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SARNIA GAS AND ELECTRIC LIGHT CO.

We print herewith an illustration of the power station of the above company, accompanied by a few particulars descriptive of the equipment of the same.

The building is of red brick, with freestone trimmings and stone foundation, with basement under the engine room, having truss roof covered with iron, making the building practically fireproof. The size of the structure is 34 x 72, with an octagon brick smoke stack 75 feet high. The foundations for engine, dynamos and line shafting are of stone and brick set in cement, reaching through the main floor.

The steam plant consists of a Wheelock engine 13 x 30, boiler 60" x 14', 84 3" flues, with all necessary shafting and pulleys, manufactured by the Goldie & McCulloch Co., of Galt.

The electric plant was built during the summer of

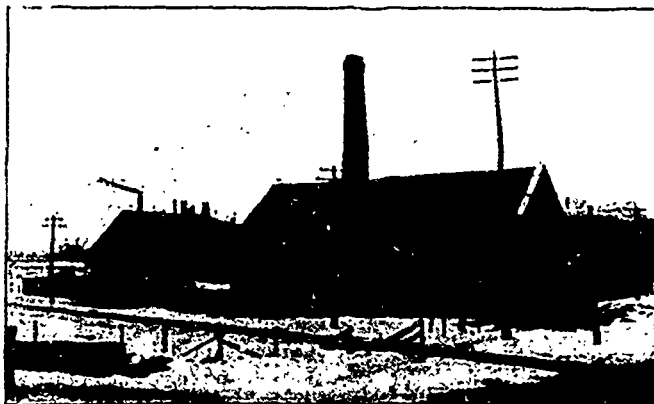
electrician. Accompanying this article are portraits of these two gentlemen.

QUESTIONS AND ANSWERS.

SUPERINTENDENT writes: "In a 2,080 volt monocyclic dynamo or in any other machine, does it not have a bad effect upon the armature to have the commutator short-circuited to a more or less extent? I claim that it not only has a bad effect upon the stationary shunt, but also upon the rotating shunt and armature. Am I right or not, please? Would the short-circuiting of the commutator cause the armature to finally burn up altogether? Another question—Supposing I carry on my 'secondaries' a voltage of 118 and then reduce it to 112 volts, what candle-power would I be getting from a 50 c. p. incandescent lamp? How is it computed? and is there any table or book published upon this ques-



Mr. Wm. WILLIAMS.



THE SARNIA GAS AND ELECTRIC WORKS.



Mr. GEO. SHAND.

1894, and consists of one 75 light Wood arc dynamo with spare armature, a 30 kilowatt T.H. alternator with 1½ k.w. exciter, with the usual switchboard apparatus. The electrical plant was installed by the Canadian General Electric Company.

The arc line for public lighting required over 16 miles of No. 6 wire and ten miles of poles, feeding sixty-two 1200 c.p. lamps. Over 600 lamps are wired up for incandescent lighting in the town.

In order to further increase the capacity and efficiency of the plant, during the past summer a 300 h.p. Northey duplex condenser and a duplex boiler feed pump were installed, taking water supply from the river through an 8-in. pipe. These improvements add easily 25% to the economy and efficiency of the plant. It is contemplated to further increase the plant by adding an additional boiler and a larger alternator during the year.

Mr. Wm. Williams is the manager of the business, the success of which is largely due to his enterprise and good judgment. He has an able assistant in the person of Mr. Geo. Shand, the chief engineer and

tion? Are not electric wires apt to become "grounded" by passing through branches of trees, especially in constant wet weather? How could you tell if they were grounded if you had no ground detector? Could you tell by 'bell-tests'? How are series incandescent lamps connected up in connection with a direct current arc circuit? If you will be so kind as to answer these questions in your next issue, I will, I am sure, feel obliged."

ANSWER.—(1) In any generator the short-circuiting of the commutator, if a D.C. machine—or the collector rings, if an alternator—will result in a burnt armature. If the "commutator" in the above question means the two-part commutator used in the series field, then short-circuiting it will, in the first place, have the effect of (a) cutting out the compounding coils, leaving the machine as though it were merely separately excited; or (b) depending on the method of connecting in the two parts, might have the effect of sending an alternating current round the series coils; and in the second place would (a) cause heat, which might injure the armature. (2) Supposing your 50 c. p. lamp was intended to give that at 118 volts,