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Philadelphia Science Festival Celebrates City's Rich History of Invention, Innovation

Two core collaborators have significant anniversaries this week: the birth at Penn of the modern computing era and North America's first pharmacy college at USciences

PHILADELPHIA (Feb. 15, 2011) – In April, more than 55 local leading science and technology organizations will work together to launch Philadelphia's first Science Festival. It is a trend already popular in Europe with growing interest in the U.S., and Philadelphia is one of four U.S. cities selected by the National Science Foundation to test similar models in this country.

Two of the Philadelphia Science Festival's core collaborators celebrate milestones this week that are perfect examples of the city's rich history of invention and innovation: the birth 65 years ago at the University of Pennsylvania of the modern computing era; and the 190th anniversary of the founding of North America's first pharmacy college, Philadelphia College of Pharmacy, now part of University of the Sciences.

And that's just the tip of the proverbial iceberg. Since the city's founding more than 300 years ago, Philadelphia has been at the forefront of science and technology – 11 of the 16 routinely recommended vaccines were developed here, for example. Plexiglas, the first polio vaccine and the x-ray were also local breakthroughs, and Philadelphia counts among its many firsts the nation's first zoo, first public school and first independent hospital.

The Philadelphia Science Festival will highlight all of that and more April 15-28 with dozens of mostly free events designed to inspire and engage the next generation of scientists, doctors, engineers and entrepreneurs. The 55 participating institutions, museums and cultural and community centers are planning lectures, debates, hands-on activities and special exhibitions as part of the inaugural Festival.

ENIAC DAY

Philadelphia City Council has declared Tuesday, February 15 Electronic Numerical Integrator and Computer (ENIAC) Day on behalf of its 65th Anniversary. ENIAC, developed at the University of Pennsylvania, was the first general purpose electronic computer, and when it was announced in the press on February 15, 1946, it was nicknamed the "Giant Brain" because it was capable of being reprogrammed to solve a multitude of computing problems.

Even though it had to be manually wired to execute a particular program, ENIAC led the evolution toward modern computer technology by developing the stored-program architecture that is the fundamental architecture of all computers today.

ENIAC was conceived and designed in secret at University of Pennsylvania's Moore School of Electrical Engineering (now the School of Engineering and Applied Sciences). Leading the team of design engineers were professors John Mauchly (principal consultant) and J. Presper Eckert (chief engineer). Weighing 30 tons and employing more than 18,000 vacuum tubes, it took two years to build at a cost of \$500,000 (nearly \$6 million in 2008, adjusted for inflation).

The project was financed by the United States Army during World War II. Until ENIAC, ballistic computation for artillery trajectory was performed by desktop calculators. It took several days to complete a single artillery firing table. ENIAC could do it in less than 30 minutes.

When it went online, ENIAC was one thousand times faster than other contemporary electro-mechanical machines – a leap in computing power than no single machine has been able to match since.

Councilman At-Large Bill Green was behind the resolution that February 15 – the day ENIAC was unveiled more than seven decades ago – be ENIAC Day, “a day on which the City shall celebrate the use of computers and advances and digital technology, and seek to bridge the digital divide throughout Philadelphia, the Commonwealth of Pennsylvania, and the nation.”

The University of Pennsylvania was itself a “first” – the first American university. It was founded in 1765.

FOUNDERS' DAY

On Thursday, February 17, USciences will honor the 190th anniversary of its founding as the first college of pharmacy in North America with its annual Founders' Day celebration. Established in 1821 by 68 prominent Philadelphia apothecaries, Philadelphia College of Pharmacy is one of the five colleges that today comprise University of the Sciences (USciences).

Many of the medications in Americans' medicines cabinets were developed with the help of USciences alumni – Maalox®, Motrin®, Pepcid® and Tylenol® among them. But USciences alumni are behind more than just medications. They have either created or contributed to the development of well-known, indispensable items such as Hires® root beer extract, rechargeable batteries, photocopy toner and silicone-based adhesives. In addition, the University has launched the careers of many innovative and pioneering individuals in the field of healthcare, including the founders of six of the world's past and present leading pharmaceutical companies.

The Founders' Day celebration includes bestowing an honorary degree upon David King, a Venture Partner at Quaker BioVentures. To further mark the occasion, University President Dr. Philip P. Gerbino will announce the recipients of two annual awards that recognize a current student and faculty member who “exemplify the innovative and entrepreneurial spirit of the University's founders, and have engaged in research or some form of scholarly pursuit that results in the development or discovery of something new.”

CITY'S HISTORY OF INVENTION, INNOVATION

- One in five physicians practicing in the U.S. trained in Philadelphia.
- The city is the second-largest medical research and education center in the U.S. with five medical schools, 19 nursing schools, two dental schools, two colleges of pharmacy, 100 hospitals and 23 teaching hospitals.
- One in six jobs (and an estimated 15 percent of all economic activity in the region) can be traced to Life Sciences.
- 11 of the 16 routinely recommended vaccines were developed in Philadelphia – 9 of them by one man, microbiologist Maurice Hilleman. Hilleman developed vaccines for measles, mumps, rubella, Haemophilus influenzae type b (Hib), varicella (chickenpox), hepatitis A, hepatitis B, pneumococcus and meningococcus. He is credited with saving more lives than any other

scientist of the 20th century; Robert Gallo described him as "the most successful vaccinologist in history."

- In 1960, local researchers Peter Nowell and David Hungerford discovered the Philadelphia Chromosome — an abnormal chromosome found in chronic myelogenous leukemia (CML). The discovery, which happened in this city (hence the name), is very important in cancer research and has contributed to real advances in treatment.
- Established in 1919, Drexel's co-operative education program is one of the oldest, largest and most successful. Approximately 1,300 companies in 30 states and 24 international locations participate in the program. Also among its distinctions: in 1983, Drexel became the first university to require all students to have microcomputers and in 2000, became the first major all-wireless university.
- Philadelphia University was the nation's first textile school, established 125 years ago. Today, the University draws on its legacy and expertise in textiles to offer cutting-edge science programs and research through the Biomedical Textile Structures Laboratory and the new Philadelphia University MAG Composites Institute to develop textile-based composites for industry applications.
- The Parkway Central Library, the main branch of the Free Library of Philadelphia, features the first green roof on any City building. The branch serves more than one million guests annually and in addition to books, houses prints by Rembrandt and Warhol and unique artifacts like Charles Dickens's pet raven, Grip, which inspired Edgar Allan Poe's famous poem. (Philadelphia was home to the first library in America, The Philadelphia Library, established by Benjamin Franklin in 1731.)
- In the 20th century, 257 members of the American Philosophical Society were recipients of the Nobel Prize. Currently, there are 93 Nobel Laureates among the Society's 900+ members.
- Founded in 1887, the University of Pennsylvania Museum of Archaeology and Anthropology has sent more than 400 archaeological and anthropological expeditions to all the inhabited continents of the world – collecting about a million objects. The Museum is currently engaged in more than 50 research projects around the globe.
- The Philadelphia Zoo is America's first zoo and currently home to nearly 1,300 animals, many of them rare and endangered. The Philadelphia Zoo created the first Children's Zoo in the western hemisphere, opened a first-of-its kind animal health laboratory, introduced the first scientifically-based, nutritionally balanced diets (called "zoocakes") for animals and discovered that a carrot juice diet helped flamingos retain their pink color. It was here that the first successful birth of an orangutan occurred in the U.S, as well as the first successful birth of a cheetah born in any zoo.
- The Kodak "Brownie" box camera made its debut at The Franklin Institute in 1900. It sold for \$1 and more than 100,000 were purchased during the first year alone. The Brownie helped to put photography into the hands of amateurs and allowed the middle class to take their own "snapshots" as well. The name Brownie was chosen primarily because of the popularity of a children's book of cartoons of the same name, and partly because the camera was initially manufactured for Eastman by Frank Brownell of Rochester, N.Y.
- Founded in 1812, the Academy of Natural Sciences is the oldest natural history museum in the Americas. It was the first museum in the world to mount a dinosaur skeleton (*Hadrosaurus foulkii* in 1868) and among the collections are plant specimens collected by Lewis and Clark, bird specimens of artist/naturalist John J. Audubon and President Thomas Jefferson's mastodon fossils.
- The Monell Chemical Senses Center was one of the earliest research institutions to be wholly devoted to interdisciplinary sensory science when it was founded in 1968. Monell characterized the first sweet-tasting protein, "Monellin," broadening the concept of sweet taste and developed the Labeled Magnitude Scale to reliably measure human sensory perception, among other achievements.
- The first United States air flight carrying a human being happened here in 1793. Interestingly, it carried French aeronaut, J. P. Blanchard.

- In 1929, the Philadelphia Orchestra became the first symphony orchestra sponsored on a radio broadcast, then the first to appear in a motion picture ("The Big Broadcast of 1937") and the first to appear on television (in 1948).
- The Children's Hospital of Philadelphia, founded in 1855, was the first pediatric hospital in the U.S. Over the years, it has marked many other milestones: it was the nation's first surgical and pediatric intensive care unit for newborns, the first to develop a closed incubator for newborns, the first follow-up program for long-term survivors of children's cancer, and most recently, the world's first delivery unit created exclusively for mothers carrying babies with known birth defects.

The Festival is being presented by The Dow Chemical Company with additional support by Drexel University, GlaxoSmithKline, Philadelphia University, University of Pennsylvania, University of the Sciences, La Salle University, Day & Zimmermann, Quaker Chemical Corporation, The Pennsylvania Space Grant Consortium, NextFab Studio and University of Pennsylvania Center for Bioethics. It is organized by The Franklin Institute.

ABOUT THE PHILADELPHIA SCIENCE FESTIVAL

The Philadelphia Science Festival is a citywide collaboration April 15-28 showcasing the impact of science and technology past, present and future. Part of a national movement to inspire the next generation of scientists and engineers, the Festival builds on Philadelphia's own rich history of innovation with dozens of free lectures, debates, hands-on activities, special exhibits and other informal learning experiences at museums, libraries and even street corners and concert halls. More than 55 institutions support the inaugural Festival, funded in part by the National Science Foundation and presented by The Dow Chemical Company. To learn more, visit PhilaScienceFestival.org or call 215-448-1128.

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NOTES TO EDITORS:

1. Artwork is available for download and publication at <http://vlahospr.spitfirephoto.com/albums.php?albumId=135906>.
2. Sources: 1 in 5 physicians, Philadelphia Life Sciences Congress (PLSC); second-largest research/education center, Greater Philadelphia Tourism Marketing Corporation (GPTMC) and PLSC; 1 in 6 jobs, PLSC; vaccines facts, The Children's Hospital of Philadelphia (CHOP); Philadelphia chromosome, CHOP; Drexel; Philadelphia University; Free Library of Philadelphia and GPTMC; American Philosophical Society; Penn Museum; Philadelphia Zoo; The Franklin Institute; The Academy of Natural Sciences; Monell; first air flight, GPTMC; Orchestra, GPTMC.