

THE MONTREAL CONVENTION.

THE formal opening of the fourteenth semi-annual Convention of the National Electric Light Association of the United States took place at the Windsor Hotel, Montreal, at 3 o'clock on Monday, the 7th of Sept. The attendance, which included a number of ladies, is said to have been the largest which ever assembled under similar auspices.

The presiding officers chair was occupied by Mr. Huntley, of Buffalo, President of the Association.

A cordial welcome was extended to the delegates on behalf of the city of Montreal by Prof. Bovey, Chairman of the Citizens' Executive Committee, Mayor McShane, Sir Donald A. Smith, Sir J. W. Dawson, principal of McGill University, Alderman Wm. Clendenning, ex-Mayor Beaugrand and Alderman Cunningham.

Sir Donald Smith, in his remarks, said he was "one of those who believe that a meeting of the people of different countries, and especially those who are neighbors, as we are, and have such constant and such great relations with each other in trade and in every respect, cannot but clear away many of those cobwebs and many of those ideas which we have had each of the other and which were entirely erroneous."

President Huntley, in his reply said: "For the first time in its history the National Electric Light Association meets on other than its native soil. Yet even in so doing it but adds new evidence to the feeling in the breast of every electrician, that his art is foremost among the influences tending to promote human intercourse and break down the walls of separation," and he added, "If the earnest and practical quality of our dealings with the great questions of electricity shall in any wise stimulate electrical work in Canada, and lead to the electrical utilization of its great water powers and coal beds, in light, locomotion power and heating, we trust it will be accepted as at least some slight acknowledgement of the manner in which we have been so generously greeted."

General Knapp, U. S. consul, Judge Armstrong and Mr. Eristus Wiman, also responded. The latter, among other things, said: "I doubt if any system in the world is more perfect than the system of telephones in Montreal and Toronto. I doubt if any city in the United States has such a development of that marvelous instrument as those two cities have. As to the telegraph service, somewhat connected with it as I am, I believe I may say that there is a larger mileage of wire, a greater number of offices and a greater number of messages transmitted in proportion to the population in Canada than in any other country in the world taking distance into consideration; so that in telephony and telegraphy electricity has found, on this continent, in this Canada of ours, its greatest development. I would like to say to Canadians, though, that in certain things in the United States a greater progress has been made than here, and that is one idea I had in asking to speak to you to-day, namely, that I should draw your attention to the marvelous growth in the United States of the use of electricity in the street railway. It seems to me that no one thing has grown with such rapidity as the value of real estate wherever there has been an electric railway introduced. * * * I want to impress on my friends in Canada the advantage that the electric system has in the transmission of power. I was in Boston on Friday and stood in one station which has a capacity of 20,000 horse power. It seems to me I do my duty as a former citizen of this place and still somewhat interested in it, in drawing the attention of the residents here to the fact that they possess the potentials of power almost beyond any city in the world. In the great rapids, above them and below them, are forces which, if applied by electricity, would be of the greatest advantage. I know of no city that has such enormous facilities for the creation of electricity as this city has. I know of no place in which power can be transmitted so perfectly and completely as in this city, so that a delicate wire running over a house might work a fan in a sick room, and in the next block might lift a trip hammer; so that a sewing machine, or half a dozen of them, or fifty of them, or a factory, could be run from the St. Lawrence and Ottawa by the transmission of this power. An optician might grind the most delicate piece of glass in a small lathe before him, and even the running of a sewing machine and the rocking of a cradle might all be done by electricity. * * * So far as the city itself is concerned, I have the belief that your presence here will stimulate and draw attention to this question of not only having every street equipped with electric railroads, but making every ripple on the rapids contribute to the wealth of the city. I cannot but think that the great progress that electricity has made and your presence here will bring popular thought and popular opinion to bear on this question of the use of this tremendous force that lies now idle, so far as its transmission is concerned. If that should occur, it would all be attributable to the fact that the National Electric Light Association held its meeting in the city of Montreal. Montreal has facilities for manufacturing greater than any other city in the world. It has got raw material at its hands; it has got

the cheapest and the best labor; it needs only the touch of electricity to make it the greatest city and this the greatest country under the sun."

President Huntley delivered the following address:

My predecessors in this chair have seen the association advance in strength and worth, outliving trials and vicissitudes, to emerge on a wider, larger field of usefulness and opportunity. I do not believe that there is another industry in the world which has passed through such quick stages of evolution as ours, and become so soon established in popular favor and general prosperity. But we must not assume that because electric lighting has set its feet upon the rock and laid its deep foundations, nothing more remains to be done save pursue the policy and practice of the past. On the contrary, I deem it necessary to say here that my own responsibilities as a central station manager compel me, as never before, to be watchful of the tendency of conditions and inventions in the art, so that I may in any degree profit from my own hard won experience. If, as central station men, we are to secure adequate return on the investment committed to our care, it becomes us in every way to study closely all the ideas that will give higher efficiency of plant and higher economy in operation. There was a time when some of us expected to grow rich out of abnormal prices. To-day there is not one of us who does not know that his hopes of dividends lie wholly in the skill with which the best business ability and the soundest engineering are applied to the work in hand.

I take it that it is now pretty well recognized among intelligent station managers that the day has passed when they can limit themselves to one class of services or apparatus to the exclusion of all others. To obtain the fullest measure of success and the largest return from the capital invested, they must be ready to supply any demand made upon them, as a result, the successful station, even to-day is gradually assuming a composite character. This compositeness is manifesting itself first in the variety of apparatus, as a result of the selection of the machines best adapted to a given class of work, and independent of any particular system. One cannot help seeing in this change from early practice a step toward increasing efficiency of station operation, as well as a good reactive effect upon the manufacturers of apparatus, who are thus all placed on a common basis of competition. But besides a compositeness in detail, signs are not wanting that no one method of distribution from a central station can, in the large majority of cases, be adequate to the demands that are made upon us, and that to meet them in a manner to insure a profitable business requires a flexibility and variety in methods of distribution, the full extent of which is to-day hardly recognized. To reach the full limit of usefulness the central station should avail itself of methods which, I believe, will finally resolve themselves into what may be called the "zone system" of distribution.

The idea embodied in this zone system can best be explained, perhaps, by taking a concrete, practical example, and for this purpose the present occasion makes the city of Montreal an interesting one. Setting aside for the moment the possibility and ever the probability of the transmission of electrical energy to the city from the power obtained at the Lachine rapids, we will assume a station erected at the water front of the harbor. It will, I believe, be granted that up to within a distance of one-third mile radius, the three-wire low tension direct current system of distribution answers fully every requirement of simplicity and economy, and hence if, with the station as a centre, we draw a circle having a radius of one third mile, we shall have a "zone" supplied in the most economical manner for every class of light and power apparatus now familiar to us.

Coming to the districts beyond the first zone, we are necessarily obliged to have recourse to higher potentials for the feeders, and the selection of the proper potential is a matter of simple calculation. We may, for the sake of this argument, call it 500 volts. Continuing on in this way, in steps of 500 volts, successive zones, half a mile across, might extend, in the aggregate, to several miles without reaching the limit of potentials which have been found to be perfectly feasible in practice.

In the example no reference has been made to the nature of the current employed or to the method of local distribution. Evidently we may readily resort to the alternating system, employing converters to reduce or raise the potential. Perhaps some of our new school of electrical engineers will show us how to use the same circuits for both alternating and direct currents.

But, whatever system is employed, I deem it proper to record here my conviction that the most economical way to distribute the current to the consumers at the point of delivery is by low pressure conductors, in contradistinction to the plan now generally in vogue of giving each customer a converter of his own or, in the direct system, a separate motor dynamo. I need not here enlarge upon the train of reasoning which has led me to this conclusion, but I may remark that I am strengthened herein by my own experience in Buffalo, where we are now introducing gradually 200 light converters and replacing the smaller ones heretofore employed. Nor do we propose to stop there, but expect to install converters of still higher capacity, distributing the current to a number of customers by low pressure mains centering at the large converters. As addressing myself to practical men, I need not refer to the fact that it costs practically no more labor, &c., to put up a 200 light converter than it does a 10 light, while the initial cost per light is less in the case of the larger converter. In these conclusions I am only recommending for large American areas what, I believe, is recognized abroad by Ferranti and others, whose work, like our own, will eventually lead to the establishment of large converter sub-stations from which low tension wires will supply the surrounding districts.

The allusion made to the motor-dynamo system for converting the direct current from high to low potential may to some appear nothing more than the citing of a possible method in view of the existence of the alternating system, well tried and ready at hand. But without wishing in the least to detract from the merits of this system, which has probably done more to popularize electricity than any other, I cannot, as a practical man, conceal from myself the fact that, taking everything into consideration, the low tension direct current system of distribution is the most flexible within its area, and serves the greatest variety of purposes. I do not think that any one can successfully contradict the assertion that to say no other system can, with equal efficiency, take care of a.c. and incandescent lamps, motors, large and small, storage batteries, electric heaters, &c.

In making this statement I desire to be understood as referring to the present condition of the art, the only condition which, as practical men, we ought to consider in matters of this kind, but I hope the time will soon come when the same can be said of the alternating system. There are still other methods which suggest themselves, by which the "zone" system could be effectively carried out, but those indicated are sufficient to demonstrate the idea I have endeavored to convey.

After the intelligent station manager has decided upon the nature of his apparatus and the initial capacity of his station, his most important consideration is the allowance to be made for future growth. Look back, some of you, and recall the mistakes made, but which were brought about by the enormously rapid growth of the industry. I need not go out of my own experience for such an example. Less than two and a half years ago we erected in Buffalo a new station considered far too large for even the most extended future growth. Some of my colleagues shook their heads. Yet