Feb. 26th

Radar Demoed

Feb. 26, 1935

Scottish physicist Robert Watson-Watt, considered by many to be the inventor of radar (RAdio Detection And Ranging), demonstrated its feasibility by tracking a Royal Air Force bomber.

On Feb. 12, 1935, Watson-Watt sent a secret memo about his system to the Air Ministry, entitled “Detection and location of aircraft by radio methods”. The government was interested in radio-based devices due to rumors that the Nazis were developing a “death ray” based on radio waves, capable of destroying towns, cities, and people. Although Watson-Watt’s proposal wasn't as exciting as a death-ray, the concept clearly had potential. The ministry asked for a demonstration.

A practical version entered service in Sept. 1938 under the code name "Chain Home", and was soon providing vital information that helped the Royal Air Force win the Battle of Britain in 1940.

Watt was granted a knighthood in 1942, and also took that opportunity to add “Watson” to his name.

Long after WWII, Watson-Watt was pulled over for speeding in Canada by policeman using a radar gun. The culprit remarked, “Had I known what you were going to do with it I would never have invented it!”. He also wrote a poem about the occasion, called “Rough Justice”.

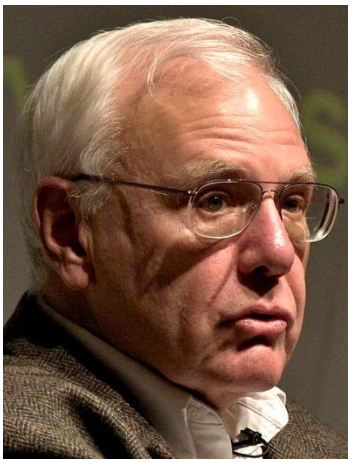
Charles Patrick (Chuck) Thacker

Born: Feb. 26, 1943;

Pasadena, California
Died: June 12, 2017

Thacker worked at Xerox PARC [July 1] in the 1970's and 1980's, where he served as the leader of the Xerox Alto [March 1] project, the first computer designed to support an OS with a graphical user interface and mouse. The hardware was designed mostly by Thacker, with Butler Lampson [Dec 23] developing its systems software. Thacker was also a co-inventor (along with Robert Metcalfe [April 7], David Boggs, and Lampson) of Ethernet networking [May 22], and Thacker later noted that although the Alto was a “nice” single-user machine, its “real power” was unleashed by networking.

Before Xerox, Thacker was part of “Project Genie” [Nov 30], which developed the Berkeley Timesharing System. Thacker and others saw an opportunity to start a company based on their work, the short-lived Berkeley Computer Corporation (BCC). BCC refugees became the core of the Computer Systems Lab at PARC.



Chuck Thacker (2008). Photo by Marcin Wichary. CC BY 2.0.

In 1983, Thacker founded the Systems Research Center at DEC where he developed Firefly, one of the first multiprocessor workstation systems, and the Lectrice, a pen-based hand-held computer prototype.

In 1997, he helped establish Microsoft Research Cambridge in the UK, and back in the US designed the hardware for Microsoft’s Tablet PC [Nov 12].

IPL

Feb. 26-28, 1957

IPL (Information Processing Language) was created in 1956 by Allen Newell [March 19], J. Clifford Shaw [Feb 23], and Herbert A. Simon [June 15], and made its first published appearance at this week's Western Joint Computer Conference [next two entries]. Newell was the language designer, Shaw the system programmer, and Simon the application programmer/user.

IPL introduced numerous language features that are common today, such as lists, recursion, and higher-order functions. Many of the important early AI applications were developed in IPL, including "Logic Theorist" [Aug 9], and the "General Problem Solver" [Dec 30].

According to Simon’s autobiography, “Models of My Life”, the first IPL application was a version of Logic Theorist that proved a theorem from “Principia Mathematica” by Alfred North Whitehead and Bertrand Russell [May 18]. However, the program's execution was simulated by Simon having his children write on note cards representing the variables.

The first IPL was never implemented, but subsequent versions (2 - 6) could run on systems such as the IBM 704 [May 7], IBM 650 [July 2], and IBM 7090 [Nov 30]. IPL-V was the most widely used, and the first to build lists from noncontiguous memory cells connected by pointers. However, the language was eventually supplanted by Lisp [April 15], which had more powerful list processing features, a simpler syntax, and benefited from automatic garbage collection.

Lisp’s inventor, John McCarthy [Sept 4], had first encountered IPL (version 2) when Newell and Simon had given a talk about the Logic Theorist at the Dartmouth AI workshop on [June 18] 1956, and decided he could do better.

TX-2

Feb. 26-28 1957

A series of papers describing MIT's TX-2 were presented at the Western Joint Computer Conference [previous and next entries].

The TX-2 was transistor-based, using a massive 64K 36-bit words of core memory, and one of the first, if not the first, paging systems. Wesley A. Clark [April 10] was the chief architect, following on from his TX-0 [Nov 20] design.

After the TX-2 became operational in 1958, it found widespread use in various AI and human-computer interaction projects at MIT, including for running Ivan Sutherland's [May 16] Sketchpad [Jan 7]. It was also employed by Leonard Kleinrock [June 13] to run the first simulations of packet switching networks.

Ivan Sutherland using Sketchpad on the TX-2 (1963). Photo by Ivan Sutherland. CC BY-SA 3.0.

In addition to the usual I/O devices, the TX-2 offered programmable buttons for entering commands, an oscilloscope/video display (with 1024×1024 of addressable pixels), a light pen, and a pen plotter. The machine was operated like a personal computer (despite its size), with the user writing and debugging code while sitting at the console.

There was also an experimental Xerographic printer, which required heat to fuse the toner powder onto the paper. However, if the paper jammed, it might become hot enough to catch fire. For that reason, the paper dropped from the printer into a large steel bin with a separate sturdy lid in case of fire. The only other documented fire-starting printer was also a Xerographic device [Dec 9].

An important result of the TX-0 and TX-2 work was the creation of Digital Equipment Corporation [Aug 23] by Ken Olsen [Feb 20] and Harlan Anderson in 1957. Their PDP-1 [Nov 00], the first commercial minicomputer, was based on the TX-0's design.

You may be wondering what happened to the TX-1? It proved to be too complex and expensive, so never left the design phase. Instead it was simplified, and renamed the TX-2. It was partly this difficult trimming process that persuaded Olsen and Anderson to leave MIT.

FORTRAN

Feb. 26-28, 1957

Prev: [Nov 10] Next: [April 19]

FORTRAN was presented to the world at the Western Joint Computer Conference (WJCC) [previous two entries] in the paper "The FORTRAN automatic coding system", written by John Backus [Dec 3] and twelve co-authors.

Before the conference, IBM had asked attendees for examples of real-world computing problems. such as calculating the air flow around a jet wing. Solutions were coded in assembly and in FORTRAN, and run on a 704 [May 7] in a public demonstration.

Most of the FORTRAN programs took no longer than the hand-coded assembly versions, showing that the skeptics were wrong about the slowness of high-level languages. Ken Thompson [Feb 4] later recalled that "ninety-five percent of the people who programmed in the early years would never have done it without FORTRAN. It was a massive step."

FORTRAN (although much modified) is still in use today in scientific and engineering applications, making it one of the oldest programming languages (COBOL [April 8] is another).

The main FORTRAN releases:

- 1957 – FORTRAN;
- 1958 - FORTRAN II (added subroutines);
- 1958 - FORTRAN III (not released to the public);
- 1961- FORTRAN IV (basis for the first standard in 1966);
- 1972 - FORTRAN 66;
- 1980 - FORTRAN 77 (added if-then-else; became the new standard in 1978);
- 1991 - Fortran 90 (a new ISO [Feb 28] and ANSI standard, which said goodbye to the acronymic meaning of the name);
- Dec 15 1997 - Fortran 95;
- Nov 30 2004 - Fortran 2003;
- Sept. 2010 - Fortran 2008;
- mid-2018 - Fortran 2018.

In FORTRAN 77, variable names beginning with the letters I–N had a default integer type, while variables starting with any other letters were real, although programmers could override the defaults with an explicit declaration. This led to the joke: In FORTRAN, GOD is real (unless declared integer).

Microsoft Campus

Feb. 26, 1986

"The Microsoft Campus" is the informal name for Microsoft's headquarters at One Microsoft Way in Redmond, Washington. Microsoft began moving in on this day.

The campus is estimated to contain over eight million square feet of office space for 30,000-40,000 employees. Over

23 million free drinks are consumed on site each year, with the top two being milk and orange juice. There are around 35 cafeterias, with pizza being the most popular meal.

The buildings were originally numbered consecutively, with 1-4 being the first to open. Between these four is a man-made pond that was originally known as "Lake BillG" (in honor of Bill Gates' e-mail address, but pronounced “bilge”). Gates' original corner office on the second floor of Building 4 overlooked the pond. Nowadays, the lake is called “Lake Bill”, but only when you zoom in close in mapping software.

Lake Bill in Google Maps. (c) 2020 Maxar Technologies.

There's no building 7 because employees protested that too many trees would be lost during its construction. Microsoft moved onto 8 and 9, which are located slightly to the west. There is no truth to the rumor that a top-secret building 7 is located beneath the lake.

Pentium III Introduced

Feb. 26, 1999

The Intel Pentium III (marketed as the Pentium !!!) was not that dissimilar from the Pentium II [March 22]. The most notable changes were faster floating point and parallel calculations, and the introduction of a serial number embedded in the chip during the manufacturing process, called the PSN (Processor Serial Number).

The PSN was readable by software through an enhanced CPUID instruction if it wasn’t disabled via the BIOS. Unfortunately for Intel, they decided to launch the chip with PSN ‘on’ by default.

On Nov. 29, 1999, the European Parliament asked its members to consider legal measures that would “prevent these chips from being installed in the computers of European citizens.”

Intel removed the PSN from later Pentium IIIs, and subsequent chips. However, the CPUID instruction remains, and is easy to access from code. For example, the popular freeware Windows utility, CPU-Z, utilizes it.

Encyclopedia of Life

Feb. 26, 2008

Biologist E. O. Wilson launched the collaborative "Encyclopedia of Life" (EOL) website devoted to cataloging all of the 1.9 million living species currently known to science. Wilson’s 2007 TED Prize speech [Feb 23] was the catalyst for it's creation.

Wilson’s biological specialty is myrmecology, the study of ants, but he's more widely known as “the father of sociobiology” which aims to explain social behavior in terms of evolution.

Sociobiology had a long history before Wilson, but came to prominence when his book, “Sociobiology: The New Synthesis” was published in 1975. The idea has attracted critics, including Stephen Jay Gould, who grouped sociobiology with eugenics, criticizing both in his book “The Mismeasure of Man” (1981).