

WILLIAM STANLEY OVERLOOK

HOUSATONIC RIVER WALK

ADDRESS

by

George C. Stanley, Jr.

for the

Annual Meeting and Lecture

of the

Great Barrington Land Conservancy

June 2, 2006

On the eve of the dedication of the

William Stanley Overlook

Housatonic River Walk



Distinguished guests, ladies and gentlemen.

Let me see if I can build on Bernie Drew's excellent work describing how in the spring of 1886, Great Barrington became the birthplace for the modern electrical world we know today. When I read Bernie's first page of his piece on Great Barrington and the emergence of the modern Electrical Age, I felt I was right here as the lights came on in Main Street shops.

Let me start by going back to September 1879 when my Grandfather, William Stanley, headed off to Yale. His father, a lawyer, hoped son William would study law and join him in his law practice, but Grandfather had other ideas. After only three months

at Yale, William wrote a rather terse letter home saying, "have had enough of this, am going to New York." Edison had recently invented the light bulb and young Stanley was swept up in the excitement of the day. Grandfather was full of energy and worked a variety of jobs including helping to string wires from New York's big generating station in lower Manhattan up towards mid-town. Edison insisted on 100 volts DC, and it soon became apparent that the further away you were from the generating station the more voltage drop you had. For example, when the lights were turned on, there was about a 10-volt drop around 5th Street. Everyone understood the problem, which was caused by the small resistance on the transmission lines. Stanley later remarked that to get all the way to 21th Street would require copper wire the size of a man's thigh! He also said you would need to have power-generating stations about every five miles! As he moved up in the electrical world, the solution to this problem kept bubbling away in the back of Grandfather's mind, especially when he became George Westinghouse's chief engineer in Pittsburgh, PA.

Unfortunately, tuberculosis slowed Grandfather up, and by 1885 his doctor advised him to leave Pittsburgh and move to the country. That's why he came back to Great Barrington where his parents had had a place. So by the spring of 1886 as Bernie Drew points out, William Stanley threw the switch that changed the world. His solution to the line-loss problem was to switch from Direct Current (DC) and use Altering Current (AC). The advantage of AC is that with Stanley's coils (now called transformers) you could easily raise and lower the voltage. The advantage is that if you could raise the voltage by, say a factor of 10, you could reduce your transmission line losses by a factor of 100!

Using his transformers, Stanley raised the voltage from his Siemens 500-volt generator, located in the old rubber plant across the Housatonic on Cottage Street, up to 3,000 volts. Then the wires came across the Housatonic and down Main Street where Stanley down-converted to 100 volts to light many shops and stores. I've made a rough calculation of the voltage loss if Grandfather had used 100 volts instead of raising up to 3,000 volts and then converting back down to 100 volts. This isn't 100% accurate as I don't know how many lights were lit in the Main Street shop, but my rough guess is that with all the lights turned on, the 100 volts sent would be down to about 97 volts at the end of the line. But by using the step-up/step-down system, Stanley would have had less than 0.01 volts drop! Less than a meter needle width and almost unmeasurable!

What happened here in Great Barrington in 1886 was the dawn of the modern electrical age that we now take for granted. For example, electricity could be generated inexpensively in places like Niagara Falls, and sent all the way to NYC, a distance of over 400 miles. Today, you see great transmission towers running up and over the hills with signs saying 'Danger 500,000 volts'.

The irony of this story is that if Grandfather hadn't come down with TB, he would not have moved to Great Barrington. He wouldn't have worked with my other Grandfather, Fred Darlington, my father would never have met and married my mother, Fred Darlington's daughter, and I would not be standing here, and we would not be honoring Great Barrington. Such are the ironies of history.

Let me close by making a few comparisons between how the invention of the transformer changed life in 1886 and life today. Just take your home. In 1886 there were no electrical lights or electrical appliances in 99% of homes. You may not realize it, but most of your homes today have over 30 electrical motors to make your life easier. Many of these motors are hidden away. If, for example, you own a computer, it alone has 3 to 5 motors. Most kitchens have 8 to 12, bathrooms 3 to 6, laundry rooms 4 to 6, garages 3 to 10, and entertainment centers 5 to 8.

The 100 years from 1886 to 1986 saw more change in how we live than any other period in time. So much of this change can be traced to having low-cost electricity available worldwide, and that in turn can be traced to the transformer. Thank you, William Stanley.

Great Barrington holds an historic place in the annals of electrical history as the site that showed the world how electrical power could be sent over long distances. It dramatically changed the way we work and live.

Thank you.

Photo: George C. Stanley (right) and Bernard Drew at the William Stanley Overlook 2006