Electrical Department.

ELECTRICITY FROM THE WIND.

Our readers will remember a paragraph in the last two numbers referring to an experiment at Dixville, Que., in deriving electric light from a wind wheel. A representative of THE CANADIAN ENGINEER has since had the pleasure of visiting the only electric light plant in Canada deriving its motive power from the wind. In this little village Eugene Baldwin, an amateur electrician, has put about twenty 16 candle-power incandescent lamps into his residence at Dixville, Que., which he is going to light with storage batteries, manufactured by himself, and so arranged and connected with a dynamo and wind wheel that the whole arrangement will work almost automatically.

At a short distance from his dwelling he has erected a tower fifty-eight feet high. Upon this tower is a sixteen-foot galvanized steel wind wheel which is connected by a vertical shaft to the machinery below. In the base of the tower there is a room fourteen feet square in which are the dynamo, regulators, automatic switches and other accessories. The dynamo was also built by Mr. Baldwin and is a one-thousand Watt machine, with certain improvements which make it more suitable for its special work.

Connected with the counter shaft is a regulator which keeps the electric potential at a uniform voltage. There is, in addition to this, an electro-magnetic switch that opens and closes the circuit of the charging current whenever the potential of the dynamo, in stopping, falls below the voltage of the accumulators, or rises above it in starting.

The wind wheel gives more power in an ordinary wind than is required to run the dynamo (for it will run in a very light breeze), and stores more energy than the lamps require, therefore Mr. Baldwin contemplates putting into his house one of the electric cooking stoves now being exhibited at the World's Fair.

The storage batteries referred to are designed to lay up a supply of electricity sufficient to light the lamps for three or four evenings, in case of a lack of wind for motive power.

The projector and proprietor of this new enterprise is quite a young man, and for his opportunities has acquired a practical and very remarkable interest in electricity, and this chiefly through reading and digesting the articles in the technical papers and whatever books he has been able to procure on the subject.

Readers of THE CANADIAN ENGINEER will no doubt hear more from Mr. Baldwin.

ELECTRICAL TOOLS FOR USE IN CONFINED SPACES.

Speaking of the recent accident on the steamer "Umbria" when her propeller shaft broke, and the tremendous efforts which had to be put forth by the engineers to repair the damages, an English journal concludes that the Atlantic liners are not well enough equipped with appliances for grappling with such contingencies, and predicts that the use of electrical tools in such confined spaces must soon become general. A well equipped engineer's shop cannot be carried on ship-board, and in addition, ordinary machine tools cannot be readily moved about and are impossible of application in confined spaces. Since all large ships are now supplied with electric light plant, it would seem to be a simple matter to carry the current to any part of the ship, no matter how remote or cramped it might be, and there use it for actuating tools by means of motors. For instance a portable electric drill could have been readily used for boring the holes in the shaft of the "Umbria," and the task accomplished in one-fifth of the time and with very little exertion on the part of the engineers. Such a drill can be used in confined spaces, where there is scarcely room for a man to stand in. Many of these appliances of modern power and dimensions are in use in engineers' shops, and they prove an immense saving. Instead of bringing a boiler, cylinder shaft or any other heavy piece of machinery to a fixed machine, portable drills are carried to the spot of application, and no other connection but a pair of wires is necessary to convey the motive power from the generator to the motor. These machines are efficient and inexpensive, and they ought to form a part of every steamer's tool stores. Numerous mechanical operations are continually being performed on the steamships, which involve the most laborious hand labor, and which can be done in far less time and at a nominal cost, besides with much greater effectiveness, through the medium of electricity.

THE EDUCATION OF THE ELECTRICAL ENGINEER.

A PAPER READ BEFORE THE CANADIAN ELECTRICAL ASSOCIATION BY E. B. MERRILL.

Though the subject of the education of the electrical engineer has received considerable attention from electrical societies, and in the electrical press of other countries, it has not so far been discussed in our own society; so that in view of its importance to the rising profession it may not be fruitless of good results to those of us interested in the education either of ourselves or others, if we spend a short time in considering it here.

Like everything else electrical, the scope and methods of electrical education are continually changing, and on the whole in the direction of improvement. In no profession are the instructors so closely connected with the practice, and to this vital contact they owe a great deal of their strength. This helps to keep them abreast of all advancements and greatly increases their value to the student engineer.

In the widest sense of our subject we should have to do with more than a college education. That is only one phase of it. It neither begins nor ends here. There must be a preparation, and afterwards there must be a continuous advance if one is to retain or better his position. We must not get the idea that a graduate is an electrical *engineer*, though he may have earned the distinction of such a degree. He is in reality merely in a position to make a start, but if he has faithfully cleared up the work behind him, he is able to make a good start and a rapid advancement. A college training is necessarily one-sided and needs the addition of practical experience to complete it.