

unregulated. They are also bound to supply 500 horsepower for public use at a yearly price of \$8 per horsepower, and after the expiration of seventy-five years the whole plant shall be forfeited to the State. The regulation shall be commenced within five years and completed within twelve years, and for the former period the company is permitted to employ foreign engineers and workers to such an extent as they deem necessary, though the ordinary conditions as to Norwegian employees and Norwegian material are laid down as the essential rule.

FIRE RISKS AND FIREPROOF CONSTRUCTION.

Fireproof construction is a question for the engineer as well as for the architect.

Twelve million dollars every month is the fire loss in America—an enormous waste, due largely to faulty construction and faulty installation. The structural engineer should assist in an endeavor to lessen the fire risk, and thus prevent loss and reduce premiums.

Steel and concrete as building material are natural aids in this work. Wood has no longer a place in such work, and should be avoided. Building by-laws should be drafted prohibiting its use in congested districts; for it is almost useless to require fireproof walls and allow combustible material in floors and partitions.

A fireproof building may contain material for a large conflagration, and it is in connection with stored goods and raw material in the process of manufacture that poor installation increases the fire risk.

Hot bearings, where mechanical transmission is employed, is a most fruitful cause of factory fires. Belting-boxes make a splendid shaft for the flames to spread from floor to floor. Even the friction from enclosed and poorly centred pulleys increase the fire risk.

One wonders that electric power transmission through wires is not recognized as a safer and as better construction. Wires are fixed, flexible, and allow of more freedom in concentration of power on given points. The first cost of an electric system of power transmission may be greater than the cost of other systems, but there is greater safety and efficiency, providing the wiring is well done and regularly inspected. Crude repairing and poor connections add a large element of danger, and are frequently the result of a penny-wise-pound-foolish policy of setting a handy man to do the work of an expert electrician.

Good installation must be followed by regular expert inspection—inspection just as necessary as the inspection of steam boilers or elevators.

EDITORIAL NOTES.

In our issue of October 2nd, page 688, in referring to Mr. Richmond's article, "Theory of Matter," line twenty-seven should have read, "The motion or change of position from the normal," etc.

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The city engineer of Kingston is to be commended for the stand he has taken in reference to the new city building by-laws. Before he will undertake the enforcing of the by-law he has requested that all city buildings be first altered to comply with its terms. Too many municipalities require of the individual compliance with by-laws which they as a corporation violate.

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The increased competition requires increased productive power. The shop foreman, the master mechanic, nor the drafting-room superintendent cares to devote time to showing how. They now expect the man to do. To assist the young man in the shop the Central Branch of

the Toronto Y.M.C.A. have opened two new departments in their winter evening class. Electricity and mechanical drawing, the two new subjects taught, will likely draw large classes, and should interest young men anxious to make their way in the business world.

PRECIPITATION FOR SEPTEMBER, 1908.

During September a severe drought occurred in nearly all portions of the Dominion, the Province of Manitoba proving the exception to the rule with a rainfall in most localities of from 3 to 19 per cent. more than the usual amount. In parts of Southern Alberta and more locally in Southwestern Saskatchewan the rainfall was nil; elsewhere from coast to coast, except in Manitoba as already stated, the quantity recorded was equivalent to about a third of the average. The table shows for twenty stations included in the report of the Meteorological Office, Toronto, the total precipitation at these stations for the month. Ten inches of snow is calculated as being the equivalent of one inch of rain:—

Station.	Depth in inches.	Departure from the average of twenty years.
Victoria, B.C.	0.60	-1.60
Kamloops, B.C.	0.10	-0.89
Calgary, Alta.	0.60	-0.51
Edmonton, Alta.	0.60	-0.88
Swift Current, Sask.	0.30	-1.04
Winnipeg, Man.	1.90	+0.31
Port Stanley, Ont.	0.50	-2.28
Toronto, Ont.	1.30	-1.43
Parry Sound, Ont.	2.70	-1.11
Kingston, Ont.	1.20	-1.50
Ottawa, Ont.	1.20	-1.47
Montreal, Que.	1.80	-1.91
Quebec, Que.	1.60	-2.11
Chatham, N.B.	0.90	-1.97
Halifax, N.S.	1.40	-2.44

THE THIRD RAIL.

At Berlin, Germany, on September 25th, two trains on the Berlin Elevated Railway collided. As a result eighteen persons are dead, while many sustained injuries. The accident was caused by a misplaced signal. One of the cars, which was crowded, was thrown to the street, forty feet below.

The collision occurred in the heart of the eastern commercial district upon what is known as "The Triangle," a notable piece of railroad construction, where three double-tracked lines cross. Most of the deaths resulted from contact with electrified rails.

GRAND TRUNK RAILWAY REPORT.

The half year report of the Grand Trunk Railway, the principal items of which have been received by cable, shows a decline in gross earnings of \$2,300,000, the weekly returns having fallen off to the extent of \$3,265,000. But the economies which had been promised have resulted in reducing expenditure by \$1,746,000, principally in expenditure on maintenance of way and equipment. The ratio of working expenses has thus fallen from 72.33 to 71.08 per cent. The total train mileage—9,460,756—decreased by 621,057 miles. Gross receipts were \$14,595,960, and the total net revenue receipts \$4,528,355, prior charges absorb \$3,625,885, and deficiency on Canada Atlantic, \$344,455. After meeting the deficiency on the Detroit, Grand Haven & Milwaukee of \$232,865, a total of \$936,240 is left for dividends.