

## Light, Heat, Power, Etc.

A by-law granting a gas franchise to D. Morris & Co. for fifteen years, was carried at Calgary by a majority of two votes.

The Martin Electric Supply Company, of St. Catharines, have the contract to install 250 lights, plant complete with generator, etc., in the Montrose Paper Mill, Thorold, Ont., and have equipped the Warren Electric Company's new factory at St. Catharines with lighting, phones and call bells.

The Roberval Electric Co., Roberval, Que., has recently placed an order with J. C. Wilson & Co., Glenora, Ont., for a 28-inch deep bucket Little Giant turbine, with horizontal mounting, and the same firm have under construction a 12-inch wheel of the same type for J. A. Kirk, Arrowhead, B.C.

At the annual meeting of the Niagara-Welland Power Company, at St. Catharines, the following were elected as directors: Harry Symons, Toronto, president; Chas. J. Crowley, New York; James Haydon, Camden East; S. R. Hesson, Stratford; C. A. Hesson, vice-president, and J. S. Campbell, St. Catharines, secretary-treasurer.

The Montreal Light, Heat & Power Co., which recently absorbed the gas lighting and electric light and power interests of Montreal, have given notice that owing to the increase of wages and cost of materials, the rates for lighting will be increased by reducing the present discount which is 33 1-3 per cent., to 10 per cent. for one year contracts, and 15 per cent. for five year contracts.

The Shawinigan Water & Power Co. has contracted to supply the city of Sorel, Que., with electric light, power and heat. This will require a twenty-mile transmission line from Joliette on its main transmission line through the village of Lanoraie to Sorel. From Lanoraie the line will cross the St. Lawrence River by means of a submarine cable. The system will be completed in time to deliver power in October.

Portsmouth, England, has inaugurated a municipal telephone system for the town and suburbs. The installation was decided upon in 1900, and the construction was carried out in 1902. Customers were speaking in October last, and already the telephone committee finds itself unable to join up more subscribers, as the original estimate of \$124,185 for 1,240 lines has been exhausted. More lines have been connected up in the borough, than first planned, and over 150 in the surrounding district, which is served by aerial lines, while in the towns the circuits are underground in cable, and distributed by overhead wires—24 to 30 on a pole. The Town Council has already authorized the Telephone Committee to borrow an additional \$58,440 to raise the number of lines on the exchange to 2,000, and the actual work of extension is already in hand. The charges are, \$28.61 a year (unlimited use), \$17.05, 1 cent toll, \$12.18 and 2 cents toll. Last month the profit was about \$390 after all expenses had been met, and with an increasing income from tolls better results are confidently anticipated.

Mule haulage is to be replaced by electric traction on the De Beer's mines, at Kimberley, South Africa, an order having just been placed with the British Westinghouse Electric Company for the supply of twelve mining locomotives. These locomotives have four wheels, each pair driven by a Westinghouse motor of 10-h.p. capacity. They can thus develop a full load draw-bar pull of about 900 lbs., running at six to ten miles per hour on the level. The most interesting features of these tractors is that the gauge being very narrow—18 inches—the motors have to be mounted clear of the wheels. The motor pinion meshes in the ordinary way with an additional intermediate gear wheel. The journals of the shaft carrying this gear wheel run in boxes working in pedestals over the main journal boxes of the locomotives, and rigidly connected to them. Thus the locomotive frame, which is supported on springs in the usual manner, is free to rise and fall on the axles and without disengaging the gears. The motors are hung on the shafts of the intermediate gear, as if these were the ordinary wheel axles, and the usual "nose" suspension is employed.

For the control of direct current motors operating cranes, hoists, etc., and similar appliances requiring variations in speed and frequent stops and reversals, the Westinghouse Electric & Mfg. Co., has placed upon the market an improved controller of the commutator type, designed especially for this class of work. The contact dial is made up of copper contacts which are fastened to the periphery of a circular stone of good mechanical strength and toughness, affording a firm support and giving excellent insulation for the parts. The contacts are simple and so made that they may be easily renewed when injured by wear or any possible arcing. Their total makes possible a correspondingly large number of steps of resistance, giving a very gradual regulation to the motor. The brush-holder is fitted with four contact arms, which, when the circuit is opened, divide the arc into four breaks. Each contact arm is provided with a powerful blow-out magnet which reduces the arcing to a minimum and makes the maintenance of an arc impossible.

Our antipodean cousins are marching with the times. At Dunedin, New Zealand, a large transmission plant is being erected to operate the Dunedin tramways (street railways). In order, however, that the operation of the tramways may not be delayed pending the completion of the transmission plant, a temporary steam plant is put in. The transmission scheme includes the erection of a power house situated on the banks of the river, about twenty miles from the city, where three-phase current will be generated by turbine-driven alternators and transformed up to 15,000 volts for transmission. From a point near the city, the main transmission line will be divided and branch off to the various sub-stations which will be equipped with Westinghouse rotary converters, with storage batteries, and all necessary appliances. The designs for the whole scheme were carried out by Noyes Brothers, of Sidney, Australia, and the work of construction will also be under their control. The electrical machinery will be supplied by the British Westinghouse Electric and Manufacturing Company, Limited, the cars being furnished by a United States firm. It should pay a Canadian company to build electric cars for export to British colonies and foreign countries.

One of the largest contracts for steam turbine and electrical power machinery recorded in American territory has been closed by Westinghouse, Church, Kerr & Co., with the Philadelphia Rapid Transit Co., covering 15,000 K.W. of steam turbine, and approximately 50,000 K.W. of electrical generating and converting machinery, for equipping the new Rapid Transit Subway and Elevated System, now under construction in Philadelphia. The most interesting feature of the equipment to be installed is that steam turbines are to be used exclusively for power generation in the new Central Station, now under construction. There will be three turbines installed, each of 5,000 K.W. normal capacity, which will be of the type now being built by The Westinghouse Machine Co., for large powers. The turbines will be direct connected to Westinghouse three-phase, 25 cycle, generators, and the units will run at 750 revolutions per minute with 175 lbs. of superheat. The three units will operate in multiple upon a common bus bar, and power will be distributed directly at a nominal potential of 13,000 volts from the station without the use of any intermediate transformers; for this purpose the generators are wound for high potential. The contract also comprises a large amount of transforming and converting machinery, to be installed in the several sub-stations, which will be built at various locations in the district covered by the transit system. This machinery will be used for converting the high tension A. C. power received from the power station into low potential direct current for use directly upon the third rail of the traction system. The new Rapid Transit System, now under construction, will cover the entire business district of Philadelphia, and includes a two and four-track subway about one and one-quarter miles in length, extending from the Delaware river along Market street to a point near 23rd street, a short distance from the Schuylkill river. At Broad street an appropriate central terminal station will be erected.