

## BOILER EXPLOSION AT RIDGETOWN.

On the 6th of April a boiler exploded in the saw, stave and heading mill of Watson Bros., at Ridgetown, Ont., which completely wrecked the mill and has thus far resulted in the death of four persons. The accident occurred just as the employees were preparing to enter upon their day's work. The fire had been under the boiler for some time, but the machinery had only been in operation about a minute and a half.

The boiler was a horizontal tubular one, 54 inches diameter and 11 feet 6 inches long, with 58 tubes 3 in. in diameter, and a dome 20 in. diam. and 27 in. high. The plates were iron and were a little over one-quarter inch thick. The joints were all single riveted, the lap of plates being 2 in., and the rivets were 5/16 in. diam. and 2 in. pitch. Manhole was 15 in. by 1 1/2 in. and had a strengthening ring around it 1 3/4 in. by 38 in. The boiler was in general good order and fairly clean inside.

After explosion there was no evidence that the boiler had been neglected or had been carelessly used. The back head had been renewed at some time and was in very good condition, and evidently was stronger than the front head. The boiler had been used at a pressure of nearly 90 lbs. per sq. inch, and was supposed to be quite safe for a higher pressure. It apparently gave way first at the manhole, or near to it, and was split open from the top across the boiler. The manhole cover was picked up about 60 feet from the original position of the boiler, complete and uninjured, with bridge and bolt attached.

The dome was thrown about 600 feet, and the plate to which dome had been attached went about 700 feet in a different direction. The position of the front part of shell and of the back part confirm the theory that the boiler gave way first at the upper part, as these pieces were thrown in opposite directions and appear to have been turned end for end in their flight.

A second boiler which had no steam on at the time was thrown bodily over the engine and badly ruptured.

The violence of the explosion is clear proof that there was plenty of water in the boiler at the time, and the back head showed no sign of ever having been overheated. The quality of the plates seemed to be common boiler iron, and the most probable cause of the explosion was that the pressure carried was too high for the strength of the shell at the manhole and at base of dome. The severe strain put upon these parts had gradually weakened the boiler, so that it gave way at the ordinary working pressure.

How best to prevent similar accidents is a question well worth considering. In Great Britain, where so many boilers are in use, Government inspection has been carefully avoided, but the Boiler Explosions Act requires the user of a steam boiler to report to the Government every accident, no matter how trifling, and an investigation is held and the owner has to prove that he was using all proper precautions. Under this system the fault which led to the accident is traced out to the maker, or seller, or user of the boiler, and the blame fixed upon the right person.

The coroner's jury, in their verdict, stated that the cause of the explosion is unknown, but recommended that the government make it compulsory to users of steam boilers of all kinds to have them periodically inspected by competent boiler inspectors.

### HAMILTON, ONT.

(Correspondence of the CANADIAN ELECTRICAL NEWS.)

THE dissensions which arose at the annual meeting of the Hamilton, Grimsby and Beamsville Railway, and which resulted in the election of Mr. T. W. Lester as president, have not yet subsided. The ex-president, Mr. C. J. Myles, has again secured a controlling interest, and has reinstated Mr. A. J. Nelles as superintendent. At the adjourned meeting of shareholders, held a fortnight ago, the Myles faction represented the majority of the stock. A special committee reported in favor of doubling the stock, as there was sufficient surplus to do so; the report was adopted. A motion by C. J. Myles, seconded by R. S. Martin, that Mr. A. J. Nelles be reinstated as manager and superintendent of the road, caused an animated discussion which lasted two hours. Mr. Myles alleged that since the deposition of Mr. Nelles as manager, there had been a decrease in the quantity of freight and number of passengers. The appointment was finally carried by a vote of the shareholders present. It is claimed by the supporters of the

Lester ticket, however, that the appointment rests entirely in the hands of the directors. It is said that an effort will also be made to compel the resignation of Mr. Adam Rutherford, secretary. The profits of the year amounted to \$11,143.53. Beyond the bonded and mortgaged debt, there is a floating debt of \$19,576.10. The directors decided not to urge the building of a line to Grimsby Park and Beamsville this year. It is to be hoped that an end will be put to dissensions within the company, which, if prolonged, must seriously affect its prosperity.

Mr. Powell, who was until recently engaged as engineer by the International Radial Railway Company, is maturing plans for the construction of an electric railway from Hamilton to Guelph, Berlin and Waterloo. Charters have already been granted for a road to connect these cities, and Mr. Powell will endeavor to secure one of these. If unsuccessful, a new charter will be applied for. The capital, it is said, will be furnished by capitalists of Toronto, Guelph and Cleveland. No bonuses will be asked from the municipalities.

If the various schemes projected by Mr. E. A. C. Pew were successfully carried into completion, his name would be handed down to posterity as one of the greatest promoters of electrical development of the nineteenth century. His latest project is to supply power to the city from the Welland river by overhead conduits, the plan being to tap the river about one and one-half miles from Wellandport and build a canal, six miles in length, to run the water at Jordan, where there is a fall of 32 feet.

The Hamilton Radial Railway Company, of which Mr. Pew is also the promoter, has been granted right of way by the City Council on a thirty-two year franchise, and have commenced the construction of the line between the city and Burlington Beach, which it is expected to have completed by Dominion Day. The power house will be located at Burlington, that village being almost midway between this city and Oakville. Tenders for engines and power machinery have been received, and the contract will be awarded at an early date.

The Simpson-Noble Electric Light & Power Company, the new concern organized to supply electric light in this city, turned on the current a fortnight ago. The poles are being erected on private property, as the company as yet have not permission to erect them on the streets. The offices are at 103 Macnab street.

The directors of the Hamilton and Dundas Railway have decided to convert the road from steam to a first-class electric line. The work will occupy about two months, and will probably be commenced by the first of July. A change will also be made in the equipment, the ties having already been contracted for. This step meets with the hearty approval of the citizens, who consider that the road in its present shape is not in keeping with modern developments in methods of railway construction and operation.

The Hamilton Street Railway Company have made application to the City Council for an amendment to the by-law whereby the company would not be required to pay the city such a large revenue. The matter has been left in abeyance until an audit is made by the city auditors of the company's books.

HAMILTON, April 30, 1896.

## C. P. R. TELEGRAPH STORAGE BATTERY PLANT AT OTTAWA.

By W. J. CAMP.

THE Canadian Pacific Company's office at Ottawa, Ont., has been equipped with storage battery, and the old gravity entirely dispensed with. As there are some combinations different from those in use at other points, a description may prove of interest to your readers.

The cells used are those made by the Electric Accumulator Co., type E9, being used for locals, and type C3 for mains. The charging circuit varies from 230 to 250 volts. The locals are in 3 banks of 2 cells each; No. 3 and 4 being used for the local circuits in the main office, and No. 2 for supplying additional power on quad locals when extended to the Parliament buildings office (H. U.). These locals are charged through a small motor-generator, which gives a voltage of 6, with a capacity of 20 amperes on the generator side. The main batteries consist of 8 banks of 30 cells each, a total of 240. These are charged in groups of 80 cells each directly from the power circuit, a resistance being inserted to bring the current down to 1 1/4 amperes; or two banks can be charged simultaneously at the rate of 2 1/2 amperes. All single wires are worked from 40 cells positive or 40 cells negative. These cells also furnish the "short end" for quads. These two banks are arranged in duplicate, one lot being charged while the other is in use. As quad is not worked during the morning while parliament is in session, and only occasionally during the balance of the year, and it is found that sufficient current can be stored in the morning to last the quads for the rest of the day, the remaining 160 cells are not duplicated, and can only be charged while the quads are idle. The same applies to the cells for the quad legs battery. The total current for quads is obtained from 80 additional cells on each pole. This gives the "short end" about 88 volts and the total 264. As the longest quad from Ottawa is to Toronto (256 miles), this gives a good working margin.

Fig. 1 shows the arrangement of the charging and discharging switches for the mains. Those for the locals are the same. These switches are known as "double pole, double throw." The dotted lines show the charging current and the straight lines the discharging circuits. (Only one bank of 40 cells is shown in the diagram.) The charging is done, for instance, as follows: 9 and 11 are charged for one-third of the morning, 10 and 12 for one-third, and No. 2 local for the balance. During the afternoon and