May 30th

John Cocke

Born: May 30, 1925;

Charlotte, North Carolina
Died: July 16, 2002

Cocke is often called "the father of RISC architecture" because of his involvement with the IBM 801 minicomputer project in the mid-1970's, and specifically his insight that the hardware's instruction set should be designed to complement the simple instructions emitted by a compiler, quite unlike the practice common at the time of building complex operations in the hardware.

The surprising result was high performance at low cost, in no small part due to Cocke inventing a number of optimizing transformations for the compiler, including efficient range checking for arrays, global common subexpression elimination, code relocation, and dead code elimination.

The 801 was completed in 1979, but IBM held back from releasing a commercial version because of its focus on the System/370 line [June 30] and its successors. Nevertheless, word got out that the 801 could execute S/370 code at much faster speeds, even though it was a smaller, simpler computer.

Two important consequences of Cocke's work was that David Patterson [Nov 16] started the "Reduced Instruction Set Computer" project at Berkeley in 1980, and John Hennessy began the MIPS (Millions of Instructions Per Second) project [Sept 22] at Stanford.

Cocke's eccentric ways were legendary, especially his disregard for paychecks. His assistants routinely searched through his trash to make sure he hadn't accidentally discarded anything valuable.

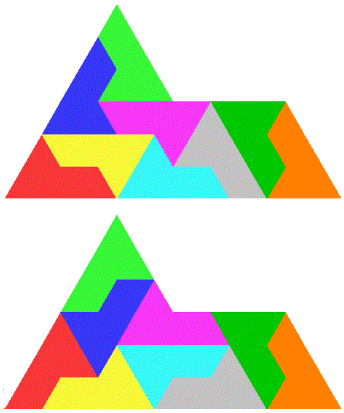
Solomon Wolf Golomb

Born: May 30, 1932;

Baltimore, Maryland
Died: May 1, 2016

Golomb created a wide range of mathematical games, including "Cheskers" (1948; a hybrid of chess and checkers). His 1950's work on polyominoes and pentominoes was an inspiration for Tetris [June 6], and many other polyomino-based puzzles and games. Of course, he's sometimes called "the godfather of Tetris."

In 1961 Golomb introduced the rep-tile, or reptile, a shape that can be dissected into smaller copies of itself. Rep-tiles are related to fractals [Nov 20].



Two rep-tilings of the sphinx hexiamond. Created by MagistraMundi. CC BY-SA 4.0.

Golomb also worked on pseudorandom binary sequences using linear feedback shift registers, which later became important in various military, industrial, and consumer applications. For example, mobile phones utilize these sequences to reduce signal interference.

His research in the communications field included new techniques for encrypting radio signals sent to satellites, ways to detect and isolate very faint signals, and several data compression methods. For instance, video images from the Curiosity Rover on Mars employed Golomb's coding schemes.

He was a frequent contributor to *Scientific American*'s "Mathematical Games" column [Oct 21], wrote "Golomb's Puzzle Column" for the *IEEE Information Society Newsletter*, and a separate monthly "Golomb's Gambits" in the *Johns Hopkins Magazine*, which ran for over 30 years.

Marissa Mayer

Born: May 30, 1975;

Wausau, Wisconsin

Mayer was the first female engineer hired at Google and one of their first 20 employees, joining the company in June 1999.

She was part of the three-person team responsible for Google AdWords [Oct 23], which delivers most of the company's revenue. She influenced many of the company's other signature features, including Gmail [April 1] and Google Maps [Feb 8]. She used to be responsible for approving each "doodle" [Aug 20] appearing on the Google home page.

Mayer became President and CEO of Yahoo! [March 2] in July 2012, a job she held until [June 13] 2017 when Yahoo!'s operating business was sold to Verizon.

In 2016, Mayer tried to spin off Yahoo!'s Alibaba shares [Aug 11] by distributing them to shareholders, but had to scrap the plan after the Internal Revenue declined to rule the move tax-free. It was a severe blow to Mayer's plans to make Yahoo! relevant again, but did slow its decline.

Mayer was added to *Fortune* magazine's annual list of America's 50 Most Powerful Women in Business in 2008, and for many subsequent years. However, in March 2016, *Fortune* named her one of the world's most disappointing leaders.

In 2018, Mayer co-founded Lumi Labs (lumi means snow in Finnish), focusing on consumer media and AI. She rented the former Google office where she'd started her career in 1999.

In 2006, she had 400 pieces of glass art by Dale Chihuly installed in the ceiling of her penthouse apartment at San Francisco's Four Seasons hotel. Chihuly's work typically sells for $15,000 a piece.

At high school, her after-hours activities included ballet, ice-skating, piano, curling, precision dance, and leading the debating team. At Stanford, she was a member of the Cardinal Ballet Company (CBC), the university's ballet student group, and danced in Tchaikovsky's *The Nutcracker*. She climbed Mount Kilimanjaro in 2009.

Capcom Begins
May 30, 1979

The Japanese video game developer and publisher Capcom has created numerous popular game franchises, including Street Fighter [Aug 30], Mega Man, and Resident Evil [March 22].

The company was established as I.R.M on this day by Kenzo Tsujimoto, to sell electronic game machines to arcades. Two years later Tsujimoto started a subsidiary firm called Japan Capsule Computer, which eventually became Capcom.

An early arcade video game success was "Bionic Commando", which was known as "Top Secret: Hitler's Resurrection" in Japan and featured the Fuhrer's reanimation. Not suprisingly, certain details were changed when the game reached American shores: the swastikas disappeared, the Nazis were renamed Badds, and Hitler became Master D.

In 1994 Capcom began working with Marvel on "X-Men: Mutant Apocalypse", a side-scrolling SNES game [Nov 21]. In 1996 Capcom came up with the brilliant idea of pitting the X-Men against the cast of Street Fighter. That game introduced tag team mechanics which rapidly became a staple of this genre.

F# Released
May 30, 2005

F# (pronounced F sharp) is a strongly typed language that mixes functional, imperative, and object-oriented programming. The early idea was to bring the benefits of OCaml to Microsoft's .NET platorm [Feb 13] and support .NET in OCaml.

OCaml (formerly Objective Caml) is a multi-paradigm dialect of the ML functional language. It was developed in the mid 1990's at INRIA and ENS by Xavier Leroy and others.

F# was designed by Don Syme at Microsoft Research in Cambridge, UK. Aside from referring to functional programming, the name may perhaps also relate to the musical chord, which is commonly associated with a sense of relief. It can be tricky to play on a guitar because of the three strings that have to be held down.

Syme has remarked that the greatest mistake made with F# was that neither .NET nor the language were open source. This led to the creation of the F# Software Foundation in 2013, to develop a F# open source compiler and tools.

Before the Surface
May 30 (or 29), 2007

The Microsoft Surface touchscreen PC was released on Oct. 26, 2012, but there had been an earlier Microsoft Surface, now called the PixelSense, that was announced on this day.

The original Surface was embedded in a table with a flat 30-inch display as the tabletop, and five near-infrared (IR) cameras mounted around the edges to sense where the user touched the display.

Microsoft surface table. Photo by Ergonomidesign. CC BY-SA 3.0.

The Surface was able to recognize several touch points at a time, as well as objects with small "domino" stickers attached to them. Later versions of the device utilized RFID [Oct 25] to identify things placed on the table.

Microsoft liked to call this a natural user interface, or NUI. Steven Bathiche and Andy Wilson had come up with the idea back in 2001, and 85 prototypes later, Surface 1.0 was ready to go.

One problem with the first release was the hardware's tendency to drift out of alignment, meaning that a button on the screen wasn't exactly where you needed to put your finger to activate it.

In 2011, Microsoft partnered with Samsung to produce the sleeker Samsung SUR40, which drastically reduced the amount of space required for the touch sensing mechanism. The made it possible to mount the display on a wall rather than in a table.