September

Atanasoff Goes Drinking

Winter 1938 (or 1937)

John Vincent Atanasoff [Oct 4] frequently told the story of how the basic criteria for his Atanasoff-Berry Computer (ABC) [Jan 15] (e.g. the use of binary digits rather than decimal) were scribbled on a napkin at a bar in Rock Island, Illinois. Of course, the burning question is which bar?

Some dedicated historians think it may have been the "1-2-3-4 tavern", owned by Louie and Edith Ortell at what is now the Rock Island approach to the Centennial Bridge. Unfortunately the bar is long gone. Other possibilities include: the "Yankee Clipper" (now replaced by housing), the "Harms Hotel" (burnt down in 1974), the "Buffalo Tap" (knocked down), and the "Hunter's Club", which has the big advantage over the others in still standing (at 2107 4th Ave). It was last called "Gunchies Rock Island" until that establishment closed in 2017.

The underlying historical problem is that the east end of Rock Island's downtown was a red light district in the 1930s, and taverns came and went in rapid succession.

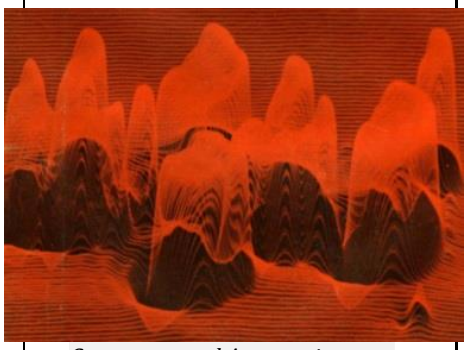
The Computing Machinery Field

Sept., 1952

Edmund Berkeley [Feb 22] began publishing *The Computing Machinery Field* (although it briefly had the snappy title, "Roster of Organizations in the Field of Automatic Computing Machinery"), making it the first computer magazine.

A year later Berkeley renamed the journal, *Computers and Automation*; in 1986, it became *Computers and People*. Many fascinating issues can be read online at the Internet Archive.

The other main editor was a Neil D. Macdonald, who was as prolific a writer as Berkeley, although his articles tended to be less serious. Only after Berkeley's death, when Macdonald was contacted to write an obituary, was he discovered to be an alias for Berkeley himself.



Computers and Automation cover image, Jan. 1963. By Efraim Arazi.

The front page of the Jan. 1963 issue featured one of the earliest published examples of computer art – a black-and-red mountain range generated from multiple waveforms by Efraim Arazi. This inspired Berkeley to start an annual Computer Art Contest in Feb. 1963, which became a key impetus in the growth of computer art.

LGP-30

Sept., 1956

The Librascope LGP-30 was one of the first desk-sized computers (weighing around 740 pounds). It was mounted on sturdy casters, used conventional office power, and didn't require air conditioning. It was targeted at the small scale scientific computing market, and proved to be quite popular, with perhaps 500 units sold.

Although the LGP-30 was manufactured by the Librascope company, it was sold and serviced by the Royal McBee division of the Royal Typewriter Company. As a consequence, the machine was sometimes known as a "Royal McBee"

Perhaps the most famous use of a LGP-30 was by Edward Lorenz (aided by Margaret Hamilton [Aug 17] and Ellen Fetter) to model changing weather patterns [Nov 1; May 20]. His discovery that massive differences in forecast outcomes could derive from tiny differences in initial data led him to coin the terms "strange attractor" and the "butterfly effect", core concepts in chaos theory. Initially Lorenz thought the odd results were due to a fault in the machine.

Cyborg Bugs

Sept., 1960

The term cyborg (a "cybernetic organism") [June 8] was coined in 1960 by Manfred Clynes and Nathan S. Kline in their article "Cyborgs and Space" in *Astronautics* magazine.

However, the first commercially available cyborg kit only debuted in 2011 when Backyard Brains released the RoboRoach. The kit included tools to perform surgery on a cockroach (which was not included in the kit) so that three electrodes could be implanted in its brain. These were connected to a Bluetooth-enabled control unit backpack that you had to attach to the roach using a hot glue gun. Once wired up, instructions could be sent to the bug via any Bluetooth-enabled smartphone

The project that became the RoboRoach was funded by the National Institute of Mental Health [Feb 7]. There's also a TED [Feb 23] talk about the groundbreaking work.

CDC 6600 Released

Sept., 1964

Seymour Cray's [Sept 28] CDC 6600 was the flagship supercomputer of Control Data Corp's 6000 series [July 8], and

is generally considered to be the first successful supercomputer, with more than 100 sold over its lifetime

The first CDC 6600's were delivered in 1964 to the Lawrence Livermore National Lab [April 00] and the Los Alamos National Lab, and the machine quickly became a must-have in scientific and mathematical computing circles.

With 400,000 transistors, more than 100 miles of hand-wiring, and Freon cooling, the 6600 could reach a top speed of 3 megaflops. It outperformed its fastest rival, the IBM 7030 STRETCH [April 26], by up to a factor of 3, and remained the world's fastest computer until 1969, when it was beaten by the CDC 7600 [Dec 3], another of Cray's designs.

The 6600's CPU focused on fast math and logic, and was supported by ten separate peripheral processors, which allowed it to support a smaller instruction set. This approach later came to be called a RISC (Reduced Instruction Set Computer) [May 30] design.

On Aug. 28, 1963, IBM CEO Thomas J. Watson Jr. [Jan 14] wrote a somewhat exasperated memo to his employees about the 6600: "I understand that in the laboratory developing the system there are only 34 people including the janitor. Of these, 14 are engineers and 4 are programmers… Contrasting this modest effort with our vast development activities, I fail to understand why we have lost our industry leadership position by letting someone else offer the world's most powerful computer."

Galaxy Game

Sept., 1971

This month saw the coin-operated video game, "Galaxy Game", installed in Stanford's Tresidder Union. It let two players fly "the needle" and "the wedge" spaceships, and engage in a dogfight to the death while maneuvering in the fearsome gravity well of a nearby star. It was essentially Spacewar! [May 17], but renamed to avoid the unpleasant association with war.

The game was created by Bill Pitts and Hugh Tuck, and tastefully packaged in a walnut veneered case that contained a $20,000 PDP-11/20 [Jan 5] and a Hewlett Packard 1300A display. However, a game only cost 10 cents, or three games for 25 cents. The result was crowds of people ten-deep, with wait times for playing of as much as a hour. It stayed in service until May 1979 when the display became faulty.

There's some debate about whether "Galaxy Game" beat "Computer Space" [Oct 15] to become the first commercial video game, hinging on the meaning of words such as "prototype" and "release".

Tuck and Pitts felt that "Computer Space", a single-player game without the gravity well concept, was a pale imitation of Spacewar!. They were however impressed with Nolan Bushnell's [Feb 5] hardware. Rather than use a general-purpose computer, Bushnell and Ted Dabney [May 2] had built a custom rig that could only run "Computer Space", but only cost a $100 to manufacturer.

Tuck and Pitts built a second machine in June 1972 with a more powerful display interface, that enabled the PDP-11 to drive up to eight consoles. However, space restrictions inside the game's cabinet meant that only two consoles were attached. By this time, the pair had spent $65,000 on the project, and were unable to make the updated game commercially viable.

Kenbak-1 Advertised

Sept., 1971

The Kenbak-1 may be the first commercially available PC, although it didn't use a microprocessor internally. (If your definition requires chips in the design, then the title belongs to the Micral N [Jan 15] from 1973.) Instead, the Kenbak-1's logic was built using small and medium scale ICs, and two MOS shift registers to offer 256 bytes of memory.

The first Kenbak was built by John V. Blankenbaker in Spring

The Kenbak 1. Photo by Kathryn Greenhill. CC BY-SA 2.0.

1971 in his garage in Brentwood, California. However, he only started advertising assembled Kenbak's for sale in the September issue of *Scientific American* (for a very reasonable price of $750).

The Kenbak was programmable in machine code by flipping buttons on the front panel, and its output was a row of lights above the buttons.

The computer's name was derived from the middle of "Blankenbaker" since the inventor thought his full name was too long.

Only 50 machines were built before the company folded in 1975. Around 14 are thought to survive.

The First HAL

Sept., 1972

The first computer called HAL wasn't the HAL 9000 from the 1968 movie "2001: A Space Odyssey" [April 2] . It was the real-world HAL-4096, home-built by Howard (Hal) A. Chamberlin, Jr. which he had

started designing in 1966 as a NCSU college freshman, and finally demonstrated at the 1968 NCSU Engineers Fair.

The HAL-4096 was a 16-bit machine utilizing surplus IBM 1620 core memories, with a Selectric typewriter [July 31] and paper tape I/O. The first published description of it appeared in this month's issue of the *ACS Newsletter* [May 5]. In the article, Chamberlin offered to send interested readers a set of schematics for $2.

Aside from the name, there was also a musical connection between the two HALs. In the movie, when the HAL 9000 is switched off, it sings "Daisy Bell" ("I'm half crazy, all for the love of you"). This song choice was inspired by a demo that Arthur C. Clarke [Dec 16] saw of computer-synthesized voice and music in 1962 [Nov 13]. Chamberlin was also fond of "Daisy Bell" , having written a punch card deck program that played the tune on an IBM 1630 for the 1967 NCSU Engineers Fair. It utilized the massive amount of radio interference [Sept 19] generated by the computer as an output signal to a radio.

At the end of the 1970s, Chamberlin published the textbook "Musical Applications of Microprocessors", which became the definitive work on digital audio during the early 1980s.

TV Typewriter Published

Sept., 1973

Lee Felsenstein [April 27] called the TV Typewriter "the opening shot of the computer revolution." It was a hobbyist electronics project developed by Don Lancaster for building a video terminal. It became an essential add-on for early microcomputers such as the Mark-8 [July 00] and Altair 8800 [Dec 19].

Lancaster's day job at the time was as a designer of high resolution video displays for the military at Goodyear Aerospace. The TV Typewriter wasn't quite as complex, only being able to display a maximum of 1024 characters on a standard TV.

It was featured on the cover of this month's issue of *Radio-Electronics* magazine, and readers could send off for a 16-page pamphlet of construction details; the magazine sold thousands at $2.00 a time.

There were some problems that limited the TV Typewriter's wider success. First, its components weren't sold as a complete kit, forcing the maker to search for parts, some of which were quite difficult to obtain. Also, the device's schematic was very compact, making its assembly somewhat challenging. This became even harder after Lancaster added a keyboard to the design in April 1974.

Southwest Technical Products (SWTPC) [Nov 00] sold the terminal's printed circuit board, as they did for many of Lancaster's projects. It initially used TTL digital logic and shift register memory since chips and RAM were still very new and expensive. This meant that the design soon became obsolete, but Lancaster kept making improvements, which were collected and published as 'The TV Typewriter Cookbook" in 1976.

The Utah Teapot

Sept., 1975

The Utah teapot (aka the Newell teapot) is a 3D model created in 1975 by Martin Newell at the University of Utah that's become a standard in computer graphics. His wife, Sandra, had suggested modeling their tea service while they were having tea one day, and the first rendering appeared as Figure 28 of Newell's PhD thesis which was published this month.

It's become common to include a Utah teapot somewhere in computer animated films. For example, it appears in the tea-party scene in "Toy Story" [Nov 22].

The real-world Utah Teapot. Photo by Marshall Astor. CC BY-SA 2.0.

The original teapot was purchased from ZCMI (a department store in Salt Lake City) in 1974; it now resides at the Computer History Museum [Sept 24], and is noticeably taller than its computer model.

WordStar

Sept., 1978

WordStar was the dominant word processor application during the early 1980s. It was the first to offer mail merge and WYSIWYG output (i.e. it displayed accurate line and page breaks). John Robbins Barnaby was the author of the early versions, with help from Jim Fox later on.

It was first published by MicroPro International for CP/M [May 22] , but later ported to almost ever OS, including MS-DOS (April 1982) and even Windows (Oct 1991).

According to Seymour I. Rubenstein, MicroPro's owner, Barnaby was a "mad genius of assembly language coding". In four months he wrote 137,000 lines of code, the equivalent of 42 man-years of work according to IBM's in-house production benchmark.

MicroPro's sales grew from $500,000 in 1979 to $72 million in 1984, easily surpassing the earlier market leader in word processing, Electric Pencil [Dec

00]. This turned MicroPro into the world's largest software company, with 23% of the word processor market.

However, as the home computer market became dominated by the IBM PC [Aug 12], Wordstar's portable design made it difficult to compete against PC-specific tools, such as WordPerfect [Nov 26], in terms of features and speed.

In 1986, BYTE magazine [Sept 3] memorably remarked that Wordstar 2000 had "all the charm of an elephant on motorized skates". However, as recently as 2014, George R. R. Martin, of "A Song of Ice and Fire" fame, still used a MS-DOS version of WordStar.

Wizardry
Sept., 1981

Wizardry was a dungeon adventure game, written by Andrew C. Greenberg and Robert Woodhead when they were students at Cornell, and published by Sir-Tech. The game was influenced by earlier Dungeons & Dragons-type [July 27] games running on PLATO [July 00], most notably Oubliette. However, Wizardry was the first graphically-rich incarnation for home computers, and over 24,000 copies were sold in just nine months.

The first five versions were written in Apple Pascal, an implementation of UCSD Pascal [Oct 22] for the Apple II [June 5].

Wizardry had a significant influence on other console role-playing games such as "Final Fantasy" [Nov 25] and "Dragon Quest" [May 27].

SciAm Computing
Sept., 1966/1984

The Sept. 1966 special issue of *Scientific American* [Aug 28] (Vol. 215, No. 3), was entitled "Information" and dedicated entirely to computing. It featured articles by many pioneers, including: John McCarthy [Sept 4]; David C. Evans [Feb 24]; Ivan E. Sutherland [May 16]; Christopher Strachey [Nov 16]; F. J. Corbató [July 1] and R. M. Fano [Nov 11]; John R. Pierce [March 27]; Marvin L. Minsky [Aug 9], and included the usual "Mathematical Games" column by Martin Gardner [Oct 21].

Almost as famous was the next *SciAm* issue focussed on computing, entitled "Computer Software", which appeared 16 years later in Sept. 1984 (Vol. 251, No. 3). This time the authors included: Alan C. Kay [May 17]; Niklaus Wirth [Feb 15]; Lawrence G. Tesler [April 24]; Peter J. Denning [Jan 6] and Robert L. Brown; Terry Winograd [Feb 24]; Andries van Dam [Dec 8]; Stephen Wolfram [June 23]; Douglas B. Lenat [Sept 13], together with the usual "Computer Recreations" column by A. K. Dewdney [Aug 5].

PCMCIA Founded
Sept., 1989

The PCMCIA (Personal Computer Memory Card International Association) was the idea of Ian Cullimore, one of the founders of Poqet Computer which developed the Poqet PC ([Oct 00] 1989), the first subnotebook sized IBM PC compatible. Cullimore was also the main designer behind the Atari [June 27] Portfolio (June 1989), the world's first palmtop computer.

The association was a byproduct of Cullimore 's efforts to add memory card technology to the Portfolio and Poqet, since traditional floppy drives and hard disks were too power-hungry and/or too large.

PCMCIA had one serious problem – the acronym was difficult to say, which made it difficult to remember, although someone did come up with "People Can't Memorize Computer Industry Acronyms". As a consequence, the association acquired the rights to the simpler term, "PC Card", from IBM, which became the standard's name from version 2.

Psion Series 3
Sept., 1991

The Psion Series 3 range is regarded by many people as the first truly useful Personal Digital Assistant (PDA), due to its long battery life, bountiful software (address book, calendar, calculator, word processor, spreadsheet, and handwritten note taking), and durable hardware. With an optional modem, it could even connect to the Internet.

Psion Series 3a. Photo by Puffball.

The device's graphical OS was called EPOC, a reference to "epoch", but this was quickly backfitted by Psion engineers to stand for "Electronic Piece Of Cheese". In 1998, Psion Software and teams from Nokia and Ericsson created Symbian [June 24] as the next generation version of EPOC for mobile devices.

The Psion Series 3 also sported a built-in programming language, OPL (Organiser/Open Programming Language). This, along with the rise in popularity of Internet forums such as CompuServe [Sept 24] and CIX [May 25], led to a significant shareware scene developing for the device.

The Psion company name was an acronym for "Potter Scientific Instruments", named after the

company's founder, David Potter. The obvious acronymic choice, PSI, was already taken by another company and so "ON" was added. An alternative story is that Potter's wife, Elaine, created the name from "Potter Scientific Investment Or Nothing" after the failure of an earlier business venture by the pair.

World Wide Web Worm

Sept., 1993

Oliver McBryan at the University of Colorado began running his "World Wide Web Worm" (WWWW), probably making it the first search engine in the sense that it crawled the Web automatically indexing titles and URLs. It eventually created a database of 300,000 entries which could be searched by keyword.

An alternative possible first is another WWWW, the "World Wide Web Wanderer" [June 30].

McBryan's WWWW wasn't publicly released until March 1994 when he presented a paper about it at CERN [Sept 29]. By then there were at least two other search engines, JumpStation and the Repository-Based Software Engineering (RBSE) spider. RBSE illustrated how later systems tended to be called 'spiders', perhaps because of the virus meaning of 'worm'.

None of these engines performed link analysis or cached full page contents so if you didn't know the title or right keyword then it was extremely hard to find a page. This issue was addressed by the release of WebCrawler, the first full text search engine, on [April 20] 1994.
