Those nominated were elected, though D. Morrice and F. L. Beique refused to act. At a subsequent meeting of the directors, R. Forget was elected president, and J. A. L. Strathy vice-president.

The following figures are from the fifteenth annual report of the Royal Electric Company for the year from May 31st, 1898, to May 31st, 1899:

The gross amount for the year to credit of revenue accounts aggregated	$1,113,770 87
Expenditure for labor, materials, operation, maintenance, and general expenses	791,486 58
Balance	$ 322,284 29
Less interest and fixed charges	54,600 11
Net profit for the year	$ 267,684 18
There have been declared four quarterly dividends of two per cent. each to the total amount of..	120,000 00
Leaving a balance of	$ 147,684 18
From which are to be deducted the following:	
Sundry debts uncollectible or of doubtful value, charged to profit and loss account	3,101 66
Depreciation of merchandise, and factory product, on hand	8,777 99
Apparatus and plant displaced and withdrawn from use, and of diminution in values of sundry items of assets	123,870 16
Added to the credit of profit and loss account	11,934 37

HOT WATER HEATING.*

BY P. THOWERN.

In my last address I told you about the different plans which were adopted by the people in different countries, for heating their houses. The furnace and plans of laying the pipes, invented by Mr. Perken for heating large buildings in England and other countries were brought here in the year 1850 from London by Mr. Howard, to this asylum, and fitted by Mr. Garth of Montreal, and after I took charge of it in 1856 it did good duty for 34 years; in 1890 I began to change the coil furnaces for tubular boilers, in the main building; we have now only four furnaces left in cottages A and C, which I will soon change for two boilers, although they have worked well for the past cold winter, keeping 100 people warm, with 60 tons of coal. I told you that I would give you my reasons for changing. Fully twenty years ago I saw a good change could be made after making and repairing 100 coils, and every year the brickwork had to be repaired, and made new, which became expensive, and took so much of our time in the summer, which seemed so short, in keeping new work and repairs in order for the winter.

I have shown you in my diagram of the furnace that the two pipes at the back are the flow or hot water pipes, rising out of the coils, inside and outside ones; the two in front are the return pipes with taps at the bottom and connected with each coil at the bottom. The pipes are connected with a cast-iron expansion cylinder, each one on a wooden pedestal in the ward; each coil has a cylinder, the flow pipe connects with the cylinder as near as possible in the ward, in the bottom so that the cylinder becomes very hot at times, the return pipe also connects with the cylinder in the bottom and extends around the rooms for about 500 feet of pipe, and returns in the same recess together to the coil. In this form the water is always moving around while there is any heat in the furnace or bricks.

We will now look at our middle ward, which is about 30 feet above our furnace, this 30 feet of 1-inch pipe will hold one gallon of water at about 40 deg., or 10 lbs., and when heated to 212 deg. it will expand so that 21 gallons becomes 22, one gallon or 10 lbs. will become with the water in the cylinder 15¾ gallons; the cylinder, however, is not always kept full, and if the return water be reduced in heat by one-half of the degrees it will be increased in weight by 3½ lbs. (say 3 lbs.), which gives the motion to the return. If the 500 feet of pipe lies horizontally in the recess, not having a fall to the furnace, it will reduce the weight and motion in getting back to the coils; so you see what a small weight or force we have to keep up the circulation. We will now go to a ward about 30 feet higher, 60 feet above the furnace. These cylinders and pipes work better because of the height and weight being increased. Here we will observe the air is not admitted to the water anywhere, but when we pump in any to make up for waste, we after a while let out, by opening the tap above, whatever air may have gone in with it, and also any steam which may have formed on top of the water; we fill and supply them all with the pump. We will now go to the dome tank, 15 feet above, or 75 feet above the furnace; a cylinder and a coil of 1-inch pipes around a 20-foot diameter and 6 foot deep tank of water supplied by city waterworks. This furnace worked well, but the pressure was so great the coils would not or did not stand the same length of time as the others, because we had to keep a larger fire, the coils being larger and the pipes connected being about 1,000 feet each. We will now go to the basement. The expansion cylinders are about 15 feet above the furnace; and the 500 feet about 3 feet above the furnace; this gave more expense and labor to keep going than any other, one reason was, I was obliged to return the water to coils in the furnace under the floor and below the top of the furnace. I then lowered the furnace but found it too wet for the fire to burn well and raised it again; here I began to see that if I put in a boiler large enough I could stop four fires and have one to do the same amount of work much better, and get the same amount of pressure alike in all the coils by having an expansion of 100 gallons up by the large tank, and instead of supplying them with a pump I could supply them from the tank 75 feet above, 35 lbs. pressure; I then drew a plan for a 40-inch boiler, 8 feet long, with two 11-inch flues for the heat after passing under the boiler to come to the front and then go back to the smoke pipe behind on top of division plate through sixteen 4-inch tubes. I had a division plate behind and a smoke box in front; I had holes tapped in the top and sides for 1-inch pipes, the same pipes which were connected with the coils I connected with the boiler, but the expansion cylinders in the wards were full, and became a part of the heating pipes; I took up to the expansion cylinder two pipes, one flow and one return. The water in the cylinder is about the same level as in the tank, and a pipe from the bottom of the tank to supply the boiler with a check valve and supply tap near the side of the boiler, each pipe has a cut-off tap so that if any dirt or scales choke the pipes in the wards, we drain the pipes and cylinder, and then let on the full force, on the top of the expansion cylinder. Up by the tank we have a relief pipe to discharge into the tank should a large fire be put in too quickly; the first boiler has been working for the last ten years without any repairs or changes, the same set of bars, burning hard coal, large egg.

We have now in the Toronto Asylum for the Insane, ten heating boilers and seven for giving hot water and four coil furnaces for heating in the two cottages, and three boilers for our greenhouses.

*From a paper read before the Canadian Association of Stationary Engineers

—Sixty of the rollers and heaters in the forge department of the Ontario Rolling Mills, Hamilton, Ont., struck, July 3rd, demanding, it is understood, sixty cents more a ton piece work The men's demands were granted, and they returned to work in a couple of days.

—The construction of a canal between Lake Ashawaken, on the head waters of the Ottawa, to a point on the Gatineau river, a distance of some seven or eight miles, is being discussed. A large portion of the distance is watered by small lakes, leaving but a few miles of actual canal to be excavated. It is claimed that the freshets on the Ottawa are not of sufficient duration to take out the timber from the far northern regions in one year, and that no lumberman would hold limits and pay dues under these circumstances. The line of the proposed canal is just about twenty miles south of the height of land, latitude 48, and longitude 76, or about one hundred miles north of the present farthest north operations. Altogether the canal would, it is said, open up for operation about ten thousand square miles. It is rumored that the project may be laid before the Quebec Government for the purpose of obtaining a subsidy.