

BSRA Entertainment Report for December 6, 2014

LONG FORM (for historical record) Entertainment Report for December 6, 2014

December 6, 2014. *The Race Underground.* Author Doug Most, deputy managing editor at the *Boston Globe*, discussed his recently released book, about the development of America's first subway in Boston, and the race between brothers Henry Melville Whitney of Boston and William Collins Whitney of New York to be the first to put together such a project, in a friendly rivalry set in America's First Gilded Age. Before Doug attained his present position, he was a reporter on transportation issues for New Jersey. His previous book was a "true crime" story; the idea for his very different current book (which was 6 years in the making) came from a lunch with the head of the MBTA 7 years ago, which led him to do this story on the people behind Boston's and America's first subway. Doug admitted later in the show that calling the relation between the Whitney brothers and the two cities was partly artistic license playing up the sports rivalry between the two cities, but he pointed out that he was by far not the first to play this up, for when the Central Subway opened in Boston, a newspaper editorial in New York City lamented that a city "so conservative as Boston" could develop its first subway so much faster than New York.

People initially resisted the idea of a subway; this resistance was based upon fears about hazards underground, including outright superstition, associating the underground with death, disease, vermin, dirt, and the Devil; furthermore, it should be noted that underground miners face very real dangers up to the present day. This subject gets a whole chapter in Doug's book. New York was similarly wrestling with the idea of a subway at the same time. While researching his book, Doug created a timeline spreadsheet to see correlations between events that might be close together, but researched at widely separated times. One of the first events to note was the opening of the London Underground in 1863 (after being proposed as early as the 1830s and permitted in 1854), which was the first subway in the world by 30 years. Electric propulsion was not available at the time, so the London Underground opened using steam-hauled trains. This was obviously bad from an air quality standpoint, with at least one contemporary report describing the experience of riding the Underground as being like standing next to someone continually blowing cigar smoke in the riders' faces; despite its success in moving tens of thousands of passengers per day, this characteristic of the London Underground may have contributed to resistance of people in other cities to the idea of a subway.

Electric propulsion was needed. For the United States, development of this fell to Navy engineer Frank Julian Sprague, who had an idea for an electric motor for traction applications. Sprague was hired by Thomas Edison on May 23, 1884, the day the Brooklyn Bridge opened, after enthusiastic recommendation by Edison partner (and former mentor) Edward H. Johnson. Although Sprague did important work for Edison, including development of mathematics of electrical systems, he and Edison clashed, with Edison being focused on lighting systems, which frustrated Sprague in his wish to develop electric motors, so Sprague resigned after just a year under Edison, in 1884, and founded the Sprague Electric Railway & Motor Company, into which he invested thousands of dollars of his own money. By 1886, he had developed a motor capable of running on DC current at constant speed under varying load, with the option of regenerative braking; this earned him an endorsement from Edison, despite the earlier personality clash. He also improved on a trolley pole design (for current collection) developed by Charles Joseph Van Depoele in 1885, thereby putting in place two important elements needed for electrifying a streetcar system. Sprague tried to get the interest of New York elevated railway financier Jay Gould by demonstrating his propulsion system on an electrically powered flatcar (of which we saw a photo), but a highly impressive spark scared Jay Gould away from the system. The Richmond Union Passenger Railway was the first to adopt his system, being tested in 1887 and opening on February 2, 1888 (initially with ten streetcars, but with expansion of the fleet and routes following very soon thereafter). Although not the first demonstration of electric streetcars, this system was the first revenue streetcar system, and hills with grades over 10% enabled a convincing demonstration of the practicality and reliability of the new electric transportation. Sprague had to accept a contract for motors for the system's streetcars that would award no payment until the job was done and accepted, but success was such that Edison bought him out in 1890, and even before that, 110 electric railways around the world using Sprague's equipment had at least gotten

into the planning stage. This included Boston, under the direction of Henry Melville Whitney.

Henry Melville Whitney started out riding on the coattails of his father Brigadier General James Scollay Whitney and his younger brother financier William Collins Whitney, who had been Secretary of the Navy under Grover Cleveland's first administration and had been considered as a presidential candidate himself. Henry Melville Whitney became an agent of the Metropolitan Steamship Company (providing service between Boston and New York); when his father died in 1878, he became the president of the company. He saw the crowding in Boston, and realized that transportation would be very important for growth of the city, as increasingly people would need to commute in from the suburbs. In 1887, he convinced the Massachusetts General Legislature to consolidate the five horsecar companies operating in Boston and build a subway to relieve street congestion, thereby forming the West End Street Railway Company. In 1888, he met Frank Sprague late at night to see the Richmond Union Passenger Railway demonstrating the ability of the system to keep working while 21 streetcars made it up one of the steep hills; the system did not fail, even though voltage drop caused the lights on the streetcars to dim. This demonstration convinced him to electrify Boston's horsecar system. Construction of the Central Subway began in 1895, largely using the cut-and-cover method, with considerable use of manual labor due to the lack of machine power. Construction finished in 1897, on schedule and under budget (\$5 million budgeted, but less than \$3 million spent). Construction did have a few accidents: In January 1897, workers digging near Boston Common accidentally nicked a gas pipe, and no one noticed until after the leak had been covered over and enough gas had accumulated within the ground between the tunnel roof and the ground surface for people to start noticing the smell of gas. A shoe shiner nearby had noticed streetcar wheels sparking on the rails (which had been sanded due to winter weather), and the gas company was called out of concern over the possibility of an explosion, but the gas company repair crew could not find the leak in time, and eventually two horsecars passing each other ignited the gas, causing an explosion which killed ten people and some horses (the aftermath of which we saw in two photos). Four other workers died in separate events during construction. Apparently, the explosion did not damage the tunnel, and the subway opened on September 1, 1897. To reassure passengers about the fears mentioned earlier, the subway tunnels had been painted white and kept very clean. The first streetcar (#1752) into the subway proved extremely popular -- it had been designed for 40 passengers, but got 140 passengers in the course of its trip, with people packed inside and hanging off the sides, and the opening was an immediate success.

At the end of the show, Doug opened the floor for questions and answers, and also narrated the image cycle that had been running during his earlier narration. This image cycle included Boston street crowding, construction of the Central Subway, the aftermath of the gas explosion, the Richmond Union Passenger Railway, the Beach Pneumatic Transit system opened briefly in New York City (1870 - 1873), and photos and sketches of the Whitney family and other people important to the development of America's first subway. Doug got many of the latter photos from Whitney and Sprague descendants that he had met.

SHORT FORM (for Annual Report) Entertainment Report for December 6, 2014

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