March 4th

Vladimir Sergeevich Lukyanov

Born: March 4, 1902;

Moscow, Russia
Died: 1980

In 1936, Lukyanov implemented a “one-dimensional hydraulic integrator” called the IG-1. This analog machine, the only one in the USSR, solved partial differential equations based on the flow of water between tanks. This made it the first water-based computer.

It was originally built to investigate the problem of cracking in concrete, but later versions (which added 2D and 3D integrators) were applied to areas such as geology, metallurgy, thermal physics, and rocket engineering. It became possible to swap parts in and out to create different configurations depending on the nature and complexity of the problem needing to be solved.

Lukyanov’s integrators began to be manufactured commercially from 1955, and were used across the USSR, and in Czechoslovakia, Poland, Bulgaria, and China. It wasn't until the 1980's that digital computers were able to deal with correspondingly complex problems.

Only two water integrators still exist, both at the Polytechnic Museum in Moscow (the largest technical museum in Russia).

For western efforts on water-based analogue computers, see [Nov 29]. For a water-based digital computer, see [Oct 27].

Cocktail Cabinets

March 4, 1974

Atari [June 27] introduced Quadrapong to US arcades, a four-player version of Pong [Nov 29], making it the first game to be widely distributed as a table-top (aka cocktail) cabinet. It actually had a curved top, but later designs were flat (otherwise your cocktails would slide off).

Quadrapong was part of Atari's fight back against the multitude of Pong clones. The competition was fierce, so Atari created multiple variations, including "Pong Doubles", "Super Pong", and Quadrapong.

The game was originally created by Kee Games in 1973, with the name Elimination!. Kee was a subsidiary of Atari, so the game could be quickly given a Pong makeover. Following the later success of Tank [Nov 5], another Kee Games design, Atari reabsorbed the company fully.

The Cray-1

March 4, 1976

The first Cray-1 supercomputer was shipped to the Los Alamos National Lab in New Mexico. Passions over who would get it had been so heated that a bidding war had broken out between the Lawrence Livermore National Lab and Los Alamos.

A Cray-1. Photo by Rama. CC BY-SA 2.0 fr.

The computer was built around a seven-foot cylindrical tower, nine feet in diameter. The circuit boards were arranged in a three-quarter circle around the tower, with the gap allowing a person to service the machine from the inside. The shape also minimized the distance, and therefore the delay times, between one circuit board and another.

Likewise, the hand-soldered wiring carried signals much faster than printed circuit boards. Over sixty miles of it snaked through the device, but no segment was longer than three inches to minimize signal delays. One downside of this was that it took nearly a year to assemble the machine. Another was that the computer produced so much heat that it required a built-in Freon-based refrigeration system. The upholstered bench around the base contained the cooling system.

Another major contribution to its speed was its vector data structures, which made it possible to perform arithmetic simultaneously on multiple values. Also, the machine reused many of the proven design techniques from Seymour Cray's [Sept 28] CDC machines [Sept 00]. However, it was the first Cray design to use ICs because it was only in the early 1970's that they were deemed fast enough.

The Cray-1 was the world's fastest computer until the late 1970's, running at around 160 MFLOPS. About ninety were sold, perhaps helped by the fact that the external paneling could be any color you liked, and the bench was convenient for taking naps.

The Cray-1 was succeeded by the 800 MFLOPS Cray X-MP [Dec 4] in 1982 the first multi-processing model.

BoCoEx Goes Online

March 4, 1983

Boston Computer Exchange (BoCoEx or BCE) was the first e-commerce company, dominating electronic trading in used computers in the US during the 1980's. It was founded in 1982 by Alexander Randall and Cameron Hall (his wife).

They maintained inventory using a paper-based database at first, but quickly switched to an PC-based database manager, and on this day struck a deal with the Delphi BBS to post the database online. However, orders still had to be made by phone.

A few years later, they introduced an escrow service to protect buyers and sellers. However, the lack of a verifiable way to close credit card transactions on-line prevented the implementation of an "all on-line" system [Sept 3].

Motion Capture Gaming

March 4, 1991

Sierra released the humorous graphic adventure, "Space Quest IV: Roger Wilco and the Time Rippers" (aka SQ4) by Mark Crowe and Scott Murphy.

SQ4 was the first game in the series to move away from text parsers and EGA graphics towards point-and-click and VGA graphics, and one of the first games to use motion capture animation. Sierra claimed it cost over a million dollars to produce.

Probably the first game to use motion capture was "Prince of Persia" [Oct 3] in 1989, but that was based on rotoscoping, a technique animators used to trace over motion picture footage, frame by frame [March 1]; [April 4].

By the mid-1990's, motion capture was commonplace. For example, developer/publisher Acclaim Entertainment ran its own in-house motion capture studio.

PlayStation 2 Released

March 4, 2000

The PlayStation 2 (PS2) represented something of a sea change for consoles in that it could play DVDs as well as game disks, making it suited for more general entertainment. In fact, since the PS2 was cheaper than stand-alone DVD players [March 19] of the time, many people bought it for that reason alone. This helped increase the popularity of the DVD format [Dec 8].

The PlayStation 2 console. Photo by Evan-Amos.

Sony also recognized the value of backward compatibility, so the PS2 could play all of the original PlayStation's library of games [Dec 3]. However, the PS2's increased processing power (via its 128-bit Emotion Engine graphics processor) meant that popular games could be improved; for instance, "Grand Theft Auto III" was the first in the series to offer a 3D city to explore. Nearly 4,000 titles were released for the machine during its lifetime.

The PS2 became the best selling console ever, reaching 100 million units sold by Nov. 2005, and eventually passing 155 million in 2011.

The success of the PS2 caused Sega to announce the discontinuation of its Dreamcast [Nov 27] in March 2001. This left the PS2 as the only sixth generation console on the market for over six months, before the release of Nintendo's GameCube [Sept 14] and Microsoft's Xbox [Nov 15].

The PlayStation 3 was unveiled on [Nov 11] 2006.

Blackberry 5810 Announced

March 4, 2002

The Blackberry 5810 was the first device marketed by RIM [March 7] as a phone with email capability, rather than as a pager. It did this by integrating BlackBerry's wireless email with cellular phone services on GSM networks [Feb 16], and added SMS [Dec 3], a basic web browser, and Java [Feb 23].

One count against the 5810 was the lack of a built-in microphone and speaker. Instead, it was necessary to plug in a headset, which was considered a tad uncool. This was an important concern since the 5810's main competitor was the much more trendy Palm V [June 1]. The next BlackBerry, the 6210 (aka the Quark), added a microphone and speaker.

Another divisive feature was the scroll wheel on the side, which was phased out in the Pearl 8100 [Sept 12], replaced by a trackball. Blackberry aficionados are sometimes divided into "wheelers" and "ballers" based on their preference for one or other of these controls.

Estonia's Election

March 4, 2007

Parliamentary elections in Estonia broke new ground by allowing part of the voting to be carried out via the Internet.

The system was built on top of the Estonian ID smart card that supported both secure remote authentication and legally binding digital signatures. By election day, over 1.08 million cards have been issued (for a population of about 1.32 million).

Internet voting was available during an early voting period from Feb. 26 to 28, and 30,275 citizens (3.4% of the population) used it.

However, security experts who reviewed the system voiced some criticisms, warning that any system that transmitted ballots electronically could not be totally secure. Indeed, in May 2014 one group claimed they could breach the system, but the Estonian National Electoral Committee responded by saying that the claims "give us no reason to suspend online balloting".

Electronic voting in Estonia had begun back in Oct. 2005 when it became the first country to run *local* elections via the Internet. At the time, some 9,317 people voted online.

Estonia can also claim another computing first – on [April 27] it was on the receiving end of the first country-level cyber attack.