Nov. 16th

Warren Sturgis McCulloch

Born: Nov. 16, 1898;

Orange, New Jersey
Died: Sept. 24, 1969

McCulloch was a famed neurophysiologist, and an early contributor to the cybernetics movement [March 21], including being a founding member of the American Society for Cybernetics.

McCulloch and Walter Pitts [April 23] created an early computational model of the brain based on threshold logic, and their paper, "A Logical Calculus of the Ideas Immanent in Nervous Activity" (1943) was a seminal contribution to neural network theory.

On a more physical level, McCulloch 's work on the control of motor function in the arms and legs involved the use of strychnine solutions to stimulate neural activity. He was known for his poetry (sonnets), and designed and built a dam at his farm in Old Lyme, Connecticut.

Christopher Strachey

Born: Nov. 16, 1916;

Hampstead, London
Died: May 18, 1975

Strachey, in collaboration with Dana Scott [Oct 11], was one of the founders of the denotational semantics of programming languages , and a pioneer in language design, typified by his influential set of lecture notes, "Fundamental Concepts in Programming Languages".

In the early 1960's he developed CPL (short for Cambridge, Combined, or perhaps Christopher's Programming Language) with David Barron and others, which became BCPL [July 21], and went on to inform the creation of B [Feb 4], and C [Sept 9].

Strachey wrote one of the first draughts-playing (checkers) program in 1951, originally for the Pilot ACE [May 10], which he ported to the Manchester Ferranti Mark 1 in 1952 [Feb 12]. It was also a graphical game in the sense that it showed the state of play on a CRT display. He later said that he got the idea largely from a 1950 essay by Donald Davies [June 7].

Some historians claim that Arthur Samuel [Dec 5] was inspired to start on his famous checkers program because of Strachey's earlier endeavor. Certainly the article about Strachey's game which appeared the "Information" issue of *Scientific American* in [Sept 00] 1966, inspired the creation of MicroChess [Dec 18].

In 1951, Strachey perhaps programmed the first ever music performed by a computer; a rendition of the British National Anthem on the Mark I. Later that year, short extracts of three pieces were recorded by the BBC: the National Anthem, "Ba, Ba Black Sheep", and "In the Mood". However, Betty Holberton beat Strachey to first place with her musical coding on the BINAC [April 4].

Strachey was the nephew of Lytton Strachey, one of the Bloomsbury group's founding members, and grew up in Gordon Square in London, with Virginia Woolf and John Maynard Keynes as neighbors.

Gene Myron Amdahl

Born: Nov. 16, 1922;

Flandreau, South Dakota
Died: Nov. 10, 2015

Amdahl was known for his work on mainframes at IBM, notably the IBM 704 ([May 7] 1954), 709 (1958) and STRETCH/7030 ([April 26] 1961); the 704 dominated the scientific computing market after its release.

In 1960 Amdahl became the principal architect of the IBM System/360 [April 7] which began IBM's transition away from the use of discrete transistors towards hardware based on integrated circuits, as well as an increased focus on computer systems rather than punch card equipment. The entire project was called "a bet-the-company effort."

Gene Myron Amdahl (2008). Photo by Pkivolowitz. CC BY 3.0.

He formulated Amdahl's law in 1967, which is still used to predict the theoretical speedup when using multiple processors; for another version, see Gustafson's law [Jan 19]. Amdahl actually invented several "rules of thumb" for judging a system, such as "A system needs a bit of IO per second and one byte of main memory for each instruction per second."

He founded Amdahl Computer Corp. in 1970, which specialized in building mainframes that were plug-compatible with the System/360, but were smaller, cheaper, and faster. He pointedly named his machines the 470 series.

In 1975 Amdahl coined the phrase "FUD" – "Fear, Uncertainty, and Doubt" (see [Nov 5] and [Oct 31]) – to describe IBM's competitive tactics. However, similar terms can be traced back to the 1920's.

David Andrew Patterson

Born: Nov. 16, 1947;

Evergreen Park, Illinois

Patterson and John L. Hennessy [Sept 22] developed the RISC (Reduced Instruction Set Computer [May 30]) processor in the early 1980's, and led the Berkeley RISC project with Carlo H. Sequin which was later commercialized as the Sun SPARC [July 00]. As of 2019, 95% of all new chips use a RISC architecture.

Patterson also worked on RAID (Redundant Array of Inexpensive Disks) with Randy Katz, which aimed to better protect, and speed up, disk storage. Today, RAID drives are common components in servers and high performance computers.

In addition, Patterson is the co-author with Hennessy of two standard textbooks on hardware: "Computer Architecture: A Quantitative Approach" (1990) and "Computer Organization and Design: the Hardware/Software Interface" (1994)„ but was not responsible for the "Alex Cross" series of crime novels.

In 2013 he set the American Powerlifting Record for the state of California for his weight class and age group in bench presses, dead lifts, squats, and all three combined lifts.

Alexander Alexandrovich Stepanov

Born: Nov. 16, 1950;

Moscow, Russia

Stepanov was the primary designer and implementer of the C++ Standard Template Library (STL), which he began in 1992 at HP Labs, and became the first library of generic algorithms and data structures for the language.

He had earlier worked with Andrew Koenig at Bell Labs [Jan 1], and had tried (unsuccessfully) to convince Bjarne Stroustrup [Dec 30] to introduce Ada-like [Dec 10] generics into C++. He and Dave Musser had previously developed an Ada Generic Library, and written a textbook about the library in 1989.

Stepanov has claimed that his first ideas for STL came while in hospital with a severe case of food poisoning after eating raw fish. In other words, "STL is the result of a bacterial infection."

Shigeru Miyamoto

Born: Nov. 16, 1952;

Sonobe, Kyoto, Japan

Miyamoto is often called "the father of modern video games," having been responsible for franchises such as Donkey Kong [July 9], Super Mario [Sept 13], The Legend of Zelda [Feb 21], Star Fox [Feb 21], and the Wii series [Nov 19].

Shigeru Miyamoto (2019). Photo: 大臣官房人事課. CC BY 4.0.

However, he started work at Nintendo as an artist after showing then-CEO Hiroshi Yamauchi some of his homemade toys.

Miyamoto plays the guitar, mandolin, and banjo, and likes to guess the dimensions of objects; he reportedly carries a tape measure with him to help with this hobby.

A quote: "Video games are bad for you? That's what they said about rock and roll."

The First Transistorized Computer

Nov. 16, 1953

Under the supervision of Tom Kilburn [Aug 11] at Manchester University, Richard Grimsdale and Douglas Webb, demonstrated a prototype transistorized computer called the "Manchester TC" on this day. It employed 92 point-contact transistors [June 30] and 550 diodes.

Another claimant for the title of "first transistorized computer" is Bell Lab's TRADIC [March 14], which unlike the TC was fully transistorized; the TC retained a few values inside its clock.

A full-scale TC was operational by April 1955, using 200 transistors and 1300 diodes, but there were considerable reliability problems with these early transistors, and the machine's average error free runtime was only about 90 minutes.

Nevertheless, the TC design was adopted by the Manchester electrical engineering firm, Metropolitan-Vickers, who wisely changed to using more reliable junction-type transistors [June 23]. Around six copies of their machine, the MV950, were built, but used solely within the company.

FUJIC

Nov. 16, 1955

FUJIC (Fuji Computer) was the first electronic computer in Japan, employing around 1,700 vacuum tubes. The machine was built almost entirely by Okazaki Bunji (1914 - 1998), inspired after reading a tutorial on the IBM SSEC [Jan 27] in the August 1948 issue of *Asahi Science*. Although the FUJIC wasn't

officially finished until March 1956, it was first demonstrated on this day.

The FUJIC was intended to perform lens design calculations at the Fuji Photo Film factory in Odawara, with the goal of achieving speeds 1000 times faster than human calculation; the actual performance increase was closer to 2000.

Jobs Writes to McIntosh

Nov. 16, 1982

The Apple Macintosh [Jan 24] name was inspired by the Mcintosh apple. Unfortunately, "McIntosh" was already used as a business name by the British audio hardware manufacturer McIntosh Labs.

Jef Raskin [March 9] got around the problem by spelling the computer's name with an added "a", but this wasn't enough of a change, and Apple was still denied a trademark.

On this day, Steve Jobs [Feb 24] wrote to Gordon Gow, the president of McIntosh Labs seeking permission to use "Macintosh". Jobs explained, "We have become very attached to the name Macintosh. Much like one's own child, our product has developed a very definite personality." Gow was also wooed by being invited to visit Apple headquarters for a product demonstration.

Unfortunately, the hard-hearted McIntosh lawyers advised Gow to reject the request, and it wasn't until March 1983 that Apple secured a license for the name. In 1986 Apple wholly acquired the trademark for "substantially" more than $100,000.

Sound Blaster 1.0

Nov. 16, 1989

The Sound Blaster 1.0 (codenamed the "Killer Kard") was released by the Singaporean firm Creative Technology founded by Sim Wong Hoo. The company is also known by its US subsidiary's name, Creative Labs.

The Sound Blaster differentiated itself from the many other sound cards on the market by including a game port for a joystick (or MIDI device). It was also cheaper than cards with similar functionality (e.g. the market leader, AdLib). Within just a year the Sound Blaster became the best-selling card for the IBM PC [Aug 12].

The boom came to an end when MS Windows 95 [Aug 24] standardized its media APIs, eliminating the importance of the backwards compatibility offered by Sound Blaster cards. Also, PC designs began to include audio support on their motherboards.

AT&T EO 440 Demoed

Nov. 16-20 1992

The EO Communicator 440 was an early tablet that looked a bit like a clipboard, but came with a wireless cellular network modem, the first tablet to have one, and a subscription to AT&T EasyLink Mail for both fax and e-mail messages.

The EO Communicator 440. Photo by Wbvanrij.

Another unique feature was its PenPoint OS [April 9], which offered a pen-based user interface that was widely praised for its simplicity and ease of use.

There was also an EO 880, which was faster, had a larger hard drive, and a larger display, which was backlit instead of being reflective.

Both devices used the AT&T Hobbit chip [Oct 14], which turned out to be rather unfortunate. In January 1994, AT&T decided to cancel the Hobbit product line, and the loss left EO with little chance; the company closed in July 1994.

Windows CE Released

Nov. 16, 1996

Microsoft Windows CE was intended to run on very small computers, embedded systems, and consumer electronics like set-top boxes and video game consoles.

The real-time OS kernel could run in 1MB of memory without disk storage, and as a "closed" system that prevented end-user changes.

According to Microsoft, "CE" didn't stand for anything, and alternative names tried out at the time included "Windows Mobile" and "Pocket PC". Eventually it was rebranded as "Windows Embedded Compact" to differentiate it from "Windows Embedded Standard", which was for bigger devices such as ATMs. But that moniker didn't last long since the entire "Windows Embedded" family was relabeled as "Windows IoT" [Sept 21] when Windows 10 [July 29] was released.

Khan Academy

Nov. 16, 2006

Khan Academy is a non-profit educational organization created by Salman Khan. It produces short YouTube videos [Feb 14] on a range of academic topics, mostly focusing on mathematics and the sciences. Its website also offers practice exercises and helpful tools.

It all began in late 2003 when Khan was asked to tutor his cousin, Nadia, in mathematics using Yahoo!'s Doodle Internet service. When other people saw the results, they also asked to be tutored, and Khan helpfully moved his teaching materials to YouTube in an account he created on this day

Their popularity prompted Khan to quit his job in late 2009 to concentrate on further developing his YouTube channel, with the aid of Josh Gefner.

As of Oct. 2018, Khan Academy has more than 18 million monthly users.

Khan has said of his online lectures: "I think they're valuable, but I'd never say they somehow constitute a complete education."