Arthur Walter Burks

Born: Oct. 13, 1915;

Duluth, Minnesota
Died: May 14, 2008

Burks was a member of the ENIAC [Feb 15] design team, who contributed to the development of its multiplier unit, and co-wrote several of the early technical reports with John Grist Brainerd [Aug 7]. During this time (1943), he met Alice Rowe, one of the human computers at the Moore School [May 00], who later became his wife.

Arthur Burks (2001). Photo by Robert K S.

In 1945 Burks helped with the preliminary design of the EDVAC in meetings attended by John Mauchly [Aug 30], J. Presper Eckert [April 9], John von Neumann [Dec 28]. He later co-authored "Preliminary Discussion of the Logical Design of an Electronic Computing Instrument" with Herman Goldstine [Sept 13], and von Neumann, and this led to his involvement with the design of the IAS computer at Princeton [June 10].

In the 1950s, now at the University of Michigan, Burks was the Ph.D. supervisor of John Henry Holland [Feb 2], who may have been the first recipient of a Ph.D. granted by a computer science [June 7] programme. Burks had founded the doctoral course in computer and communication sciences in 1956.

After von Neumann's death, Burks edited and extended his lecture notes to create the book, "Theory of Self-Reproducing Automata" (1966). Legend as it that this text was the inspiration for the first virus program [March 15] in 1971.

Burks wisely acquired four control panels of the now-defunct ENIAC during the 1960's, which he 'restored' by running them through a car wash. He later donated them to the University of Michigan [Oct 2].

Alfred R. Zipf

Born: Oct. 13, 1917;

Buffalo, New York
Died: Jan. 1, 2000

Zipf is often called the father of electronic banking. In the late 1950's, he headed the equipment research department at the Bank of America, and formed a partnership with Stanford to create the first large-scale banking computing system, called ERMA [Jan 28].

Zipf's main technical contribution, together with Patrick J. Hanratty [March 5], was the MICR (magnetic ink character recognition) system, which reduced check processing times by almost 80%.

Severo M. Ornstein

Born: Oct. 13, 1930;

Philadelphia

Ornstein was involved with the design of the SAGE [June 26] air-defense system, later joined the TX-2 [Feb 26] group at MIT, and was part of the team that designed the LINC [May 24].

When ARPA called for proposals for building the ARPANET [July 29], Ornstein was in the group at Bolt, Beranek and Newman (BBN [Nov 00]) that wrote the winning bid. He later designed the communication interface of the Interface Message Processor (IMP; [Aug 30]).

At Xerox PARC [July 1] in the mid 1970's, he implemented an interface to an early laser printer [Jan 21], and co-led (with Ed McCreight) the team that built the Dorado [May 6].

Ornstein's father, Leo, was a leading experimental composer and pianist, and Ornstein also played the piano. This informed his work on Mockingbird [Nov 5], the first interactive computer-based music-score editor.

Ornstein formed "Computer Professionals for Social Responsibility" (CPSR), in the early 1980's in response to the Strategic Computing Initiative [Oct 28], a US Defense project that wanted to apply AI to military systems.

Motto: "Technology is driving the future... it is up to us to do the steering."

Robert Louis Belleville

Born: Oct. 13, 1946;

California

Belleville was the primary hardware designer of the Xerox Star [April 27]. Unofficially, he also worked on a low-cost "little Alto" (probably called the "Cub") built around the lntel 8086 [June 8]. At the time, Charles Simonyi [Sept 10] suggested they form a startup to commercialize the idea, with Belleville handling the hardware and Simonyi the software. Belleville considered it but backed out.

Early in 1982, Steve Jobs [Feb 24] invited Belleville to join Apple, apparently by saying, "Everything you've ever done in your life is s—, so why don't you come work for me?" Amazingly this pitch worked, and by April 1982, Belleville was software manager for the Macintosh 128 [Jan 24], and in August became engineering manager of the Mac

division.

Silvio Micali
Born: Oct. 13, 1954;
Palermo, Italy

Micali's work on public-key cryptosystems includes being the co-inventor of zero-knowledge proofs with Shafi Goldwasser [Nov 14] and Charles Rackoff.

Silvio Micali (2018). Photo by Rguillou228. CC BY-SA 4.0.

The aim of zero-knowledge is for one person to prove to another person that a statement is true without passing along any extra details.

For instance, Peggy may know the secret word for opening a magic door in Ali Baba's cave. Victor wants to test whether Peggy really knows the word, without actually being told the word.

One *incorrect* solution is to have Victor watch Peggy use the door. Of course, that would prove that Peggy knew the magic word, without revealing what it was. However, the demonstration could be videotaped by Victor and be used by him to prove to someone else that Peggy knew the word. That's a "no-no" since it's allowing extra information to be generated from Peggy's single demonstration. A solution is needed which will convince Victor alone.

Another oddity of zero-knowledge proofs are their use of probabilities. Typically, Victor will have to be satisfied with ascertaining that Peggy knows the magic word with a very high probability, not with absolute certainty.

The "Ali Baba's cave" example is a standard in this area, as are the names Peggy (the prover of the statement) and Victor (the verifier of the statement). They play much the same role as the much better known Alice and Bob [Feb 00] in cryptography.

Fred Garth Martin
Born: Oct. 13, 1964;
Concord, Mass.

In 1989 Martin was the co-founder of the MIT robot design contest that became the famous 6.270 class. He co-designed several pieces of open-source hardware and software for the course, including the Miniboard [Dec 3], the Handy Board microcontrollers, and Interactive C. To further whip up interest, he wrote the book, "6.270 Robot Builder's Guide" (1992), which made it possible to build cheap robotics for teaching computing concepts.

In the late 1980's Martin began working in the Media Lab [Oct 10] on robotics design environments for kids, and eventually joined Mitchel Resnick's Life-Long Kindergarten group [Jan 8], where the LEGO Mindstorms Robotics Invention System was developed [Jan 26].

9 Evenings: Theatre & Engineering
Oct. 13-23, 1966

"9 Evenings" was a blend of avant-garde theatre, dance, and new technologies organized by the painter Robert Rauschenberg and Billy Klüver, then a researcher at Bell Labs. It brought together 10 artists and 30 engineers at the 69th Regiment Armory in NYC to develop new uses for video, wireless sound, and computer science.

The artists included John Cage, Lucinda Childs, Öyvind Fahlström, Alex Hay, Deborah Hay, and Robert Whitman. The engineers included Bela Julesz, Max Mathews [Nov 13], John Pierce [March 27], and Fred Waldhauer.

The success of "9 Evenings" caused the collaboration to be extended, and it became the first event in the E.A.T series (Experiments in Art and Technology) [March 15].

An armory was chosen to host the occasion not because of the ready availability of weaponry, but because it had been the site of the 1913 show that introduced modern European art to the US.

Multics Cookie Monster
Oct. 13, 1971

The Multics "cookie monster" was the name of a prank run by sysadmins at Brown University. They'd annoy students by sending them a message which suspended the users' processes until the word "cookie" was typed.

It was only after Chris Tavares at MIT heard about the joke from Seth Stein, that he decided to automate it. The resulting PL/1 code [March 1] is preserved online at http://www.multicians.org/pg/cookie.pl1. Some historians have called this the earliest computer virus, but that's debatable since it has no way to self-replicate and spread.

Contrary to popular belief, the prank/program wasn't inspired by Sesame Street's [June 29] cookie monster, but named after an irritating cartoon "cookie bear" that was featured in a cereal TV commercial of the late 1960's.

The program was made harder to find and purge by Multics' ability to trigger a program only at a specified time. When the user went looked for the running process, it would have

already terminated, until next time…

The program inspired the movie "Hackers" [Sept 15] to include a "Cookie Monster Virus" that "ate" a computer's data. It could only be stopped when the user typed "cookie".

First Cellular Network
Oct. 13, 1983

Ameritech Mobile Communications (later called Cingular) launched the first commercial cellular (1G) network in Chicago.

The first call was made by Ameritech executive Bob Barnett from a parked car near Soldier Field using a Motorola DynaTAC handset (aka the "Brick") to the grandson of Alexander Graham Bell [March 7].

A DynaTAC 8000X (1984). Photo by Redrum0486. CC BY-SA 3.0.

A little more than a year later, on New Year's Day, the UK's Vodafone hosted its first commercial call, Israel's Pelephone followed in 1986, and Australia in 1987.

Martin Cooper had made the very first call across a prototype network a decade before, on [April 3] 1973. The interval between Cooper's and Barnett's calls showed how troublesome it was to get the various hardware, software, and radio frequency issues sorted out.

Later networks (2G, 3G, 4G, and 5G) grew out of the first GSM (Global System for Mobile Communications) specification, agreed on [Feb 16] 1987.

American Memory Launched
Oct. 13, 1994

"American Memory" was originally the name of a digitization programme run by the Library of Congress. Selected films, videos, audio recordings, books, and photographs were scanned and distributed on Laserdisc [Dec 11] and CD-ROM. Naturally, the project eventually relocated to the Web, and the library currently hosts over 300 collections (https://www.loc.gov/collections/).

Other digital libraries of note include Google Books [Oct 6], the Internet Archive [May 12], Project Gutenberg [July 4], the World Digital Library [April 21], and WikiSource [June 20].

Robotic Surgery
Oct. 13, 2010

Physicians at Montreal General Hospital and specialists from McGill University guided the first operation (prostate surgery) carried out solely by a robot, a "DaVinci" surgical robot [July 17], aided by an anesthesia robot, nicknamed "McSleepy".

DaVinci transmitted high-definition 3D images to the surgeons, who operated its arms via controls which looked suspicious like those of an arcade game.

The first ever robot to *assist* a human during surgery was called the Arthrobot. That robot was developed in 1983 by a team led by James McEwen and Geof Auchinlek. Its main job was to position and hold a patient's limb still during orthopedic surgery.

PlayStation VR Released
Oct. 13, 2016

The PlayStation VR was a virtual reality headset developed by Sony for the PlayStation 4 [Nov 15]. At the time, other VR headsets, such as the Oculus Rift [March 28] and HTC Vive [April 5], required high-end PCs in order to function.

The VR's 5.7 inch OLED panel had a 1080 pixel display, and nine positional LEDs mounted on the headset so the PlayStation Camera [May 13] could track the user's head movements.

As of early 2020, over 5 million VR units had been sold.