ENIAC is 75-yrs OLD!

Edited for the VIP Club website by LABenson.

INTRODUCTION

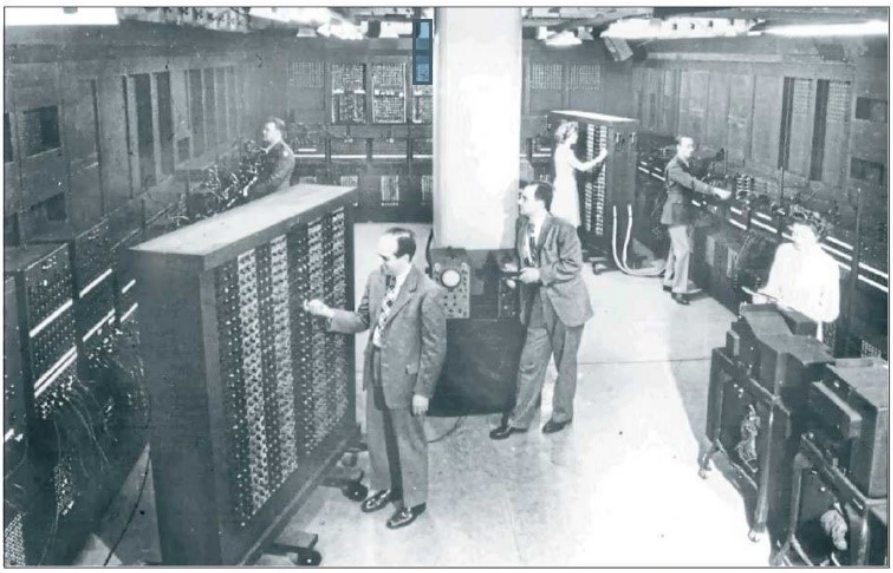
Ron Q. Smith, retired Unisys Fellow, forwarded an article from the Feb. 11, 2021 *Philadelphia Inquirer* scanned by Ken Willis. The ENIAC was not a St. Paul engineering product however it is a 'sidelight' of our history because both the Eckert Mauchly Computer Corporation (EMCC) and Engineering Research Associates (ERA) became parts of UNIVAC in the early 50s.

The Philadelphia region is recognized as an important nexus of original computing invention, starting with the creation of a WW II Army funded ENIAC at the University of Pennsylvania. This was followed by EMCC, the 1946 company founded by Eckert and Mauchly. Later in 1950, the Remington Rand Corporation bought EMCC. Then in 1952 Remington Rand bought St. Paul's ERA and changed the name of both to the UNIVAC Division of Remington Rand. In 1955, Remington Rand merged with the Sperry Corporation and formed Sperry-Rand. Eckert remained with the company as an executive, continuing with the company until Burroughs Corporation bought Sperry to become Unisys in 1986.

A major modern invention turned 75 on February 15th, 2021.

TECHNOLOGY

Celebrating Phila.'s Computer History



The University of Pennsylvania's Electronic Numerical Integrator and Computer filled a 30-by-50-foot room and weighed 50 tons. Its masterminds, who introduced ENIAC in 1946, were J. Presper Eckert (left) and John Mauchly (leaning against pole). University of Pennsylvania

By Tom Avril
STAFF WRITER

Imagine life without your laptop, your smartphone, even such ordinary electronic gadgets as your alarm clock.

The ancestor of them all — a room-sized contraption made of switches, cables, and 18,000 glass containers called vacuum tubes — was unveiled to the public 75 years ago this week, in a lab at the University of Pennsylvania.

Called ENIAC, it was the first all-electronic, programmable computer. Historians, engineers, and tech aficionados are celebrating its creation in a weeklong series of events, starting Thursday. And unlike in some past anniversary celebrations, organizers are recognizing not only the men who built the massive device, but also the pioneering women who programmed it.

With its coding prowess, Silicon Valley can claim to be the center of today's tech world. But with the wartime effort to build ENIAC, Philadelphia laid the groundwork with both sides of the computer equation: hardware and software.

Among the champions of this early history is West Chester-based software executive Jim Scherrer, who is coordinating the week of ENIAC events along with Penn, the University City Science Center, and Unisys Corp.

"We think of Philadelphia as the cradle of the computer age," he said.

Scherrer also is president of the Compuseum, an online computer-history organization that seeks to build a physical museum to house ENIAC, the pieces of which are now scattered among a variety of institutions, much of it hidden from public view.

It began with John Mauchly, a young Ursinus College physics professor who thought he could predict the weather. In the late 1930s, he hired students to crunch data from measurements of sunspot activity, but soon saw that he task was beyond human skill, said his daughter, Gini Calcerano.

"He quickly realized: 'There's not enough time in the rest of the history of

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the earth to calculate all the data I need,' " she said.

Mauchly wondered whether the task could be accomplished by some sort of calculating device, and signed up for a course at Penn in the new field of electronics. The lab instructor was J. Presper Eckert, and the two hit it off, forming a partnership that would eventually result in ENIAC: the Electronic Numerical Integrator and Computer (pronounced *ENNY-ack*, not *EE-nyack*).

Their first application was not weather, but weaponry. The two built their device at the request of the Army, which needed a much faster way to calculate the angles for firing its artillery during World War II. Calculating the trajectory for just one set of conditions — wind speed, humidity, temperature, and terrain — took 40 hours by hand, using differential calculus.

The task was entrusted to 100 women with math backgrounds, who were called "computers." Among them was Calcerano's mother, Kathleen McNulty, who had majored in math at Chestnut Hill College.

By using a mechanical device called the differential analyzer, they could whittle the calculating time for one trajectory below an hour, but that was still too slow during wartime. Yet despite the relentless efforts by Mauchly, Eckert, and their team, ENIAC was not finished until after the war was over. And McNulty, who would later marry Mauchly, was one of six human computers chosen to make it run.

Conceptually, programming was the same as it is now, breaking down a problem into a series of logical steps and instructions. But there was no Python or Java or other handy language for the women to use in instructing ENIAC. Instead, these first programmers did the job by manipulating wires and switches, said Kathy Kleiman, a lawyer and historian who is participating in this week's ENIAC events.

The women's groundbreaking role was largely overlooked for decades afterward, their names omitted from events and in the captions of ENIAC photos. Kleiman helped set the record straight in a documentary called *The Computers: The Remarkable Story of the ENIAC Programmers*, available at eniacprogrammers.org. It premiered at the 2014 Seattle Film Festival, where women in the audience — software engineers from such tech giants as Google, Amazon, Microsoft — were brought to tears.

In the film, Betty Holberton, one of the six programmers, described their role as "sort of like a cross between an architect and a construction engineer."

As for the device itself, other partly electronic computing devices came before it, but ENIAC is acknowledged as the first fully electronic programmable machine. Kleiman calls it the "first modern computer."

None of the six programmers is still alive, though Calcerano will share stories of her mother and father at one of this week's commemorative events. Other presenters include Stephanie Weirich, a computer science professor at Penn, who said she often walks past the university's small display containing a few pieces of ENIAC. But until preparing for this week, she did not fully appreciate the role of the machine's early programmers, she said.

After the era of those first programmers, computer coding became a male-dominated field and remains so, though the tide may be turning, Weirich said.

"I'm teaching an introductory programming class this semester and it's 45% women, the highest it's ever been," she said.

The full agenda for the 75th anniversary can be found at eniacday.org. The week is bookended by two "Venture Cafe" seminars hosted by the University City Science Center, on Thursday, Feb. 11 and 18.

Two more events are scheduled for Feb. 15, the 75th anniversary of the day ENIAC was revealed (The Inquirer's headline that day hailed it as a "mathematical brain"). Organizers include the Penn engineering department and Unisys, the corporate descendant of the computer company that Mauchly and Eckert founded after leaving the university.

Like so many other events during the last year, the ENIAC celebrations all are virtual. But in a way, that is fitting, as the technology behind video conferencing would not be possible without that early electronic device at Penn.

tavril@inquirer.com
215-854-2430
TomAvril1

A thumbnail description of the Compuseum is at http://vipclubmn.org/Exhibits.html#Philly.