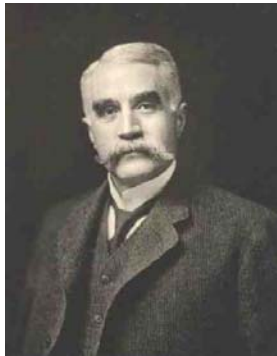




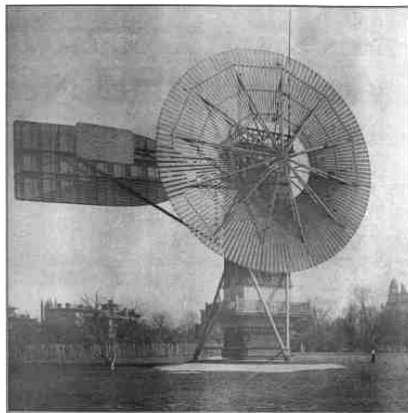
- Home
- Search
- Join GEO
- Support GEO
- Inside GEO
- Contact Us
- GEO Jobs/Internships
- Calendar of Events
- Network Meetings
- Publications
- Ad Rates
- Corporate Members
- Fee for Service
- Solar Thermal Rebate
- Green Jobs
- Green Programs
- Biomass
- Hydro
- Solar
- Wind Energy
- Ohio Wind Site
- Green Power
- Green Buildings
- Resources
- Speakers Bureau
- USDA Incentives
- Clean Power Estimtr.
- Home Clean Energy
- Energy Efficiency
- Renewable Directory
- Ohio Incentives
- Green State Alliance
- Fuel Cells in Ohio
- Green Scrapbook
- Mary Tucker
- Pine Run Gristmill
- Battle of Lake Erie
- Hydraulic Turbines
- American Windmills
- HellerAller Windmill
- ▶ Charles F. Brush
- Standford Ovshinsky
- NASA Lewis/Glenn
- Bluffsview School
- Victory Farms
- SEED + OREO = GEO

Charles F. Brush



About the time that Heller-Aller began distributing a catalog for its water-pumping windmills, a famous Cleveland inventor tested the wind, so to speak, to make electricity.

Like fellow Ohioan Thomas Edison, Charles F. Brush, born in Euclid in 1849, was a restless backyard tinkerer and clever entrepreneur. A child prodigy, by age 15 he had built electrical gadgets and microscopes and telescopes for school chums. Brush graduated from the University of Michigan in 1869, with a degree in mining engineering. Brush is best remembered for his dynamo and arc lights, which illuminated a Cincinnati physician's home in 1878 then Cleveland Public Square in 1879. These and more than 50 patented innovations made Brush a wealthy man. His company, Brush Electric Company, merged with companies that eventually formed General Electric, which still brings good things to light.



Forever the backyard inventor, Brush constructed what may be Ohio's first wind-powered turbine during the winter of 1887-88 behind his Euclid Avenue mansion. It also may have been his most conspicuous creation. The 60-foot, 40-ton wrought iron tower rested on a gudgeon that extended 8 feet into masonry. The windmill's wheel measured 56-feet in diameter, had 144 blades and a sail surface 1,800 square-feet. The tail was 60 feet long and 20 feet wide. A 20-foot shaft inside the tower turned pulleys and belts, which at top performance spun a dynamo 500 revolutions per minute. The dynamo was connected to 408 batteries in Brush's basement. These dry cells illuminated 350 incandescent lamps, ranging from 10-50 candlepower, and operated three electric motors and two arc lights. The whole contraption produced 12 kilowatts at its peak. The windmill reportedly lasted for 20 years, until 1909. Brush's batteries lasted until 1929.

Text courtesy of Steve Ostrander

More Cleveland History on Charles Brush:

Federal Solar Credit	For more on Charles Brush and his wind turbine see the Danish Wind Industry Association web site
Policy Update Netwrk	
Geothermal Resources	
Univ Clean Energy OH	
GEO Surveys	The Northeast Ohio Chapter of the Society of Manufacturing Engineers , May 2005 "Chapter Chat" newsletter article entitled: <i>"Tech Talk: The Windmill Was Invented in Cleveland in 1887"</i> states:
Fed Sm Wind Tx Incen	
Economics	
Environment	
Clean Energy News	"In 1887 Charles F. Brush designed and erected the world's first wind-powered electric generator in Cleveland, Ohio. It operated for 12 years delivering 12 kilowatts of power to Brush's home on 37th and Euclid Avenue. Brush's home was demolished after his death in 1929, but the windmill was left standing. In the early 30's Henry Ford attempted to purchase the mill for his museum in Dearborn, Michigan, but a Cleveland city councilman opposed the sale, hoping that Cleveland would save the windmill as an historic landmark. Unfortunately there was no resolution as to who should get the mill, and it was removed to make way for a new road.
GEO in the News 2009	
2010/2011 Webinars	

<http://www.windpower.org/en/pictures/brush.htm>

"A Replica of the windmill will be created in the Cleveland Downtown area. As the Danish Wind Industry Association site makes clear, Brush's invention was conceived and created 'before its technological time.' While the replica will look back to, and honor, Northeast Ohio's inventive, manufacturing past, it will also promote a look forward to the now realizable goal of economically harnessing the wind for electric power. More information about Charles F. Brush can be found on the web site - <http://www.brushwind.org/> [A chronology of Brush's life 1849-1929 follows, including 1879 - Cleveland becomes the first city to light streets with electricity on April 29 following Brush's 1878 patent for the Arc light and Dynamo]"

See a scanned 1930's Cleveland newspaper article about Henry Ford's failed attempt to buy the Brush turbine and a photo of what remained of it also appear at <http://www.brushwind.org/>. This article appears to explain why the Brush wind turbine is not, unfortunately, today in Greenfield Village (where you can still see Edison's New Jersey laboratory at Dearborn, Michigan).

See idea of recreating the Brush turbine at
<http://realneowind.contenthosting.org/taxonomy/term/3>