May

Refrigerator Ladies

May 1945

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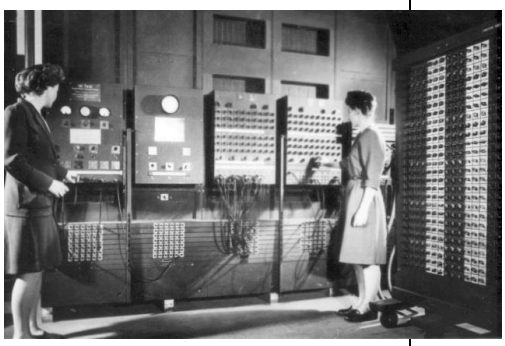
Initially, six women were selected to program the ENIAC [Feb 15]:

- Betty Holberton (co-lead programmer); née Frances Elizabeth Snyder. Born: [March 7], 1917; Philadelphia. Died: Dec 8, 2001
- Jean Bartlik (co-lead programmer); née Betty Jean Jennings. Born: [Dec. 27], 1924; Gentry County, Missouri. Died: March 23, 2011
- Kathleen "Kay" McNulty Mauchly Antonelli; née Kathleen Rita McNulty. Born: [Feb 12], 1921; County Donegal, Ireland. Died: April 20, 2006
- Ruth Teitelbaum; née Ruth Lichterman; 1924-1986
- Frances Spence; née Frances Bilas. Born: March 2, 1922; Philadelphia. Died: July 18, 2012
- Marlyn Meltzer; née Marlyn Wescoff. Born: 1922; Philadelphia. Died: Dec. 4, 2008



Betty Jennings (left) and Frances Bilas (right) setting up the ENIAC. U.S. Army Photo.

Programming the ENIAC involved a time-consuming process of the plugging-in of cables and the toggling of switches. In effect, the women were rewiring the machine for each new problem, a task that could take several days.

The ENIAC was a classified project in the early days, so the women were given very restrictive access to machine. For instance, they had to devise programs based on looking at the ENIAC's schematics.

In the process, these women pioneered the discipline of programming digital computers, developing techniques such as subroutine libraries.

Incredibly, their role had been largely forgotten by the 1980's, until historian Kathy Kleiman tried to find out about the women present in all the ENIAC pictures. She remarked: "I was told they were models - 'Refrigerator Ladies' - posing in front of the machine to make it look good,"

Infact, three of the six – Holberton, Bartik, and Antonelli – followed J. Presper Eckert [April 9] and John Mauchly [Aug 30] when the pair resigned from the Moore School [March 31] to found EMCC [Dec 8]. They went on to work on the BINAC [April 4] and UNIVAC I [March 31].

First Hardware Textbook

May 1950

"High-Speed Computing Devices", published by McGraw-Hill, was the first textbook on computer construction. It was written by staff at Engineering Research Associates (ERA [Jan 00]), supervised by C. B. Tompkins and J. H. Wakelin, and edited by W. W. Stifler, Jr.

Its contents had first appeared in an Office of Naval Research (ONR) report, which characterized itself as "an investigation and report on the status of development of computing machine components."

The textbook sold well, and can be read online at http://bitsavers.trailing-edge.com/pdf/era/High_Speed_Computing_Devices_1950.pdf

The book's references mention three other early computing texts:

- Berkeley, E.C., "Giant Brains", John Wiley, 1949 [June 30]
- Hartree, D.R., "Calculating Instruments and Machines", University Of Illinois Press, 1949 [March 27]
- Wiener, Norbert, "Cybernetics", John Wiley, 1948. [Nov 26]

Also, although "High-Speed Computing Devices" was the first book on *hardware*, the first on *programming* was "The Preparation of Programs for an Electronic Digital Computer" (1951), by Maurice Wilkes [June 26], David Wheeler [Feb 9] and Stanley Gill [March 26].

RS-232

May 1960

RS-232 was introduced by the Electronic Industries Association (EIA) as a Recommended Standard (RS) for the serial communication of data between teletypewriters.

Unfortunately, the standard didn't really cover the needs of more modern computers, which led designers to interpret the standard in some rather 'strange' ways over the next few decades. For example, in some devices the "Transmit Data" pin was an input.

For a while, there were two sexes of RS-232: male and female. Later it became necessary to introduce a "gender bender" which favoured the pairing of both male-male and female-female devices. Also, while RS-232 began with 25 pins, many connectors eventually slimmed down to a svelte 9 pins.

A 9 pin RS-232 plug. CC BY-SA 3.0

These variations in the 'standard' encouraged a thriving industry of breakout boxes, test equipment, books, and several revised 'standards'.

Nevertheless, the RS-232 serial port became an ubiquitous feature of PCs, for connecting to modems, printers, mice, data storage, and other peripherals.

GE-225 Rollout
May 1961

The GE-225 was meant to be General Electric's answer to IBM's all-conquering business-oriented1400 series [Oct 5].

It was partly designed by Arnold Spielberg (father of film director Steven Spielberg [June 9; June 19; June 29; Aug. 18]) and Charles "Chuck" Propster, both ex-RCA engineers who had worked on that company's BIZMAC [Feb 7].

Homer "Barney" Oldfield hired them away from RCA to set up GE's Industrial Computer Department. Although Spielberg and Propster were tasked with designing a business machine, the department's name was chosen to pacify Ralph Cordiner, then GE chairman and CEO, who believed that GE should focus solely on industrial products. Cordiner was eventually brought around after the success of GE's ERMA system [Sept 14], but not before he had fired Oldfield at the GE-225's rollout.

The GE-225 used about 10,000 transistors, 20,000 diodes, and 8K of core memory. Up to 11 peripheral could be linked to the machine and operate simultaneously. Later additions to the GE-200 series were the GE-215 (1963), GE-205 (1964), and GE-235 (1964).

One notable success: a GE-235, along with a smaller GE machine, the DATANET-30 (DN-30), ran the Dartmouth Time-Sharing System (DTSS [May 1]), and Dartmouth BASIC.

Seeing they were on to a winning combination, GE started packaging the DN-30 and GE-235 together in 1965 as the GE-265 (i.e. 30 + 235), and it became the first commercially successful time-sharing system.

Wang 2200 Introduced
May 1973

The Wang [Feb 7] 2200 was one of the first desktop computers. It came with a large CRT display, 4K of RAM (up to 32K), a cassette tape storage unit, and a decent BASIC interpreter installed in ROM, meaning that it could be turned on and used within seconds. It was also possible to attach a modem and a printer.

The 2200 predates the era of the microprocessor, so was built using a few hundred TTL chips, using a design by a team led by Bob Kolk.

Wang sold the 2200 primarily through value-added resellers who installed extra software catering for different customers, and was originally marketed as a "computing calculator", supposedly to avoid frightening customers with the word "COMPUTER". About 65,000 were shipped during its lifetime, and found wide use in small and medium-size businesses.

2200s were used extensively in the 1970's by Gosplan and Goskomstat , the main Soviet planning and statistical agencies. However, fears of nefarious backdoors in the Western hardware led to the system's reverse engineering, and the development of the Iskra-226 clone.

Empire Released
May 1973

Empire for the PLATO system [July 00] was probably the first networked multiplayer game.

Iowa State College student John Daleske had grown tired of PLATO's standard games (typically board games for two players), so as a class project designed a multiplayer turn-based strategy game supporting up to 8 users.

Each player became the head of a planet's government, with sole responsibility for economic development, including the building of spaceships for either trade or war.

Daleske's "Empire II", dating from around Sept. 1973, removed much of the boring strategy gameplay, replacing it with starships that could fly through 2D space and shoot lasers. There could now be up to 50 players, separated into eight warring teams. Each player controlled a ship, based on Star Trek's Federation, Klingon, Vulcan, and Romulan vessels [June 4; Sept 8; Nov 26].

Usage logs from the PLATO system at the Computer-based Education Research Lab (CERL) in Chicago indicated that between 1978 and 1985, users spent around 300,000 hours playing Empire.

Empire IV (1976) was ported to X Windows [June 19] in the 1980's as X-trek, and then to the Internet in the 1990's as Netrek.

Kermit Deployed
May 1981

The Kermit file transfer protocol and communications software was developed by Frank da Cruz and Bill Catchings at the Columbia University Computer Center.

Kermit's design was largely influenced by the limitations of the campus' DECSYSTEM-20s and the microcomputers of the time. For example, it was

impossible to send large bursts of data to the DEC-20 – it was "like trying to make a sparrow eat a meatball hero". Kermit's data packets were small, 96 characters at most: "seeds, insects, and worms that a sparrow can digest."

By the mid-1980's, Kermit was the de facto standard for data communications between computers.

Of course, it was named after "Kermit the Frog" from The Muppets, and with the permission of Henson Associates. A 'backronym,' created to avoid possible later trademark issues, was "KL10 Error-Free Reciprocal Microprocessor Interchange over TTY lines".

The designers chose the name Kermit because of the presence of a 1981 Muppets calendar on the wall when they were trying to think of a suitable software appellation. Bearing in mind the year, it was probably the 1981 "Miss Piggy Cover Girl Fantasy Calendar"; considering the month, it was may have been turned to "Miss Piggy: She Sings for Victory" a fake LIFE cover used for May.

In July 2011, Columbia set Kermit free, as open source software.

VIC-20 Introduced

May 1981

At a meeting of Commodore [Oct 10] executives in April 1980, Jack Tramiel [Dec 13] instigated the development of a low-cost color computer to satisfy his goal of making "computers for the masses, not the classes." He appointed Michael Tomczyk to organize its design and construction.

The VIC-20 was the first color computer costing less than $300. It could only display 22 characters of text per line, so its usefulness in business was minimal, but people loved it for playing games. The price eventually dropped below $100, the first color computer to reach that price point.

The Commodore VIC 20.

One important reason for its low cost was that Commodore built all of its main chips at their MOS Technology [Sept 9] manufacturing facility. The main CPU was the 8-bit MOS 6502, which Commodore also sold to Apple.

The VIC-20 was the first ever computer to sell over 1 million units, beating the Apple II [June 5] to that record by a few months . Perhaps the fact that Commodore used "Star Trek" [Sept 8] TV star William Shatner [March 22] in its ads helped. He called it "The Wonder Computer of the 1980s".

The VIC in VIC-20 stood for Video Interface Chip, which had been designed by Alan Charpentier back in 1978 for arcade game manufacturers. They weren't interested, so the VIC-20's graphics and sound were designed around it instead.

The meaning of the "20" has been the source of heated debate. It was widely assumed to refer to the screen's text width, although that was 22 characters, not 20. Alternatively, the system memory almost adds up to 20: 5K (RAM) + 16K (ROM).

Robert Yannes (one of the VIC-20's designers) reported that "we simply picked '20' because it seemed like a friendly number and the computer's marketing slogan was 'The Friendly Computer'. I felt it balanced things out a bit since 'Vic' sounded like the name of a truck driver."

The machine was called the VC-20 in Germany because the pronunciation of VIC with a German accent sounded like a German curse word. Also, VC could be marketed as though it was an abbreviation of VolksComputer ("people's computer").

In any case, many people dubbed the machine the 'Vixen', which had been its codename during development.

The VIC-20 was succeeded by the even more popular Commodore 64, announced on [Jan 7] 1982.

Somewhere Over the Rainbow

May 1982

DEC's [Aug 23] Rainbow 100 microcomputer was a dual-CPU box with both a Zilog Z80 [March 9] and a Intel 8088 [April 18]. This meant it could be used in three different ways: as a dumb terminal for DEC's VAX [Oct 25], in CP/M mode [June 22], or with MS-DOS [Aug 12].

This seemed like a winning combination except that the Rainbow was only MS-DOS compatible, not hardware-compatible with the IBM PC. Unfortunately, this was a key difference since lots of PC software directly accessed the hardware for performance reasons.

DEC tried to fix this problem with an emulator called Code Blue, but it only replicated the PC's BIOS, so many programs still wouldn't work.

Today, the Rainbow is probably best remembered as the computer that couldn't format its own floppy disks. You had to buy expensive preformatted blanks from DEC.

The machine's floppy driver reader was quite novel in another way: it was able to hold two disks at a time, but one of them had to be inserted upside down which confused many users.

The choice of name for the device wasn't that great either since the basic Rainbow 100 was a monochromatic, text-only

system. Color and graphics were an optional add-on.

On the positive side, the Rainbow starred in the 1984 film "Ghostbusters", used by the gang's receptionist, Janine.

Sun 1 Released
May 1982

Just three months after being founded, Sun Microsystems [Feb 24] released its Sun 1 UNIX workstation.

It was based on the Stanford University Network (SUN) workstation designed by Andy Bechtolsheim [Sept 30] as a student. Stanford only funded the building of ten of these machines, much to Bechtolsheim's frustration, and was one of the reasons for the foundation of Sun Microsystems in the first place.

The Sun 1 was known as a 3M computer: a 1 MIPS Motorola 68000 processor [Sept 26], 1 MB of memory and a 1 Megapixel bitmap graphics display. Sometimes its $10,000 price tag was called the fourth "M" — 1 "Megapenny".

Cray-2 Released
May 1985

The Cray-2 was the first of Seymour Cray's [Sept 28] designs to successfully use multiple CPUs. At 1.9 GFLOPS peak performance, it became the world's fastest machine.

It was both smaller than the Cray-1 [March 4], and 12 times more speedy. However, it was only about twice as fast as Steve Chen's competing Cray X-MP [Dec 4], and could be slower on certain calculations due to high memory latency.

The Cray-2 was notable for being the first supercomputer to run "mainstream" software, thanks to UniCOS, a UNIX [Oct 15] System V derivative.

The heat loads of the hardware's dense packaging were a major problem, which was solved by pumping perfluorinated liquid through the circuitry and then cooling it outside the processor. The result was a unique "waterfall" system, shown in many informational films and movies of the time.

Cray 2. Photo by cmnit. CC BY-SA 2.0

Inevitably, the machine was nicknamed "Bubbles", and gags related to the "waterfall" included "No Fishing" signs, cardboard depictions of the Loch Ness Monster rising out of the heat exchanger tank, and plastic fish inside the exchanger.

One of Cray's ads showed the "waterfall" with a spill of the fluid glistening on the floor. However, if this actually occurred then the facility would have to be evacuated due to the fluid's toxicity.

Also, after extended service, the liquid decomposed, producing highly toxic perfluoroisobutene. Catalytic scrubbers were installed to remove this contaminant.

General Magic
May 1990

General Magic (GM) was co-founded by Bill Atkinson [April 27], Andy Hertzfeld [April 6], and Marc Porat. Their goal was to develop a "personal intelligent communicator," a precursor to the PDA [Jan 7], with an emphasis on communication.

Early in 1990, Apple CEO John Sculley [April 6] agreed to let Porat begin researching small portable devices under the code-name "Pocket Crystal". Soon after, GM was created with 10% stakes held by Apple, Sony, and Motorola.

The company's signature product was an OS called Magic Cap (short for Magic Communicating Applications Platform). It used a "room metaphor" based around a mobile agent technology called Telescript. Agents could travel to "rooms" outside the device, complete their work, and then return with the results.

Unfortunately, the available technology was too immature to make implementing small, mobile, intelligent, networked devices possible. For instance, it wasn't until 1991 that the first 2G networks appeared in the US.

After shipping a single generation of hardware that produced dismal sales, GM became one of Silicon Valley's most high-profile failures. It didn't help that it was caught out by the rise of the Web, and undercut by its own parent company, Apple, which beat it to market with the similar looking Newton [Aug 3].

However, GM did achieve a number of breakthroughs, including Magic Bus, the precursor to USB [Jan 15], software modems, small touchscreens, and early attempts at e-commerce.

Nowadays, GM is generally seen as the Fairchild Semiconductor [Oct 1] of mobile devices and services: a fount for much of today's smartphone technology. For example, all the following individuals worked at General Magic: Tony Fadell (iPods, and Nest [Oct 25]), Andy Rubin (an overlord of Android [Nov 5]), Steve Perlman (WebTV [July 10]), Pierre Omidyar (eBay [Sept 3]), and Kevin Lynch (lead engineer on the Apple Watch [April 24].