Charles Batchelor’s Recollection of Phonograph

The following recollection was written by Charles Batchelor and discusses Edison's invention of the phonograph (in which Batchelor conflates events from July through December 1877). He entered them in one of his daily journals (Cat. 1339) in October 1906.

THE INVENTION OF THE PHONOGRAPH

This occurred at Menlo Park N.J. in the Edison Laboratory, about the middle of the month of November 1877. I was Mr. Mr Edison's chief assistant at that time and had been so for some years— We had been at work off & on for years previous to this time and had developed a system of automatic telegraphy, one of the instruments for which consisted of a rapidly running small wheel carrying forward a strip of paper, with a stylus resting on it to record chemically the dots & dashes that came over the line— Some of these instruments we had in the laboratory & much of the paper— We had also for a long time been developing the `Edison Carbon telephone,' an instrument in which a diaphragm was made to put a varying pressure upon a button of pressed carbon by the vibrations produced by the human voice— Many of these instruments were in the laboratory at the time and we used them daily— Some years previous to this date we had designed and made some machines for coating paper with parafin (similar to the paper now used to wrap candy in) for making condensers for Electrical work and a large lot of variable thicknesses of this paper coated and uncoated was stocked away in the cupboards—

When making different sized telephone diaphragms it was a very common usage to mount them in a frame with a mouthpiece, hold them up, and talk to them in a loud or low voice; at the same time putting a finger close to the centre to feel how much vibration was communicated to them

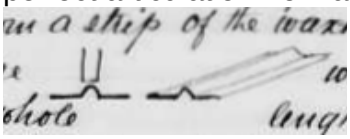
One night, after supper (which was prepared for us at mid-night) and at which all the principal workers sat down together; Mr Edison who had been trying different diaphragms in this manner suddenly remarked "Do you know Batch I believe if we put a point on the centre of that diaphragm and talked to it whilst we pulled some of that waxed paper under it so that it could indent it, It would give us back talking when we pulled the paper through the second time'— The brilliancy of the suggestion did not at first strike any of us— It was so obvious that it would do so that everyone said `Why of course it must!!'

I said We'll try it mighty quick! and we went to work— Mr Kruesi the Chief Mechanician took the diaphragm to solder on to it at the middle a needle point about \g\1/4\g*\\pr\\pr\ long; he also took one of the automatic telegraph wheels and stands to fasten the diaphragm to so that we could draw the paper through easily—

I cut and got ready some strips of paper of different thicknesses of parafin coating— It was a matter of an hour or so when we all got together again to make a trial— We fixed the instrument on to a table and I put in a strip of paper and adjusted the needle point down until it just pressed lightly on the paper— Mr Edison sat down and putting his mouth to the mouthpiece delivered one of our favorite stereotyped sentences used in experimenting on the telephone "Mary had a little lamb" whilst I pulled the paper through—

We looked at the strip and noticed the irregular marks, then we put it in again and I pulled it through as nearly at the same speed as I had pulled it in the first place and we got "ary ad elll am" something that was not fine talking, but the shape of it was there, and so like the talking that we all let out a yell of satisfaction and a "Golly it's there"!! and shook

hands all round— We tried it many times and in many different ways continually improving the apparatus during the early morning— During the time that some of these changes were being made Edison & I would talk about the possibilities of such an invention and it was then that we fully realized the brilliancy of the suggestion and the magnitude of its possible applications— Before breakfast the next morning we had reproduced almost perfect articulation from a strip of the waxed paper which I had embossed as it were



with a ridge in the middle running the whole length, the needle point in this case was ground chisel shaped.

Before the next night we had reproduced speech from a strip of tinfoil using again a rounded point needle, this was so remarkable that we decided to design a machine to experiment with In a few days about the beginning of Dec 1877 we had this instrument finished. It consisted of a cylinder of brass turned by hand that was provided on its surface with a spiral groove running the whole length and being about \g\1/8\g*\\pr\\pr\ apart; the shaft also was cut the same pitch so that when the handle was turned the cylinder moved forward uniformly

A talking diaphragm was mounted on one side of the cylinder to record the speech, and a much more delicate diaphragm was mounted on the other side to reproduce the same— Each diaphragm could be moved away from the cylinder at will so that only one was in operation at a time.

The nut that the screw thread on the shaft engaged with, could also be disengaged so that the cylinder could be set back quick.

The cylinder was covered with a sheet of tinfoil and a suitable device was provided to hold it— This sheet could be put on and reproduced many times— The needle most generally used was a rounded point— Many thousands of experiments were made with this machine, and similar ones made immediately after; some of which were exhibited in different parts of the country & Europe whilst great crowds of people came almost every day to Menlo Park to hear with astonishment the reproduction of their own

The original instrument here described is now in the South Kensington Museum London, Edison having presented it to that Institution