

facture of aluminum was commenced. To the electro-chemical group of local users of the new power there has since been added the Carborundum Company, which produces in the electric furnace, from carbon, in one of its many metamorphic conditions, an abrasive claimed to be superior to emery.

A preliminary installation for the manufacture of carbide of calcium uses at present 1,000 horse-power. This amount will undoubtedly be greatly increased should acetylene gas in the future become something less of an ignis fatuus and more of a practical illuminant. Other local applications of the power are, with synchronous motors, to operate the generating plant of the Niagara Falls Electric Light Co., and with rotary transformers in supplying current at 500 volts for the Buffalo & Niagara Falls Railway.

It is as marking the satisfactory commencement of the second stage in the distribution of the power in which its successful transmission over considerable distances is the problem to be worked out, that the thousand horse-power already laid down in Buffalo becomes of the first importance. The difficulties to be overcome are not, of course, of an engineering nature, since several transmissions on a large scale over greater distances have been for some time in operation. The question has been whether electric power generated under the conditions which obtain in the Cataract Company's plant can be sold at a profit in Buffalo at prices as low as those at which steam power can be produced under the absolutely favorable conditions existing at that point. Comparative estimates made by the most capable engineers have differed regarding this all-important matter to a curious extent. The result, as indicated by the contract entered into with the Buffalo Railway Company for 8,000 horse-power delivered, at a price stated to be \$36.00 per horse-power per annum, would seem to show that the Cataract Company's officials and one of the most important of their prospective customers, have been able to arrive at a mutually satisfactory basis of price for the transmitted electric power where the circumstances governing its previous production by steam were such as to render possible the very highest economy.

It seems reasonable to estimate the amount of power which will be disposed of in Buffalo within a year at not less than 15,000 horse-power, and in view of this and other increasing demands, an additional order has been placed with the manufacturers for five 5,000 horse-power generators, which will bring the total generating capacity of the plant up to 40,000 horse-power. For the transmission to Buffalo, which has been carried on under the plans of the General Electric Company, a line potential of 11,000 volts is now being used, but this will be doubled to 22,000 volts later on, in order to keep the copper cost and energy loss within reasonable commercial limits. The three-phase system is used for the transmission instead of the two-phase, on account of the very considerable saving effected in copper. At the sub-station in Buffalo the current stepped down to 2,000 volts is carried through underground cables to the Railway Company's power house, where, after further stepping-down, the General Electric Company's rotary converters change it from an alternating to a direct current at the standard railway voltage.

The commercial success, now practically assured, of the transmission to Buffalo, entails of course the extension of the company's field of operations in this direction over a wide area. Just where the commercial limitations which will govern in the matter will fix the point beyond which Niagara power cannot be profitably delivered, would be at this moment a very unsafe matter on which to hazard a definite opinion. It should be kept in mind, however, that the completed scheme of the Cataract Company involves the development of 200,000 horse-power on the American and 250,000 horse-power on the Canadian side of the Falls, to find a market for which will require a transmission radius considerably in excess of 100 miles.

The other important power development already referred to—the Niagara Falls Hydraulic and Land Company—will, along with various projects now under consideration on the Canadian side, be more fully considered in a subsequent paper.

The Minister of Education has promised to provide for the sustenance of the Toronto Technical School in case the city provides a permanent building therefor.

The Metropolitan Street Railway Company have extended their line to Richmond Hill, and are considering the further extension of the line to Lake Simcoe, in which case a new power house will probably be erected at Newmarket or Aurora. The present power house near Mount Pleasant will be improved.

TRADE NOTES.

The Canadian General Electric Co. are supplying a 1,000-light standard single phase alternator to Victoriaville, P. Q.

A large engine for the St. Thomas Electric Light Works was recently supplied by Cowan & Company, of Galt, Ont.

The Ontario Electric and Engineering Co., Toronto, have sold a 500-light alternating plant for lighting the town of Newcastle, Ont.

The Canadian General Electric Co. have been awarded a contract for a 500-light incandescent plant for the town of Alvinston, Ont.

P. McIntosh & Sons, of Toronto, have installed in their factory a 300-light incandescent plant supplied by the Canadian General Electric Co.

The Almonte Electric Light Co. have added to their plant a 600-light incandescent generator manufactured by the Canadian General Electric Co.

The Canadian General Electric Co. are installing a 500-light single phase standard alternating plant for a local company recently organized in Embro, Ont.

The Toronto office of the J. C. McLaren Belting Company, of Montreal, has been removed to 69 Bay street. Craig, McArthur & Co. are the representatives in this city.

Messrs. Coristine & Co., of Montreal, have installed a 55 k. w. direct current incandescent generator of the Canadian General Electric Co.'s moderate speed multipolar type.

The Canadian General Electric Co. have closed a contract with the Canada Paper Co. for a 1,000-light incandescent generator of their latest multipolar steel type, with iron-clad armature.

The Electric Repair and Contracting Co., of Montreal, are at present busily engaged in rebuilding motors and generators damaged by fire which took place recently on the premises of the Montreal Park & Island Railway Co.

The St. Catharines Electric Light & Power Co. have placed an order for a 2,000-light standard single phase alternator with the Canadian General Electric Co. The 60 k. w. machine of the same type which they have been operating up to the present has proved insufficient in capacity to meet the growing demands of their business.

The Fraserville Co., Ltd., of which Mr. John MacFarlane, of the Canada Paper Co., Montreal, is president, are installing a complete 750-light alternating plant in the town of Fraserville, Que. The entire contract has been awarded to the Ontario Electric & Engineering Co., Ltd., who will install for the generating plant one of their 45 k. w. single phase "Warren" alternators.

The Berlin & Waterloo Railway Co. have just placed in service two new vestibuled cars, having a length over all of 27 feet 6 inches. These cars are exceedingly handsome in design and finish, solid mahogany being used throughout for the interior fittings, and embody important improvements in various details. They were constructed at the Peterboro shops of the Canadian General Electric Co.

Owing to the rapidly increasing demand for their goods, the Kay Electrical Mfg. Co., of Hamilton and Toronto, will shortly commence the building of an addition to their factory. The following is a partial list of their more recent sales:—Kemp Mfg. Co., Toronto, 2 motors; H. R. Cuddon, St. Catharines, 1 motor; M. Hutchinson, wood yard, Toronto, 1 motor; A. Moore, Toronto, 1 motor; Aylmer Electro Plating Co., 1 dynamo; Steel Clad Bath & Metal Co., Toronto, 1 4-pole motor; Wheeler Brush Co., Toronto, 1 motor; Leitch & Turnbull, Hamilton, 3 motors, for elevator purposes; A. R. Williams, Toronto, 3 motors; Davis & Henderson, Toronto, 2 motors; Mr. Garner, Toronto, 1 motor; Mr. Enright, Toronto, 1 motor; Mr. Bomberg, Toronto, 1 motor dynamo; H. C. Hunter, Dundas, 1 4-pole 400-amp. dynamo; Haskins Wine Co., Hamilton, 1 motor; McPherson & Glassco, Hamilton, 1 motor; Munderloh & Co., Montreal, 1 dynamo; J. Turner & Son, Toronto, 1 motor; Wm. Beers, Toronto, 1 motor; T. Bell & Co., wood yard, Toronto, 1 motor; Barber Bros., Georgetown, 1 30-h. p. 4-pole motor; H. & F. Hoerr, Toronto, 1 motor, 15 h. p.; Ontario Agricultural College, Guelph, plant for light and power; Small & Fisher, Woodstock, N. B., 1 dynamo; A. Laidlaw, Toronto, 1 motor; Mr. L. Williams, Toronto, 1 motor; John Forman, Montreal, 3 motors; Wilson Pub. Co., Toronto, lighting plant; T. E. Brandon, Toronto, 1 motor; Davison & Holmes, Toronto, 1 motor; Bennett & Wright, Toronto, 2 4-pole motors; Diamond Machine & Tool Co., Toronto, 1 electro plating dynamo. This firm have also sent 10 electric machines to the North-west and British Columbia.