July 10th

Gauss' Triangles

July 10, 1796

German mathematician and natural philosopher Karl Friedrich Gauss (1777 - 1855) kept a diary for most of his adult life. Perhaps his most famous diary entry, dated today, was the single line

EYPHKA: num = Δ + Δ + Δ

which signifies his discovery that every positive number is expressible as the sum of (at most) three triangular numbers.

The first word is a call back to Archimedes' cry of discovery [March 8].

First Published "Computer Program"

July 10, 1843

In October 1843, Ada Lovelace [Dec 10] published a translation and expansion of Luigi Federico Menabrea's paper, "Notions sur la machine analytique de M. Charles Babbage" (October 1842), which had appeared in a Swiss journal in French. Lovelace added seven lengthy notes, which made the article almost three times longer than Menabrea's, and also made it the first account in English of Babbage's Analytical Engine [Dec 23]

Her "Sketch of the Analytical Engine Invented by Charles Babbage . . . with Notes by the Translator" was published in Richard Taylor's "Scientific Memoirs" volume 3 in 1843 with the author's name given as A.A.L. It was only with the publication of "A History of the Royal Society" in 1848 by Charles R. Weld that Lovelace's authorship of the sketch was confirmed in print.

On this day (before the paper's publication), Lovelace composed a letter to Babbage concerning her additions:

> "I want to put in something about Bernouilli's Numbers, in one of my Notes, as an example of how an implicit function may be worked out by the engine, without having been worked out by human head & hands first. Give me the necessary data and formulae."

(A scan of the letter is online at `https://www.bl.uk/collection-items/letter-from-ada-lovelace-to-charles-babbage#`)

The Bernouilli's Numbers 'program' appeared in Note G as a table showing the evaluation of the algorithm, and contained a few bugs. It has been called the first published computer program.

There is some rather heated debate over who wrote the 'programs' in the article; it seems that many of them were by Babbage.

Note G also contains Lovelace's dismissal of what we now would call AI. She wrote:

"The Analytical Engine has no pretensions whatever to originate anything. It can do whatever we know how to order it to perform. It can follow analysis; but it has no power of anticipating any analytical relations or truths."

This objection was addressed by Alan Turing in his paper "Computing Machinery and Intelligence" [Oct 00].

Menabrea's paper was based on notes he took at a public presentation by Babbage on the Analytical Engine in Torino (Turin) in 1840, which turned out to be the only public lecture ever given on the Engine. Menabrea later became Prime Minister of Italy from 1867 to 1869.

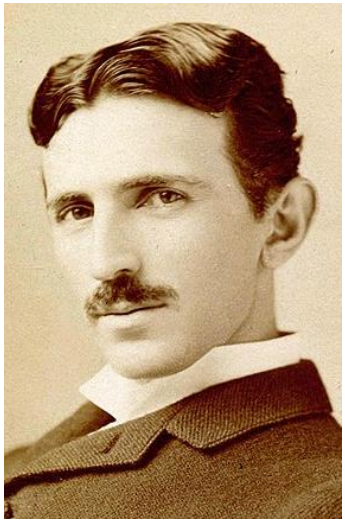
Nikola Tesla

Born: July 10, 1856,

Smiljan, Austrian Empire (now Croatia). Died: January 7, 1943

Tesla is probably best known for developing the alternating current (AC) electrical supply system, which he later sold to the Westinghouse Corporation for $60,000. However, he was a prodigious inventor, including the "Tesla coil," still used in radio technology today, and a pioneer in radar and X-rays. He also created the earliest electronic AND-gate circuit, as part of his development of the first radio controlled device, the Teleautomaton [Dec 8].

When Tesla first arrived in the US in 1884, he briefly worked unhappily with Thomas Edison [Feb 11]. His invention of AC sparked a feud with Edison who was promoting his direct current system at the time. Topsy the elephant suffered as a result [Jan 4].



Nikola Tesla (1893). Photo by Napoleon Sarony. The Marc Seifer Archive.

After a nervous breakdown, Tesla grew increasingly eccentric, and was probably afflicted with obsessive compulsive disorder (OCD). At each meal, he would use exactly 18 napkins to polish the utensils.

After his death, many of his personal notebooks were

declared “top secret” by the FBI because they described work he had done with various US government agencies.

In the 2006 Christopher Nolan film "The Prestige", Tesla was portrayed by musician/actor David Bowie.

Morris Chang

Born: July 10, 1931;

Ningbo, Zhejiang, China

The New York Times has called Chang the "Silicon Godfather," because of his involvement in the rise of Taiwan’s semiconductor industry.

In 1987 he founded the Taiwan Semiconductor Manufacturing Company. (TSMC) which pioneered the dedicated silicon foundry industry. Chang’s idea was to offer specialized factory services (a foundry) for companies willing to outsource chip design and production. This business model meant that entrepreneurs could now enter the field at a much lower cost.

As a result, TSMC became the largest silicon foundry in the world, with a market value of about $185 billion.

Chang was partially inspired by his 1970s work on a four-transistor project for Texas Instruments, where the manufacturing was outsourced to IBM.

Stephen Bernard Dorsey

Born: July 10, 1937;

Montreal, Quebec

Dorsey's Canadian company, AES Data, launched the AES 90 in 1972, which has been called the world’s first general-purpose PC, although it was marketed as a word processing system.

The AES 90 had its own screen, a keyboard, and was able to store texts on, and retrieve them from, magnetic disks. Its software was able to handle French and English, displaying and printing the texts side-by-side, a Canadian government requirement.

The first eight units were delivered to the office of the Prime Minister, Pierre Elliot Trudeau, in February 1974, and it went on to become a huge success, with more than $200 million in annual sales. In response, IBM started offering a rental system for its word processors [June 29].

The AES-90. Piero Scaruffi.

In 1975, Dorsey started Micom Data Systems, to sell the Micom 2000 word processor. It improved on the AES 90 design by using an Intel 8080 [April 18], which made the device smaller and less costly to build. Micom rose to be number three among word processor manufacturers, behind only IBM and Wang [Feb 7].

Phoenix BIOS

July 10 1984

After the success of the IBM PC [Aug 12], many companies wanted to start building PC clones. One problem was that IBM held the copyright to the PC’s BIOS (Basic Input/Output System) [Aug 30].

One expensive option was for a PC maker to create their own compatible BIOS, which Compaq had done for its Compaq Portable [Nov 4] It reportedly cost a cool $1 million to develop.

However, on this day, *PC Magazine* reported that Phoenix Software (later Phoenix Technologies) had released Phoenix BIOS, a legal copy of the IBM PC’s BIOS. Phoenix offered a software license covering its BIOS and PC-equivalent configurations of MS-DOS 2.11 and GW-BASIC at a bargain-basement price of $290,000.

The Phoenix BIOS gave an enormous boost to the creation of 100%-compatible PC clones, but also meant that IBM lost control of the platform they had created. Eventually, the IBM name, combined with the low cost of IBM PC compatibles, pushed aside nearly all the other microcomputer platforms of the day.

To develop their BIOS, Phoenix used the *clean room* technique (also known as the *Chinese wall* technique) involving two engineering teams. One group worked with the IBM PC hardware to reverse engineer its BIOS algorithms and document their findings. The second group, which actually consisted of one person at Phoenix, Ira J Perlow, wrote Phoenix's BIOS, based only on that documentation. Crucially Perlow never read IBM’s manuals, so nothing he implemented could have been copied from IBM.

The BIOS was coded in Microsoft’s MASM assembly language, and linked with Phoenix’s PLINK-86. It was small enough to fit inside an 8K ROM chip.

At the time, "100% PC compatibility" essentially boiled down to checking that the clone could flawlessly run Lotus 1-2-3 [Jan 26] and Bruce Artwick’s [Aug 8] Flight Simulator.

Claris Founded

July 10, 1987

Claris was spun-off from Apple in July 1987 to take charge of MacWrite [Nov 00], MacPaint [April 27], MacDraw and MacProject, upgrading them to form a “Pro” series. Its other products included an integrated suite written by two former Apple employees, Bob Hearn and Scott Holdaway, which was released in 1991 as ClarisWorks.

ClarisWorks quickly surpassed Microsoft Works in sales and

popularity. Early in 1992, Microsoft shipped a new version of Microsoft Works, with the claim "Best-Selling Integrated Application for the Macintosh" on the cover. Claris forced them to remove this inaccurate statement.

Claris disappeared in 1998 soon after the core ClarisWorks team left to form a new company to write software for the ill-fated BeOS [Oct 00].

WebTV

July 10, 1996

WebTV was an adapter that allowed a television set to be connected to the Internet, to facilitate web browsing and e-mail. It was announced on this day by co-developer Steve Perlman, and released on September 18. On April 6, 1997, Microsoft acquired the company.

Perlman had the idea for the device when he was browsing the Web one night, and came across a Campbell's soup website with recipes. He realized that the group of people most interested in sites last this one weren't using the Web.

Initial sales were slow, but improved, and WebTV grossed over $1.3 billion during its first eight years. During this time, Microsoft changed the name of the platform to MSN TV and started giving the devices to MSN members for free.

However, Microsoft ultimately found a better vehicle for the WebTV idea in the Xbox [Nov 15]. Indeed, several members of the Xbox team were formerly part of the WebTV service and also involved with the 3DO [Oct 4] interactive set-top box.

SCIgen

July 10 - 13, 2005

SCIgen randomly generates nonsense academic text, including graphs, diagrams, and citations. It was created by MIT students, Jeremy Stribling, Dan Aguayo, and Max Krohn, "to maximize amusement, rather than coherence."

SCIgen emerged from Krohn's work as a co-founder of the online study guide SparkNotes, which at one point required a tool to generate high-school essays.

In April 2005, the SCIgen generated article, "Rooter: A Methodology for the Typical Unification of Access Points and Redundancy," was accepted as a non-reviewed paper at the *World Multiconference on Systemics, Cybernetics and Informatics* (WMSCI).

A sample of the paper's contents: "Many physicists would agree that, had it not been for congestion control, the evaluation of web browsers might never have occurred. In fact, few hackers worldwide would disagree with the essential unification of voice-over-IP and public/private key pair."

In the wake of the media attention, WMSCI changed its mind and rejected the paper. Undeterred, the authors raised $2,500 to travel to the event, where they rented out a room at the conference hotel to hold their own "session" of randomly-generated talks. They came outfitted with fake names, fake business cards, and fake moustaches.

The App Store

July 10, 2008

The iPhone [Jan 9] App Store opened on this day, via an update to iTunes [April 28]. Apple could now control access to third-party software for the first time, and so naturally introduced a charge on top of the basic cost of every app, typically a 30% commission on top of its revenue.

Initially, Steve Jobs [Feb 24] hadn't wanted developers to build native apps for iOS at all, suggesting they work on Web applications for Safari [June 23] instead. The ensuing backlash prompted Apple to reconsider, and an app SDK was released on March 6, 2008.

The 10 billionth app was downloaded from the store in January 2011, and the American Dialect Society awarded "app" the honor of being 2010's "Word of the Year".

The store's popularity soon led to the introduction of equivalent marketplaces by other mobile OSes, notably "Android Market" [Oct 22] (later renamed "Google Play"). However, the App Store was a long way from being the first commercial electronic software distribution catalog, which was probably the Electronic AppWrapper [May 25] from 1993.