

than 95 volts can ever enter them. The charge for current averages at Valleyfield 89 per light a year, and at Barrie \$7.50. This means that, making due allowance for all contingencies in both cases, the Barrie plant will pay its shareholders better than the Valleyfield plant will, while the customers pay \$1.50 per light a year less. In the Barrie station Westinghouse meters are used on the premises of the largest consumers, and these can be read by the consumer as well as the meter man, the cost of operating the station is not increased, the man who attends to the wiring of the buildings in town and to collection of accounts taking the readings; while if the Edison meter be used at Valleyfield, another man will require to be employed to attend to the meters solely, and his wages will have to be added to the operating expense and thus reduce the net revenue.

The respective sizes of wire used in both stations is worthy of study. At Barrie the loss in the feeder is $1\frac{1}{2}$ per cent. at full load, nearly the same as at Valleyfield. The length of feeder at Barrie is 10 miles for the complete circuit, and the size of wire No. 4 B. W. G. At Valleyfield the feeders are three in number and three in a set; the longest is less than two miles for the complete circuit, and the size of the outside wires No. 000 B. W. G. The No. 4 wire used at Barrie weighs 985 lbs. per mile, including insulation, and the No. 000 bare wire at Valleyfield weighs 2886 lbs. per mile.

It may be and has been said that in the one case you have a perfectly safe low tension system, while in the other, to use the pet phrase of the paid advocate of low tension, you have the "Death-dealing Alternating Current." That is admirable as a trade trick, but even the Edison Company now advertise that they are prepared to supply A. C. plant to all who desire it. Either there is less danger than they would have the public believe in the A. C. system, or they are ready to subordinate principle to pocket in the contest. To alter slightly a phrase from Dickens' "Holiday Romance," the Edison people have been advising the public to "Prohibit the use of the alternating current system on the ground of humanity as it makes ours too expensive." In an article on this subject, Sir William Thomson, the greatest living authority on electrical matters, says:

"In passing I may remark that 100 volts in the house is perfectly safe to the user, whether the current be alternating or continuous, as is proved by large and varied experience in England."

It must be freely admitted that the accidents reported from New York were real and not invented for sensational purposes, but it must also be acknowledged that in no other city in the world is there such an organization as the Board of Electrical Control, to which appointments are made by political influence only, regardless of qualification, and one of whose advisers is, or was, an individual whose business it was for the past two years to discredit the alternating system, for which service he was well paid. In no other city in the States or Canada is there such bad construction of overhead conductors as there was in New York, and the under-ground construction there is nearly as dangerous on account of existing grounds on the wires and leakage of current, and the consequent liability to cause explosions of gas in subways as has already been repeatedly done, besides turning the paving stones into "a molten mass."

Furthermore, the insulation of the overhead wires, which have been in use in some cases over eight years, had rotted off, being of the quality known as "Underwriters," or "Undertakers" if you will.

Four deaths have occurred in the whole history of electric lighting in Canada from shocks of electricity, and two of these were the result of bad insulation of wires and faulty construction by a purchasing company doing its own work without employing anybody having any knowledge of the business, in order to cheapen the first cost of the plant, and which purchased a job lot of poorly insulated wire, and ran two dynamos in series with 100 arc lamps in circuit at a tension of nearly 5000 volts. The current used on that system was a continuous one, not a pulsating high tension current as stated in a circular which some of you may have received.

Thirty wires radiate from the Valleyfield stations. One pair carries the current from the Barrie station. In the Barrie station the pres-