is what limits the number of effects which you can put into an evaporator. The increased efficiency does not compensate for the interest on investment.

When you deal with inorganic salts there is another method of evaporation by which practically there is no limit to the number of effects that you can use. You can get a reverse curve. In other words, instead of getting the maximum evaporation in the last effect and having all your heat going up through your condenser, you can get your maximum evaporation in the first effect with a slightly sliding line towards the last effect. In other words, in ordinary multiple effect evaporation you have a step up effect in the amount of steam liberated from each evaporator, but if you put your liquor into the last effect and pump it successively forward from one to another and put your steam into the first effect, then you flatten out this step effect curve and get nearly the same amount of evaporation in each effect. I do not believe there is any limit to the amount of effects you could use.

Of course, this kind of evaporation cannot be used on such things as cane sugar where you get invert sugar, because your final product comes off at very high temperatures; neither can it be used in glues or in any such things. But, based on experience of using sulphite liquors, we are already designing an evaporator of ten effects to concentrate digester liquor simply for its fuel value. Now, sulphite digester liquor contains about 6000 B.T.U. per lb. of solid matter. Figured on the price of Birdseye Mill at Berlin it would be only $1.75 per ton. Nevertheless the figures based upon the work which we have done show that that liquor can be evaporated and burned for fuel with a possible yield of dividends after paying all expenses in fuel value of from 75% to 80% of the cost of the plant by running the operation backwards where it would be absolutely impossible and uneconomical to do it frontwards in the ordinary mill, so it seems to me that in this beet-sugar industry where you have only 4% and the salt is an inorganic salt which is not going to change, that the backward evaporation would solve that problem, especially where you have high fuel values, and the high price of potash. With the additional saving of the nitrogen content this could be accomplished in the above way and eliminate to a large degree the cost of evaporation. It might be worthy of consideration and considerable money might be spent in experimentation—in fact, we had already started on it when the Govern-