equal distances round the ring, having a large number of convolutions in each coil. The wire is carefully covered, to insulate one convolution from the other. These twelve coils on the armature-ring are joined in pairs, and the end of each positive coil is connected with a negative one, and the whole connected with the commutator which is fixed on one end of the shaft of the dynamo—the same as that used for lighting-purposes. As soon as the armature begins to revolve, currents of electricity are generated in the armature-coils; these currents pass to the commutator, next to the brushes, afterwards passing through the electro or field magnets. The current thence goes to one of the terminals of the machine, where it passes out to the circuit and to a Victorian motor at the battery-house, returning thence to the remaining terminal of the generator, and back again to the armature-coils. From the generators the electric current is carried by a copper wire ⅛in. in thickness, a mile and three-quarters in length, passing over a range between the generators and the crushing-battery of 800ft. in height. Each generating dynamo is capable of generating a current of ten ampères when worked singly, but when the two generators are connected they generate a current of about fifteen ampères. This shows that one dynamo must to a great extent work against the other. The electro-motive force transmitted from the generators is supposed to be 2,000 volts, but, having no volt-meter attached, this may only be an approximation.

The Victorian motor that is fixed at the crushing-battery for driving the stamps is different in appearance from the other dynamos, but it is really essentially the same as far as generating electricity is concerned, when it is used for such. It has one armature, one commutator, one set of brushes, and, instead of having two horse-shoe magnets, as the other dynamo has, it has six, and has ninety coils of copper wire on the armature, instead of twelve coils, which is on the armature of the generating dynamos. The current from the generators, passing through the field-magnets of the motor, makes them powerfully magnetic, and also the coils on the armature, causing a great attraction between the two, resulting in the armature being pulled round, or towards the magnets, as each coil on the armature approaches the magnet as near as can be got. The action of the commutator reverses the direction of the current in that particular coil, causing the magnet and it to repel one another, which results that each coil on the armature, on approaching the magnet, receives a pull, and on leaving is pushed away from it. Such is the principle of the power that is obtained. The motor is driven at a speed of 350 revolutions per minute. When the motor is stopped for any purpose for a few minutes, without stopping the generators, the current is switched or cut off from the motor and sent through a long series of spiral coils of iron wire, which absorbs its energy by heating the wire instead of driving the motor. The electro-motive force given off by the motor is not over twenty-horse power, while it requires about seventy-horse power to generate a sufficient current of electricity. The loss in power is something enormous when it is considered that not one-third of the power required to drive the generators is transmitted to the crushing-battery. Yet it can truly be said the end justifies the means, as there is an immense amount of power in many places going to waste because it cannot be utilized; but, now that it has been successfully proved that electricity can be conveyed for a long distance, and used as a motor wherever water-power can be obtained to drive the dynamos, the loss in power is of little consequence, especially in New Zealand, where water is plentiful, and the streams and rivers flow at high velocities.

Very little is yet really known about electricity. The experiments that have been made at Skipper's go to prove that it is a difficult matter to work two dynamos in conjunctiou with each other to obtain the full amount of power from each. This may be partially accounted for by the machines not being exactly alike: although they are to all appearance an exact *facsimile* of one another, yet the one is more powerful than the other when both are driven at the same speed. To obviate this, one dynamo is driven faster than the other, so that the current from each may be of the same force. This necessitates separate intermediate shafts for each dynamo. The electro-motive force is only capable of driving twenty heads of stamps, so that to work the full battery the turbine water-wheel is likewise used in conjunction with electricity to drive the battery.

Judging from what I have witnessed of the application of the electro-motive force, used as a motive-power, there seems little doubt but that one large dynamo would be far more economical and give a higher percentage of power than two working in conjunction with each other; but, so far as the actual working is concerned, there can be no fault found: they go like clockwork, and require very little attention beyond keeping the bearings oiled and the commutators clean.

The belting used for driving the generators is of a peculiar construction. I have not seen it in use in any other place in New Zealand. It is a series of links made of leather, about 1½in. long and ⅝in. in width, the leather being from $\frac{3}{16}$in. to ¼in. in thickness. All the links are of the same dimensions. There are 548 links in every superficial foot of the belt. There is an iron wire passes through all the links for the whole width of the belt, and when the belt requires to be shortened, one of the wires is pulled out, a set or so of the links taken out, and the wire again put through. This belting is about 1ft. in width, and is apparently very substantial. The generators and the crushing-battery are connected by telephone, so that the attendants at either end can communicate with each other.

This company have also erected at their own expense a telephone from the reefs to Skipper's Point, to connect with the Government telephone from Queenstown. The distance of this line constructed by this company is five miles, and the manager informed me the total cost was £27, the wire used being a No. 16 gauge copper wire. The contract price for the electrical machinery (exclusive of the cost of water-wheels) was £2,190; but to take the whole of the expenditure in connection with plant, it may be said to have cost the company fully £5,000. Mr. Evans, however, assured me that if he had to erect another plant of similar character it would not cost him above half of that amount.

Maori Point, Shotover, Otago.—A reef was discovered between Deep Creek and Maori Point about seven months ago, and at the time of my visit to this district a winze was being sunk down to test it. The stone from this winze looked very promising. After sinking down for some distance the