

case of the Niagara plant, or in any other, further than to say that the pressure class of wheels offers no advantages not balanced by equal or greater disadvantages, as will no doubt appear if there should be discussion of this subject before the society. Besides the object of this communication first named, there is the further one of calling the attention of the members present to the impulse or open water wheels so extensively employed on this coast, and to suggest that if possible, they manage to see such wheels in operation under various heads, especially under high heads. In observing a machine of any kind in motion, there are impressions gained which cannot be conveyed by description, but I warn every one against inference from this remark that the tangential water motor wheels on this coast are not scientifically understood and treated. The problems involved may not be so many or so intricate as in the case of pressure turbine wheels, and this is fortunate, because the literature of the latter is one of much complexity to any but skilled mathematicians, and for that reason has not been so much used as it ought to have been.

In this country, and it is a most commendable thing to mention, the pressure turbine by an inward flow, or an inward draft, has been greatly simplified in construction, cheapened in first cost, and at the same time better adapted to impure water without losing anything in efficiency. I believe the inward flow turbines made by the Risdon Company at Mount Holly, N. J., have in public tests on more than one occasion shown an efficiency as high, or even higher, than the more finely fitted Fourneyron and Jonval types.

The record of American engineers in this branch is one of which they may well be proud; and now that impulse wheels of the Girard type have made much progress abroad, and have here in California been modified much as the Fourneyron and Jonval wheels have been in the Eastern states, it is quite time more attention was bestowed upon the subject in other parts of the country. Analogy in the two cases is marked. By an inward flow, American makers reduced the running parts, or the wheel proper, of pressure turbines to a small diameter, increasing its speed accordingly. This lessened the weight and cost of the wheels in the proportion of their diameters, and at the same time dispensed with the accurate fitting involved in the outward and downward flow turbines; and this, as before said, has been done without sacrificing efficiency.

The tangential type of open wheels has been similarly dealt with here in California. The running-water joints have been wholly dispensed with. The construction has been cheapened one-half. The round jet has been applied in the most simple manner, with an increased dynamic effect, and the efficiency attained is believed to be more than is reached by the finest examples of Girard wheels in Europe.

Conceding these statements and facts brings us back again to the query forming the subject of this communication—namely, Why has the evolution of water wheels followed on the line of pressure instead of impulse?

### SPARKS.

The Central Electric Light Co., of Montreal, has been gazetted by letters patent.

The Lunenburg, N. S., Electric Light Co. has recently placed in position a new 70 horse power boiler.

There is no difference in the heating effect between a continuous and an alternating current.—*Electric Age*.

The Chaudiere Electric Light and Power Company, of Ottawa, is seeking power to increase its capital to \$1,000,000.

Mr. D. C. Waters, of Ottawa, is said to have recently purchased for \$2,000 a valuable mica mine near Templeton.

The Ottawa City Passenger Railway Company declines to join with the city in an application to Parliament to convert the road into an electric one.

Messrs. John A. Willis and A. M. Wickens have been re-elected representatives of the stationary engineers on the Toronto Technical School Board.

A patent for a self-lubricating trolley wheel, was recently granted to Messrs. John Chas. Mullin, John Bell McRae, and Sydney Leroy Keighley, of Ottawa, Ont.

A contract has recently been signed by the Corporation of Iberville and the St. Johns Electric Light Co., whereby the latter engage themselves to light the town by electricity.

The Ottawa Electric Railway Company have placed in the power house at the Chaudiere another 400 horse power electric generator, making two of that size, the largest of the kind in Canada.

An electric club has been organized in connection with the Peterboro' works of the Canadian General Electric Co.

The Halifax Street Car Company, The Nova Scotia Power Company, and Halifax Illuminating and Motor Company have been sold to an American syndicate, who will operate the street railway by electricity.

In view of the introduction of the electric street car system, the Bell Telephone Co. propose to lay a conduit for the company's wires, from the head office, on Dundas street in London, to the corner of Dundas and Richmond streets.

The Roads Committee of the Montreal City Council has recommended that permission be granted the St. Jean Baptiste Electric Co., the Citizens' Electric Co., the St. Henri Electric Co. and the Merchants' Telephone Co. to erect poles on the streets.

Exclusive telegraphic privileges have been secured by the G. N. W. Telegraph Co., from the new road just opened on the Adirondack and St. Lawrence Railway Co. The G. N. W. Telegraph Co. is at present engaged in constructing a line from St. Johns to Farnham, Quebec.

By resolution of the Board of Directors, the capital stock of the Sherbrooke Telephone Association has been increased to \$100,000. The following officers were recently elected: Mr. J. A. Achambault, President; J. C. Meagher, Vice-president; D. McManany, Secretary-treasurer; C. Skinner, manager.

A by-law will be introduced in the Winnipeg City Council consenting to the terms of the Bell Telephone Co.'s proposition to establish a metallic circuit, on condition that the city will not grant permission to any other company to construct and operate a telephone system in the city during the next five years.

Mr. Justice Bain has refused to grant the injunction asked for by the Winnipeg Street Railway Co., for the purpose of restraining the Winnipeg Electric Street Railway Co. from operating their lines until such time as the plaintiffs' charter had expired. The case will probably be carried to the highest court of appeal.

The Water Works Committee of the Ottawa City Council propose to impose a tax of \$2.00 per car per annum on the Ottawa Electric Railway Co. This action appears to be taken with a view to even things up between the railway company and the hackmen, the latter having to pay \$2.00 per annum for water for each horse.

The officers of the Peterboro Carbon and Porcelain Co., which is successor to the Brooks Manufacturing Co., are as follows: Mr. Cluxton, president; Mr. Kendry, vice president; Mr. J. W. Taylor, managing director.

The Smiths Falls Electric Power Co. (limited) has been incorporated by letters-patent of the province, with a capital stock of \$60,000. The chief promoters are Messrs. Francis Theodore Frost, Wm. Henry Frost, Charles Berih Frost, Jas. Maitland Clark, Adam Foster and Frederick Arthur Bethune, of Smiths Falls. The company proposes to supply electricity for power and light.

A clutch pulley in the power house of the Rat Portage Electric Light Co. burst recently, seriously injuring John Hegley, J. G. Rushton and L. Stewart. H. Ridout was also slightly injured. Several fragments of the pulley went through the ceiling, and as there were a number of persons in the building, it is considered fortunate that the results were not even more serious.

A large new driving pulley while in process of testing in the Standard Electric Company's power house at Ottawa, on Dec. 20th, suddenly went to pieces. The fragments were hurled in all directions, two of them going through the ceiling. An armature of a new one hundred light dynamo was destroyed, and several things about the establishment damaged, but the dozen employees miraculously escaped injury.

The power house of the Windsor and Sandwich Electric Railway and its contents was destroyed by fire on the night of the 26th of December. The building was of solid brick. This and the fact that the power house stood alone in an open field and that the engine house did not form part of the station proper but was located in a brick addition thereto, makes it difficult to imagine how the fire could have started.

An ingenious method was recently employed in wiring a building for electricity at Rockland, Mass. It was desired to run wires between the flooring and for that purpose a hole was cut at both ends of the room; then a half-grown kitten, with a slender string attached, was put in at one of the holes, and readily crawled through to the other. A stronger string was then drawn through, then the wire, and the job was done.

She kept the biggest boarding house,  
Of any in the city;  
If any person couldn't board  
With her, it was a pity;  
But she gave up one winter day—  
Did Miss Melinda Molly—  
And quit the business when she found  
She couldn't board a trolley

Owners of isolated plants cannot be too careful in their selection of an engineer. In most cases the engineer must be electrician and dynamo tender. The necessity of having a competent man is obvious. If it is necessary to put ice on the bearings of your dynamos, the engineer should know enough to keep water out of the armature and to see that the floor is kept wiped up. He should not imagine that the commutator is put on an armature for the purpose of being "turned down" in grooves by the brushes.

—N. Y. Electrical Review.