ELECTRIC LIGHTS Housatonic village was wired for electricity in 1893-94. • **Stockbridge** residents on Nov. 16, 1898, voted that utilities could supply electricityto individuals in the village as long as it was delivered by underground conduit — or some means other than utility poles — within .75 miles of Soldiers Monument. Street lighting should be affixed to iron posts, not trees. • **Great Barrington** installed underground wiring for its Main Street lights in spring 1932 and removed existing poles and wires. • Frank Dunham lighted his **Sheffield** home and bicycle shop with electricity from a dynamo in 1902, and Town Clerk Henry C. Clark lighted his office with battery power in 1911, but the first electric system in town served streetlights installed by the Village Improvement Association in 1914. The first lighted homes were owned by A.H. Tuttle and Roland Smith. Berkshire Power Co. of North Canaan, Conn., generated and transmitted the power.

Franklin Mint issued its "The Genius of America" Series William Stanley ingot in 1976.

Stanley Recognized

Great Barrington established **Stanley Park** (originally called Riverside Park) on north Main Street in 1909. It was rededicated to honor Stanley and Westinghouse in 1946. A Rotary Club marker (left) was installed in 1974. Massachusetts Electric placed a memorial streetlight and plaque at the park (below left) in 1986. And a IEEE Milestone in Electrical Engineering and Computing marker was put in place in 2004 (below right).

Parrish Park was created just south of the Brown Bridge in Great Barrington in 1971 in memory of Robert N. Parrish, longtime manager of Great Barrington Light Co.

Program support from Thomas Bratter & Thomas Dewey Academy, William F. Edwards, Pastor Charles Van Ausdall & First Congregational Church, Ray Kasevich, James N. Parrish, Jeb Rong & Bernard A. Drew

The **American Institute of Electrical Engineers** held its convention in Great Barrington June 18-21, 1902, with events at Town Hall and Searles Castle. William Stanley was vice president of AIEE from 1898-1900 and would receive its Edison Medal in 1912. The Thursday Morning Club held a reception for the AIEE delegates at the Berkshire Inn and hosted a tea for delegates' wives at Chestnutwood, the Stanley home on Maple Avenue. At the conclusion of the gathering, the 239 attendees gave the Thursday Morning Club ladies a silver loving cup. The cup was last exhibited at the Berkshire Museum in Pittsfield in 1986. AIEE issued a souvenir medal in 1911 (both sides are shown below, left and center).

At the **AIEE convention** at the Wendell Hotel in Pittsfield in 1911, Stanley gave a history of his Great Barrington work. A souvenir of that gathering was a miniature replica of the original transformer (above right). One of the replicas, from the Drew collection, was part of a display at the Berkshire Museum in 2008-2010.)

Great Barrington's Housatonic River Walk (behind Rite-Aid and St. Peter's Church on Main Street) dedicated an overlook to William Stanley in June 2006 (photo left). The inventor's grandson, George Stanley of California (right, with Henry Chen, owner of the old Rubber Factory site across the river) spoke at the rainy-day dedication.

Great Barrington *Wired*

125th Anniversary of William Stanley's 1886 Demonstration of the Viability of Alternating-Current Electricity Transmission

WILLIAM STANLEY (1858-1916) surveyed his rudimentary laboratory inside the cavernous rubberwear factory at a crook of the iced-over Housatonic River in Great Barrington, Massachusetts. The Westinghouse steam boiler snorted, the Siemens alternator crackled, the new induction coil squatted on a workbench in silent anticipation. It was time. The scientist sent alternating-current surging through the No. 8 wire that threaded out of the building and across the river, past undertaker Edmund B. Culver's horse barn and up Dresser Avenue to Main Street, where three 150-candlepower incandescent light bulbs snapped to brightness at Ralph Taylor's clothing store, one at the doorway, the others inside. Lights gleamed in C.H. Lillie's pharmacy and Dr. F.P. Whittlesey's office. Shopkeepers and bankers, farmers and school children, sawyers and weavers and laborers in the Great Barrington community of 4,500 that chilly Saturday evening in March 1886 marveled.

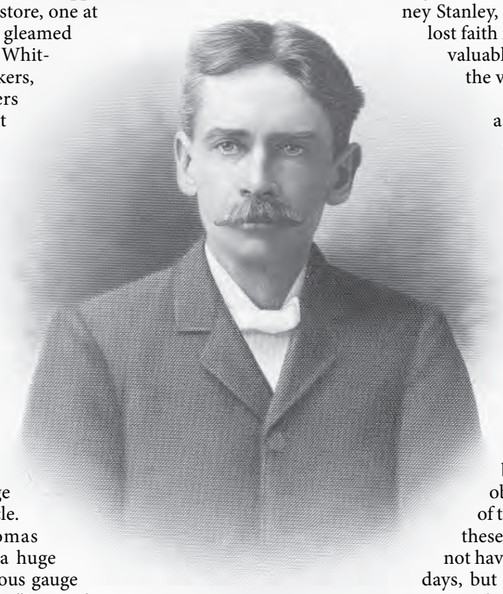
Few knew it, but it was the dawn of a new technical age!

A self-taught engineer, 28-year-old Stanley had deftly demonstrated an improvement in an a-c exhorter, or induction coil, better known today as a power transformer, which enabled him to distribute electricity over a distance — the same method still used worldwide. Leaving his assistant to monitor the machinery, Stanley midwife-galloped from his laboratory, across the iron truss bridge and up Main Street to see the spectacle.

Direct current, of which Thomas A. Edison was chief advocate, had a huge shortcoming. It took wires of enormous gauge to distribute it more than a half mile. "It was the common saying of the day that, if one should attempt to light Fifth Avenue from Fourteenth Street to Fifty-Ninth Street, the conductors required would be as large as a man's thigh," Stanley joked.

An indefatigable tinkerer who eventually would have 129 patents to his name, Stanley had persuaded George Westinghouse to allow him to prove that alternating current was the best option for mass distribution of electric power. For health reasons—Stanley suffered tuberculosis—Stanley in autumn 1885 came to Great Barrington, a town with many family connections. His grandparents had lived here, as had his parents off and on.

Stanley leased a building on Cottage Street, installed a 500-volt, single-phase alternator and set to work. He was aware of Gaulard-Gibbs and Zipernowski, Deri & Blathy systems—see his notebook entry for 18 September 1883, among his papers at Union College in Schenectady, N.Y.— and he knew how to overcome their flaws. The induction coils, which stepped voltage up to 3,000 for transmission then stepped it back to 100 to power 16-, 50- and 150-candlepower lamps, needed to be placed in parallel, rather than series, to maintain constant potential. If the concept is over your head, that's alright; Stanley's wife, Lila Courtney Stanley, didn't understand either, but she never lost faith in her husband, even when he cashed in valuable shares of stock to sponsor himself in the venture.

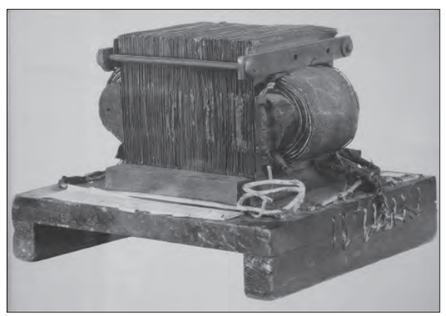


"I realized that if we could make a transformer that would regulate the energy transformed by slight variations of its induced counter electromotive force in the same manner that a shunt-wound motor regulated for energy transferred by variation of its rotational counter electromotive force," Stanley would write in 1911, "the problem would be beautifully solved."

Few in town recognized the daring of Stanley's experiment. Downtown already had street lamps which used coal gas from Great Barrington Gas Co. But electricity — electricity was something new. "As I look back on the plant now," Stanley would observe in 1911, "I tremble for the safety of the inhabitants of Great Barrington while these experiments were being tried. We did not have oiled insulation or oiled cloth in those days, but separated our primary and secondary circuits with shellacked paper and various other substances of an equally fragile nature; but all went well with the system, no accidents occurred and no dangers, other than a small fire, were reported until an attendant dropped a screwdriver into the armature of the Siemens machine and entirely ruined it."

That was an inglorious way to put out the lights. But it was only the beginning of the William Stanley Jr. story.

— Bernard A. Drew



Courtesy Berkshire Museum

Electrical inventor William Stanley perfected his alternating-current transformer in 1885-1886 in Great Barrington.

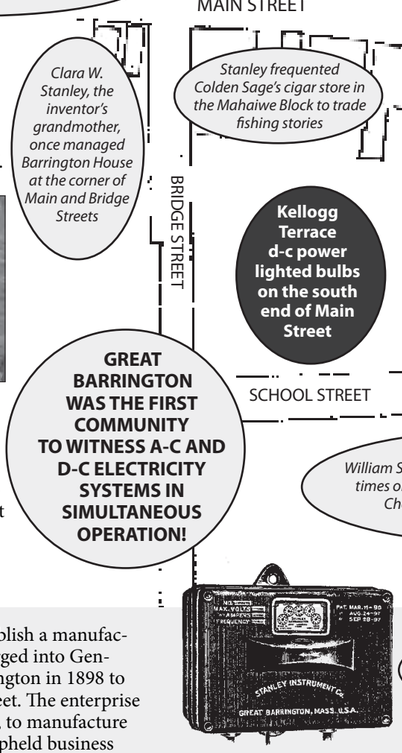
MAY 2011 CELEBRATION of William Stanley is a cooperative project of the Upper Housatonic Valley National Heritage Area • JR Technologies LLC • Great Barrington 250th Committee • Great Barrington Historical Society • Great Barrington Land Conservancy • Berkshire Museum • Attic Revivals Press

WITH Louis Lefferts Jenkins and English electrician Reginald Belafield assisting, William Stanley made rapid progress on his alternating-current transformer. "We built in all at the Great Barrington laboratory 26 transformers, ten of which were sent to Pittsburgh to be used in a demonstration ... The transformers in the village lit thirteen stores, two hotels, two doctors' offices, one barber shop, and the telephone and post offices," Stanley said. After a trial run March 6, 1886, there was a March 20 public demonstration. "The plant was operated every night the engine felt like it from April 6 to June 16," Stanley said in 1911. Stanley filed application to the United States Patent Office, which on September 21, 1886, issued patent No. 349,611 for an induction coil.

AIEE met at Kellogg Terrace (Searles Castle) and Town Hall in 1902

Main Street already had gas-flamed streetlamps in 1886

Concurrent with Stanley's experiment, Mary Frances Sherwood Hopkins, widow of Central Pacific Railroad tycoon Mark Hopkins, was building her estate **Kellogg Terrace** on South Main Street (above left). Electricians wired the McKim, Mead & White-designed chateau for d-c lighting. Construction superintendent H.N. Bodwell strung wires to share power with nearby dwellings and businesses and the d-c lights first shone March 10, 1886. Subscribers to this system included John A. Brewer's hardware store and H.J. Mignery's fruit maket and grocery. The Hotel Miller on Main Street was doubly charged. The building's south portion subscribed to Edison d-c from Kellogg Terrace. The north annex was a customer for Stanley's a-c. The power plant inside the Kellogg Terrace basement was SO NOISY, it drowned out recitals in the music hall. A new remote power plant was hastily put up. That small brick building still stands at the edge of Memorial Field on Bridge Street (inset).



Clara W. Stanley, the inventor's grandmother, once managed Barrington House at the corner of Main and Bridge Streets

Stanley frequented Colden Sage's cigar store in the Mahaiwe Block to trade fishing stories

Kellogg Terrace d-c power lighted bulbs on the south end of Main Street

The inventor's father, William Stanley Sr., lived next door to First Congregational Church and donated land that is now used for parking

Map adapted from 1904 Barnes & Farnum Atlas

Stanley a-c power lighted bulbs on the north end of Main Street

Stanley established his 1886 laboratory in the old H.H. Day India rubber factory on Cottage Street.

GREAT BARRINGTON WAS THE FIRST COMMUNITY TO WITNESS A-C AND D-C ELECTRICITY SYSTEMS IN SIMULTANEOUS OPERATION!

William Stanley and his family lived at various times on West Avenue, at Brookside and at Chestnutwood on Maple Avenue.

Stanley Instrument made watt-hour meters and later Stanley Insulating made vacuum bottles at a factory complex at the foot of Church Street and along River Street.

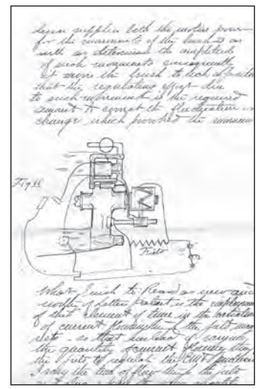
William Stanley left Great Barrington to establish a manufacturing concern in Pittsfield. It eventually merged into General Electric. Stanley returned to Great Barrington in 1898 to organize **Stanley Instrument** on Church Street. The enterprise grew to nine buildings, some interconnected, to manufacture watt-hour meters. The U.S. Supreme Court upheld business rival George Westinghouse in patent litigation in 1905, shutting down the business. Stanley didn't blink. In 1906 he sold rights to twenty-two of his patents to GE and contracted to provide laboratory support from the Church Street complex. Judson Logan was his chief assistant. Stanley's arrangement was sufficiently flexible that he could develop his own products as long as they did not conflict with GE's. • Pondering ways to insulate an electric kitchen range for GE, the inventor found a method of welding which permitted creation of a partial vacuum. The result was a metal Thermos-type bottle (he called it a Ferrostat bottle). Stanley created **Stanley Insulating** and began production of bottles and carafes in various sizes. Landers, Frary & Clark acquired the business and eventually moved it to New Haven. Aladdin Industries in Tennessee later purchased rights to the Stanley bottles. PMI in Seattle, Wash., manufactures Stanley bottles today. One original Stanley building remains in Great Barrington, the stucco-sided enameling facility at the corner of River and Pleasant Streets owned by Berkshire Paper.

Stanley ended his electrical service to Great Barrington customers June 16, 1886 — his was an experiment, after all, never meant to be permanent. Kellogg Terrace shut off its public lines in November 1887 — it was meant to be a one-residence service, not a public utility. But townspeople wanted electricity. **Great Barrington Electric Light Co**. incorporated in 1888 and installed a small d-c generating station at the end of Rosseter Street. It later uprooted to a facility at the corner of Taconic Avenue and Main. When the Stanley S.K.C. (for Stanley-Kelly-Chesney) installation for Monument Mills in Housatonic provided surplus electricity for Great Barrington in 1895, Great Barrington Electric Light abandoned its steam-powered d-c plant. By then the nation was solidly a-c. The small town utility built a power plant on the east bank of the Housatonic River near the Great Bridge in 1902. Parrish brothers Clarence, Clyde, Louis and Robert were longtime electricians for the company (see work crew photo). • Sold in 1916, the business became Southern Berkshire Power & Electric. A new hydro-generating facility on the east bank of the river that year electrified 1,200 subscribers. A new 115-foot dam was built in 1921. The utility became part of the New England Power Association in 1930. It merged with Massachusetts Electric in 1961. The dam was breached in 1963. The 1915 power station still stands, stripped of machinery, behind the town's East Street highway garage (above right).

Rogue businessman **Horace H. Day** built a large factory in 1847 for the manufacturer of waterproofed cloth and other vulcanized products. Day never paid royalty to the patent holder, Charles Goodyear, however, and got into a spat with upstream factory owners the Russell Brothers over the height of his dam. Day was obliged to close shop and leave town. The factory was vacant when William Stanley inked a four-year lease (for "a trifling sum") in autumn 1885 and began his a-c transformer experiment. Below left is a portion of an 1849 plan for the Day property, just south of Cottage Street. The stone foundation of the old factory, today privately owned, and the tail race in the river are still visible from Stanley Overlook on River Walk.

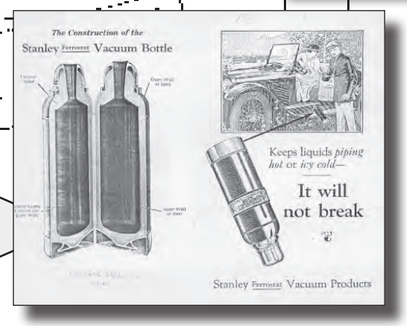
Gary Leveille collection

Section of 1849 plan/Great Barrington Historical Society



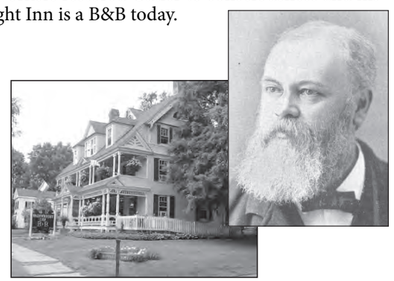
Stanley notebook/Union College

William Stanley Jr. was inducted into the Inventors Hall of Fame in 1995.



Great Barrington native and electrical engineer **Franklin L. Pope** (1840-1895), one-time legal advisor to George Westinghouse, supervised construction of Stanley's innovative hydroelectric plant at Alger Furnace in Stockbridge in 1893-94. Pope died in a freak accident in October 1895 in the basement of his South Main Street, Great Barrington, home, Wainwright Hall, where he had gone to investigate a power outage. A 2,100-volt shock knocked him flat. It burned holes in the soles of his shoes. Stanley and a panel of distinguished electrical engineers determined he died, not from being fried by the electricity, but from his head slamming against the floor. (White-washed technicality? Consider that James E. Cutler, an employee in the transformer department at Stanley Electric Manufacturing in Pittsfield, just a year before grasped a live wire and took a 4,800-volt jolt. Quick-thinking co-workers restored Cutler to consciousness and his only after-effect was a burned palm.) Wainwright Inn is a B&B today.

If his 1886 demonstration was a left hook, Stanley's 1893 power station (left) was a knockout punch. It showed emphatically alternating current's viability in long-distance transmission of electricity. Stanley set up a polyphase power transmission system at a new hydro-power station built at the site of the old Alger iron furnace in Stockbridge, on the Housatonic River just above Housatonic village. The 240-kilowatt S.K.C. generator sent electricity to Monument Mills to power about 1,000 incandescent lights at the textile mill, twenty arc lights, two forty-horsepower motors and three each 20- and 10-horsepower motors. The wires continuing 7.5 miles into Great Barrington to serve residential customers. Stanley's system shut down in 1912, the wooden dam eventually breached, the power station dismantled. The wooden structure at Alger Furnace suffered a fire in the 1930s. Stone ruins remain, in private ownership. • Monument Mills built a second, larger power plant upstream in Glendale (right) in 1906-07 with a 500-kw generator, supplying the mill and also Great Barrington Light & Power and Stockbridge Lighting. Also privately owned, it continues to generate electricity today.



Brochure production underwritten by Upper Housatonic Valley National Heritage Area