Appendix 2

Charles Batchelor's Recollections of Edison

The following reminiscence about Edison's early electric light research was written by Charles Batchelor about the same time that he wrote five others concerning his work with Edison. Unlike those, which he entered in one of his daily journals (Cat. 1339) between October 1906 and February 1908, he recorded this on separate sheets of paper, and it was not published in Welch 1972.

Eclips total of the Sun July 29 1878

Mr Edison went with Prof Henry Draper— He went to Experiment with his Tasimeter an instrument he had invented to measure very small degrees of heat & if possible to discover & measure the heat spectrum which observers then believed to exist in the extreme rays of the solar spectrum he believed at that time that he could measure to the 500 000 part of a deg. Fahl. When he came back from this trip he told me of many projects to be worked up for future inventions amongst them one for transforming the power of the falls into Electricity & utilizing it in the mines for drills etc— He said he had talked a great deal with Prof Barker who was his companion in a journey to the Pacific Coast after they had observed the eclipse at Rawlings— Prof B had told him of some experiments he had seen at William Wallace's place at Ansonia Ct. & wanted him to go up there & see them— They arranged a visit & I accompanied them— There we saw Mr Wallaces 'Telemachon' as he called it at work lighting up six arc lights in series the lights appearing between two plates of carbon one above the other lengthwise with their long edges almost touching— We talked long that night on the value this machine would be in transmitting He also generated a cur-
rent with one machine & drove another with a large coil of wire between them to represent distance. We talked long that night on the value that might be in transmitting power in the West & Edison arranged with Mr Wallace to send a machine to Menlo Park which he did about the middle of Sept of that year 1878.

Some months previous to this & before Edison went west on the eclipse expedition I had assisted him in some experiments in which he was trying to raise to incandescence different substances in order to make an Electric lamp. We had no dynamo to produce current but we had a large lot of Bichromat of Potash battery of large capacity called Condit & Hanson Cells because we bought them from a firm of that name in Newark who made installations; manufactured apparatus & chemicals for electroplating; with these we could make comparatively high or low volts with a correspondingly light or heavy currents—The result of these experiments was a very fine incandescence procured from very thin strips of carbonized paper about 1/4" long 1/16" wide & the thickness of a visiting card before carbonizing say half a hundredth of an inch—these were mounted in an instrument as we had in the laboratory called a Gashiots tube—It was a globe of glass that could be exhausted of air on the air pump & had a stopcock so that when the air was exhausted it could be removed from the pump—In the inside there was a short brass rod which rose from the centre about 1 inch with a small brass ball on the end & through the top there was another similar brass rod but longer than the first which could be raised & lowered so that the balls could be made to touch or be set apart say 1/2 inches—On these two rods I fixed in place of the balls I fixed small clamps to hold the different materials that we experimented with. We were very much astonished at the difference we noticed; when the pieces were illuminated in the bulb, when we had exhausted the air both as to the ease with which we got the light & the length of time they would last.

All these experiments were in his mind when he went west & I have no doubt he gathered from Prof Barker & the other scientific men on that trip all that was being done had been done by other scientists in that line. Indeed he came home full of projects for producing light in large quantities like gas & distributing it in small units as is done by gas—Early in September 1878 we were actively figuring out stations that could deliver current to houses which could be used equally for light, or for small powers such as pumps,
sewing machines, printing presses & all sorts of manufacturing— All these could be turned off and on at will without affecting any other— Mr Edison had had very little experience with dynamo machines but he knew what other scientists such as Joule & Siemens Wilde and others had said of them that in transforming energy they were more economical than steam engines— He knew that many installations were running in which one machine ran 3, 5 or possibly 10 lights but these were large candlepower & unwieldy for domestic purposes & to replace gas— When he came back from the west we spent many nights talking over his ideas which were crudely about this: We can develop the electricity in large quantities & lead it wherever we want to use it by wires & then put in lamps or motors which can be turned on or off without affecting any other in the supply— He illustrated it to me by pipes carrying water, and a supply tank above fed a main & small pipes with stopcocks all along the main led to the return pipe which ran to another tank below— A pump constantly lifting the water from below to the top tank— When you turned a stopcock it let water through & represented a lamp or motor & the water found its way back to the top tank— When all were turned on it represented full current & pump working full capacity—

Before he went away he told me to make all Faraday's experiments on the single loop of wire cutting the field of force as he thought that that was the kind of machine he should use— After he came back he had me make a machine of this kind giving me the rough figures & all the data he had figured out on the armature

The machine Mr Wallace sent to the laboratory which Edison had thought so much of whilst we saw it operating at Ansonia he soon found was not at all adapted to his use, for, as he said, it chewed up all its power itself whereas he wanted a machine that give all its power to the outside circuit & retained the least possible for its own use— We had by this time got a small Gramme machine but this would not suit his ideas— He used to say no machine will do for me unless it can give 90% of its power outside of itself