Old Brass Brains
July 20, 1911

Tide-Predicting Machine No. 2, also known as "Old Brass Brains", was an analog computer designed by Rollin A. Harris and E.G. Fischer. (Other names for it included "Old Brass Bolts," and "The Great Mechanical Wizard.") It was first described by Fischer in an article published on this day.

"Old Brass Brains" employed gears, pulleys, chains, and other mechanical components to compute the height and time of high and low tides for specific locations. It was estimated that it could perform the same number of calculations in one day that would have required a person 125 days to perform by hand.

Old Brass Brains. Photo by Steven Fine. CC0.

The US Coast and Geodetic Survey started using it in 1910, and it operated without a single breakdown until 1965. As such, it was arguably the US government's first computer. Inevitably, it was replaced by a "real" computer running tide prediction software written in FORTRAN, which could do in 30 seconds what "Old Brass Brains" had taken 6 hours to accomplish.

The machine is currently on display at the NOAA Science Center, Silver Spring, Maryland, and is still in working order.

"Old Brass Brains" was far from being the first tide-predicting machine, which had been built by William Thomson in 1872-3 (he later became Lord Kelvin). The device predicted tidal movements based on the amplitude, phase, and periods of their constituent sine functions. After the machine was completed, Kelvin realized that its mechanical approach could be applied to the solution of more general linear second-order differential equations.

For more analog computers, see [Jan 00], [Jan 24], [Feb 27], [March 4], [July 23], [Nov 29], [Dec 25], [Dec 28].

The IBM Punch Card
July 20, 1928

On this day, IBM applied for a patent for a 80-column punch card using rectangular holes, which was granted as patent 1,772,492 on August 12, 1930.

The development of the card had begun in 1927, when Thomas J. Watson Sr. [Feb 17] asked his top inventors, James W. Bryce [Sept 5], Clair D. Lake and J. Royden Peirce [July 25], to look into ways of increasing data capacity on a card without increasing its size.

Bryce was IBM's chief engineer at the time, and would become more widely known in 1936 when he was honored as one of the ten "greatest living inventors" by the US Patent Office.

Bryce promoted Lake's design because it could be implemented rapidly without too many changes to existing card readers. Even so, the new card had almost twice as many columns as the then-standard 45 column card. As with earlier cards, it had 10 rows for coding numbers from 0 to 9. But in 1930, two more rows were added to make alphabetic coding easier.

Watson liked the card's distinctive appearance which made it difficult for other companies to copy without infringing the patent.

It became one of IBM's most important innovations. For almost four decades, the IBM card was the standard way for storing, sorting and reporting data. As late as the mid-1950s, punched card sales made up 20% of IBM's revenue.

Jim Clark Warren Jr.
Born: July 20, 1936;

Oakland, California
Died: Nov. 24, 2021

Warren was the founding Editor of *Dr. Dobb's Journal* [Jan 00] in 1976. He also co-founded the West Coast Computer Faire [April 15] in 1977, and several other conventions after that. His nickname during this period was the "Faire Chaircreature."

Somehow he also found time to edit the first free tabloid newspaper about microcomputing, the *Silicon Gulch Gazette* (SGG). It was published irregularly between 1977 and 1986. Also, his *Intelligent Machines Journal* (IMJ – "Jim" backwards) was the first subscription news periodical about microcomputing, and later became *InfoWorld*.

In 1981-82, he hosted the PBS TV series "Computer Chronicles" [Sept 00] for its first two seasons.

William Harvey (Bill) Inmon
Born: July 20, 1945;

San Diego, California

Inmon has been called the Father of the Data Warehouse, having both coined the phrase

and wrote the first book on the topic. He also came up with "the government information factory" and "data warehousing 2.0".

A quote: "Traditional projects start with requirements and end with data. Data warehousing projects start with data and end with requirements."

In July 2007, Inmon was named by *Computerworld* as one of the ten people that most influenced the first 40 years of the computer industry.

Apollo 11 Lands
July 20, 1969

Apollo 11 mission commander Neil Armstrong and pilot Buzz Aldrin descended in the Eagle lunar module (LM; pronounced "lem") towards the Moon, while Michael Collins, aboard the command and service module (CSM), stayed in orbit.

Buzz Aldrin outside the Lunar Lander. Photo by Neil Armstrong.

The descent was guided by complex navigational calculations performed by the Apollo Guidance Computer (AGC [Aug 25]) on board the LM. Then, 6,000 feet (1,800 m) above the surface, the AGC issued the first of several unexpected "1202" and "1201" program alarms. It fell to a 24-year old computer engineer, Jack Garman, back at Mission Control Center in Houston, to say that it was safe for the mission to continue.

The alarms were "executive overflows", meaning that the AFC couldn't complete all of its tasks in real time and had to delay some of them. Although the delays had triggered the alarms, it was something the software could handle itself. This part of the AGC had been designed by J. Halcombe Laning, also known for his compiler work on the Whirlwind [Jan 00].

Viking Lands
July 20, 1976

The Viking program consisted of a pair of American space probes, Viking 1 and Viking 2. Each craft consisted of an orbiter which photographed the surface of Mars from orbit, and a lander to study the planet from the surface.

The Viking 1 lander successfully set down on Mars in the Chryse Planitia on this day, and was joined by the Viking 2 lander on September 3.

The landers used a Guidance, Control and Sequencing Computer (GCSC) consisting of two Honeywell HDC 402 24-bit computers with 18K of plated-wire memory. The orbiters used two custom-designed General Electric 18-bit serial TTL processors which could executed around 25,000 instructions per second.

Death Race
July 20, 1976

"Death Race" was a controversial arcade game, designed by Howell Ivy, and released by Exidy. It was inspired by the 1975 cult film *Death Race 2000* starring David Carradine (as Frankenstein) and Sylvester Stallone (as Machine Gun Joe Viterbo).

A player had to drive his car over animated stick figures to score points. They scream, die, and tombstones appear, which makes the game harder as the player has to avoid driving over headstones.

The National Safety Council called the game "sick, morbid and insidious". The CBS news program "60 Minutes" responded by broadcasting an investigation into the deeply scarring psychological impact of video games. The controversy fueled sales nicely until the game was banned.

Of course, it wasn't the first video game to cause societal hand-wringing; that honor probably goes to Atari's Gotcha, the first video arcade maze game. It wasn't controversial because of the game play or characters, but because of its controls.

At first, Atari had wanted to utilize two joysticks, but they were thought too phallic. Instead two pink, semi-spherical rubber bags were employed, which players had to squeeze strenuously to control their characters. From then on, Gotcha was deemed "The Boob Game."

Electric Dreams
July 20, 1984

Electric Dreams is a sci-fi romantic-comedy-drama set in San Francisco, that depicts a love triangle between a man, a woman, and an AI endowed PC. It was directed by Steve Barron, the talent behind such classic 1980's videos as Michael Jackson's "Billie Jean," Dire Straits' "Money For Nothing," and A-ha's "Take On Me."

The computer is a fluent English speaker, which immediately assumes control of every aspect of its new home in the man's apartment. After it's accidentally doused in champagne, it gains sentience, and adopts the name "Edgar".

"Edgar" may seem an unusual name choice, but it had been used as the title of a real text editor for IBM mainframes such as the System/370 [June 30] back in the 1970's. This is probably a coincidence.

The film's credits include a dedication to the memory of UNIVAC I [March 31].

Clinton Prepares for Y2K
July 20, 1999

US President Bill Clinton signed the Y2K Act to protect companies against possible lawsuits related to year 2000 computer breakdowns [Dec 31]. Some experts predicted that litigation costs could exceed $1 trillion if limitations weren't enacted.

This bill was the second related to Y2K signed by Clinton. The first had been the "Year 2000 Information and Readiness Disclosure Act" on October 20, 1998, which provided liability protections to encourage companies to share information about how they were going to prepare for the coming Armageddon.

Lovelace's Sketch Sold
July 20, 2018

A first edition of Ada Lovelace's [Dec 10] "Sketch of the Analytical Engine" [July 10], bound in leather, was sold at the *Moore Allen & Innocent* auction house in Cirencester, England for £95,000.

These leather-bound editions were probably made to order for Lovelace to give to her friends, and only six are known to still exist.

She didn't include her name on the article, although the extensive notes which accompany the translation are intialized with "A.A.L." However, the cover page of the leather binding does include the words 'Lady Lovelace' below the title.

This particular copy also has handwritten notes on the flyleaf attributed to the physician and philanthropist Dr William King, who is believed to have been its original owner.

In general, any kind of Lovelace memorabilia is highly sought after. For instance, even a brief "Sorry, I can't come to tea" letter from her is reported to have raised several thousand pounds at sale.