

New York, March 3rd, 1905.

Mr. Chas. G. Curtis,
International Curtis Turbine Co.,
149 Broadway, New York.

Dear Mr. Curtis:-

I have your interesting favor of Feb. 27th, commenting on Dr. Steinmetz's report, which I am handing to Dr. Steinmetz for his consideration.

I note that the theoretical considerations which you put forward greatly favor an increase in the number of stages over present practice. I assume that the 8-stage condition would correspond to a bucket speed of between 300 and 350 ft., depending upon the actual steam velocities obtained. While I think it is quite probable that we may be forced to go to 6 or 8 stages on machines of 5000 Kw. and over, because of the difficulty of obtaining bucket speeds exceeding 325 ft., I hope we will be able to avoid such multiplication of stages in the moderate ~~xxxxx~~ sized machines. I also think by going to 750 revs. on the 5000 Kw. machine that we can obtain a bucket speed of 400 to 450 ft., which ought to give us a good efficiency on the 5-stage machine. Our experience indicates that the cost of a machine is almost proportionate to the number of stages. It is therefore apparent that if we are to maintain a profitable business that we must find means to obtain a satisfactory competitive

efficiency with a machine of substantially 4-stage construction. I am hopeful of a very satisfactory outcome along the lines which we are now working, every care being taken to eliminate friction losses and to ascertain the correct bucket shapes, angles, pitch, making necessary improvements in nozzles, etc., combined with an increase in the bucket speed to 450 or 475 ft. per second. If I am right we will finally succeed in producing a turbine of satisfactory efficiency at a low cost. To my mind, low cost is of controlling importance in machines of moderate capacity. Extreme efficiency obtained by largely increased cost will, I believe, except in special cases, only be justified on machines of the largest capacity.

Yours very truly,

(Signed) E. W. Rice
THIRD VICE PRESIDENT.

EWR/FNM
CPS
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