



College Hill Mass Oct. 7.

Mr. Geo. B. Prescott

Electrician N. U. Tel. Co.

Dear Sir

I last night rec'd a letter from V. P. Kalku saying that if I had any improvements to add to the telephones I might send an account of them to you that they might be added to some which you are about to make. Accordingly I will specify what I have accomplished since I began my experiments a month ago. My aim has been mainly to secure better acoustical results with the telephone as it was, that is to say with magnets and coils as in the ones you have. I judged this <sup>might</sup> be accomplished by so fixing the plate that the sound vibrations should be absorbed in itself to the greatest degree. I have tried many ways of effecting this and my present arrangement secures this in two ways, first, by a cushion of felt between the plate and the upright front to which it is made fast. and second by giving the proper tension to the plate by means of the screws - to be determined by trial for each plate. That is, the screws are not driven very tight but are as much as half a turn back of the place to which they could easily be driven but this is to be found by trial. With two instruments fixed in this way I think the efficiency is quite



two or three times that of such as I carried to N.Y. Over my line from the College to my house - about 2100 feet - ground connections I can talk with great ease with my wife or others - even with the ear a foot distant from the instrument while they call (simply striking upon the plate with a nail or other thing) may be heard in the next room if it be tolerably quiet. When the wind was blowing like fury Friday I could talk without trouble from that distance.

Third, for a call, I attach a catgut string or wire (or any string) to the middle of the plate, a la Bismarck Whistle, and draw it through a bit of cloth or leather with chalk or resin on it thus.

It makes a sound I could hear in an adjoining room when the door was shut and does not appear to interfere with the other proper action of the plate.

As nearly as I can judge the intensity of the sound is about equal to one half of the original one in these instruments over my line of nearly half a mile. especially for low sounds. I shall try to send a pair of these to your address on Tuesday morning the 9th inst.

As to additional work I have been surprised by a result obtained when the magnets were taken out from one instrument and common wood screws  $1\frac{1}{2}$  inches long used for cores - these in place of the magnet. I was able to con-



run with no great difficulty over my line. Of course there is  
a little magnetism in the screws, but there was not enough to  
pick up a point of a carpet tack  $\frac{1}{16}$  of an inch long.

I should also say that with the instruments I send I have talked  
through an induced resistance of 8000 ohms. It seems to me that  
these resistance coils make more difference than the corresponding  
resistance on telegraph wires. Please to inform me how  
these instruments work when tried according to your tests on the  
lines.

Yours truly

A. E. Dolbear