

MONTREAL.

(Correspondence of THE CANADIAN ELECTRICAL NEWS.)

VISIT TO THE CANADIAN GENERAL ELECTRIC COMPANY'S WORKS.

AS briefly mentioned in this correspondence last month, a visit of inspection was made on December 2nd, by members of the Faculty, Professor Owen, and the advanced students of the Electrical Department of McGill University, to the works of the Canadian General Electric Company at Peterboro, Ont. The party left Montreal the previous evening in a special car on the C.P.R., the car being side-tracked on its arrival at Peterboro. The company consisted of Dean Bovey, Professors R. B. Owens (head of the Electrical Department), J. Wallace Walker, R. J. Durley, John Bell, E. Rutherford, H. Jacquays, Mr. F. R. Redpath, and the following students: Messrs. J. A. Shaw, R. E. Burgess, E. P. Featherstonhaugh, E. M. Archibald, L. Denis, L. L. Gishorne, J. C. Hyde, A. T. Grier, R. M. Wilson, H. M. Ewan, John S. Whyte, E. S. Wenger, J. W. Fraser, H. Meredith Percy, F. W. Walker, J. F. Weller, J. E. Glasco, and W. B. McLean.

These gentlemen were met on their arrival by Mr. Stephens, superintendent of the works, Mr. Watts, and other officers of the Canadian General Electric Company, who took them in charge as the guests of the company and extended to them every courtesy and hospitality during their visit.

The greater part of the day was spent in making a close examination of the manufacturing methods employed in the various departments of the works. For this purpose the visitors were divided into four groups, each group being in charge of one of the company's engineers. The meter department was first visited, where opportunity was given of witnessing the construction of the Thomson recording watt meter. Following this came an inspection of the transformer department, where the T. & H. type of transformers was seen in process of manufacture; next the department in which all kinds of fittings, such as sockets, rosettes, small switches, cut-outs, etc., are made. In the brass department the workmen were engaged on the manufacture of switchboards, including a 19-panel board for Winnipeg, designed to handle the complete electrical output of that city, including street railway, lighting and power circuits. There was also to be seen under construction in this department high tension switchboards, including a 4,400-volt board for Nanawau.

All the above-mentioned departments are situated in the gallery of the main workshop. Downstairs are the armature department, test department, machine shop, tool room and commutator department. Almost every available foot of space on this floor was taken up with various classes of machinery in process of manufacture, prominent among which was to be seen a 300 k.w. single-phase rotating field alternator for the London Electric Company, a 300 k.w. monocyclic direct connected alternator for Winnipeg, several large synchronous motors for the mining districts, and a number of large induction motors for the Montreal Cotton Company, of Valleyfield, consisting of one 200 k.w., one 150 k.w., four 100 k.w., one 75 k.w. and one 250 k.w. machine; also a 475 k.w. six-pole lighting generator for the Toronto Electric Light Company.

No. 2 building, which was next visited, contains the pattern and carpenter shop, the drying ovens, and in the rear the brass foundry and compound pots for compounding wire.

In the adjoining building is the wire department, where the insulation of various kinds of wire is put on. In the upper part of the building is installed machinery for covering the finer grades of wire and for the manufacture of small armature coils, which are sent to the armature department to be assembled on the bodies. At the rear of the upper part of this building is located the incandescent lamp manufacturing department, which is perhaps the most interesting of all to the student, partly on account of the fact that the process of manufacture has in the past been more carefully guarded than in the case of many other kinds of apparatus, and also because of the many delicate and interesting operations through which the lamp passes in the process of manufacture. This department of the General Electric Company's works is in charge of Mr. Burnett, who took pains to explain as thoroughly as possible to the visitors the numerous details of the manufacturing operations. The work in this department is largely performed by young women, who are residents of the town and have been here trained to the work, which, by the way, requires no small amount of skill. The output of this department is understood to be about 1,500 lamps per day. It was interesting to learn something about the nature of the glass which is so important a material in this branch of manufacture. The visitors were informed that a great many varieties of lead glass had been experimented with, and that so great is the variation in quality that a difference of 50 per cent. in breakage has resulted from the use of different brands. It will thus be seen that the first cost of the material becomes a secondary consideration, as glass which can be purchased at a low price may in the end prove to be the most expensive, owing to its brittleness. The filament, which is so important a feature of the lamp, is in its original form a paste, which is drawn out to the required size and hardens, after which it is vulcanized and covered with a deposit of carbon. This filament is fed through a machine set to gauge, by which it is cut into proper lengths for lamps of various candle powers. The glass bulbs come from Cleveland. Among the more delicate operations connected with the manufacture of the lamps may be mentioned, the fusing of the leading-in wires into glass mounts, the making of the carbon joint between the filament and the leading-in wires, the flanging of the neck of the lamp, the inserting of the mount and filament into the bulb, and the closing up of the neck of the lamp by the fusing together of the bulb and mount. The air is afterwards extracted from the bulb and the lamp sealed up at the bottom. After this operation the lamps go into the testing department, where the vacuum and

lighting qualities are tried, each lamp being compared as to its light-giving power with a standard lamp.

The visitors were also shown through the carbon and porcelain works, which occupy a separate building and embrace many interesting processes.

In the evening they were entertained at the residence of Mr. Stephens, and courtesies were likewise extended to them by Mr. Davis, the Mayor of the town.

The following morning they were driven to the Trent Valley Canal, where an inspection was made of the locks and other engineering features of the work, after which they returned to Montreal, not, however, without first having given full expression to their earnest appreciation of the kindness of the Canadian General Electric Company in affording them the opportunity of gaining much valuable information, as well as in looking so well after their comfort during their visit.

A CHARMED LIFE.

During the recent disastrous fire, one of the walls of Green-shield's warehouses toppled over into Craig street, carrying with it a great mass of electric wires and cables, the property of the electric light, telegraph and telephone companies. A day or two afterwards a gang of G.N.W. linemen, among whom was one Pierre Brouillet, were engaged in repairing the damage. Pierre was at the top of a 40-foot pole, when he fell limp across the cross arm, with his hands grasping the iron wires. His companions, with the aid of a couple of firemen, lowered the unconscious man to the ground, and the ambulance hurried him to the hospital, where, much to everybody's surprise, he soon recovered consciousness, and a few hours later walked into the head office of the company and reported for duty. It is not true, as stated in the local papers, that a current of 2,500 volts passed through Pierre's body, as the wire with which he came in contact was not capable of carrying that amount of current. For the same reason it would not be wise to bank on the conclusion that the man who gets in the path of a 2,500-volt current will escape with nothing more serious than a bad shaking up. The victim of this accident has escaped death so many times that he is regarded as the possessor of a charmed life. It is recalled that he fell into the Chambly Canal, but was fished out; that a hoist on which he was standing dropped four storeys without killing him, and that he also escaped death in a fire which destroyed the lives of two of his children.

MCGILL UNIVERSITY NEWS.

Professor R. B. Owens has just returned from a trip to New York and Baltimore.

The apparatus for the new equipment of the Electrical Engineering Department is being received and put in place.

Mr. Samuel Insull, president of the Chicago Edison Co., is to lecture at McGill University during the latter part of February.

Dr. A. E. Kennelly, now of Philadelphia, and president of the American Institute of Electrical Engineers, but for a long time engaged in submarine cable work, will give four lectures on Submarine Telegraphy at McGill University about the end of January. All engineers interested are invited to attend.

NOTES.

Winter trolley parties have been introduced over the Montreal Belt Line, to Hotel Bout de l'Isle.

Mr. Normington, late of the G. N. W. Telegraph Co., this city, now with the W. U. Telegraph Co., New York, spent his vacation in Montreal. Mr. Normington was on the U. S. Signal Corps during the late unpleasantness between the United States and Spain, being stationed at Chickamauga Park.

Trade in Montreal during the fall and holiday season has been on the whole good, and there are few, if any, complaints from either the construction or supply houses. The outlook for construction after January, however, is not bright, and the supply men will be correspondingly affected.

It is with pleasure that your correspondent learns of the retention by the Canadian Pacific Railway Co. of Mr. R. A. Ross as their consulting electrical engineer. Mr. Ross is one of the few who can be depended on to act strictly in the interests of his employer and give all contractors equal opportunities in tendering. His previous experience with the General Electric Company and the Royal Electric Company would seem to serve him to good purpose in his present position with the C.P.R.

A certain up-town dry goods store has a very tasty display of table napkins and doilies forming a miniature ice palace, somewhat similar to the genuine palace we had in the good old times. The window dresser, however, can safely offer his thanks to electricity, for without its aid in illuminating the stained glass windows, the effect would be much less attractive. Various other stores display revolving turn-tables, may-poles, etc., in motion, run by motors.

If the miscreant is caught who threw the iron hoop over the transmission wires of the Lachine Rapids Company, thereby making a dead short-circuit and blowing the fuse at the generator, it will be made pretty warm for him. It was evidently the work of some one who knew something more about electricity than the average layman does, but one who, on the other hand, did not pause to think that there might be an employee a few feet in front of said fuse when it blew (as was the case) and who miraculously escaped a bad burn. A fuse blowing on a large generator under a pressure of 4,000 volts is not a pleasant thing to be near, to say the least.

The Eagle Knitting Mills Co., of Hamilton, have installed in their factory a 30 h.p. "S.K.C." two-phase induction motor, which drives their knitting machinery and has replaced their steam plant.