Feb. 7th

Maxwell (Max) Herman Alexander Newman (Neumann)

Born: Feb. 7, 1897;

Chelsea, London
Died: Feb. 22, 1984

Newman led the team that constructed the Colossus [Jan 18; June 1] during WWII, and later established computing as a discipline at the University of Manchester.

His spring 1935 lectures at Cambridge on the foundations of mathematics inspired Alan Turing [June 23] to consider the Entscheidungsproblem (decision problem), and Newman later arranged for Turing to visit Alonzo Church [June 14] at Princeton.

Newman's codebreaking section at Bletchley Park [Aug 15] , based in the eponymous Newmanry, included Donald Michie [Nov 11], Jack Good [Dec 9], and David Rees, and was focused on cracking the Lorenz cipher. It became home to a range of mechanical devices to help with this endeavor, including the Heath Robinson [June 1] and ten Colossus computers designed by Tommy Flowers [Dec 22].

Max Newman (1950). Photo by Lyn Newman. CC BY-SA 3.0.

Newman founded the Computer lab at Manchester in July 1946 with the help of a grant from the Royal Society, and persuaded Freddie Williams [June 26] and Tom Kilburn [Aug 11] to join him. In Oct. 1948, Turing also accepted Newman's invitation, becoming Deputy Director (although there was no Director). Turing contributed to the Manchester Baby's [June 21] successor, the Mark I [June 16].

In later years, Newman concentrated on enhancing the Department of Mathematics, where he occupied the Fielden Chair of Pure Mathematics.

When Turing was prosecuted in 1952, Newman appeared as one of his character witnesses.

An Wang or Wáng Ān

Born: Feb. 7, 1920;

Shanghai, China
Died: March 24, 1990

Wang made important contributions to the development of magnetic core memory, and later co-founded Wang Labs.

He emigrated from China in 1945, becoming a US citizen in 1954. In the spring of 1948, Howard Aiken [March 8] hired Wang to work on magnetic storage devices at the Harvard Computation Lab. The result was core memory in 1949, but Harvard was so uninterested, that Wang filed a patent himself [Oct 21].

He left Harvard in 1951 to co-found Wang Labs with G. Y. Chu, and sold the rights to his patent to IBM for $500,000 in order to fund the company. It grew into a successful calculator manufacturer, and diversified into minicomputers in the early 1970's.

Two of its popular products were the Wang 2200 [May 00], one of the first desktop computers, and the Wang Word Processing System (WPS) [June 00]. Indeed, by the end of the 1970's, Wang was the largest worldwide supplier of CRT-based word processing systems. To employees, Wang was known as "The Doctor" [Nov 23].

Although a popular story, there's no evidence that Wang was puzzled in the late 1970's when its British subsidiary refused to adopt the company's new slogan, "Wang Cares". However, it did come up with the tagline "Wang: We're Gunning for IBM," which debuted in their 1985 Super Bowl advert. Incidentally, Wang was the first IT business to advertise during that event, back in 1978 a full six years before Apple's "1984" [Jan 22].

On July 3, 1986, Wang became one of twelve naturalized US citizens to receive a Medal of Liberty from President Ronald Reagan to commemorate the unveiling of a restored Statue of Liberty. Bob Hope (UK) and Irving Berlin (Russia) were among the other recipients.

Nikolay Petrovich Brusentsov

Born: Feb. 7, 1925;

Kamenskoe, Ukrainian
Died: Dec. 4, 2014

Brusentsov and Sergei Sobolev built the first (and perhaps only) ternary-number based computer, the Setun, at the Moscow State University in 1958. It was named after the nearby Setun river.

A ternary computer uses logic with three possible values instead of the more common binary. The number system usually employs −1, 0, and 1, a 'balanced' notation which simplifies many math operations.

Aside from the logic, Setun was a modern design, utilizing magnetic cores and diodes rather than vacuum tubes and drum storage. It found favor, and the State Commission authorized its mass-production, eventually funding the construction of nearly fifty, many of which were dispatched

to higher education institutions across the USSR.

During the 1960's, Brusentsov and Evgeny Andreevich Zhogolev developed the Setun-70, which used a non-traditional, two-stack architecture.

One notable early calculator that employed balanced ternary was constructed by English inventor Thomas Fowler in 1840, entirely from wood. To compensate for the limited mechanical precision, the machine was large – 6 feet long, 3 feet deep, and a foot high.

Leslie B. Lamport

Born: Feb. 7, 1941;

New York City

Lamport is known for his seminal work on concurrent and distributed systems, including the development of logical clocks, the bakery algorithm, the Byzantine Generals problem, distributed snapshots, and the Paxos consensus and verification protocols.

The bakery algorithm requires a person to obtain a number when they join a system (e.g. enter a bakery), which will be used to decide when they are served. The number is generated by examining the numbers of everyone already present, and creating a value that's higher.

Leslie Lamport.

Lamport was also the developer of the LaTeX document preparation system (1985), which builds upon Donald Knuth's [Jan 10] TeX typesetting system [March 30], and was itself written in the TeX macro language. It has been widely adopted in academia since it makes TeX a bit less daunting to use. LaTeX's design was influenced by Brian Reid's [Oct 6] Scribe system.

When asked if LaTeX is hard to use, Lamport replied, "It's easy to use—if you're one of the 2% of the population who thinks logically and can read an instruction manual."

His research also includes work on French hair coloring (2004), and rigorous methods for measuring celebrity status (2006).

Mark Perry McCahill

Born: Feb. 7, 1956;

USA

In 1989, McCahill led a team at the University of Minnesota that developed POPmail, one of the first popular GUI e-mail clients. The original version was a Hypercard stack [Aug 11], but was later converted into a standalone application.

In 1991, McCahill led another team that developed the Gopher protocol for distributing, finding, and retrieving documents over the Internet. Information could come from a variety of sources, such as WAIS [Oct 22], FTP servers, Archie [Sept 10], and USENET [Jan 29].

Unlike the later Web, it imposed an hierarchical organization on the data and relied on a text-based menu interface (that was well-suited to the computer terminals of the time). It became the de facto standard for Internet information systems in the early 1990's before the eventual domination of the Web.

The simplicity of the Gopher protocol was widely praised, and McCahill commented himself that a Gopher client was "the first Internet application my mom can use."

The Gopher name was coined by Farhad Anklesaria as a play on the several meanings of "gopher". The University of Minnesota's mascot is a "Golden Gopher", a gofer is an assistant who "goes for" things, and a gopher burrows through the ground to reach a desired location.

Many universities created Gopher servers to catalog their online resources, and this prompted the development of the Veronica search engine [Nov 17] for finding documents. Gopher developers held gatherings around the country, called GopherCons, and Gopher even acquired some geek cachet when MTV VJ Adam Curry [Aug 13] wore a Gopher t-shirt when he announced the network's Gopher site. The White House publicized its own Gopher site on the "Good Morning America" TV show.

The appearance of NCSA Mosaic [Sept 28] in 1993 marked a turning point. Another reason for Gopher's demise may have been the University of Minnesota's decision to start charging licensing fees for it in early 1993. Meanwhile Tim Berners-Lee placed his code and protocols in the public domain [April 30].

In the spring of 1994, Web traffic overtook Gopher for the first time. For McCahill, Gopher's decline was brought home when: "I saw a URL on the side of a bus. That's when I knew the Web was all about advertising. Gopher was not good for advertising. I knew it would start winding down."

McCahill may also have been responsible for coining the phrase "Surfing the Internet" [Feb 25].

BIZMAC

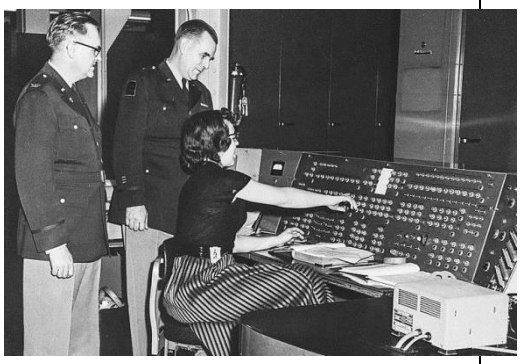
Feb. 7, 1956

In 1951, RCA was awarded a $4.5 million contract to build a data processing machine for the Military Assistance Program (MAP). The result was the

BIZMAC, which was described in a paper presented at the joint ACM-AIEE-IRE western computer conference in San Francisco on this day.

BIZMAC was the largest ever vacuum tube computer, occupying some 20,000 square feet of floor space, using up to 30,000 tubes, 70,000 diodes, 35,000 magnetic cores (equivalent to around 8K of memory), and 180 tape stations. The machine required 360 KW to operate, and the 15-ton air conditioning unit consumed 500 KW.

Naturally, the system was quickly surpassed by faster and more reliable systems, including IBM's 705 [April 29] as well as RCA's own transistorized 501 [Sept 4], although BIZMAC stayed in service until 1962.



BIZMAC. US Government.

One of BIZMAC engineers was Arnold Meyer Spielberg, the father of film director Steven Spielberg [June 9, June 19, June 29]. Spielberg (senior) patented an electronic library system for searching magnetic tapes, and designed the GE-225 [May 00] with Charles "Chuck" Propster. In 1960, he traveled to Moscow as part of a delegation of electrical engineers. The trip coincided with the U-2 incident that was the subject of the Steven Spielberg's 2015 film "Bridge of Spies".

(D)ARPA

Feb. 7 1958

The Advanced Research Projects Agency (ARPA) was created by Department of Defense Directive 5105.15, in response to the Soviet's scarily successful launch of Sputnik 1 on [Oct 4] 1957.

ARPA's mission was to ensure that US military technology would always be more advanced than the nation's potential enemies (i.e. the Soviet's). Fortunately, its mandate was wide enough to support non-military research. with many of those computer-related projects managed by the Information Processing Techniques Office (IPTO [Nov 1]).

ARPA was initially over-shadowed by the founding of NASA on July 29. Indeed, *Aviation Week* magazine dismissed it as "a dead cat hanging in the fruit closet".

ARPA is best known for supporting the ARPANET [July 29], but it's been responsible for many, many other significant computer developments, including:

- 1962: The oN-Line System (NLS) & "The Mother of All Demos" [Dec 9];
- 1964: Project MAC for personal computing [July 1];
- 1973: TCP/IP [Sept 9];
- 1983: The Strategic Computing Initiative (SCI [Oct 28]);
- 2004: The DARPA Grand Challenge [March 13];
- 2014: The SyNAPSE Chip [Aug 7].

For some reason (perhaps carelessness), the organization's name has repeatedly gained and lost a "D": DARPA (March 1972), ARPA (February 1993), and DARPA (March 1996).

Daniel Kaminsky

Born: Feb. 7, 1979;

San Francisco
Died: April 23, 2021

Kaminsky was known among security experts for his work on the DNS cache poisoning scare [July 8], for showing that the Sony Rootkit [Oct 31] had infected at least 568,000 computers, and for his talks at the Black Hat Briefings, a conference dedicated to security.

When he was aged 11, his mother received a call from a government security administrator who told her that her son had intruded into military computers (to be exact, he said someone was "monkeying around in territories where he shouldn't be monkeying around") [June 3], and that the family's Internet would be cut off forthwith.

His mother responded by saying that if their access was affected, she would take out an advertisement in the *San Francisco Chronicle* to show that: "Your security is so crappy, even an 11-year-old can break it". Instead, they settled on a compromise punishment for the boy: three days away from the Internet.

After the DNS caching alarm, Kaminsky took the stage at the Black Hat Briefing that August, to explain how disaster had been averted. Kaminsky, who typically wore a T-shirt, shorts and flip flops, appeared onstage in a suit his mother had bought for him. She had also requested that he wear closed-toed shoes, so he complied by wearing roller skates.

After his talk, Kaminsky was approached by a stranger. It was the administrator who had kicked him off the Internet years before. He thanked Kaminsky for his work, and also asked to be re-introduced to "the meanest mother he ever met."

Kaminsky also helped develop telemedicine tools for the National Institutes of Health and AMPATH, a health project led by Indiana University.

Wozniak Crashes

Feb. 7, 1981

Steve Wozniak's [Aug 11] private plane crashed during take-off from Sky Park Airport near Santa Cruz. The plane, a turbocharged single-engine, six-

seat Beechcraft Bonanza A36TC, stalled, bounced down the runway, went through two fences, and crashed into an embankment.

Wozniak's then-fiancé, her brother and his girlfriend suffered only minor injuries, but the accident left Wozniak with short-term memory loss for over a month. He would later say that playing Apple II [June 5] games helped him regain his memory.

Wozniak didn't immediately return to Apple. During his leave of absence, he tried his hand as a rock concert impresario [Sept 3].

Sky Park is now an actual park, but retains a 100-yard section of the old runway.

NTP Problem

Feb. 7, 2036

The Network Time Protocol (NTP) is used for clock synchronization between systems, and is perhaps the oldest Internet protocol still in use, having become operational in 1985.

It was first demoed at the June 1979 National Computer Conference (NCC), running over a transatlantic satellite network. It was designed by David L. Mills, who described it in the Internet Engineering Note (IEN) 173, published on Feb. 25, 1981.

NTP has been improved several times over the years. It currently offers 64-bit timestamps consisting of a 32-bit part for seconds and 32-bits for a fraction of a second, which means that it will overflow after 2^{32} seconds (136 years). Since NTP counts time from Jan. 1, 1900, the first rollover will occur at 06:28:16 UTC on Thursday, Feb. 7, 2036.

Of course, future versions may extend the time representation to 128 bits, making the problem less pressing.

For links to all date/time related problems, see [Jan 1].

UNIX Time Overflow #2

Feb. 7, 2106

At 06:28:15 UTC on this day, the 32-bit UNsigned integer versions of UNIX time [Jan 1] will exceed the largest value it can hold (4,294,967,295).The next second will rollover back to 00:00:00 Thursday, Jan. 1, 1970.

Also see [Jan 19, Dec 4], and the preceding entry. For links to all date/time related problems, see [Jan 1].
