

The
CAMBRIDGE

STRING
THEORY
Bike
Tour



A history of science and innovation

Creativity is in our bones. Cambridgeport in the 19th century was home to inventors living within walking distance of their factories. Kendall Square represents the flowering of research conducted in modest incubator spaces on the industrial back streets north of Fresh Pond.

2. *The Media Lab* grew out of the work of MIT's Architecture Machine Group, and remains within MIT's School of Architecture and Planning. Recent projects have focussed on wearable computing, wireless "viral" communications, machines with common sense, new forms of artistic expression, and innovative approaches to how children learn.
3. *The MIT Nuclear Research Reactor* is the second largest university based research reactor in the U.S. and the fourth-oldest operating reactor in the country. The reactor is one of only six facilities conducting patient trials for advanced radiation therapy treating brain tumors and skin cancer.
4. *Sterling Elliott* set up a machine shop in 1875 focused on improving bicycles. He developed a four-wheeled "quadricycle" with a patented steering mechanism that he

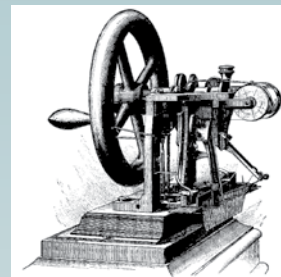


licensed to the emerging automobile market. His magazine, "The Bicycling World," became a popular source for news on cycling technology.

In 1897, Elliott invented a machine to automate

the addressing of magazine mailing wrappers. By 1900, the success of the addressing business had eclipsed bicycling. Elliott sold his machine shop to the Stanley Steamer automobile company and opened the Sterling Addressing Machine Company in Cambridgeport.

5. *Symbolics* commercialized work initiated in the 1970s at the MIT Artificial Intelligence Laboratory, producing a state-of-the-art personal computer supporting solutions in the fields of artificial intelligence, financial analysis, and pattern recognition. On March 15, 1985, Symbolics registered the very first internet dot-com address: symbolics.com
6. *Alvan Clark & Sons* was an American maker of optics that became famous for crafting lenses for some of the largest refracting telescopes of the nineteenth and early twentieth centuries, for institutions including the University of Chicago, the US Naval Observatory, and the Lick Observatory. The company was founded in 1846 by Alvan Clark, a descendant of Cape Cod whalers, who started out as a portrait painter.
8. *Polaroid Corporation*, founded in 1937 by Edwin H. Land, is most famous for its instant film cameras, the company's flagship product for 60 years. Polaroid's original dominant market was in polarized sunglasses, an outgrowth of Land's research in polarization.
9. *The Science Hotel* does not have overnight guests. Begun in 1994, the "hotel" offers prospective tech businesses affordable state-of-the-art lab space and shared administrative services. With over 50,000 square feet on three floors, the Science Hotel attracts startups in the bio-science industry.
10. *Miracle of Science* was founded in 1991 by two MIT post-grad alumni. In 2004, it was named the "top nerd bar" by *Popular Science*. Menu items are written on the wall in a periodic-table-of-elements layout and tables are made with chemistry-lab countertop material.
13. *Elias Howe* was awarded the first United States patent in



1846 for a sewing machine using a lockstitch design. Isaac Singer had perfected a facsimile of this machine and was selling it with the same lockstitch that Howe had patented. Howe was forced to defend his patent in a court case that lasted from 1849 to 1854. He won the dispute and earned considerable royalties from Singer and others for sales of his invention.

14. A long distance call was made on October 9, 1876 by Alexander Graham Bell in Boston to his engineer Thomas Watson in Cambridge using the newly-patented telephone. The conversation was conducted over existing telegraph wires and lasted over three hours.



15. *Draper Laboratory* dates its roots to the 1930s when Dr. Charles Stark Draper created a teaching laboratory at MIT. A primary focus of Draper's efforts throughout its history has been the development of advanced guidance, navigation, and control technologies. Draper's contributions to weaponry during the war in Vietnam led to longstanding protests at the company's Cambridge headquarters.
17. *Thinking Machines Corporation* manufactured massively parallel computers intended for applications in artificial intelligence, reflected in the company motto: "We're building a machine that will be proud of us." In 1985, the company chose the third-registered dot-com address: think.com



18. *The Kurzweil Reading Machine*, introduced in 1976, could scan and speak text. Ray Kurzweil's inventions include the first omni-font optical character recognition, first CCD flat-bed scanner and first text-to-speech synthesizer.
19. *The Museum of Science* grew from the 1830 founding of the Boston Society of Natural History in Boston's Back Bay. After World War II, the society negotiated a 99-year lease for land spanning the Charles River Basin. The Museum features over 500 interactive exhibits, with live presentations throughout the day, along with shows at the Charles Hayden Planetarium and on New England's only domed IMAX screen in the Mugar Omni Theater.
20. *The Swiss Consulate* in Cambridge was established in 2000 as the world's first science consulate. This consulate does not issue visas or manage immigration issues. Rather, the consulate promotes knowledge exchange between Switzerland and regional centers of higher education, technology, innovation, science and the arts.
21. *The Harvard Observatory* was founded in 1839, with a refractor telescope that was the largest in North America



for decades. Images of the moon made between 1847 and 1852 took the prize for technical excellence in photography at the 1851 Great Exhibition at The Crystal Palace in London. The Harvard College Observatory employed women as "computers," responsible for making mathematical calculations and examining stellar photographs. Many later contributed original research and developed careers as astronomers, including Cambridge residents Annie Jump Cannon, Henrietta Swan Leavitt, Cecelia Helena Payne-Gaposchkin, and Helen Meriwether (Lewis) Thomas.

25. *Stephen Day* managed the first printing press in the Massachusetts Bay Colony and in 1639 printed "The Freeman's Oath," a church-mandated vow to defend the Commonwealth. Prior to taking this oath, a colonist's movements were carefully observed. If they veered from the Puritanical ideal, they were asked to leave the colony. If they stayed or later returned to the colony, they were put to death. The Reverend Jesse Glover had raised the funds for purchasing the printing press but died on the sea voyage transporting it from England. The business was managed by Glover's widow, who married Henry Dunster, the president of Harvard College, making the press the foundation of the college's publication service.
26. *Alexander Graham Bell* lived on the Brattle Street estate of the Hubbard family after his 1877 marriage to Mabel Gardiner Hubbard. Bell had been Mabel's teacher at a school for the deaf. Her family provided early financial support for Bell's inventions. Bell and the Hubbard family moved to Washington DC in 1880. The Brattle Street estate was subdivided with large houses on Mercer Circle built for Harvard faculty and smaller houses on Foster Street for "the better class of mechanic." Bell's father-in-law, Gardiner Greene Hubbard, founded the Cambridge Gas Company to bring gas lights to his Brattle Street estate. After moving to Washington, DC, Hubbard founded both the National Geographic Society and the American Association for the Advancement of Science.

27. *Edwin Land* first demonstrated an instant camera and associated film in 1947. Called the Land Camera, it was sold commercially by Polaroid less than two years later. Land experimented and brainstormed in marathon research sessions, with no breaks of any kind, until the problem was solved. He needed to have food brought to him and to be reminded to eat.



31. *Tudor Ice Company, Fresh Pond* was privately owned and home to a flourishing ice-harvesting industry in the mid-19th century, with ice shipped as far as Europe, China, and India. In 1856, a private company began supplying its customers with drinking water from the Pond. In 1865 the business came under city ownership. By the end of the century the Pond and the land surrounding it was entirely city-owned, and an elaborate public water supply system had been developed.



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Site Locations

Descriptions of all these locations can be found at the CambridgeBikes.org website. Locations in purple ink below are described on the other side of map.

1. Broad Institute
2. Media Lab
3. MIT Nuclear Research Reactor
4. Sterling Elliott
5. Symbolics
6. Alvan Clark & Sons
7. Alvan Clark
8. Polaroid Corporation
9. Science Hotel
10. Miracle of Science
11. MIT Museum
12. Elias Howe Workshop
13. Elias Howe
14. Long distance call
15. Draper Laboratory
16. Cambridge Innovation Center
17. Thinking Machines
18. Kurzweil Reading Machine
19. Museum of Science
20. Swiss Consulate
21. Harvard Observatory
22. Lab at Harvard
23. Harvard Museum of Natural History
24. Harvard Science Center
25. Stephen Day
26. Alexander Graham Bell
27. Edwin Land
28. Isaac Greenwood
29. E Ink
30. Maynard Ecology Center
31. Tudor Ice Company - Fresh Pond
32. Bolt, Beranek and Newman
33. Acentech
34. Momenta Pharmaceuticals
35. BioTechnica International
36. Infocom - Zork
37. American Association of Variable Star Observers



The
CAMBRIDGE
STRING THEORY BIKE TOUR
Map

Saturday, May 19th, 2012

Start: 10:15am
Arrive at Kendall Square T stop

Depart: 10:30am Sharp - Ride starts

End: Fresh Pond

Ride Distance: Approximately 14 miles

Ride Time: Approximately 2.5 hours



Additional information at the
cambridgebikes.org website

Credits:

Photos, tour route and information from Cambridge Bicycle Committee

Graphic Design by Robin Shore

GIS Mapping by Brendan Monroe

Ride organized by the Cambridge Bicycle Committee



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Museum of Science.