June 5th

Peter John Landin

Born: June 5, 1930;

Sheffield, England
Died: June 3, 2009

Landin developed SECD, the first abstract machine for a functional programming language, and was also active in the definition of ALGOL [Jan 11].

He originated the phrase “the next 700” in his paper, “The next 700 programming languages”. He chose “700” because he had read that 700 languages had already been defined.

The ISWIM language described in the paper proved very influential in the development of other functional and dataflow languages, such as Haskell [April 8] and Lucid. The ISWIM acronym stood for “If you See What I Mean” (or perhaps “I See What You Mean” with the 'Y' mistyped).

Landin also coined the phrase "syntactic sugar" – the inclusion of syntax in a programming language to make it more palatable for human consumption.

He was an accomplished musician, and would often end technical seminars by performing piano duets.

William (Velvel) Morton Kahan

Born: June 5, 1933;

Toronto, Ontario, Canada

Kahan was the primary architect behind the IEEE 754-1985 standard for floating-point computation, and its radix-independent follow-on, IEEE 854. Of course, he's been called “The Father of Floating Point”.

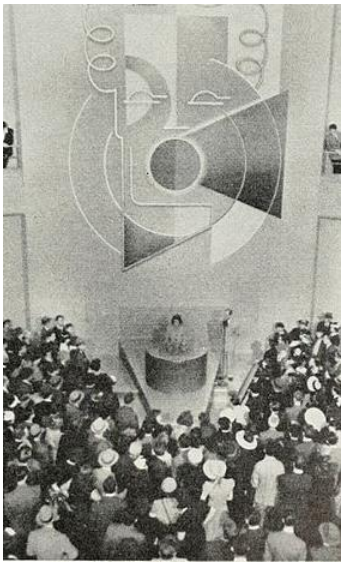
In the 1980's he developed “paranoia”, a benchmark that tests for a wide range of floating point bugs. For example, it detected the infamous Pentium division error [Oct 30].

He also developed the Kahan summation algorithm for minimizing errors when adding a sequence of finite precision floating point numbers, and coined the term “The Table-Maker’s Dilemma” for the unknown cost of correctly rounding transcendental functions to some number of digits.

Pedro the Voder Speaks

June 5, 1938

Homer Dudley's Voder, developed at Bell Labs [Jan 1], was the first attempt to electronically synthesize human speech by breaking it down into its acoustic components.



The Voder fascinating the crowds. *Bell Telephone Quarterly* (Jan. 1940).

The machine could generate twenty or so different buzzes and chirps which the operator combined into a semblance of speech by pushing ten keys, and manipulating a wrist plate and a pedal. As you might suspect, it was a difficult device to control, and only 20-30 people ever mastered it.

The main operator was Helen Harper, who was skilled enough to have the Voder’s pronounce statements and questions differently, and even speak in male and female voices. A popular party trick was to have the Voder recite “Mary Had a Little Lamb” in various vocal styles.

The device was named after the Brazilian emperor Dom Pedro, who was said to exclaimed, “My God! It talks!” when he first listened to a telephone.

The Voder was initially put on display at the Franklin Institute in Philadelphia in 1938, but also appeared at the 1939 New York World’s Fair where Harper was seated behind a sleek console, with a towering art deco image of a shouting man emblazoned on the wall behind her.

The Voder shared the pavilion with Elektro the Smoking Robot, [April 30] and the Nimatron [Sept 24].

Bailey Whitfield (Whit) Diffie

Born: June 5, 1944;

Washington, D.C.

In the early 1970's, Diffie worked with Martin Hellman on public key cryptography, solving one of its fundamental problems, key distribution. The idea is that a person has two keys – a public-one which can be freely shared with other people, and a mathematically-linked private-key that must be guarded stringently. A message encoded with the public key can be decoded with the private key, or vice versa. Aside from facilitating secret communication, this approach can also be used to authenticate a message sender.

Diffie-Hellman’s system relies on "one-way" functions which are far easier to compute in one direction than in reverse. In particular, it's exceedingly difficult to factor very large numbers, but easy to multiply factors together to recreate the number.

Diffie and Hellman published their work in June 1976 in the paper, “New Directions in Cryptography”, At the time, they didn't have a practical implementation, which was supplied later by Ronald Rivest [May 6], Adi Shamir [July 6] , and Leonard Adleman [Dec 31] in their RSA algorithm.

Diffie's interest in cryptography began when he was 10-years old and his father borrowed several books on the topic from the City College Library in NYC. He especially recalls that David Kahn’s classic text, “The Codebreakers: The Story of Secret Writing” (1967) having a profound influence on him.

MITS-Mobile Visits

June 5-6 (or 10th), 1975

As part of its promotion of the Altair 8800 [Dec 19], MITS purchased a Dodge camper van and outfitted it with Altairs, a teletype, and a cassette memory unit. The van was christened the “MITS-Mobile”, and Ed Roberts [Sept 3] hit the road for a six-month, sixty-city tour; an odyssey called the “MITS Caravan”. (Some sources claim that the camper was also nicknamed the “Blue Goose” because it was painted blue.)

A college student named Mike Hunter was employed to run a three-hour seminar at each stop: an hour on the history of hardware; an hour on Microsoft's [April 4] Altair BASIC [Jan 2]; an hour on the wonders of the Altair. After a Q & A session, the audience finally got to play with the computers. The event cost $10 per person.

Bill Gates [Oct 28] attended some of the shows in Texas, and Paul Allen [Jan 21] joined the jamboree when it got to Alabama.

The tour included a stop at the Rickey’s Hyatt House [Sept 9] in Palo Alto, where the seminar was packed (150+ attendees). At some point a paper tape containing a pre-release version of Altair BASIC disappeared. At the next Homebrew Computer Club [June 5] meeting, fifty free copies of the paper tape 'magically' appeared in a cardboard box.

It later transpired that the copies had been made by Dan Sokol who, to this day, refuses to say who gave him the original. He believes that software should be shared among developers who can improve it collaboratively. Needless to say, Gates had a somewhat different view, which he expressed firmly in his "Open Letter to Hobbyists’ [Jan 31].

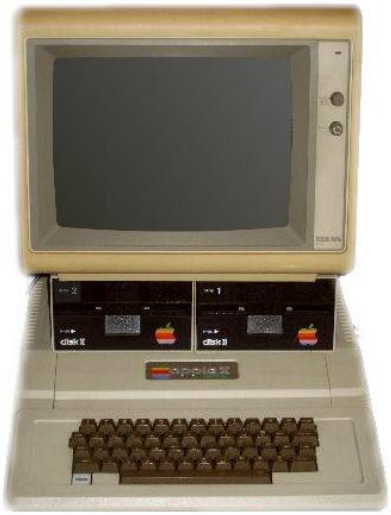
A MITS competitor called Sphere Corporation liked their promotional strategy so much that they decked out their own tour bus, called the Sphere-Mobile.

Apple II Released

June 5, 1977

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

The Apple II employed a MOS 6502 [Sept 16] CPU, had 4K of RAM (expandable to 8K), 16K of ROM, a built-in keyboard, a color display, and built-in Integer BASIC. A feature that became important later was that the motherboard included eight expansion slots, which meant that dozens of cards appeared to extend the machine's functionality.



Apple II. Photo by Rolf Schmidt. CC BY-SA 3.0.

Early models featured a cassette tape drive, but that was later replaced with a faster 5.25-inch floppy disk drive (at the insistence of Mike Markkula [Feb 11]). Steve Wozniak’s [Aug 11] clever disk design was based on the software control of the drive, making it able to read and write a variety of formats, while being simpler and cheaper to build.

One of Wozniak's guiding design principles was apparently to make it easy for the Apple II to reimplement Atari’s Breakout [May 13] in software. (When Wozniak had worked at Atari, he'd been involved with designing Breakout arcade machines.) In particular, this meant that the Apple II’s BASIC included graphics commands, and the hardware had the necessary circuitry to support game paddles.

The Apple II, the Commodore PET 2001 [April 15] and the TRS-80 [Aug 3] went on to be called the “1977 Trinity” by BYTE magazine.

The first “killer app” for business, VisiCalc, was released for the Apple II on [Oct 19] 1979. It almost singlehandedly transformed the Apple II into a machine respected by men in suits.

By [Jan 24] 1984, when the Macintosh was finally released, over two million Apple IIs had been sold.

Space Invaders Attack Japan

June 5, 1978

Toshihiro Nishikado, a designer at Taito Corporation, created "Space Invaders", and Japan welcomed the aliens warmly – by the end of 1978 over 100,000 machines had been installed, grossing in excess of $600 million. Indeed, new arcades were opened which offered nothing but "Space Invaders" cabinets.

Originally Nishikado had wanted the game to feature airplanes

rather than space ships, but droped the idea when it became clear that they wouldn't be able to move smoothly due to the limited computing power of the machine's 8080 microprocessor [April 18].

There was also some talk of having the invaders bomb people rather than rather nondescript green buildings, but Taito management forbade the use of human targets.

Prior to "Space Invaders", Nishikado had designed a slew of other Taito hits, including "Davis Cup" (1973), a doubles tennis game, Soccer (1973) which allowed two players to control a forward and a goalkeeper, the early scrolling game "Speed Race" in 1974, and the first-person combat flight simulator "Interceptor" in 1975.

Taito was founded in 1953 by Russian businessman Michael Kogan, initially as the first company to distill and sell vodka in Japan.

PGP Released

June 5, 1991

Philip R. Zimmermann, sometimes known as "PRZ", released Pretty Good Privacy (PGP), the first widely available open-source program to implement public key cryptography [four entries back].

The name was inspired by the grocery store, "Ralph's Pretty Good Grocery", featured in Garrison Keillor's fictional town, Lake Wobegon.

After a report from RSA Security [Sept 6], the US Customs Service began a criminal investigation of Zimmermann for "munitions export without a license". The inquiry lasted three years, but was eventually dropped without any charges being filed.

We Brake For Number Theory

July 5 ??, 2004

Google unveiled a recruitment billboard on the southbound highway of 101 near Ralston in California; it contained the words:

```
{ first 10-digit prime
found in consecutive
digits of e }.com
```

If the potential wage slave managed to decipher that URL, they'd find that it pointed to an even harder problem.

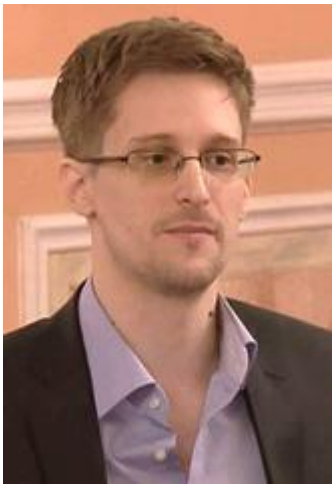
Incidentally, the prime in question is 7427466391, and and can be coded in a few lines of Maple:

```
Digits:= 200;
for n from 0 do
  eseg:=
    floor(10^(9+n)*exp(1))
          mod 10^10;
  if isprime(eseg) then
    print(n, eseg);
    break;
  fi
od:
```

Edward Snowden Leaks

June 5, 2013

Former CIA employee and (soon-to-be former) NSA [Oct



Edward Snowden (2013). From TheWikiLeaksChannel. CC BY 3.0.

24] contractor Edward Snowden copied thousands of documents describing dozens of confidential US national security programs.

They revealed that the US had the ability to spy on the Internet and telephone communications of virtually all US citizens.

Another revelation was the PRISM program, in which the NSA collected data with the assistance of companies such as Microsoft [Sept 24], Facebook [Feb 4], and Google [Aug 19]. The NSA, the CIA and GCHQ [Dec 11] also spied on users of Second Life [June 23], Xbox Live [Nov 15], and World of Warcraft [Nov 23], and attempted to recruit would-be informants from those sites.

Excerpts from the leaked documents were first published in the UK newspaper *The Guardian* and in *The Washington Post* on this day.

On June 21, the US Department of Justice charged Snowden with two counts of violating the Espionage Act, and with the theft of government property. Two days later, he arrived at Moscow's Sheremetyevo Airport, and Russia granted him asylum.

DARPA Robotics Challenge

June 5-6, 2015

The DARPA Robotics Challenge (DRC) was a 33-month long competition that began in Oct. 2012. The aim was to develop semi-autonomous ground robots that could do "complex tasks in dangerous, degraded, human-engineered environments."

The initial list of jobs included: removing debris blocking an entryway, opening a door and entering a building, climbing a ladder, using a tool to break through a concrete panel, and connecting a fire hose to a standpipe.

The finals took place at the Fairplex in Pomona, California, with 25 teams competing for $3.5 million in prizes.

Three teams obtained a perfect score, and the tie was broken by looking for the smallest total time each robot took to complete all the tasks. First place went to KAIST with their DRC-Hubo robot which finished in just 44 minutes.

DRC followed on from the DARPA Grand Challenge [March 13] and DARPA Urban Challenge.