

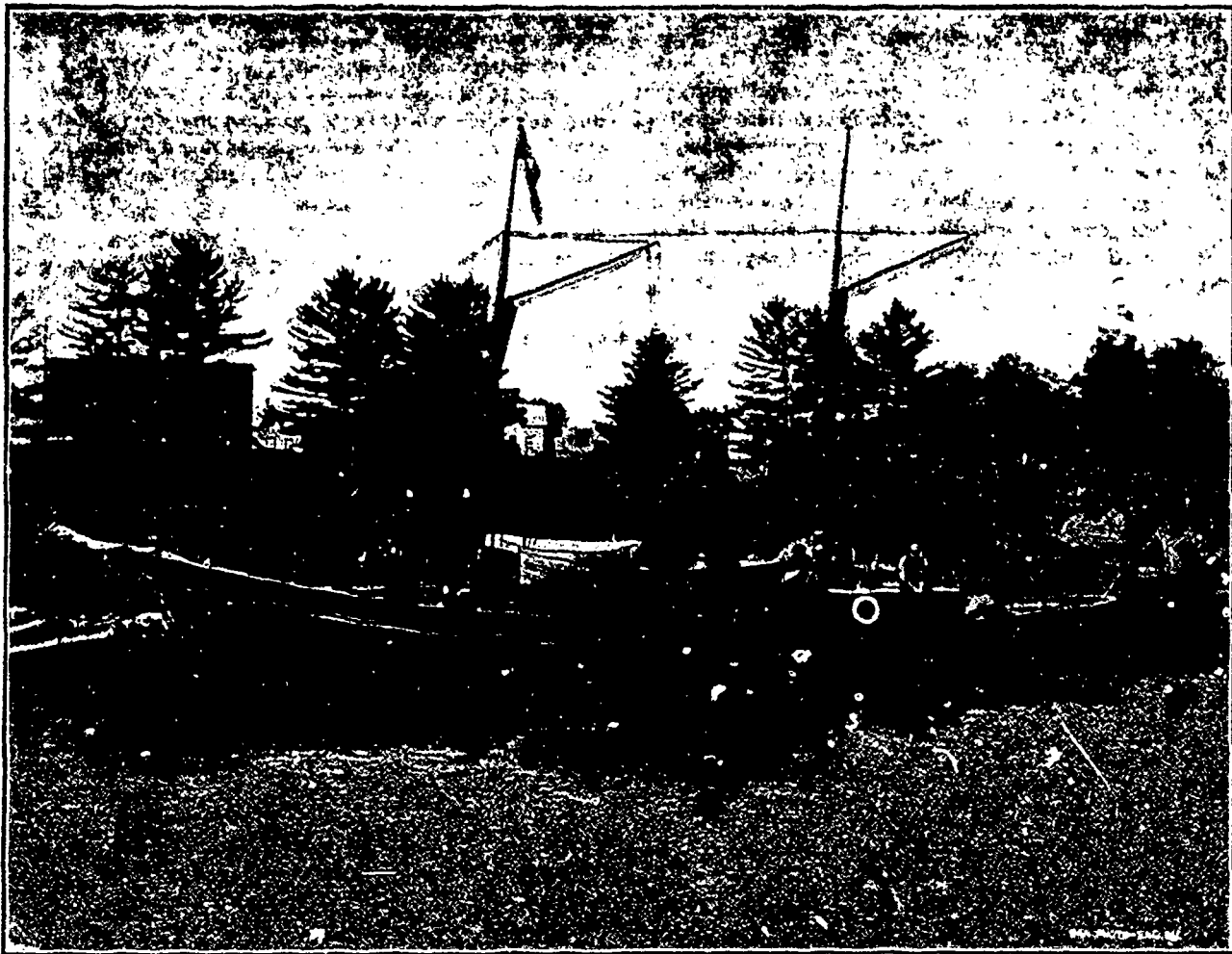
### THE "ELECTRIC."

We present our readers in this issue with an engraving of the steam yacht "Electric" owned by Mr. J. J. Wright, President of the Canadian Electrical Association. It is from a photograph taken in Oakville harbor. The boat was modelled by, and built under Mr. Wright's supervision, and intended for rough weather service. She has already proved herself to be a good and seaworthy craft. Her owner is an enthusiastic sailor, and many is the Saturday evening cruise that is made by the "Electric" to some quiet port along the lake shore or across to Niagara or Port Dalhousie. Each summer, if her owner can manage to get a week away from business, the cruise is extended as far as Kingston, by way of the Murray Canal and the beautiful Bay of Quinte. Those who are acquainted with the region around Presque Isle and South Bay will be aware of the jump of a sea that old Ontario is able to kick up on very slight provocation around those parts, and will understand that it is not always smooth sailing on such an excursion. The slight spice of adventure, however, that is pretty certain to be met with

exactly as if a stick of timber were struck on one end with a hammer. In the latter case it is easily understood that the particles move in transmitting the blow. It can be seen that were the blow hard enough, particles would be drawn from each other, and the timber split in pieces.

This takes place to a certain degree, in every wire which carries a current of electricity. The blow is struck by the voltage, and the higher the voltage and the smaller the wire, the greater the vibrating effect. When the blow becomes too great, a current which is too large for such a conductor is forced through the wire. It nearly tears the atoms apart in trying to get through. It is possible to send so much current, and thereby strike so hard a blow, that the wire is heated and even melted, by the terrible commotion set up among the particles of metal.

Therefore, when a dynamo heats above 170°, it is evident that something is wrong, either the armature is composed of wire which is too small to carry the current generated, or the armature core is not made of thin discs, or layers of iron. If these layers are thick the armature will heat worse than when



MR. J. J. WRIGHT'S STEAM YACHT, "ELECTRIC."

only serves to add zest to the enjoyment of the cruise, and enables the jolly crew to absorb their full share of oxygen from the lake breezes, and to return with a full stock of vigor to the serious work of life. Besides a small and serviceable dingy, the "Electric" carries a 14 ft. whale boat with air-tight compartments and double skin, and a full complement of anchors and cables, and has, moreover, sufficient canvas to enable her to make a port in good shape in the event of accident to her machinery or shortage of fuel. She is also fitted with 6 in. spent compass and binnacle, adjusted for magnetic deviation on any course. In fact nothing in her outfit has been neglected that would be necessary to meet with any condition or stress of weather likely to be met with in her wanderings.

### WHY DYNAMOS GET HOT.

Any dynamo which is in good condition and well designed will become heated a few minutes after starting to about 170°. The cause of such heating is the loss of electricity in the machine. When ever a current passes through or along a wire, every particle of metal is set in motion, vibrating back and forth

they are thin. The contractor may have cheapened his work by putting in thick discs over a solid armature. The result is heating at all times. Sometimes an armature gets pretty hot through rubbing the bands against the pole pieces. No good engineer will ever let such a thing occur. He will detect the trouble as soon as the dynamo is started.

Short circuiting between two armature coils will also cause heating. This can only be detected by disconnecting each coil, and testing separately with a resistance box. This is a tool which no engineer should be without; he can construct one himself, and learn how to use it without much trouble.

A poor connection between the armature coils and the commutator may result in heating, but it surely will cause sparking at the commutator, and perhaps a flat place on one or more of the bars. Copper, or other metallic dust, which forms a connection between two bars of the commutator, will surely cause great trouble in the dynamo. It will cause several coils to heat, and probably result in heating one or more of them so hot that the insulation will be burnt off, and the engineer left with a burned out armature on his hands.—*Flotsam*.