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Strowger Switches at Castle Hill

The Trustees of Reservations in Massachusetts conserves nearly 25,000 acres of land and more than 100 “special places” throughout the state. From Appleton Farms, a working farmstead in Ipswich, to the homestead of poet William Cullen Bryant in Stockbridge, these exceptional properties are preserved for public use and enjoyment.



For telephone switching enthusiasts, the Great House at Castle Hill on the Crane Estate in Ipswich is perhaps the most special of these places. The house, as it stands today, was built in 1928 by Chicago industrialist Richard T. Crane, Jr. It is a Stuart-style mansion of 59 rooms surrounded by landscaped grounds featuring one-half mile of manicured lawn flanked by statuary known as the Grand Allee, and 21 outbuildings including a casino and a powerhouse. The Crane Estate consists of 2,100 acres on the Massachusetts coast.

The Great House is open for tours from May 27 to October 9 and for special events throughout the year. Last fall, one of these special events drew the attention of Sandra Galley, vice-president of The Telephone Museum in Ellsworth, Maine. It was called “Hot and Cold Tours: Behind the Scenes of the Great House” and was publicized as a cellar-to-rooftop tour of the spaces that kept the household running smoothly by means of early 20th century technologies. Surely a bank of Strowger switches lurked somewhere!

Almon B. Strowger (1839-1902) was the inventor of a mechanism that made the rotary dial phone possible, eliminating the need for (manual) switchboard operators. With his 1891 patent in hand, he founded the Automatic Electric Company, selling his product to independent telephone companies. When the Bell System acquired the patent in 1916, the switch was renamed “Step-by-Step” which refers

to the horizontal and vertical stepping motion of the device. The switch, by whatever name, served the telephone companies for more than 100 years.

Sandra inquired as to whether the telephone system was included in the tour, and was informed that it was not because little was known about it. Linda Marshall, the Trustees’ Cultural Site Administrator/Ipswich Historic Houses, then invited representatives of The Telephone Museum to examine and report on the switch, with the intention of training volunteers to interpret this essential part of Great House operations.

On December 7, 2011, Charles and Sandra Galley, John McNamara, and museum president Charlie Dunne met Linda and Susan Hill Dolan, Cultural Resources Manager for the Crane Estate, in the cellar of the Great House.



The Telephone Museum folks were thrilled to find an almost pristine Automatic Electric Private Automatic Exchange in a glass cabinet in a small anteroom at the bottom of the stairs from the Great House kitchen. It shows no signs of damage from water, fire or abuse; unfortunately, it lacks a power supply. A motor-generator set would have provided 48 volts DC power to the telephone system and would have run off of the house electrical system.

In addition, much of the wiring in the house has been cut or re-purposed for doorbells, conventional telephone service, etc. In spite of these drawbacks, Charlie Dunne surmised that adding a small, 48-volt rectifier, and applying a little cleaning oil, could bring the switches back to working condition.

The system is equipped with about 40 fan-tail plunger line switches and 10 connector switches. The cross wires between the protector vertical and the switches look original. In addition, ringing, tone and alarm circuits are probably also provided. It is unclear whether documentation for these circuits exists, though many wires are tagged with paper labels indicating areas such as "Boys' Room."

There are some recessed mount AE telephone sets still in place. Desk sets may still exist in the bedrooms or elsewhere. There is a single, multi-pair outside cable that goes through the front foundation wall to feed many of the outbuildings. This is a lead-sheathed cable with plastic, or perhaps rubber-over-silk insulation. The plastic (or rubber) is brittle and breaking; and considering the amount of utility work that's been done over the years, is likely chopped off somewhere.

Linda and Susan enthusiastically led The Telephone Museum representatives deeper into the cellar to admire other parts of the electrical system (both AC and DC), the plumbing and boilers, and upstairs to view the elevator, servants' quarters and kitchen. The lateness of the hour prevented further exploration, but the interest was keen!

The Telephone Museum representatives are eager to restore the switching system for educational purposes, if the Trustees decide to proceed. John McNamara offered the use of a gadget to "debug" the system, and Sandra Galley offered to introduce docents to this piece of telephone history - Charlie Dunne offered to move in! If the system were restored, docents could call from one room to the next and visitors could watch and hear the switches operate as these calls were being placed. In the "real world" digital switching systems long ago replaced the electro-mechanical systems that are preserved by and demonstrated at The Telephone Museum as part of its mission. Restoring the Great House switches would offer an unusual, and amusing, glimpse into mid-20th century communications and add a new dimension to the "Hot and Cold" tours.

