May 18th

Bertrand Arthur William Russell, 3rd Earl Russell

Born: May 18, 1872;

Trellech, UK
Died: Feb. 2, 1970

Russell was one of the 20th century's greatest logicians, probably best known in computer science circles for the paradox which appeared in his 1903 textbook, "The Principles of Mathematics". It can be stated informally as: "A barber shaves all those who do not shave themselves. Does the barber shave himself?" Russell's solution utilizes his theory of types, which allows sentences about sets to be organized into a hierarchy.

His three-volume "Principia Mathematica", written with Alfred North Whitehead, was published between 1910 and 1913. It radically extended logic, based on earlier work by Gottlob Frege [Nov 8], Richard Dedekind, Georg Cantor, and Giuseppe Peano.

Russell's teapot (aka the celestial teapot or cosmic teapot) is an analogy meant to illustrate that the burden of proof lies with the person making a scientifically unfalsifiable claim, rather than with the poor saps who endeavor to disproof it. Namely, if someone states, without proof, that a teapot is orbiting the Sun somewhere between the Earth and Mars, then he should not expect anyone to believe him just because his assertion can't be proven to be a steaming pile of rubbish.

Peter Andreas Grünberg

Born: May 18, 1939;

Pilsen, Protectorate of Bohemia and Moravia
Died: April 7, 2018

Grünberg and Albert Fertwere jointly awarded the 2007 Nobel Prize in Physics for their independent discovery of the Giant magnetoresistive (GMR) effect in 1988.

GMR's main use is in magnetic field sensors which can read hard disk drives, biosensors, and other devices due to their ability to register a large change in electrical resistance because of a very tiny change in the magnetic field in stacks of ultra-thin magnetic and non-magnetic layers.

The first GMR-based hard disks appeared in 1997. In the years since, the annual rate of increase of hard disk storage capacity has trebled.

Without GMR, devices like the iPod [Oct 23], iPad [April 3] and the smartphone would be impossible. Indeed, some people called the Nobel award the "iPod Nobel."

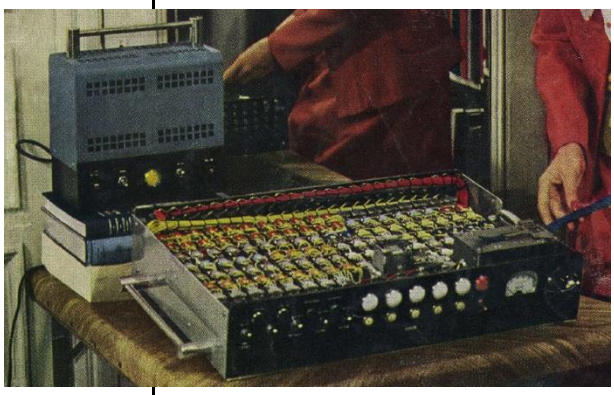
GMR was the first example of electronics that exploited both the spin and charge of electrons to store and transport information — a field called spintronics.

Simon, a Giant Brain

May 18, 1950

Edmund Berkeley [Feb 22] first described Simon in his book, "Giant Brains, or Machines That Think," [June 30] before he had actually built it. However, a working model was announced on this day, constructed by William A. Porter (who was also involved in building the Harvard Mark [Aug 7] II and III), and with the help of two graduate students from Columbia University, Robert A. Jensen and Andrew Vall.

The team made a few changes to the book's design, including an improved power supply. That version was explained in detail by Berkeley in a series of thirteen articles published in *Radio-Electronics* magazine starting in Oct. 1950 (when Simon appeared on the cover).



Closeup of Simon on the cover of *Radio-Electronics*, Oct. 1950.

Simon also made the cover of the Nov. issue of *Scientific American*, inevitably labeled as "Simple Simon".

Simon utilized around 120 relays, with its "giant brain" consisting of 16 two-bit registers, although punched tape could also serve as storage. The ALU supported nine operations: addition, subtraction, a greater than test, selection between two values, and logical 'and', 'or', and 'not'. A program could either be read from paper tape, or (laboriously) entered via five buttons on its front panel. Output was displayed using five lamps.

The machine was mounted in a chassis 24 inches long, 15 inches wide, and 6 inches high, and it weighed around 39 pounds.

By 1959, over 400 Simon schematics had been sold. One of the early Simon programmers was Ivan Sutherland [May 16], aged 12 at the time.

Simon has been called the first personal computer, although the

IBM 610 (aka the Personal Automatic Computer or PAC) [Sept 3] dates from the same time.

David Elieser Deutsch

Born: May 18, 1953;

Haifa, Israel

In 1985, Deutsch published a paper describing the mathematical concepts behind a quantum Turing machine [Nov 12].

David Deutsch (2017). Photo by the International Centre for Theoretical Physics. CC BY 3.0.

Quantum computing moves beyond classical approaches by making use of quantum-mechanical phenomena, such as superposition and entanglement.

Deutsch has also worked on the theory of quantum logic gates, quantum networks, and devised the first quantum error-correction scheme.

His work on quantum algorithms includes the Deutsch–Jozsa algorithm, proposed by Deutsch and Richard Jozsa in 1992. It was one of the first examples of a quantum method that is exponentially faster than any deterministic conventional algorithm for the same task.

Other important quantum procedures include Peter Shor's algorithm [Dec 19] for factoring, and Lou Grover's method for searching an unstructured database or an unordered list.

Adabas FBI Sting

May 18, 1980

A Belgian man was arrested by the FBI on bribery charges after allegedly offering $500,000 for a copy of the source code for Adabas, a non-relational database management system produced by Software AG. At the time, the system was used throughout the US government , including within the FBI and CIA.

The Belgian was arrested at Kennedy International Airport, as he handed over a half-million-dollar check in exchange for two reels of tape he thought contained the Adabas code.

According to the indictment, the man had previously approached Jim Addis, a senior engineer at Software AG. He said he represented Techmashimport, a Soviet foreign trading company, and offered $150,000 for a copy of the software. Addis reported the incident to Software AG's founder, John Norris Maguire, who called in the feds.

Later the Belgian raised his offer to $500,000 after being told that the source could not be bought, but would have to be stolen.

Maguire met the Belgian wearing a wire, and pretended to believe that he wasn't a Russian agent, but actually working for IBM [May 4]. The person spent almost three hours explaining his role within the KGB [June 4], all of which was taped by the FBI.

Turbo C Released

May 18 (or 13), 1987

Borland [Aug 00] Turbo C was the first integrated development environment (IDE) for C to run on MS-DOS. It was noted for its small size, fast compilation speeds, comprehensive manuals, and low price. An estimated 100,000 copies were shipped in the first month of its release.

It had first been developed by Bob Jervis as "Wizard C" outside of Borland, but was rebranded after Borland bought it. The acquisition wasn't supported by all of Borland's founders. In particular, Niels Jensen was opposed, perhaps because he'd been working on a number of compilers for the company, including one for C, at its London development center.

Jensen left the company, and founded Jensen and Partners International (JPI), later renamed TopSpeed. Its subsequent products included TopSpeed C, TopSpeed C++, and TopSpeed Pascal.

In 2006, Borland's successor, Embarcadero Technologies, re-released the MS-DOS Turbo C and Turbo C++ compilers as freeware.

Microsoft Solitaire

May 18, 1990

The immensely popular Solitaire game was first included with MS Windows 3.0 [May 22]. It was developed by intern Wes Cherry, although the card deck was by Macintosh pioneer, Susan Kare [Feb 5].

Cherry later remarked: "I came up with the idea to write Solitaire for Windows out of boredom, really," and "was not paid a single cent." He has since left computing, and now owns a cidery.

Microsoft's publicity for Solitaire stated that it aimed "to soothe people intimidated by the operating system." However, a common concern was how the game might affect productivity. Famously, a NYC government worker was fired in 2006 after Mayor Michael Bloomberg saw Solitaire on the man's office computer. Incidentally, Cherry had wanted to include a "boss key" in the game, to quickly display a dummy spreadsheet, but Microsoft management rejected that feature.

Hack Heaven
May 18, 1998

The New Republic published a story by Stephen Randall Glass entitled "Hack Heaven," recounting how a teenager had penetrated the network of a Canadian company called "Jukt Micronics," and then had been hired by that company as a security consultant. The article opened as follows:

"Ian Restil, a 15-year-old computer hacker who looks like an even more adolescent version of Bill Gates [Oct 28], is throwing a tantrum. 'I want more money. I want a Miata. I want a trip to Disney World. I want X-Men comic [book] number one. I want a lifetime subscription to *Playboy* - and throw in *Penthouse*. Show me the money! Show me the money! ...'"

It eventually came out that Glass had invented the entire story, even creating dummy websites, fake newsletters, and voice mail accounts when editors began checking his sources. Some of his other articles, from the previous three years, were also found to be fictitious. He was fired.

His career at *The New Republic* was dramatized in the 2003 film "Shattered Glass" in which Glass was portrayed by Hayden Christensen. Glass also fictionalized his own story in "The Fabulist", a 2003 novel whose protagonist is named "Stephen Aaron Glass".

Microsoft Antitrust
May 18, 1998

Next: [Nov 5]

The US Department of Justice's (DOJ) filed an antitrust lawsuit against Microsoft focusing on Microsoft's integration of Internet Explorer 4 [Sept 30] into Windows 95 and the soon-to-be released Windows 98 [June 25].

The central issue was whether it was monopolistic to bundle Internet Explorer with Windows, since this practice was alleged to have been responsible for Microsoft's victory in the "browser wars" [Sept 2] by unfairly restricting the market for competing web browsers (such as Netscape Navigator [March 25] and Opera [July 14]), which were slow to download over a modem, or had to be purchased from a store.

Cosmic Bit Flip
May 18, 2003

In the early days of electronic voting in Belgium, a mysterious problem appeared. After the polls had closed in Schaerbeek, one of the municipalities in Brussels, an anomaly was discovered -- one candidate had received a very high number of votes from a polling station, in fact more votes than there were people registered at that station.

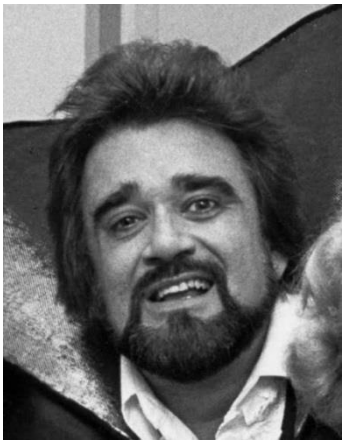
After a manual recount of the ballot records, the discrepancy was 4,096 too many votes. 4096 is 2^{12}, a highly suggestive number since it can be encoded by a single bit in memory.

A careful examination of the ballot counting software showed no errors, so the investigation turned to the machine used in the polling station. No faults were found there either, but nevertheless a bit had flipped at some point during the day.

The conclusion was that a stray cosmic ray from space had triggered the change. This isn't completely crazy since research by NASA in the 1960's noted random bit flips in their satellites, and IBM had seen the same thing in computers used at high altitudes [Jan 11; Aug 16; Sept 1].

Wolfram Alpha
May 18, 2009

Wolfram Research launched Wolfram Alpha which answers queries directly by examining externally sourced "curated data" rather than providing a list of documents or Web pages. For example, it can easily answer "How old was Queen Elizabeth II in 1974?"



Wolfman Jack, American radio personality (1979). Photo courtesy Orange County Archives.

Wolfram Alpha employs Wolfram Mathematica [June 23], which supports computer algebra, symbolic and numerical computation, visualization, and statistics capabilities. Both tools are written in the Wolfram Language.

Additional data is gathered from websites such as the CIA's World Factbook, the United States Geological Survey, the Chambers Biographical Dictionary, the Dow Jones, and the FAA.

Other queries that it can solve include: "What is the meaning of life?" [March 8], "Which came first: the chicken or the egg?", and "Why did the chicken cross the road?" For the last one, Alpha suggests the related question, "Why did the chicken cross the Möbius strip?", highlighting its mathematical inclinations.