# Jan. 3rd

## Gordon Earle Moore

### Born: Jan. 3, 1929;

San Francisco, California
Died: March 24, 2023

Moore co-founded Intel with Robert Noyce [Dec 12] on [July 1] 1968, and was the author of Moore's Law: [April 19] the observation that the number of transistors in an integrated circuit doubles every two years.

From 1956 to 1957 he worked with William Shockley [Feb 13], and helped start Fairchild Semiconductor [Oct 1] as one of the so-called "Traitorous Eight" [Sept 18].

Gordon Moore (1970). Photo by the Intel Free Press. CC BY-SA 2.0.

Moore came from one of the oldest Anglo-American families in California. His great-grandfather settled in California in 1847, and his father was the sheriff of Pescadero in San Mateo County.

A quote: "If the automobile industry had moved as fast as the semiconductor industry, your car would travel comfortably at several million miles per hour, get roughly a million miles to the gallon, and it would be cheaper to throw away your Rolls Royce and get a new one than it would be to park it downtown for the evening."

## Richard (Dick) Manning Karp

### Born: Jan. 3, 1935;

Boston, Massachusetts

Karp introduced the now standard technique for proving problems to be NP-complete. He also popularized the use of randomized behavior in the design and analysis of algorithms. In the early 1990's, he became interested in computational molecular biology.

His name pops up in many parts of computing: the Edmonds-Karp algorithm, the Hopcroft-Karp algorithm [Oct 7], the Karp-Lipton theorem, and the Rabin-Karp string search algorithm [Sept 1].

## Peter Pin-Shan Chen

### Born: Jan. 3 1947;

Taichung, Taiwan

Chen developed the entity-relationship (ER) model which went on to become the foundation for many systems analysis and design methodologies, and computer-aided software engineering (CASE) tools.

Chen's 1976 paper is usually cited as the definitive reference on ER modeling although the somewhat similar concept of object relationship had been introduced a year earlier by Hans A. Schmid and J. Richard Swenson.

## Apple Incorporated

### Jan. 3, 1977

Prev: [July 00] Next: [April 15]

Steve Jobs [Feb 24] and Steve Wozniak [Aug 11] filed papers to incorporate Apple Computer, and the company moved from Jobs' parent's garage to the company's first official address: 20863 Stevens Creek Blvd., (Building 3, Suite C) in Cupertino.

The move came after Mike Markkula [Feb 11] had come out of retirement to become Apple's first chairman. In particular, he invested $92,000 to secure a $250,000 line of credit from Bank of America to finance the company. He brought in Michael Scott as the first president and CEO, then took the job himself from 1981 to 1983 after Scott resigned. Scott had brought an element of professional management and corporate infrastructure to Apple which naturally led to clashes with Jobs, especially over the development of the Lisa [Jan 19].

Apple's IPO would take place three years later [Dec 12].

## Time Selects the PC

### Jan. 3 1983

Ray Cave, *Time*'s managing editor, selected the PC as the "Machine of the Year" for 1982, in place of their usual "Man of the Year". He noted that the PC was 1982's "greatest influence for good or evil."

Somewhat ironically, the cover story, "The Computer Moves In", had been written by Otto Friedrich on a 15-year-old Royal 440 typewriter. However, *Time* publisher John A. Meyers had promised that the magazine's newsroom would upgrade to word processors within a year or so.

The PC beat out several human contenders, including Ronald Reagan, Margaret Thatcher, and Menachem Begin. Steve Jobs [Feb 24] was particularly upset: "They FedExed me the magazine and I remember opening the package, thoroughly expecting to see my mug on the cover, and it was this computer sculpture thing. I thought 'Huh?'"

To further compound the insult, the magazine included an article

about Jobs written by Michael Moritz which Jobs didn't much like: "it was so awful that I actually cried." Moritz wasn't happy either: "I was distraught by the way material I had arduously gathered was siphoned, filtered, and poisoned with gossipy benzene by an editor in New York whose regular task was to chronicle the wayward world of rock-and-roll music."

A quick tally shows that Jobs has appeared on the cover of *Time* eight times:

- "Striking It Rich", Feb. 15, 1982 (before the Man of the Year issue);
- "Steve's Job: Restart Apple", Aug. 18, 1997 (note the time gap from 1982);
- "Apple and Pixar: Steve's Two Jobs", Oct. 18, 1999;
- "Apple's New Core", Jan. 14, 2002;
- "How Apple Does It", Oct. 16, 2005;
- "The Time 100", Apr. 20, 2007 (below a much larger Barack Obama);
- "The iPad Launch: Can Steve Jobs Do It Again?" Apr. 1, 2010;
- "Mourning Technology's Great Reinventor", Oct. 5, 2011.

However, Bill Gates [Oct 28] holds the current record for number of cover shoots: eleven. Also, a computer first graced *Time*'s cover on [Jan 23] 1950.

## Information Superhighway

### Jan. 3, 1983

Vice-President Al Gore [Dec 9] became linked with the "Information Superhighway" phrase during the 1990's, and the Oxford English Dictionary (OED) gives three citations for it, two of which originate with Gore.

It all began after the VP gave the opening speech at "The Superhighway Summit" on Jan. 11, 1994, and claimed to have coined the phrase some 15 years earlier. This was a reference to a meeting he had with computer-industry folk in 1978 to celebrate the efforts of his father, Senator Albert Gore Sr., in establishing the interstate highway system in the 1950's. Incidentally, some say the meeting took place in 1981, or 1983, or even 1986.

Sultry Al Gore (Early 1980s). Photo by the US Senate Historical Office.

The OED's earliest citation isn't from Gore, but from today's edition of *Newsweek* magazine: "Two **information superhighways** being built of fiber-optic cable will link Boston, New York, Philadelphia, and Washington, D. C."

The source article, "The Dazzle of Lasers," was written by William D. Marbach.

The earliest use of "superhighway" (minus the "information" bit) in the sense of communication is probably in Manfred Brotherton's 1964 book, "Masers and Lasers; How They Work, What They Do".

A useful anagram of "Information Superhighway" is "Hi-ho! Yow! I'm surfing Arpanet" [Oct 29]. For the origin of the phrase "Surfing the internet", see [Feb 25].

For more Gore, see [Dec 9].

## GIMPS Begins

### Jan. 3 (??), 1996

The Great Internet Mersenne Prime Search (GIMPS) is a collaborative project dedicated to finding Mersenne prime numbers. These have the form $2^p - 1$, where p is a prime, although a prime exponent doesn't necessarily guarantee that the number itself is prime. It's true that the first four Mersenne numbers are prime: 3 ($2^2$-1), 7 ($2^3$-1), 31 ($2^5$-1), and 127 ($2^7$-1), but $2^{11}$-1 is 2047 which has factors 23 and 89.

The numbers are named after Marin Mersenne, a French friar and mathematician, who studied them in the early 17th Century.

The GIMPS project was founded by George Woltman, who also wrote the popular software for automating the search, Prime95 and MPrime. The project's name came from Luther Welsh, the discoverer of the 29th Mersenne prime.

Since it began, the project has found 17 new Mersenne numbers, 15 of which were the largest known primes at the time. The current largest is $2^{82,589,933}$–1 discovered on Dec. 7 2018 by Patrick Laroche, after twelve days of processing; it consists of 23,249,425 decimal digits.

GIMPS wasn't the first system for tracking down Mersenne primes. The first new ones of the computing age were discovered by Derrick Lehmer [Feb 23] using the SWAC [Aug 17] on [Jan 30] 1952.

## Motorola StarTAC Released

### Jan. 3, 1996

The Motorola [Sept 25] StarTAC wasn't the first clamshell phone (it was probably the third), but it was the first to become popular, and even iconic. Approximately sixty million units were sold during its lifetime, and *PC World* magazine put it at number 6 in

its "The 50 Greatest Gadgets of the Past 50 Years" list in 2005.

It was beaten to market by Motorola's first clamshell design, the MicroTAC, in 1989 (which some argue is only a semi-clamshell design), but first place went to the General Telephone & Electronics (GTE) Flip-Phone which came out in 1978. GTE owns the trademark for "flip-phone", which is why the "clamshell" name was invented.

Movistar-branded Motorola StarTac 130. CC BY 4.0.

The StarTAC was the world's smallest and lightest mobile phone at the time, and closely resembled Star Trek's Communicator [Sept 8]. Incidentally, that prop was built by Wah Chang, a Chinese-American designer, who was responsible for many of the show's other famous gadgets, such as the tricorder and Vulcan harp.

During the StarTAC's launch, some of the magazine ads included a full-size printed cardboard copy that could be pulled out, and marveled at.

## Bitcoin

### Jan. 3, 2009

Bitcoin is a decentralized digital currency unsuported by a central bank or single administrator. Owners remain anonymous since bitcoin buyers and sellers interact through encrypted keys instead of by using names, tax IDs, or social security numbers. Transactions are verified and recorded in a public distributed ledger called a blockchain [Aug 19].

Bitcoins aren't issued by a government but are "mined" by computers connected to the Internet. The protocol dictates that only 21 million bitcoins can ever be created, and about 18 million have been extracted so far. However, some estimates claim that 3 to 4 million are those have been lost.

Bitcoin's main problem is that the financial value of a bitcoin is highly volatile. A single bitcoin's value passed $1,000 on Jan. 1, 2017, topped $19,000 in Dec. 2017, and then lost about 50% of its value during the first part of 2018. At the end of 2020, its value skyrocketed for no discernable reason, and passed $40,000 in Dec.

Bitcoin was invented by someone calling themself Satoshi Nakamoto, but his true identity is still shrouded in mystery. On Oct. 31, 2008, Nakamoto published an article about bitcoins on a cryptography mailing list, and released open-source software for managing it on this day. In 2010, he handed over control of the code to various members of the bitcoin community, and disappeared back into the shadows.

Nakamoto claimed to be a 37-year-old man living in Japan, but the occasional use of British English spelling and terminology (such as the phrase "bloody hard") in code comments and forum postings led some to believe he might be British. Also, the very first bitcoin, that could only have been mined by Satoshi himself, contained the encoded text "*The Times* 03/Jan/2009 Chancellor on brink of second bailout for banks" which implies that Satoshi was reading the UK's *The Times* newspaper at the time.

## Spectre and Meltdown made Public

### Jan. 3, 2018

Meltdown and Spectre are hardware bugs that allow malicious programs to steal data from other programs. They are classed as "catastrophic" vulnerabilities.

Both problems arise from the way most modern processors rely on "speculative execution," a technique for increasing performance. A chip tries to predict the instructions it's going to be asked to carry out next, and then executes them ahead of time so they'll finish sooner.

Of course, there are times when the processor guesses wrongly, and has to undo the actions taken by the speculative code. To speed things up, the chip may not completely roll back every aborted change, thereby leaving bits of possibly private data lying around which might be accessible by hackers.

Affected hardware vendors had been told privately about these speculative execution bugs back in June 2017. Indeed, the specific problems exploited by Meltdown were first described in a paper dating from May 1995.

Spectre is so named because "it will haunt us for quite some time." Also, SPECTRE (SPecial Executive for Counterintelligence, Terrorism, Revenge, and Extortion) is an international criminal organization featured in the James Bond movies [May 22; May 28] and novels. It used to be based at 136 Boulevard Haussmann in Paris.