Sept. 1st

William Stanley Jevons

Born: Sept. 1, 1835;

Liverpool, UK
Died: Aug. 13, 1882

Jevons was best known as an economist, and in particular for his theory linking sunspots and economics cycles. However, he also wrote a popular textbook on logic, and created the logic piano (aka logical abacus) utilizing Boolean logic [Nov 2]. He had a clockmaker construct a working version for him in 1869.

W. Stanley Jevons. Photo by the Rutherford Journal.

The device displayed all the true and false combinations of up to four logical terms as a series of wooden boards mounted in a case. Its keyboard of black and white piano keys was then pressed to exclude true/false combinations which didn't fit the logical statements using those terms. In essence, the device modeled inference as a process of truth table elimination.

The logic piano inspired Charles Peirce [Sept 10] and Allan Marquand's [Dec 10] device of 1886. For other logic machines, see those by Stanhope [Aug 3] and Pastore [Nov 13].

Michael Oser Rabin

Born: Sept. 1, 1931;

Breslau, Germany

Rabin and Dana Scott [Oct 11] authored the 1959 paper "Finite Automata and their Decision Problems" which introduced the idea of nondeterministic machines, which has proved to be enormously valuable in computing theory.

A second groundbreaking paper, "Degree of Difficulty of Computing a Function and a Partial Ordering of Recursive Sets" (1960), grew out of a puzzle that John McCarthy [Sept 4] posed about spies, guards, and passwords:

"The spies have passwords that allow them to pass from enemy territory to their own. The guards cannot be trusted to keep the passwords secret, so some method had to be found to verify that even if the enemy gains knowledge of the password, the spies can safely return but enemy infiltrators are kept out."

This started Rabin thinking about functions that were difficult to invert, and the resulting paper provided the foundation for many subsequent advances in cryptography.

His other work includes the Miller-Rabin primality test (which has been called revolutionary) and the Rabin-Karp string search algorithm.

Rabin's students at Harvard have posted some of his more memorable quotes online. Two examples:

"And now if I have an enormous p…"

"The theorem, I don't know exactly the genealogy, but let's say Karp [Jan 3], he's a friend of mine."

ILLIAC I Runs

Sept. 1, 1952

The ILLIAC I (Illinois Automatic Computer) was an early von Neumann architecture [June 10] machine, developed in a project led by Ralph Meagher and Abraham H. Taub who had both worked with von Neumann at IAS.

It used 2,800 vacuum tubes, measured 10 ft. by 2 ft. by 8.5 ft., and weighed 4,000 pounds. It employed an early form of hexadecimal notation where the letters K, S, N, J, F, and L stood for 10 to 15. Programmers used to remember them with the catchphrase "King Sized Numbers Just For Laughs."

The ILLIAC I could perform 11,000 operations per second. ILLIAC II, a transistor-and-diode machine completed in 1963, could perform 500,000 operations per second. The ILLIAC III was a special-purpose computer designed for the automatic scanning of large quantities of visual data. The ILLIAC IV [Sept 7] was a SIMD (Single Instruction, Multiple Data stream) parallel computer, essentially an array processor.

In 1956, Lejaren Hiller and Leonard Isaacson used the ILLIAC I to compose the Illiac Suite [Aug 9], one of the first pieces of music written with the aid of a computer.

The first version of the PLATO education system [Aug 22] was implemented on the ILLIAC I in 1960, by a team led by Donald Bitzer [Jan 1].

The ILLIAC had an identical brother, the ORDVAC (Ordnance Discrete Variable Automatic Computer), which made them the first machines to use the same instruction set. The ORDVAC was built for the Ballistic Research Lab [July 29] at the Aberdeen Proving Ground in Maryland, and became fully operational on March 6, 1952. This makes it the older of the two siblings.

RFC 791 Released

Sept. 1, 1981

Prev: [Nov 27] Next: [Jan 1]

RFC 791 defines Internetwork Protocol version 4 (or IPv4), one of the core networking protocols of the Internet. It was first deployed by the ARPANET on [Jan 1] 1983.

However, it wasn't always a star. When the ARPANET went live on [Oct 29] 1969, file transfer, remote login, and email were supported by the NCP (Network Control Protocol).

However, NCP was quite resource hungry and complex, and in 1973, Vinton Cerf [June 23] and Robert Kahn [Dec 23] began working on a new networking protocol, which they called TCP (Transmission Control Protocol) [Sept 9].

Kahn and Cerf's work went through three revisions after their original [May 5] 1974 paper (that's why its IP version 4). It was only in version 3 that TCP was split into TCP/IP.

IPv4 is deliberately low-level. For example, it doesn't guarantee the delivery of messages (packets), nor does it assure the proper sequencing of packets or the avoidance of duplicate delivery. These aspects are instead addressed by higher level protocols, such as TCP.

TCP/IP use of 32-bit addresses seemed reasonable back in the 1970s (it provides approximately 4.3 billion different names), but concerns about them running out grew in the early 1990s, even before the Web was invented. IPv6 [Dec 00] was the result, with 128-bit addresses, which offers around 8×10^{28} times more names than IPv4.

CD-ROMs for PCs

Sept. 1, 1988

At the 1980s progressed, Compact Discs [Aug 17] were being used ever more frequently to store data, but every CD-ROM maker was offering their own storage method.

A format war was averted after representatives of twelve hardware manufacturers (including DEC, Microsoft, Hitachi, and Apple) gathered at the High Sierra Hotel and Casino near Lake Tahoe in Nov. 1985. The High Sierra Group (HSG) proposed the High Sierra Format (HSF), which was accepted as an international standard on this day.

The venue (currently called the "Hard Rock Hotel and Casino") was originally the Sahara Tahoe, where Elvis performed regularly from 1971 to 1976.

Atari Lynx

Sept. 1, 1989

The Atari [June 27] Lynx was the first 16-bit handheld game console to use a color LCD. The system was also notable for its advanced graphics, including hardware support for zooming and sprite transformations.

The Lynx was developed by two former Amiga [July 23] designers, R. J. Mical and Dave Needle, and originally called the "Handy Game".

An Atari Lynx. Photo by Tjansen.

Its main competitor was the Nintendo Game Boy [April 21], which had been released a few months earlier. However, the Lynx offered superior technology, so much so that one reviewer said that the Lynx "throws the Game Boy into the prehistoric age."

Atari reported sales of 90% of the 50,000 units it had shipped in the launch month. Unfortunately, Atari's poor marketing and lackluster third-party support spelt eventual doom. The Game Boy, with the right marketing and software, won out.

The Mercury Project

Sept. 1, 1994

The Mercury Project was a robot arm fitted with a camera and a pneumatic hose, positioned over a sandbox containing buried items. A user could remotely move the arm via a Web page interface to a particular spot above the sand, and shoot a short burst of compressed air from the hose to clear away the sand. The task was to identify all the buried artifacts, which collectively related to a 19th century text, and thereby deduce its name.

Mercury was the first tele-operated arm connected to the Web, and by the start of Feb. 1995, it had been accessed over 50,000 times.

The project leads were Ken Goldberg and Michael Mascha. Goldberg went on to create the Telegarden in June 1995, another robot arm with a webcam, mounted above a trough of soil. The objective this time was to plant seeds and water them. In its first year, over 9000 people cultivated plants.

Earlier Web systems typically involved just a webcam, to watch coffee pots [Nov 22], fish tanks [Aug 00], coke machines [?? 1982], and a hot tub [Dec 3].

imHalal.com

Sept. 1, 2009

AZS Media Group, a Dutch company, launched the world's first Islamic search engine, ImHalal.com.

The search engine differentiated between material that was "halal" (allowed) and "haram" (forbidden) in Islam. For instance, the engine didn't index images that contained nudity or

portrayals of the prophet Muhammad.

The site was closed in 2011 due to financial difficulties.

The Financial Modeling World Cup Begins

Sept. 1, 2020

In the Financial Modeling World Cup (FMWC) contestants solve real-life financial problems in the form of case studies, by building models in Microsoft Excel [May 2]., and answering six to 15 questions that vary in complexity — the more complex, the more points are awarded to a player.

Stages are held throughout the year which contribute to a global leaderboard. The event is sponsored by financial services firm AG Capital and Microsoft.

Besides organizing regular stages, FMWC occasionally broadcasts live "Excel as esports" battles on YouTube [Feb 14] and ESPN3, such as the "888 Battle" held on June 8, 2021, with eight invited competitors from eight countries

There have been similar competitions held in the past, including the Microsoft-sponsored ModelOff Financial Modeling World Championships that ran from 2012 to 2019.

The FMWC isn't the only competition of its kind, either — the Microsoft Office Specialist World Championship covers the entire Office suite, including Excel, Word [Sept 29], and PowerPoint [April 20]; it challenges students to become "Microsoft Champions" [May 23].
