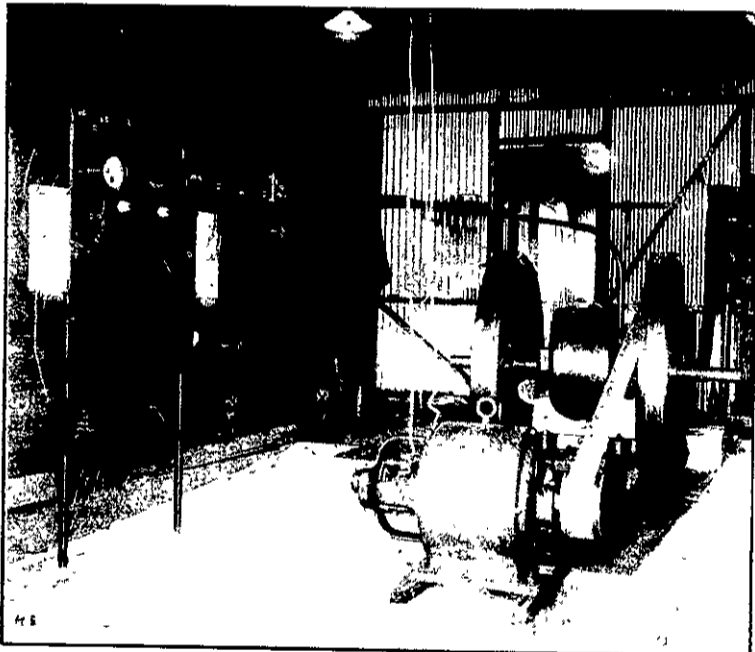
The Government are about to extend the Rotorua power house at Okere. The present system consists of two 50-k.w., 3000-volt 50-cycle, single-phase alternating-current generators, manufactured by the Brown Boveri Co., of Switzerland and belted to water turbines operating at a 12-ft head. The new sets to replace these will consist of two 50-k.w. and one 100-k.w., 3-phase, 6600-volt generators. The two smaller sets will be belted to the existing turbines, while the larger set will be direct-connected to a new turbine. In order to accommodate the new units it will be necessary to extend the power house, consequently a large amount of excavating will have to be undertaken in the near future.

Waitara Electric Lighting System.

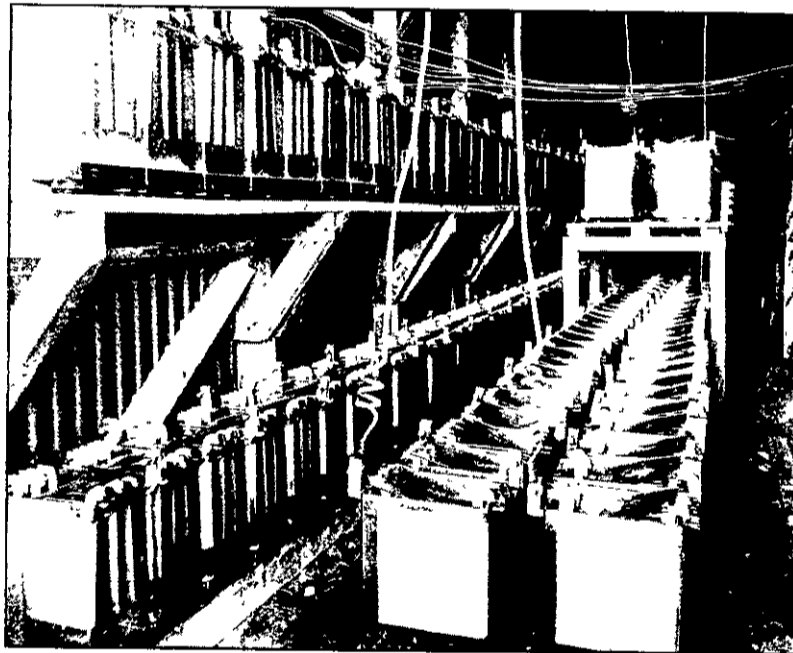
Since the introduction of the suction-gas plant in its present state of perfection the gas engine has come to the front in a way previously thought impossible.

One of the latest innovations in this connection has been its application to the needs of both large and small towns for the generation of electric light and power. We recently had the pleasure of inspecting the plant erected in the township of Waitara by Messrs. W. Andrew and Co. of Wanganui, and the following particulars will be read with interest by the general public, and those contemplating expenditure in this direction for other centres.

Waitara is a pretty little seaport town that recently developed into a borough with a population slightly over 1000. Last year Messrs. Andrew and Co. received a concession for lighting, and in February the "juice was turned on." The power station is a corrugated iron building within a stone-throw of the main street. The machinery at present consists of a 25-h.p. "Campbell" gas engine and suction gas plant, driving a



THE ENGINE ROOM, WAITARA ELECTRIC LIGHTING SYSTEM



THE BATTERY ROOM, WAITARA.

The twenty new car equipments for the Wellington tramways, which were ordered last April from the Australian General Electric Co., are now to hand, and at an early date Wellington will head the list of cities in New Zealand with eighty motor cars in operation.

Electric lifts for both goods and passenger services have now come into general use throughout New Zealand, the supply of motors daily increasing. It is noticeable in this direction that builders are observing the most up-to-date methods in equipping their hoists and cranes with electric power.

Messrs. Hursthouse Brothers are at present engaged in constructing a street sprinkling car for the Wellington City electric tramways. Its capacity will be 1800 gallons, worked under a pressure of 20 lb per square inch by use of air compressors. The car should be ready by the middle of the present month.

It is indicative of the mining enterprise of the colony when we hear that a company has been successfully floated to pump and work the deep levels at Ross Flat. It is intended to use electric pumps, and the power station will be situated just outside Hokitika, from whence current will be transmitted over a distance of 20 miles to the mine. It is proposed to use a 24,000-voltage and we learn that Mr. G. S. Mabon, late manager of the Wellington Electric Lighting Syndicate, has secured the contract which will amount to between £25,000 and £30,000.

It is hoped, however, that the new plant will only be temporary, as there are other sites on the Okere more suitable to meet the rapidly increasing demand for accommodation.

Wellington's Curtis Turbine.

The 700-k.w. Curtis turbine at the Wellington lighting station has been running for two months, during which period it has given complete satisfaction to the engineer in charge. The remarkable feature about the Curtis turbine is that it has a capacity to effectually deal with an overload up to 100% for short periods and owing to its peculiar construction will run for weeks at a time without requiring to be stopped. There is little doubt that these machines are necessary in places like Wellington where accommodation at the central station is so severely taxed owing to the increased demand for current. As an instance of this, it need only be mentioned that the present high-powered machine has been erected on exactly the same floor area that used to accommodate a 125-h.p. Gulcher engine. The Curtis turbine was fully described by Mr. J. R. Templin in our issue of 1st November 1905.

direct-current dynamo, the distribution being on the 3-wire system with a pressure of 220 volts between the neutral and the outers. A set of 240 glass accumulator cells has also been installed, ensuring a regular and sufficient supply of electricity at all hours of the day and night, power being also supplied to motors.

We understand that the charge to consumers for light compares more than favourably with adjacent towns using water-power. One of the many advantages of the gas producer plant is the fact that the generating station can be placed in the centre of the town, thus saving the cost and maintenance of an expensive high-pressure transmission line with its attendant transformer troubles.

The light at Waitara has been such a pronounced success that the electrical station has been kept continually busy, and it has already been found necessary to order additional machinery it being confidently expected that by next winter the number of connections will reach to one per head of population. We believe that the fuel bill for the six months' working of this plant has not exceeded £25.