

Mr. Duguid,—

I think there are a number of pump experts here who could give more enlightenment on the pump question than I can. However, I believe one of the greatest troubles with pumps in connection with railroads and corporations is, that they never look very far ahead regarding their requirements. They know what is required of the pump at the time, but that is about all they figure on.

Now regarding the rotary pump, about which Mr. Wickens made a few remarks, I think in a few years from now they will find that the rotary pump is not so far out of place as it appears to be at the present time. It strikes me that if there were more pumps like what Mr. Wickens told us about which could only run some three hours before filling the standpipe, it would be a good thing for many towns. It takes many plants all their time to pump sufficient water in twenty-four hours. Towns very seldom get pumps of sufficient capacity.

Regarding the efficiency of pumps, Mr. Walsh no doubt is a better authority on that question than any of us, but it appears to me that the hydraulic end of the pump is not the end to be looked upon for the efficiency at all. If you can get an efficiency of 98½% from the water end of a pump, then it is a great deal better than you can get in railroad service. I do not think it is possible to get that percentage from any pump although I am open to conviction. I do not think you can get as good efficiency on the start as after a few months' run. I think a pump is giving very good efficiency if you get 75%. May be I am wrong in this, but I think 75% is about the efficiency you will get from a smaller class of pumps. I think the whole efficiency of the smaller pumps is in the engine part. They figure on the efficiency of the water end as though that was the whole consideration.

Now concerning the question of the buyer putting in specifications which Mr. Walsh spoke about. I think the smaller amount of specifications a buyer puts in the better.

A good many people purchasing pumps look upon the builders as most people do upon those fellows buying rags, and think the builders are looking for chances to do them. I think such builders as do work for the City of Toronto, will have their workmanship of the highest order as their reputation is seriously at stake. Now if the buyer starts making specifications, etc., it gives the builder a chance to creep out of any difficulties if they should crop up in the future.

Now regarding foundations, I think if the builder does not know how to build the foundations to suit his particular pump, nobody would. The builder knows exactly the different strains which will occur which an ordinary contractor would not be aware of at all. So that I think if a separate contractor