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Miller to Michelson requesting help on phonodeik analysis; carbon copy of typed message.

February 18, 1911

My dear Professor Michelson;

When you were here in May, you suggested that I send you some curves for comparative analysis on your analyzer. I expected to do this at once, but I found that my curves needed analysis to a longer number of components. I decided to rebuild the analyzer giving ten components only, to cover thirty components. This proved to be a longer job than was anticipated, and I have only recently gotten the machine into good adjustment.

I have now analysed five curves with some care, to test the analyzer. I enclose the results of the analysis. I am sending in a roll four of the curves which I used in the actual analysis. If you can still find it convenient to have them analysed I would be much interested to know the results.

You need not take any trouble to perserve (sic) or return these curves, as I have duplicate copies.

Each of the four curves was analyzed twice in succession by myself, using perhaps rather more care than would be the case in routine work, yet not using extreme care, by an independent setting of the machine, and with only ordinary routine care, by my assistant, Mr. Sweet.

Besides the four sound wave curves, we analyzed two test curves; one the straight line inclined 45° , $y=x$, and the other a sine curve carefully drawn with an amplitude of 250 mm. The latter was traced only once, by Mr. Swaat (sic) and this tracing was made before the fine adjustment of the higher components had been completed, the straight line was traced with free hand, not with a straight edge.

One division on the recording disks of the analyzer = 0.1 mm, this is the smallest quantity recorded. The second decimal figure results from computation only.

I have sent you a package of nine lantern slides, showing some of the types of waves that I have been getting. Please accept them with our compliments. I will be glad to know whether any of them are broken when you receive them.

Yours very truly,