June 30th

First Draft of EDVAC Report

June 30, 1945

Prev: [Jan 29] Next: [Sept 30]

The "First Draft of a Report on the EDVAC" (commonly known as the First Draft) was an 101-page document written by John von Neumann [Dec 28]. EDVAC stood for Electronic Discrete Variable Computer [April 12].

It was the first published description of the logical design of a computer using the "stored-program" concept, which later came to be known as the von Neumann architecture. For the second and third papers on this topic, see [Sept 30] and [June 28]

Crucially, at least for pedants, "Stored Program" can mean two related things: that the program instructions and the data are both stored in internal memory, and additionally that the computer can modify both of them.

The draft gave a detailed design for a "very high speed automatic digital computing system", divided into a central arithmetic part, a central control part, internal memory, input, output, and external memory, such as punched cards, teletype tape, magnetic wire, or steel tape.

von Neumann suggested two possibilities for the internal memory: delay lines [Oct 31] and iconoscope tubes. The former was also being considered by J. Presper Eckert [April 9] and John Mauchly [Aug 30] early in 1945, which raises the (very contentious) question of where the stored program concept originated.

For instance, Arthur Burks [Oct 13], in his book about those times ("The First Electronic Computer"), believed there was no communication between Eckert and von Neumann on this topic. Incidentally, Burks later helped Von Neumann develop the IAS computer at Princeton [June 10].

Von Neumann wrote the report by hand while commuting by train to Los Alamos, and mailed the handwritten notes back to Philadelphia. Herman Goldstine [Sept 13], security officer for the ENIAC project [Feb 15], had the writing typed up and duplicated. Twenty-four copies were distributed to people closely connected with the EDVAC on June 25, although the report was dated the 30th.

Somehow those 24 copies multiplied, and started to spread. For example, Maurice Wilkes [June 26] at the University of Cambridge in the UK said that his perusal of the document made him decide to travel to the US for the Moore School lectures in [July 8] 1946.

The publication of the First Draft was the source of bitter acrimony within the EDVAC team. Firstly, it amounted to a public disclosure which prevented the EDVAC from being patented. Secondly, neither Eckert nor Mauchly were named as co-authors. They believed that the stored-program concept had evolved out of their meetings before and after von Neumann joined the project in Aug. 1944, and that much of the First Draft was no more than a translation of those concepts into highfalutin logic. This was one reason for Eckert and Mauchly resigning from the Moore school on [March 31] 1946.

Others have argued that the originator of "stored program" was Alan Turing's [June 23] theoretical universal machine, which he described in "On Computable Numbers with an Application to the Entscheidungsproblem" [Nov 12]. Von Neumann was well aware of that 1936 paper.

Mostly likely von Neumann, Eckert, and Mauchly developed the stored-program computer concept jointly – Eckert and Mauchly from the engineering side and von Neumann theoretically.

Transistor Public Demo

June 30, 1948

Prev: [Dec 23] Next: [Oct 3]

After six months of secrecy, the point-contact transistor was publicly demonstrated by its inventors, John Bardeen [May 23], Walter Brattain [Feb 10], and William Shockley [Feb 13], at the Bell Telephone Lab in Murray Hill, New Jersey.

From the left: John Bardeen, William Shockley, and Walter Brattain. Photo by Bell Labs photographer, Jack St??. 1948

It was a tiny device utilizing the semiconducting properties of a single piece of germanium wafer, but it represented a significant advance in technology.

On the same day, Bell Labs inserted a four-paragraph article on page 46 of the *New York Times*, heralding the device as a replacement for the vacuum tube.

Not everyone agreed about the transistor's importance; some pointed out the problems with the fragility, expense, and untested production methods required.

Others were simply shocked by the announcement, including the developers of the transistron [Aug 18] in France.

Giant Brains
June 30 1949

Edmund Berkeley [Feb 22] published "Giant Brains, or Machines That Think" in Nov. 1949, although the book's preface bears today's date.

The book lucidly describes the principles behind computing machines (which it frequently calls "mechanical brains", and sometimes the altogether less catchy "sequence-controlled calculators"). It represents an accessible survey of the most prominent machines of the time, including those at MIT [July 23], Harvard [Aug 7], the Moore School [Feb 15], and Bell Labs [Jan 8].

It wasn't quite the first popular book on electronic computers, since Douglas Hartree's [March 27] "Calculating Instruments and Machines" was published in May, but Berkeley's text was more detailed and wider ranging.

However, both authors were beat by Norbert Wiener's [Nov 26] "Cybernetics" in 1948, which is often cited as the first book on digital computing. However, it focuses mostly on self-regulating mechanisms, and only explicitly considers computers in one chapter.

Unbundling IBM
June 30, 1969

As a result of the case brought by the US Department of Justice on [Jan 17] 1969, IBM announced today that, effective from Jan. 1, 1970, it would begin to unbundle some of its software (i.e. sell it separately).

IBM software was to be divided into two categories: System Control Programming (SCP), which would be free, and Program Products (PP), that weren't.

An unexpected side-effect of the "unbundling" was the appearance a new software industry catering to mainframes and mid-range computers [March 19; April 28; Sept 29], offering products that often competed with IBM stalwarts.

IBM services were also divided into two: a general information category which was free, and on-the-job assistance and training of customer personnel, which cost extra. This separation gave a similar push to independent computing services companies [June 27].

IBM System/370
June 30, 1970

The IBM System/370 (S/370) was the successor to the System/360 [April 7]. Improvements included:

- support for dual-processors;
- faster memory based on integrated circuits rather than magnetic cores [May 11];
- support for virtual memory [Aug 16];
- 128-bit floating point arithmetic

An IBM 370/145 in Poland. Photo from Informatyka, 1980.

The chief aim of the System/370 family was to be faster than the System/360, while remaining mostly backward compatible. The result was a line that lasted for almost twenty years.

Netware 2
June 30, 1986

NetWare 2 with its combination of a higher RAM limit, support for the Intel 80286 [Feb 1], and multitasking made it possible for the first time to build reliable, cost-effective server-based LANs.

NetWare was developed by SuperSet Software, a group set up by Novell CEO, Ray Noorda [June 19]. The first version from 1983 ran atop a proprietary star topology, but the company gradually moved away from building its own network infrastructure, and NetWare became increasingly hardware-independent.

In 1993, version 4 introduced NetWare Directory Services (NDS), a global directory service similar to Microsoft's Active Directory but released nearly seven years before that product. This meant that until the arrival of the Windows NT Server [July 27], Novell cornered 90% of the market for PC based network servers.

OpenGL
June 30, 1992

In the early 1990's Silicon Graphics (SGI [March 23]) was a leader in 3D graphics for workstations, and sold a proprietary graphics API called IRIS GL. All that competing 3D hardware vendors, including Sun Microsystems [Feb 24], IBM, and Hewlett-Packard, could offer was an open, but aging, standards-based API called PHIGS. SGI decided a new open library based on IRIS was needed. Mark Segal and Kurt Akeley started work on OpenGL in 1991, and the first version was released on this day.

One of OpenGL's best ideas was to provide software implementations of features that were often unsupported by hardware. This meant 3D graphics applications could now run on relatively low-powered systems. Naturally, Microsoft eventually released a competitor – Direct3D on [Sept 30], 1995.

In July 2003, OpenGL for Embedded Systems (OpenGL ES) was introduced as a version more suited to devices like

smartphones [June 24], game consoles, and PDAs [Jan 7].

Since 2006 OpenGL has been managed by the Khronos Group, a non-profit consortium. The current release, 4.6 is dated July 31, 2017, but from 2016 Khronos has focussed on the Vulcan API, which it has called the "next generation OpenGL initiative".

Vulcan unifies OpenGL and OpenGL ES, and makes it easier to take advantage of mutiple CPU cores and a GPU.

The WWWW

June 30, 1993

Matthew Gray developed the World Wide Web Wanderer (WWWW) to measure the growth of the web, and in the process may have created the first search engine.

Data collected about websites was stored in a database called the Wandex, but it only offered limited search functionality. Indeed, Gray has stated that the WWWW was not intended to be a general-purpose search engine, so the honor of being first may well belong to another WWWW, the World Wide Web Worm [Sept 00].

Gay Filter

June 30, 2008

OneNewsNow.com, the website of the fundamentalist Christian American Family Association, was widely criticized for its automatic filter to change words that 'do not suit' its ideological line, focusing of its recent news about the American sprinter Tyson Gay.

In a report on his 2008 Beijing Olympics qualifying trials the website included the text: 'Tyson Homosexual was a blur in blue, sprinting 100 meters faster than anyone ever has', and '"It means a lot to me," the 25-year-old Homosexual said. "I'm glad my body could do it, because now I know I have it in me."'

This is a variant of the Scunthorpe problem [April 9].