October

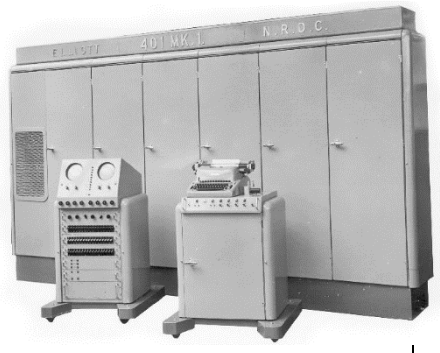
Elliott's Labs Founded

Oct., 1946

Elliott Brothers Ltd had been closely involved with the UK war effort, mainly in the development of mechanical analog computers for gunnery tasks. This led to John Flavell Coales setting up a research lab for the company in Borehamwood in 1946. Starting with just 45 staff, his team grew to over 400 people by 1952.

In 1950, the lab finished building the first UK computer outside the universities, the Elliott 152, as part of the Admiralty's naval gunnery project. It used cutting-edge technology – valves and Williams-Kilburn tubes [Dec 11] – which turned out to be quite unreliable. Eventually, the Admiralty plumped for a more conventional analog computer instead.

Nevertheless, Elliott computers became increasingly popular, helped by the release of the Elliott 401 in April 1953, a small (by 1950's standards) computer that complemented the much larger Ferranti Mark I [Feb 12] that was then in widespread use around the UK.



An Elliott 401. (c) 2012 Computer Conservation Society.

In 1961 Elliott supplied half of the 84 digital computers bought by UK customers. Overseas sales were brisk as well: 17 Elliott 803s [Nov 00] were exported to the US between 1960 and 1963.

Tony Hoare [Jan 11] worked at Elliott Labs from August 1960 to 1968, where he wrote the first commercial ALGOL 60 [Jan 11] compiler for the 803. His first assignment in 1960 had been to implement the standard Shellsort [March 1] algorithm on the 803, but instead invented the much faster (and now more famous) Quicksort. He also worked on an OS for the Elliott 503 Mark II, although that was scrapped after "over thirty man-years of programming effort" (Hoare's estimate).

First Computing Course

Oct., 1947

Probably the first computing course in academia was set up by Howard H. Aiken [March 8] at Harvard. Beginning in the fall of 1947, the Department of Engineering Sciences and Applied Physics offered a one-year program leading to a Master of Science degree in applied mathematics "with special reference to computing machinery." This was joined by a Ph.D. degree in 1948, and the programmes awarded 19 masters and eight Ph.D. degrees between 1948 and 1954. The first Ph.D. was granted to Herbert Francis Mitchell Jr. in 1948 for his thesis, "The Application of Large-Scale Digital Calculators to the Solution of Simultaneous Linear Systems."

To be nit-picky, the first academic course that mentioned computers in its title might be the one run by the University of Cambridge's computer lab,called the "Diploma in Numerical Analysis and Automatic Computing" when it began in 1953. The lab's teaching and research staff included Maurice Wilkes (head) [June 26], J. C. P. Miller, W. Renwick, E. N. Mutch, and S. Gill [March 26], joined later by C. B. Haselgrove.

The first *department* of computer science was established by Samuel Conte at Purdue University on Oct. 1, 1962. It primarily offered graduate courses to support Masters and Ph.D. degrees, but it also ran an undergraduate course in programming. There were five teaching faculty originally: Conte, Richard Kenyon, L. Duane Pyle, Robert Korfhage, and Saul Rosen [Feb 8].

For the first Ph.D. in Computer Science, see [June 7].

Turing Test Proposed

Oct., 1950

Alan Turing's seminal paper, "Computing Machinery and Intelligence," was published in the journal *Mind*. To answer the question, "Can machines think?", Turing introduced the "imitation game" or, as it's usually now called, the Turing test. An interrogator asks questions of both a machine and another person, but indirectly so he doesn't know which is which. Only through the quality of the answers can the intrepid investigator attempt to deduce which one is machine and which human. Turing argued that if the computer successfully fooled the questioner then it could be said to be able to "think."

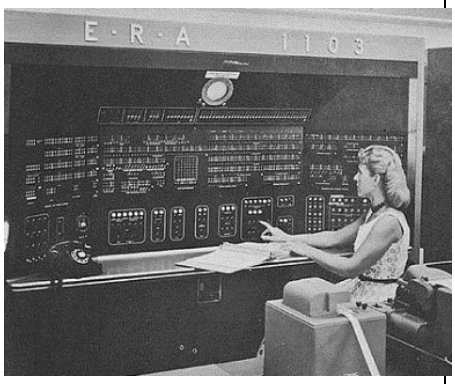
John McCarthy [Sept 4], among many others, has counter-argued that this is quite a poor measure because "There are some people who are very readily fooled."

Turing's paper lists possible objections under headings including "The Theological Objection", "The Heads in the Sand Objection", "The Argument from Extra-Sensory Perception", and "Lady Lovelace's Objection" [Dec 10], which comes from a remark made in her memoir on Babbage's Analytical Engine [July 10]: "The Analytical Engine has no pretensions to originate anything. It can do whatever we

know how to order it to perform."

UNIVAC 1103 Released
Oct., 1953

The UNIVAC 1103 (aka the ERA 1103), was a successor to the UNIVAC 1101 [Dec 10], and the first computer for which Seymour Cray [Sept 28] received a design credit.



A UNIVAC 1103 (1961). Ballistic Research Laboratories, Maryland.

Remington Rand [Jan 25] had announced the machine in February, positioned as a competitor for the IBM 701 [April 7] in the lucrative scientific computation market. The two machines had comparable speeds, but the 1103 had faster peripherals.

The updated UNIVAC 1103A (aka Univac Scientific) was released in March 1956, featuring magnetic core memory and interrupts. It was perhaps the first commercial machine to use this latter mechanism, although some historians argue that was the UNIVAC I [March 31].

Another part of Remington Rand's response to the 701 was its UNIPRINTER, developed by Earl Masterson and J. Presper Eckert [April 9]. It was the first commercially available high speed printer, capable of printing 600 lines per minute, which made it four times faster than IBM's sluggish tabulators.

Facom-100 Released
Oct., 1954

The Fuji Tsushinki Manufacturing Corporation (now better known as Fujitsu) released the Facom-100, the first commercial Japanese relay-based computer. The name was derived from "Fuji Automatic COMputer".

It was developed under the guidance of Hideo Yamashita at the University of Tokyo, who was one of Japan's computing pioneers, and co-founder with Hiroshi Wada of the Information Processing Society (IFIP [June 15]) of Japan.

The machine sported around 4,500 relays, mounted in 13 stands – 5 dedicated to arithmetic, 4 for control and 4 for memory, which occupied almost 40 square meters in total.

During tests, the Facom took nearly three days to complete the calculation of a single complex multiple integral. However, it was estimated that the same task would have taken two years if performed manually.

SDC Formed
Oct., 1956

The System Development Division of the RAND [Oct 1] Corporation (its programming arm) had grown so large that it was split off, becoming the nonprofit System Development Corporation (SDC).

The following year, SDC moved to a purpose-built 250,000-square-foot facility in Santa Monica that also housed a brand-new IBM AN/FSQ-7 (Q7 [Nov 14] for short). The choice was no accident since the massive SAGE project [June 26] was built around pairs of Q7s, housed at installations criss-crossing the country. By 1959, there were more than 700 programmers working on SAGE (roughly half of the entire US programming manpower), with an additional 1,400 support staff.

In the 1960's SDC was tasked by DARPA [Feb 7] to develop a timesharing system for the AN/FSQ-32 (the Q32 for short). As a result, Larry Roberts [Dec 21] and Thomas Marill developed one of the first systems to support both multiple users and inter-computer communications [Dec 00].

SDC was also responsible for JOVIAL (Jules' Own Version of the International Algebraic Language) and the TDMS (Time-Shared Data Management System); both popular with the military.

The other major software companies of the 1950s were CUC [March 28] and CSC [April 16], but they were business oriented rather than focusing on government work.

SDC became a for-profit corporation in 1969, and began offering its services to other organizations aside from the military.

Datamation
Oct., 1957

The *Datamation* magazine was founded by Donald Prell, and under the editorship of Santo (Sandi) Lanzarotta, and Robert Forest after 1963, was often critical of IBM. The mag was also known for its spoof articles, many of which appeared in its April issue each year. For instance, R. Lawrence Clark wrote a piece suggesting that the GOTO statement should be replaced by COME FROM (although it appeared in Dec. 1973). This feature was actually implemented in INTERCAL [May 26], a language that prided itself on making programs as obscure as possible.

Another classic article, "Real Programmers Don't Use Pascal," was written by Ed Post, and first appeared as a letter in the [July 00] 1983 issue.

Minivac 601

Oct., 1961

The Minivac 601 was an electromechanical computer created by Claude Shannon [April 30] as an educational kit sold by Scientific Development Corp. It was first advertised in this month's issue of *Popular Mechanic* (on p.33).

A Minivac 601. Photo by Flominator and Harold Layer. CC BY-SA 3.0

It employed just six relays as logic switches, interconnected by jumper wires plugged into the board. Input was via a slider and pushbuttons, with indicator lights for output, and a 16-position rotary dial for entering decimals or hexadecimals. One of the kit's projects was to set up the 601 to play an unbeatable game of tic-tac-toe [Aug 25].

The original version was housed in a blue-painted wooden case, but the "advanced and improved" Minivac 6010, released in early 1962, donned a stylish gray metal case.

Triple-I

Oct., 1961

Edward Fredkin [Oct 2] founded Information International Inc. (aka Triple-I) to build high precision monitors capable of recording their images to film, which could also utilize an OCR system running on an PDP-10 [Jan 5].

The company's FR-80 film recorder was memorably used by John Whitney Jr. [April 8] and Gary Demos in the movie "Westworld" [Nov 21] to create the pixelated images seen by the robots. This made it the first feature film to use digital image processing, which may have been related to the fact that it took some eight hours to produce the ten seconds of footage used.

Nevertheless, the associated plaudits allowed Demos and Whitney to convince Triple-I to establish a Motion Pictures Product Group. It was responsible in1976 for scanning and animating Peter Fonda's head for "Futureworld" [July 28], "Westworld"s sequel.

Triple-I was also one of the four companies involved in the visual effects for "Tron" [July 9]. Specifically, Triple-I created the Master Control Program, the Solar Sailer, and Sark's Carrier. At around this time, it also sponsored the construction of the Super Foonly F-1, the fastest ever PDP-10, built by a team led by Phil Petit, Jack Holloway, and Dave Poole at Stanford. The F-1 was used to generate some of the images in "Tron".

Intel 1103

Oct., 1970

Intel released the 1103 – the first widely available dynamic random-access memory (DRAM) chip. Due to their small size and low price, DRAMs quickly replaced the prevailing technology, magnetic core memory. By 1972, the 1103 had become the best-selling semiconductor memory chip in the world.

Work on the chip had begun in 1969 when William Regitz and his colleagues at Honeywell invented a three-transistor dynamic memory cell and started looking for a manufacturer; Intel responded. However, DRAM technology had been invented by Robert Dennard who patented a one-transistor DRAM cell on [June 4] 1968.

The 555 Timer

Oct., 1971

The 555 timer was designed by Hans R. Camenzind to provide time delays, to work as an oscillator, and also act as a flip-flop element. The clever design meant that one chip was equivalent to 23 transistors, 15 resistors, and 2 diodes.

Its versatility, low price, ease of use, and stability made it a best seller for its manufacturer, Signetics. Its rapid acceptance was also helped by the fact that the design was never patented. As of 2003, it was estimated that 1 billion units were manufactured every year.

Several books report that the chip's name comes from its use of three 5 kilo-ohm resistors. However, Camenzind said, "It was just arbitrarily chosen. It was Art Fury (Signetics' marketing director) who thought the circuit was gonna sell big who picked the name."

Secrets of the Little Blue Box

Oct., 1971

The article, "Secrets of the Little Blue Box" by Ron Rosenbaum, was published in *Esquire*, and introduced phreaking (the hacking of the US phone network) to the masses, which included Steve Jobs [Feb 24] and Steve Wozniak [Aug 11].

The article's title came from the common use of electronic tone generators, known as "blue boxes" to generate the signals needed to make free calls around the world.

One of the more colorful characters described in the piece was "Cap'n Crunch" (John Draper [March 11]). However, he was far from being the first phreaker, a title usually awarded to Ralph Barclay [March 20].

Phreaking had been around for a while, dating from the publication of Breen and Dahlbaum's paper, "Signaling

Systems for the Control of Telephone Switching," [May 17] in 1960. However, Rosenbaum did coin the word "phreak" for the *Esquire* piece; the hackers tended to call themselves "phone freaks" at the time.

A shorter, and quite similar, article, "For Whom Ma Bell Tolls Not", by Maureen Orth was published on Oct. 31 in the Sunday supplement of *The Los Angeles Times*, and several other newspapers.

PCC Newsletter
Oct., 1972

The People's Computer Company (PCC) was founded by Dennis Allison and Bob Albrecht [Feb 18] in the early 1970s to run the People's Computer Center at 1921 Menalto Avenue in Menlo Park, CA. (The name was derived from Janis Joplin's San Francisco-based rock band, *Big Brother and the Holding Company*.)

It acted as a walk-in venue for using terminals connected to a PDP-8 [March 22], and later offered access to machines at Hewlett-Packard via phone-line links costing a mere 25 cents/hour. The center soon became a clubhouse for computer enthusiasts.

Each PCC Newsletter had a different dragon on its cover, linked to the DragonSmoke column written by Albrecht. The newsletter proved so successful that it helped spawn *Dr. Dobb's Journal* [Jan 00] and the *Recreational Computing* magazines.

PCC also published the first microcomputer best-seller (a quarter of a million copies sold), "My Computer Likes Me When I Speak BASIC" (1972), written by Albrecht. The first example prints: "MY HUMAN UNDERSTANDS ME."

PCC was an early proponent of software without copyright, which they applied to the code published in their books and magazines.

Bravo and Gypsy
Oct., 1974

Bravo was the first "what-you-see-is-what-you-get" (WYSIWYG [Sept 17]) document preparation application. It was designed by Butler Lampson [Dec 23] and Charles Simonyi [Sept 10] for the Xerox Alto [March 1], and largely implemented by Tom Malloy.

Lampson drew the system's schematics on three sheets of paper in the spring of 1974. They caught the eye of Simonyi, a team was quickly assembled, and Project Bravo was completed in October.

Bravo was a modal editor—characters typed on the keyboard were usually treated as commands, except when the software was in "insert" or "append" mode. It also made extensive use of the mouse for marking text locations, and selecting text.

Although Bravo could display formatted text in multiple fonts, it didn't accurately reproduce the way a page would look when printed. The problem was that the Alto's monitor only provided a resolution of 72 pixels per inch (PPI), but Xerox PARC's laser printers [Jan 21] worked at 300 PPI. In that respect it was more of a "what-you-see-is-what-you-almost get" (WYSIWYAG).

Bravo heavily influenced the design of Gypsy, the second WYSIWYG document system. It switched to a graphical user interface which eliminated Bravo's "insert", "append", and other modes. It also introduced drag-through selection, double-clicking, and cut-copy-paste, which were later adopted by Dan Ingalls [Oct 12] in Smalltalk-76. Gypsy was designed and implemented during 1975 by Larry Tesler [April 24] and Timothy Mott, with advice from Dan Swinehart and others.

Galaxian
Oct., 1979

Galaxian was a fixed-shooter arcade game where the player controlled a spaceship at the bottom of the screen, shooting enemies attacking from the top. It was first released in Japan by Namco.

It was intended to compete with Taito's "Space Invaders" [June 5], and so offered several new quirks. Galaxian had a color screen ("Space Invaders" was black and white) and the enemies descended in more complex patterns, often approaching from different directions.

Its even more successful sequel, Galaga, which debuted in September 1981, had the aliens attack in intricate formations, ships that could be captured and rescued, and bonus "Challenging Stages".

The MGM movie studio sent Galaxian and Galaga arcade machines to Matthew Broderick for him to practice on prior to shooting the movie "WarGames" [June 3].

CROMIX
Oct., 1979

Cromemco [Dec 11] released CROMIX, the first UNIX-like OS [Oct 15] for 8-bit Z80 microcomputers [March 9]. At the time, many people thought it was impossible to port UNIX to a chip as limited as the Z80. Amazingly, CROMIX supported multiple users, multi-tasking, offered hierarchical directories, and UNIX file, device and interprocess I/O. It was even possible to run the OS from a floppy disk, whereas other UNIXes of the time required hard drives. Several languages were available, including C, LISP, COBOL, FORTRAN IV and Z80 Basic. CROMIX was written by Roy Harrington in a mix of C and Z80 assembly.

The first machine to run CROMIX was Cromemco's

System Three. It supported up to six terminals, a daisy-wheel printer, and an optional hard disk. CROMIX was later ported to Cromemco systems based on the 16-bit Motorola 68000 [Sept 26].

EPSON MX-80

Oct., 1980

The EPSON MX-80 (known as the MP-80 in Japan) provided high-precision bidirectional impact printing via a nine-pin head, along with user-selectable line lengths.

An Epson MX-80 dot matrix printer. Photo by Nakamura2828. CC BY-SA 3.0.

Just one year after release, the MX-80 had grabbed a lordly 60% share of the Japanese market, and soon became the de facto standard for printers in the US. IBM even sold the MX-80, rebadged as the IBM 5152.

The versatile machine even had the ability to print (rudimentary) graphics using a technique called dot addressability, which led to the appearance of software such as Broderbund's [Feb 25] "Print Shop" for producing banners and signs. "Print Shop" became ubiquitous in schools in the 1980s.

Chris Rutkowski, Epson's US director of sales and marketing at the time, still has machine serial no. 0000002 in a box in his garage. Numero uno never reached America's shores.

The Cosmic Cube

Oct., 1983

The Caltech Cosmic Cube, developed by Charles Seitz and Geoffrey Fox, was perhaps the most influential parallel computer system of the early 1980s. Its 64 nodes each consisted of an 8086/8087 chip [June 8], 128 KB of memory, with communication channels that could reach 2 Mbits/sec speeds.

A key goal was to produce an architecture with interprocessor communications that would scale to much large numbers of processors, including to a hypercube topology.

Somewhat disappointingly, the machine didn't look much like a cube, measuring 5 feet long, 8 inches high, and 14 inches deep, but it did demonstrate that multi-computers could be built quickly, cheaply, and reliably. For example, between Oct. 1983 and April 1984, a Quantum Chromodynamic problem was executed for nearly 2500 hours, with the hardware running at close to 95% efficiency, and produced new scientific results.

The comic book version of the Cosmic Cube predates the real one by over 15 years – it first appeared in a Marvel comic in 1966, but only became associated with the villain Thanos [next entry] in the mid-1970s.

The Power Glove

Oct., 1989

Nintendo's Power Glove was the first mass marketed gesture-based gaming controller. It came with tracker and finger bend sensors, plus buttons on the back.

Its design was based on Tom Zimmerman's [Aug 29] Data Glove, but modified for consumer hardware and to be an affordable price. Although it carried Nintendo's name, it was made by Mattel in the US and PAX in Japan.

It gained some degree of notoriety due to its appearance in the movie "The Wizard" [Dec 15], and nearly one million units were sold subsequently. However, it was also criticized for its imprecise and difficult-to-use controls.

A Nintendo Power Glove. Photo by Nintendo-autor.

The Power Glove should not be confused with "The Infinity Gauntlet", with first appeared in a Marvel comic book in 1991, worn by the villain Thanos [previous entry].

Poqet PC Announced

Oct., 1989

The Poqet PC was the first sub-notebook IBM PC compatible that came with MS-DOS 3.3 [Aug 12] and GW-BASIC [Aug 1] built-in. It weighed about one pound, and was about the size of a videocassette (if you remember those). Power was supplied by two AA batteries, with an amazing lifetime of up to 20 hours under heavy use.

It also ushered in the use of memory cards, using a format that would later become PCMCIA [Sept 00]. The cards contained either RAM for data, or ROM for programs such as WordPerfect [Nov 26] and Lotus 1-2-3 [Jan 26].

Be Inc.

Oct., 1990

Be Inc. was founded by former Apple executive Jean-Louis Gassée and Steve Sakoman. The

company is chiefly remembered today for its multimedia, multitasking OS, BeOS, and its brief foray into PC hardware, the BeBox.

The BeBox was a dual CPU machine running, of course, BeOS. A notable aspect of the hardware were two strips of lights running up the front (called "Blinkenlights" [Sept 11]) that indicated the load of each CPU, and a combined analogue/digital, 37-pin "GeekPort". The device originally used two AT&T Hobbit [Oct 14] chips (until AT&T cancelled that project), and then switched to two PowerPC 603s [Oct 2].

In 1996, when Apple was searching for a new OS to replace the classic (i.e. decrepit) Macintosh System [May 13], it briefly considered BeOS [Feb 2]. But Apple finally went for NeXT's NeXTStep [Oct 12] due to the persuasive powers of Steve Jobs [Feb 24].

Be Inc. was hit hard by the bursting of the dot com bubble [March 10], and the company's assets were bought by Palm [June 1] in 2001 for just $11 million; Gassée also joined Palm's board of directors.

Gassée had originally wanted to call Be Inc. "United Technoids", but Sakoman had disagreed and said he would look through the dictionary for a better name. A few days later, when Gassée asked him if he had made any progress, Sakoman replied that he had got tired and stopped at "B." Gassée said, "Be is nice. End of story."

Ritmoteca.com

Oct., 1998

Ritmoteca.com, founded by Ivan J. Parron and Ricardo Decubas, was probably the first legal online music store, with distribution deals with most of the major music providers, including Universal, Sony, and Warner, and more than sixty independent record labels. This meant that it could offer visitors a jukebox-style catalog of over 300,000 songs organized by albums, including 30-second music clips and videos.

The company was poised for a successful IPO when the dot com bubble burst [March 10]. This, combined with the emergence of Napster [Nov 22], made it virtually impossible to raise much needed venture capital. It closed in Dec. 2003, 8 months after the debut of the iTunes Store [April 28].
