

President Peterson thought it would be well to obtain from the writer of the paper under discussion the fullest possible details.

The discussion on Mr. Irwin's paper on "Retaining Walls" was then taken up again, the writer showing one or two samples of mortar taken from walls which had failed.

Mr. T. C. Keefer stated that he had had an opportunity lately of seeing some old locks on the Cornwall Canal, about fifty years old, in which the mortar was still wonderfully good. It seemed to have been made from ordinary lime. The mortar used in the old Lachine Canal, built in 1825, was even better. This was made from heated lime, hot water being used, according to the old Scotch method.

Messrs. Walbank, Irwin and McLeod gave a few instances of what rubbish was often put into modern buildings. Mr. Walbank thought that the Government ought to appoint proper inspectors, who would look after building materials in a thorough manner. He observed that there was some good pit-sand in the neighborhood of Montreal; a good deal depended on the manner in which the sand was used.

Mr. Munroe gave instances in which the "mortar of antiquity" was just as bad as the average modern mortar.

President Peterson observed that no doubt there were bad contractors in 1814, just as there are bad contractors now. Much of the cement made from limestone had in these days given place to hydraulic cement.

The meeting then adjourned.

CANADIAN ASSOCIATION OF STATIONARY ENGINEERS.

Editor CANADIAN ENGINEER:

SIR,—On Nov. 6th I had the honor of organizing in Carleton Place a branch of the C. A. S. E., which will henceforth be known as Carleton Place No. 16, C. A. S. E.

I was ably assisted by Bro. F. Robert, president of Ottawa No. 7, Bro. F. W. Donaldson and Bro. Cohen of Ottawa. This branch starts out with about 20 charter members and under very favorable circumstances. After the organization and installation of officers had been effected, several of the members were called on to express their views, among them was the mayor of the town, who is an old engineer, and during his remarks he eulogized the C. A. S. E. and its objects very highly. President Robert of Ottawa No. 7 gave the members some good advice regarding the work of the association in Ottawa, and expressed the belief that No. 16 would prove a progressive and useful association. Bro. F. W. Donaldson also spoke in very high terms of the good work that the association was doing, and urged the members of the new association to attend the meetings and make them interesting.

The newly-elected officers, from the president down, expressed their intention of leaving no stone unturned to make the association a success in every sense.

The writer was also called on for a few remarks, and complied to the best of his ability, on the work, aims and objects of the C. A. S. E. The meeting then adjourned, after having spent a very pleasant evening. W. H. Routh is President, and A. M. Schofield, Secretary.

On Nov. 8th, Brockville No. 15 was instituted by our worthy executive president, Bro. York, assisted by the writer. It was expected that Bro. Devlin, of Kingston, Bros. Past President Wickens, of Toronto, and Ryan and Hunt, of Montreal, would have been with us, but unfortunately Bro. Devlin was stricken down the night before with inflammation of the bowels, and was since for some days in a very serious condition, but is now on a fair way to recovery, a fact which all our members will be glad to hear. Bros. Ryan, Hunt and Wickens were unable to be on hand, which was a disappointment to all.

During the afternoon Bro. President York and myself were taken in hand by Mr. Storey, the genial superintendent of the Canadian Carriage Co., and shown through their very extensive establishment, where the manufacture of their world-famed carriages and sleighs is reduced to a science, and where there seems to be a place for everything and everything in its place, and this applies to everything in the place, even the engineers.

After we had seen everything in the factory, Mr. Storey very kindly drove us out to the new Asylum buildings, and to the fire halls, etc.

In fact, to make a long story short, we were treated with the utmost kindness by everyone, and shall long remember our visit to the Island City. I have enclosed an account of the instituting of

the association and the banquet in the evening, which was the most pleasant affair I have yet attended in connection with the C. A. S. E.

I remain, yours very truly,

A. E. EDKINS,

Provincial Deputy.

At the last meeting of the Hamilton branch C. A. S. E. two interesting papers were read by Bros. Peter Batty and A. Nash. This branch appears to be keeping awake.

Bro. J. J. York, president of Montreal No. 1, is pushing the education of its members; he is giving classes on Saturday afternoons for the benefit of those working at night, although the attendance so far is somewhat meagre. He is also making the educational Thursday nights a success. At the last meeting the following questions were asked: "A boiler 52 in. diameter, $\frac{3}{8}$ plate, carries 97 lbs. per square inch—what is the strain per sectional inch on shell?" Answered on the blackboard by President York: "Given diameter of flue 4 ft. 2 in., length between rings 9 ft. 2 in., thickness of plate $\frac{3}{8}$, longitudinal seams double rivetted butt strap—what is the safe working pressure?" Answered on blackboard by Bro. Weir. Several members gave their ideas of putting boiler compound in while under pressure. Bro. Thompson showed a good plan for making a lever for turning engine off centre.

St. Lawrence No. 2, of Montreal, have things in running order again. Although their membership is small, they are energetic.

AN ISOLATED STORAGE BATTERY PLANT.

BY L. M. PINOLET, MONTREAL.

Though there has been much discussion recently upon the advantages of storage batteries as auxiliaries to the dynamos in central electric light stations, but little attention has been given to the use of the batteries for the same purpose in small isolated electric light plants. The batteries are well adapted for this service, and in a number of cases would be even more advantageous than in a large lighting station. In many isolated plants, the dynamos and their driving engines are in charge of attendants who also have other duties to perform, such as looking after other machinery. Under these conditions the cost of operating the electric plant is small; but if lights are needed after the regular working hours, the cost is great, because then the other machinery is shut down and attendants must be provided for the electric plant alone. Where a small number of lights are required, this cost is usually so great as to preclude the running of the electric plant after the regular hours, and current must be obtained from some electric light company or recourse be had to gas. In such a case, a storage battery of sufficient capacity to carry the load after the regular hours of running, would be very economical and advantageous. As the battery would require but little attention, it could be taken care of by the regular attendants without extra help, and could be charged during the time when the dynamos and other machinery were running. The expense of its operation would thus be practically only the trifling cost of the extra coal burned to supply the power to the steam engine which drives the dynamo for charging the battery. Taking into account also the interest on the money invested in the battery plant and the expense of its maintenance, the cost of operating the battery would in nearly every case be considerably less than the cost of electricity or gas obtained from some outside company.

A model installation of this kind and one that will serve to illustrate the peculiar advantages of storage batteries in isolated electric plants, is the battery installation in the large dry goods store of Henry Morgan & Co., at Montreal. The electric light plant is located in the basement of the store, and its equipment consists of two 50-light F-H arc dynamos, one 250 light 110 volt, compound-wound Thomson incandescent dynamo and a 50 ampere, 140 volt, shunt-wound, Crompton dynamo for charging the storage battery. Power is supplied by two high-speed engines of 80 and 40 h.p., the larger one being belted to the two arc dynamos, and the smaller one to the incandescent and Crompton dynamos. Three Babcock & Wilcox boilers of a total capacity of 125 h.p. furnish steam to the engines and also to steam pumps.

The storage battery consists of 60 Crompton-Howell cells, manufactured by the Crompton-Howell Electrical Storage Company, of London, England, for whom John Forman, Montreal, is Canadian agent. The plates of the battery are of porous lead obtained by casting molten lead, when at the point of crystallization, into blocks composed of lead crystals held together at their points of contact. Plates of suitable size for the batteries are sawn from the blocks, and are so porous that almost every crystal in them is bathed freely by the electrolyte in the cell. The innumerable