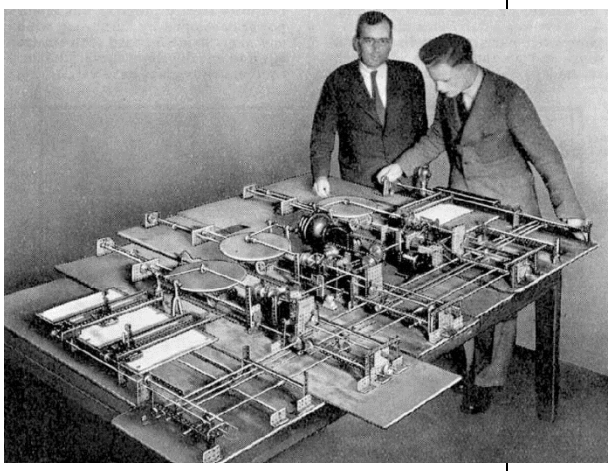
Jan. 24th

The Meccano Differential Analyser

Jan. 24, 1934

In 1933, Douglas Hartree [March 27] visited Vannevar Bush at MIT and was particularly impressed by his differential analyzer [July 23]. On Hartree's return to Manchester, he set about building his own.



Douglas Hartree and Arthur Porter standing by their Meccano Differential Analyser. *The Meccano Magazine*, June 1934, p.442.

Being employed by a prestigious Britsh university meant that funding was available to employ the very best construction materials: Hartree and his student, Arthur Porter, utilized Meccano (similar to the Erector brand in the US). All told, the parts cost around £20.

Their analyser was only intended to be a prototype, to demonstrate the principles behind Bush's device. Nevertheless, it performed within 2% of the accuracy of Bush's much more costly machine ($125,000), and was used to solve some real problems in wave mechanics.

An article about the analyser appeared in *The Manchester Guardian* newspaper on this day. It argued that by having the "adroit and accomplished" machine take over the "donkey's work", scientists would have more time to work on complex problems.

The prototype's success led the university to buy a full scale machine in March 1935, incorporating four mechanical integrators. It was built by the engineering company Metropolitan-Vickers (without using Meccano), and was, according to Hartree, "[the] first machine of its kind in operation outside the United States".

It was dedicated on March 27, 1935, and was housed in the basement of the Physics building, filling a room of about 25 ft. by 20 ft.

During the next five years, three more were built in the UK – at Cambridge, Queen's University Belfast, and the Royal Aircraft Establishment in Farnborough.

A reconstruction of Harwell's Meccano prototype is on display in the Science Museum in London, next to half of the full-size version. The other half is in the Museum of Science and Industry in Manchester.

Alain Colmerauer

Born: Jan. 24, 1941;

Carcassonne, France
Died: May 12, 2017

Colmerauer and Philippe Roussel implemented the logic programming language Prolog in 1973, utilizing an execution model based on a refinement of Alan Robinson's resolution principle designed by Robert Kowalski [May 15] and Donald Kuehner.

The Prolog name was suggested by Roussel's wife Jacqueline as an abbreviation of "PROgrammation en LOGique".

Colmerauer went on to produce Prolog II, a system which manipulated equations over infinite trees, and was also one of the founders of constraint logic programming, as utilized in his Prolog III language.

ReserVec

Jan. 24, 1963

The airline reservation system, ReserVec. was developed by Ferranti Canada [Feb 27] for Trans-Canada Airlines (TCA, today's Air Canada).

It supported around 350 terminals linked to a computer known as Gemini, which routed requests between two CPUs, known as Castor and Pollux. (In Greek mythology, Castor and Pollux were half-twin brothers who became the two brightest stars in the constellation of Gemini.) Storage consisted of just five magnetic drums (and one of those was a spare) and six tape units.

It's revealing to compare ReserVec with the very similar SABRE system [Nov 5], deployed by American Airlines in the US. Although the two projects started at about the same time in 1959, ReserVec was completed almost two years earlier. The switch-over from the manual system occurred on this day.

ReserVec cost around $4 million, while SABRE's price tag was ten times that much.

Hello Apple Macintosh

Jan. 24, 1984

Prev: [Jan 19]

Steve Jobs [Feb 24] publically introduced the Macintosh at the annual Apple stockholders meeting. It employed a 32-bit Motorola 68000 [Sept 26], 64 KB of ROM, 128 KB of RAM, a built-in 400 KB 3.5-inch floppy disk drive, a 9-inch black and white monitor, 8-bit mono sound, and a mouse.

The 64 KB ROM was far bigger than what most computers used at the time (typical sizes were 4 to 8 KB). The Mac needed this extra memory to run Bill Atkinson's [April 27] QuickDraw library, which made the Mac the first commercially successful system to feature a GUI.

The Mac also introduced the 3.5-inch diskette in an era still attached to 5.25-inch floppies [Aug 27] that really were floppy. The Mac's diskettes were rigid, with a spring-loaded door that closed when not in use, making them far safer. However, the 400 KB size limitation meant that users frequently ended up swopping disks in and out of the floppy drive.

The Mac team eventually went with Sony's 3.5 inch drive, against the wishes of Steve Jobs who wanted to build a drive in-house. This meant keeping the work on the Mac-Sony interface secret, including at one point hiding a Sony engineer in a broom cupboard when Jobs unexpectedly visited the lab.

Apple Mac 128. Photo by Christo. CC BY-SA 4.0.

The Mac's biggest flaw was its paltry 128 KB of RAM, which was only just sufficient to run software. What's more, the Mac's design made it very hard to upgrade the memory.

Apple quickly responded: in Sept. 1984, the system was upgraded to include 512 KB of RAM. Also, later Mac models, starting with the Mac Plus in Jan. 1986, made it much easier to swap out internal components.

Apple organized a vigorous advertising campaign to coincide with the Mac's release. Aside from the famous "1984" SuperBowl ad [Jan 22], the company spent $2.5 million purchasing all 39 advertising pages in the Nov. 1984 issue of *Newsweek* magazine, and Apple CEO John Sculley [April 6] joked, "It's unclear whether Apple has an advertising insert in *Newsweek* or whether *Newsweek* has an insert in an Apple brochure."

Another novelty was the "Test Drive a Macintosh" promotion which most computer dealers hated. Early sales of the computer were brisk, with 70,000 units sold in the first 100 days. As a consequence, Macs were in short supply, and loaning them out for 24 hours meant lots of paperwork for no guaranteed sale. Also, many of the loaned machines were returned slightly worse for wear.

The Mac project had been started by Jef Raskin [March 9] in Sept. 1979, with a much different goal in mind – to build a simple "information appliance," without even a mouse.

That changed when Jobs joined the project on Jan. 20 1981 (after being forced off the Lisa [Jan 19] team). Raskin soon started complaining of interference, and left the Mac team in the summer of 1981 (and Apple in Feb. 1982). Under Job's stewardship, the project adapted many ideas from the Lisa.

Alan Kay [May 17] said that the Mac was "the first personal computer good enough to criticize".

Spam Solved

Jan. 24, 2004

At the World Economic Forum, Microsoft CEO Bill Gates [Oct 28] told an appreciative audience that "two years from now, spam will be solved."

Gates predicted the creation of an internet-wide authentication system that would verify senders' identities and levy micropayment fees on email.

It was later calculated that Gates received nearly 4 million spam emails that year, so it was hardly surprising that he was pushing for a solution.

In 2018, an estimated 280 billion emails were sent each day. The bad news is that around 55% of those were spam; the good news is that the figure was 69% in 2012, so things have marginally improved.

For more spam, see [March 31], [April 12], [May 3], [Dec 16].

Gates' other famously bad prediction was: "640K should be enough for anybody." He's usually claimed to have said this at a 1981 microcomputer trade show in relation to the IBM PC's 640 KB of RAM [Aug 12]. However, reports of the prediction seem to date from the early 1990's. Gates steadfastly denies the prediction: "I've said some stupid things and some wrong things, but not that. No one involved in computers would ever say that a certain amount of memory is enough for all time."

The Beaver

Jan. 24, 2010

Canada's second oldest magazine, *The Beaver*, changed its name to *Canada's History*.

Its publisher, Deborah Morrison, said: "Several readers asked us to change the title because their spam filters were blocking it. Ninety years ago, it probably seemed the perfect name for a magazine about the fur trade."

For more filtering problems, see [April 9] and [Jan 27].