Dec. 30th

Thomas Alonzo Benham
Born: Dec. 30, 1914;

Hartford, Connecticut
Died: ?? 2006

Benham established "Science for the Blind" in 1954, a nonprofit organization providing scientific information for visually impaired scientists and laymen. Benham was blind himself, and an engineering professor at Haverford College in Pennsylvania. He also founded "Science Products" to sell technical equipment suitable for the visually impaired. One of the company's first devices was a multimeter for blind technicians.

In the 1950's, Benham noted that programing was an occupation well suited to the blind, requiring just the addition of a Braille reader and the attachment of sensors to panel lights.

An important step came in 1984 when Jim Thatcher created the first MS-DOS screen reader, the PC-SAID (Personal Computer Synthetic Audio Interface Driver). It was a port of IBM's 3278 Talking Terminal which relied on the Votrax ML-1 Multilingual Voice System (a speech synthesizer) [July 00; Dec 4]. PC-SAID was followed in 1988 by Screen Reader/2 for OS/2 [Dec 4], the first reader capable of dealing with a GUI.

Thatcher had become interested in assistive technologies because his thesis advisor, Jesse Wright, was blind.

Bjarne Stroustrup
(Be-ar-neh Strov-strup)
Born: Dec. 30, 1950;

Aarhus, Denmark

Stroustrup's intention with C++ was to combine the low-level capabilities of C [Sept 9] with the high-level structures of Simula [Jan 5]. He has recalled that he found it useful to seek inspiration from philosophers such as Aristotle and Kierkegaard during the design process.

Stroustrup's first attempt was "C with Classes" (1979), which added features by extending the C preprocessor. These included classes, inheritance, strong typing, inlining, and default arguments.

This was only a stop-gap, and he began designing a language separate from C in the early 1980's. New features included virtual functions, function name and operator overloading, references, constants, type-safe memory allocation (new/delete), improved type checking, and BCPL [July 21] single-line comments with forward slashes (//). The name change to C++ was suggested by Rick Mascitti.

Bjarne Stroustrup (2010).
Photo by Julia Kryuchkova.
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As a typical cash-strapped undergraduate, Stroustrup had earned extra money by writing accounting, billing, and payroll programs in assembly. His customers included a maker of gravestones, and several mortgage companies. By the time he received his Master's degree in 1975, he estimated that more than a quarter of all the mortgages in Denmark were being calculated using his software. There's no data on the percentage of gravestones reliant on his endeavors.

Some quotes: "I have always wished for my computer to be as easy to use as my telephone; my wish has come true because I can no longer figure out how to use my telephone."

"If someone claims to have the perfect programming language, he is either a fool or a salesman or both."

"An organization that treats its programmers as morons will soon have programmers that are willing and able to act like morons only."

"There are only two kinds of programming languages: those people always bitch about and those nobody uses."

Rodney Allen Brooks
Born: Dec. 30, 1954;

Adelaide, Australia

Brooks proposed the actionist model for robotics where the interaction of many simple robotic subtasks, akin to "insect-like" actions such as reacting to external change, would cause the emergence of more complex behaviors.

This "bottom-up" approach contrasts with the more traditional "top-down" AI which deliberately sets out to model high-level behavior.

Brooks' favorite robot creation is Genghis (1989), a large six-legged insectoid. He said, "as soon as its beady array of six [infrared] sensors caught sight of something, it was off. As long as it could track its prey it kept going, ruthlessly scrambling over anything in its path, solely directed toward its goal."

In 1991 Brooks co-founded the company iRobot, which produces robots for the home, the military, and industry. One of the most successful has been the Roomba ([Sept 18] 2002), a robotic vacuum cleaner. Another iRobot product, the PackBot, was used by US soldiers in Afghanistan and Iraq to dispose of explosives.

Brooks appeared in the 1997 Errol Morris movie "Fast, Cheap, and Out of Control," which borrowed its title from one of Brooks' papers. The documentary explores the careers of four professionals: a lion tamer, a robotics expert, a topiary gardener, and a naked mole rat specialist. (Brooks is the robots guy). Errol Morris is the brother of Noel Morris [Dec 00], a pioneer of e-mail.

GPS Reported
Dec. 30, 1958

The "General Problem Solver" (GPS) program was developed by Herbert A. Simon [June 15], J. Clifford Shaw, and Allen Newell [March 19] as a tool for expressing problems as a set of logical formulas consisting of goals and rules. A critical step is the definition of the problem space in terms of the goal(s) to be achieved, and the writing of transformation rules to break large goals down into subgoals. The authors created the IPL language [Feb 26] to make it easier to implement GPS.

Although GPS could solve small problems, such as the "Towers of Hanoi", it had more difficulty with real-world problems because the larger search space usually generated a combinatorial explosion in the number of goals.

GPS eventually evolved into the SOAR AI architecture (1990), which added parallelism, uncertainty, sub-spaces, planning, and modules. SOAR has been used to create intelligent agents, and cognitive models of human behavior.

Music From Mathematics
Dec. 30, 1960

"Music From Mathematics" was an album of computer-generated music released by Bell Labs at the end of 1960 under the auspices of Max V. Mathews [Nov 13].

The A-side bears the subtitle "Compositions on a Well-Tempered Computer", which collects synthesized music realized on an IBM 7090 (equipped with a gargantuan 32KB of memory!) [Nov 30].

The B-side holds computer-assisted compositions, where the machine was used for score generation, but the music was performed by a traditional instrumental ensemble. These include an extract from "The Illiac Suite" by Lejaren Hiller [Aug 9], and the song "Music by Chance", conducted by John Pierce and Betty Shannon [April 30]. The albumcloses with a short digitally generated speech called "The Voice Of The Computer" by John Kelly and Louis Gerstman.

There's a strong educational flavor to the record, including the narration by Phil Tonken who introduces the various pieces and gives some background on computer music. The album also includes a 24-page booklet, written by Bruce E Strasser and Matthews, which expands on how music is composed on a computer.

This album is sometimes confused with the 1962 release, also called "Music From Mathematics", once again produced by Mathews at Bell Labs. It's more of an anthology of music realized with Mathew's Music N system. Perhaps the most famous recording is "Bicycle Built For Two" which Arthur C. Clarke [Dec 16] later suggested for "2001: A Space Odyssey" [Jan 12].

The first UK album of computer-generated music was probably "A Small Computer Plays Some Samples Of Mozart's Dice-Composition Music" programmed by Tom H. O'Beirne on Scotland's first computer, the SOLIDAC (the SOLID-state Automatic Computer), built between 1959 and 1964 by the Glasgow firm of Barr and Stroud, where O'Beirne was the chief mathematician.

The album was reviewed in the magazine *Gramophone*: 'Not something one can listen right through a side to; but quite ingenious.'

Fittingly for a Scottish computer, the SOLIDAC could also play bagpipe tunes of its own devising.

Cyberpunk
Dec. 30, 1984

Bruce Bethke coined the term "cyberpunk" in spring 1980 when he wrote the short story "Cyberpunk". It was first published in the Nov. 1983 issue of *Amazing Science Fiction Stories*, but many people argue that "cyberpunk" only reached the wider public with its appearance in Gardner Dozois' article, "Science Fiction in the Eighties", in today's edition of *The Washington Post*.

Bethke has never claimed to have invented cyberpunk fiction as a genre, which probably began with William Gibson's [Sept 3] 1984 novel, "Neuromancer", although there are other contenders, including John Brunner (in "The Shockwave Rider" [March 00] 1975), Anthony Burgess ("A Clockwork Orange", 1962), and perhaps even Alfred Bester ("The Stars My Destination", 1957).

Some people believe that cyberpunk died on June 29, 1993, upon the release of Billy Idol's "Cyberpunk" record. It was recorded in Idol's home studio on a Mac running Studiovision and Pro-Tools.

Billy Idol (2012). Photo by possan. CC BY 2.0.

Gibson was once asked for his opinion on Idol's work, and responded: "I don't see the connection. A London journalist told me when Billy did his Cyberpunk press junket over there, he made it a condition of getting an interview with him, that every journalist had to have read Neuromancer. ... Anyway, they all did but when they met with Billy, the first thing that became really apparent was that Billy hadn't read it. So they called him on it, and he said he didn't need to ... he just absorbed it through a kinda osmosis."

John Perry Barlow [Oct 3] thought that cyberpunk had 'died" when it was featured on the cover of TIME magazine, in early 1993. Certainly it was on life-support by the time that St. Jude and R. U. Sirius [March 20] satirized it in "The Cyberpunk Handbook" in 1995.

Facebook's Breastfeeding
Dec. 30, 2008

Facebook [Feb 4] started removing images showing breastfeeding, prompting a #FreeTheNipple campaign, with over 11,000 women posting pictures in protest.

Clearly feeling a bit of a booby, Facebook recanted on June 15, 2014. Their "Does Facebook Allow Breastfeeding" FAQ page now states:

"Yes. We agree that breastfeeding is natural and beautiful and we're glad to know that it's important for mothers to share their experiences with others on Facebook. The vast majority of these photos are compliant with our policies."

The NSA ANT Catalog
Dec. 30, 2013

The NSA ANT catalog is a 50-page classified document listing cyber surveillance technology made by the Advanced Network Technology (ANT) Division that's available to the US National Security Agency (NSA [Oct 24]) Tailored Access Operations (TAO).

This fancy mail-order catalog was made public by the *Der Spiegel* news magazine on this day (sadly too late for Christmas) in an article co-written by Jacob Appelbaum, Judith Horchert, and Christian Stöcker, although the catalog dates from 2008.

The prices range from free (typically for the software) up to $250,000, and also have an interestingly varied collection of names, including DEITYBOUNCE, DROPOUTJEEP, FEEDTROUGH, HOWLERMONKEY, IRATEMONK, SURLYSPAWN, and WISTFULTOLL.