pagnie des Pouvoirs Hydrauliques de St. Hyacinthe, was formed to improve and distribute it for motive purposes and lighting in the town. Work was commenced at once on the water power and in July a contract was closed for the necessary electrical apparatus for the plant. A thorough investigation was made of the different sys-tems of electrical transmission, and the president of the Company, Mr. Louis Cote, and their consulting engineer, Rev. Father Choquette, visited a number of power transmission plants before a decision was reached.

The power had formerly been utilized for the operation of a grist mill and woolen factory on one side of the river and for a small grist mill and woolen factory on one side of the river and for a small grist mill on the opposite side. No change was necessary in the dam, al-though it will be possible by raising this to greatly increase the pow-er available. The canal leading to the mill was almost entirely re-constructed and deepened so that its capacity is nearly three times that of the old canal. In addition to this a long tail-race was excav-ated greatly increasing the head which is now about 17 feet. ated, greatly increasing the head, which is now about 17 feet.

The water is led directly to the wheels which are four in number, 50 inches in diameter and running at a speed of 100 revolutions per minute. These wheels are on vertical shafts and placed in wooden minute. These wheels are on vertical shafts and placed in wooden penstocks with separate gates. At the top of the vertical shaft is placed a crown wheel 6 feet 2 inches in diameter having 78 iron-wood teeth. This is geared to a pinion  $24\frac{9}{16}$  inches in diameter having 26 teeth, and connected to a horizontal shaft by means of clutch coupling. The shaft is divided into two sections connected by a Hill cut-off clutch two wheels being graved to and to section laving 20 teem, and connected clutch coupling. The shaft is divided into two sections connected by a Hill cut-off clutch, two wheels being geared to each section. The main driving pulleys which are four in number and each provided the main driving pulleys which are four in number and each provided with Hill clutches are placed on an extension of this shaft under the dynamo room. Hand wheels controlling each of the four wheels and the four clutch pulleys, are placed in a convenient position in the dynamo room, so that the entire operation of the plant can be absol-utely controlled from the switchborrd. Two electric governors, one for each pair of wheels, are connected to controlling mechanism, which is also placed in the dynamo room. It is intended to connect a tachometer to the shafting which will at all times indicate the speed.

The electrical equipment of the power house consists at present of three standard three-phase alternators, each being of a capacity of 150 k.w. at 2,500 volts. They are compound wound in the same manner as the Thomson-Houston type, the commutator, however, being in three sections to accommodate the three-phase current. The separate exciting current is supplied by two 6 k.w. standard Edison dynamos, either of which is capable of exciting the fields of all three machines.

The periodicity of these alternators is 60 cycles per second, this having been adopted in place of the old standard of 125 cycles, as it

has been found from experience that motors operate very much more satisfactorily the lower the periodicity ; and this number was decided upon as being more suitable for the combination of motors, arc lamps upon as being more suitable for the combination of motors, arc lamps and incandescent lamps, the steadiness of the latter being affected when the periodicity is much further reduced. The current from these machines is led to the centre panel of the switchboard, as shown in the accompanying engraving, and is there connected to the main bus bars in multiple through three high potential triple pole switches. On this panel is also placed a current indicator and potential indicator for each machine, together with the phase indicator by which the machines are thrown together. The feeder panel is to the right and is equipped with three current indicators, one for each leg of the system, a ground detector, lightning arresters and feeders blocks. On the left are the three station transformers and the exciter current indica-cators and switches.

The distance between the power plant and the town, as stated above, is  $\frac{1}{2}$  miles. The line consists of four No. oo B. & S. bare copper wires placed on double petticoat insulators. The poles are all of wires praced on double petiticoat insulators. The poles are all of cedar 30 feet in height above the ground, and a double set of cross arms, pins and insulators are placed on each pole. Only three of the wires are normally in use, the fourth being kept as a spare in case of accident. The line is of the most solid and substantial construc-tion throughout and has been built with the philot of arguing agents.

tion throughout and has been built with the object of providing amply for any addition to the circuits which may be required at any future The primary wires are brought to the centre of distribution in the town, and from this point primary mains extend over the district which is to be furnished with light and power. The greater portion of the lighting is from a four-wire system of secondary mains fed by banks of transformers at suitable points. This system combines the economy of both the three-wire and three-phase systems and insures a uniform potential at all points. All large moters will be connected to separate banks of transformers, only the smaller sizes being oper-

ated from the secondary mains. The directorate of the company includes the names of nearly all the prominent business men of the town. Mr. Louis Cote, the president, is well-known as the inventor of several important labor saving machines for shoe manufacturing. Mr. Payan, vice-president, is a member of the firm of Duclos & Payan, tanners and manufacturers of leather. The construction work and wring has been done under the supervision of Mr. R. Duperouzel, Supt. of the Hydraulique com-many, to whom much credit is due for the manner in which he has carried out an installation having so many novel features—The Electrical Engineer.

## Boiler Plates and Tubes,

Wrought Iron, Steam and Gas Pipe,

## Cotton Waste.





.....

Merchant in Iron and Steel,