May 7th

Millionaire Patent

May 7, 1895

Otto Steiger was issued a US patent (US 538710) for his Millionaire calculating machine on this day, although he'd obtained a similar patent for the device in Germany back in 1892.

Steiger's design was taken up by his friend, Hans W. Egli, who made several improvements as he refined the machine for sale.

The Millionaire became the first commercially successful mechanical calculator that could perform a direct multiplication, which meant a user could multiply a number by a single digit with a single rotation of a handle. This was possible by building mechanized versions of the multiplication tables into the machine and obtaining products through a form of table lookup.

The Millionaire calculator. Photo by brewbooks. CC BY-SA 2.0.

A trained operator could multiply two 8-digital numbers in about seven seconds, a speed that wasn't surpassed until the appearance of fully-automatic rotary calculators in the mid 1930's. Indeed, the Millionaire stayed in production until 1935, with over 4,500 being sold.

All commercial mechanical calculators prior to the Millionaire, such as the Odhner arithmometer [Aug 10] or the comptometer [March 18], were simple adding machines. However, Edmund Barbour, Ramon Verea and Leon Bollée [April 1] had built devices using the direct multiplication principle earlier, but they hadn't been successful.

Rudolf Bayer

Born: May 7, 1939;

Munich ??, Germany

Bayer is best known for inventing three data structures: the B-tree, UB-tree, and the red-black tree.

A B-tree is a self-balancing structure that keeps its data sorted and allows searches, sequential access, insertions, and deletions in logarithmic running time. A tree is balanced when its various branches are all about the same length. B-trees are widely used in database systems.

The UB-tree, developed by Bayer and Volker Markl, is a balanced tree for storing and efficiently retrieving multidimensional data.

A red–black tree is a self-balancing binary search tree. Each node has an extra bit, often interpreted as a color (red or black). These bits are used to ensure that the branches of the tree always stays approximately balanced even after multiple insertions and deletions.

At the start of his career, Bayer developed the ALCOR Illinois 7090/7094 post mortem dump application. It was the first program to analyze the runtime errors in a program at the level of the original ALGOL 60 source code [Jan 11].

IBM 704 Announced

May 7, 1954

The IBM 704 Data Processing System was the first commercially produced computer to support floating point arithmetic as a standard feature, and could execute up to 12,000 floating-point additions per second. The principal designer was Gene Amdahl [Nov 16].

The 704 dominated the scientific computing market after its release, and its instruction set became the basis for the "scientific architecture" machine subclass in the IBM 700/7000 series.

The 704 was a significant improvement over the earlier 701 [April 7]. It still used vacuum tubes, but replaced the 701's Williams-Kilburn tubes [Dec 11] with magnetic core memory that was far more reliable [May 11; Oct 21]. Over time, IBM improved the manufacturing quality of the tiny, "doughnut" shaped, iron oxide cores by working with Colton Manufacturing to adapt their pill-making machinery to press cores instead.

IBM had estimated that perhaps six 704s would be sold altogether. A second estimate, 18, was used when designing the production facility where they were built, and to decide on a selling price. Eventually 180 were purchased, not counting 50 very similar 709s.

John Backus [Dec 3] was involved in suggesting system features, since the intention was to develop the first FORTRAN compiler [Dec 00] on a 704.

The machine was also home to the first version of LISP [April 15], MAD [Aug 26] (a variant of ALGOL 58 [May 27]), the first perceptron [July 7], machine translation [Jan 7], and Max Mathews' [Nov 13] MUSIC.

The 704 may have run the first OS, the GM-NAA I/O [June 11]. The software's main function

was to automatically execute a new program once the current one had finished. It also provided routines to simplify access to I/O devices.

Working with an IBM 704. Photo by NASA.

Edward O. Thorp [Aug 14] used a 704 to investigate the probabilities of winning at blackjack, by coding the necessary equations in FORTRAN. The Bernstein Chess Program [June 00], the first to support a complete game of chess, was implemented on a 704.

John McCarthy [Sept 4] once remarked on how his students programming the lab's 704 would spend hours shaving an instruction or two off their code. He jokingly compared them to ski bums since they got the same kind of thrill as fanatic skiers got from clipping seconds off their downhill races. Inevitably, the practice came to be known as "program bumming".

A 704 may hold the title of the computer actively in service for the longest period of time [Dec 1].

Operation Sundevil Begins

May 7, 1990

Over the course of three days, the US Secret Service and the Arizona Organized Crime and Racketeering Bureau carried out "Operation Sundevil". It involved raids in approximately 15 cities, and resulted in several arrests and the confiscation of 42 computers, the contents of 25 bulletin boards, and about 23,000 floppy disks.

The most prominent arrest was of Craig Neidorf [July 23] (aka "Knight Lightning"), one of PHRACK's editors [Nov 17].

The operation is now considered to be mainly a public-relations stunt, but one positive outcome was the creation of the Electronic Frontier Foundation (EFF [July 6]), to fight for civil liberties online. The operation was also featured in Bruce Sterling's entertaining 1992 book, "The Hacker Crackdown".

The enterprise's name came from the Sundevil football stadium at Arizona State University, near the local Secret Service headquarters where the investigation and raids were coordinated.

A similar raid on "Steve Jackson Games" had occurred two months earlier [March 1], and is often attributed to Operation Sundevil, but was unrelated.

First Time Traveler Convention

May 7, 2005; 22:00 EDT

(42°21'36" N, 71°05'16" W)

MIT held the first Time Traveler Convention in the East Campus courtyard in front of the Walker Memorial, across from the MIT Media center. The event was organized by Amal Dorai to make contact with time travelers.

Dorai asked all visitors from the future to bring something with them that would offer "clear proof" of their status. Among his suggestions were a cure for AIDS and a solution to world poverty.

The convention included lectures on various aspects of time travel from three MIT professors: Erik Demaine (a former child prodigy, best known for his work in the field of computational origami), Alan Guth, and Edward Farhi.

Demaine taught the "Advanced Data Structures" course at MIT for many years, which usually began with the topic of "time travel" (temporal data structures). His Wikipedia page also reveals that as a boy he "spent time traveling across North America with his father."

A De Lorean DMC-12, the car featured in the "Back to the Future" film trilogy, was on display at the event. Whether it belonged to Demaine is unknown, but Dr. Emmett "Doc" Brown's wasn't due to appear until Oct. 21, 2015.

Dorai was inspired to organize the event by an online "Cat and Girl" comic strip written by Dorothy Gambrell (probably the one at http://catandgirl.com/a-present-for-cat-and-girl/ dating from Feb. 11, 2003).

Colonial Pipeline turns to the DarkSide

May 7, 2021

Colonial Pipeline, based in Houston, suffered a ransomware cyber-attack by the DarkSide hacker group [May 4]. It affected the computerized equipment managing its pipelines carrying 2.5 million barrels a day – 45% of the East Coast's supply of diesel, petrol, and jet fuel.

Colonial was forced to halt operations, and quickly paid the ransom (75 bitcoin [Jan 3] or nearly $5 million). The attack was described as the worst cyber-attack to date on US critical infrastructure. The group is also believed to have stolen 100 GB of data from the Colonial servers the day before the attack.

After sending Colonial software to restore their network, DarkSide also issued a (sort of) apology on their website: "Our goal is to make money and not creating problems for society."

DarkSide is believed to be based in Eastern Europe, probably in Russia, but not directly state-sponsored.

DarkSide uses a "ransomware-as-a-service" business model where "affiliate" subscribers (who have been screened via an exhaustive interview) can utilize its ransomware in return for DarkSide getting a cut of the ransom payments.

For a few more choice pieces of malware, see [March 4; July 15; Sept 5; Nov 21; Nov 24; Dec 13].