June 26th

Sir Frederic Calland Williams

Born: June 26, 1911;

Stockport, England
Died: Aug. 11, 1977

Williams and Tom Kilburn [Aug 11] developed the Williams-Kilburn Tube [Dec 11], and built the world's first stored-program computer, the Manchester Baby [June 21], principally as a test-rig for their tube technology. After the Baby, their team designed a more powerful version, the Manchester Mark 1 [June 16], which Ferranti Ltd. later utilized as the basis for the Ferranti Mark 1 [Feb 12], the world's first commercial computer.

Freddie Williams. (c) The University of Manchester.

During WWII, Williams had implemented the first fully functional automatic radar for fighter aircraft. Part of that effort involved the creation of a timer circuit which he dubbed the "Phantastron" (for fantastic).

Another example of Williams' flamboyant names was the "Sanatron" ('sanitary' was his favorite description for a well-made circuit). Eventually the two devices merged to become the "Sanaphant".

Sir Maurice Vincent Wilkes

Born: June 26, 1913;

Dudley, Worcestershire
Died: Nov. 29, 2010

Wilkes was appointed the director of the University of Cambridge Mathematical Lab in 1945 (later renamed the Computer Lab). This meant that after he returned from attending the Moore School lectures [Aug 19], he could quickly begin building his own stored-program machine without much interference from 'above'; the result was the EDSAC [May 6].

Wilkes attended Alan Turing's first lecture about his ACE design [Feb 19] at the end of 1946, and was unimpressed. He later explained that he "did not believe that computers would develop along the lines that Turing was advocating and for this reason I stopped going to his lectures."

Experience of programming the EDSAC led Wilkes and his colleagues David Wheeler [Feb 9] and Stanley Gill [March 26] to publish the first programming textbook, "The Preparation of Programs for an Electronic Digital Computer", in 1951. Wilkes also developed the microprogramming concept that year, which was first implemented in the EDSAC 2.

In 1953, he established the world's first course in Computer Science at Cambridge, and was a founder member of the British Computer Society (BCS [Oct 14]) and its first president (1957-1960).

In 1965, he published the first paper on cache memory, which he memorably termed "slave memory".

A quote from 1949: "As soon as we started programming, we found to our surprise that it wasn't as easy to get programs right as we had thought. Debugging had to be discovered. I can remember the exact instant when I realized that a large part of my life from then on was going to be spent in finding mistakes in my own programs."

Watson Visits Hitler

June 26, 1937

Thomas J. Watson [Feb 17], president of IBM, met privately with Adolf Hitler in Berlin. Hitler presented Watson with the Merit Cross of the German Eagle with Star, the second-highest award that a non-German could receive.

Hitler assured Watson that Germany didn't want war, and Watson later sent the Fuhrer a warm thank-you note for his hospitality. Meanwhile, he continued his European "world peace through world trade" tour by paying tribute to the dictator Benito Mussolini at a meeting of salesmen in Italy.

Back home, Watson spread his message by placing "Peace" signs throughout IBM offices and factories, next to the "Think" signs [Feb 14].

In 1940 Watson realized he had been duped, and returned his medal, an act that sent Hitler into one of his rages, and he banned Watson from German soil forever. Nevertheless, IBM continued to own 90% of the German company Dehomag through which it sold punch card tabulating systems. Before the war, these machines helped the Nazis locate Jews, and many were used for bookkeeping purposes in concentration camps.

ENIAC Patent Filed

June 26, 1947

Prev: [July 15] Next: [Oct 19]

J. Presper Eckert [April 9] and John Mauchly [Aug 30] applied for an ENIAC [Feb 15] patent covering the concept of a stored-program electronic digital computer. They largely based the application on a report they'd issued on [Nov 30], 1945.

The filing contained 91 sheets of drawings and 232 text columns of specifications and claims.

While the application was being considered, Sperry Rand [Jan 25], to whom Eckert and Mauchly had transferred their patent rights, agreed to cross-license its patents with IBM on Aug. 21, 1956

On Feb. 4, 1964, roughly 18 years after the submission, Eckert and Mauchly received US patent 3120606. The main outcome was that Sperry Rand could begin charging a 1.5% royalty, except on devices made by IBM.

Honeywell didn't want to pay, so decided to challenge the patent on the basis that Mauchly had been inspired by John Atanasoff [Oct 4]. Litigation began on May 26, 1967, taking a mere four years to get to court, and a decision was reached in a similarly speedy fashion on [Oct 19] 1973.

Pool on the MIDSAC

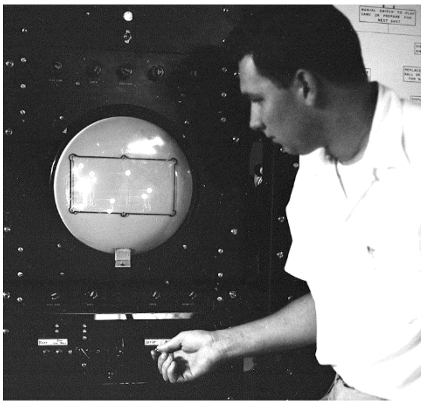
June 26, 1954

Two machines became operational at the University of Michigan: the Michigan Digital Automatic Computer (MIDAC) and the more advanced Michigan Digital Special Automatic Computer (MIDSAC). They were built by John DeTurk, derived from the Standards Eastern Automatic Computer (SEAC [June 20]).

William Brown and Ted Lewis were approached by DeTurk to write demonstration software for the unveiling, and he suggested a pool game running on the MIDSAC.

Brown and Lewis spent over six months creating a complete simulation with a rack of fifteen balls. A joystick moved a pool cue around the table, a knob rotated the stick, and a button made it strike the cue ball.

The program determined the speed, trajectory, and bounce of every ball as they collided with each other and the sides of the table. Any ball that entered a pocket would disappear. The illusion of continuous movement meant that this was the first game to utilize real-time graphics.



A game of Pool on the MIDSAC. Photo by the University of Michigan.

The sides of the table and pockets weren't displayed, but were painted onto a transparent overlay that was stuck onto the MIDSAC's 13-inch CRT display.

The first computer game was probably the Nimatron [Sept 24], displayed at the New York's World's Fair in April 1940. Another contender for the first graphical game is Sandy Douglas' OXO [May 21], which ran on a general-purpose computer, the EDSAC [May 6].

Bell 101

June 26, 1958

The Bell 101 was the first commercial modem, and an important part of the SAGE air-defense system [next entry]. Modems connected terminals at various airbases, radar sites, and command-and-control centers to the SAGE director centers.

The 101 could transmit data over regular telephone lines at an amazing 110 bits per second, but mostly disappeared after the release of its successor, the Bell 103, in 1962, since the 103 could boast of transfering data at 300 bits per second.

Telephone-line modem technology has started being developed at the end of the 1940's by Jack Harrington's group at the Air Force Cambridge Research Center near Boston. They were searching for a way to transmit radar images between US Air Force sites.

Modems were predated by the telex devices used by news wire services in the 1930's [Nov 21], but it became clear in the 1950's that teleprinters needed to be connected using ordinary phone lines instead of expensive leased lines.

SAGE

June 26, 1958

The US Semi-Automatic Ground Environment (SAGE) Air Defense system was designed to collect and analyze data from hundreds of radar systems quickly enough to detect incoming Soviet bombers and direct a NORAD [Aug 1] response. The project was a reply to the USSR's detonation of its first atomic bomb on [Aug 29], 1949.

SAGE's deployment began on this day at an Air Force base near Trenton, New Jersey, although the first prototype had been completed in Oct. 1955. When the system was fully operational in 1963, there were 24 SAGE Direction Centers and three SAGE Combat Centers in the US and Canada.

SAGE utilized the largest computer ever built, the IBM AN/FSQ-7 (Q7 for short [Nov 14]). Each SAGE Direction Center housed a pair of Q7s to provide for fault tolerance – one active, the other on standby.

The Q7s occupied an entire floor of each center, each one covering approximately 22,000 square feet not including its support equipment. A Q7 weighed around 250 tons, employed a total of 50,000 vacuum tubes , used up to 3 megawatts of electricity, and could perform about 75,000 instructions per second.

Around ninety IBM OA-1008/FSQ displays were deployed at each site, each one sporting a 19-inch CRT that could draw vector-based lines or alphanumeric characters. Operators directed actions by touching a light gun to the screen, a technique that led to perhaps the first computer art [Dec 00]. Each console also had a built-in intercom, and a cigarette lighter and ashtray (on the left of the screen).

Software development for SAGE employed about 20% of the world's programmers at its peak. When the system was complete, its 250,000 lines of code was the largest (and most complex) in existence.

A SAGE console and light gun, on display at the Computer History Museum. Photo by Tomwsulcer. CC0.

Between 1952 and 1955, SAGE generated 80% of IBM's computer-related revenue, and by 1958, more than 7,000 IBM personnel were employed in the project.

By the early 1960's, intercontinental ballistic missiles (ICBMs) began to make the threat of air bombers obsolete, and SAGE less useful. In its final years, the air force were forced to buy replacement vacuum tubes for the Q7s from Soviet bloc countries since the US was no longer making them. The last installation was shut down in 1983.

UPC Barcode

June 26, 1974

At 8:01am, Sharon Buchanon, a supermarket cashier, scanned a ten-pack of Wrigley's chewing gum across a barcode scanner at the Marsh Supermarket in Troy, Ohio. It became the first product checked out using a Universal Product Code (UPC).

The gum was labeled with a price tag of "69 cents", but the shop's price was actually 67c, a fact the scanner noted correctly. The gum package is now on display at the Smithsonian's National Museum of American History.

The UPC code was developed by IBM and approved for use in 1973. It consisted of a twelve-digit barcode that represented the manufacturer and the product.

Norman Joseph Woodland was said to have come up with the idea while at the beach. He was considering how Morse code [Oct 19] could send information, and started to draw dots and dashes in the sand. After lengthening the marks, the dots became thin lines and the dashes thick lines. He had drawn a two-dimensional Morse code.

He developed the idea with Bernard Silver, and patent 2612994 ("Classifying Apparatus and Method") was granted to them on Oct. 7, 1952. It covers both linear and circular bull's-eye barcodes.

Despite this day's events, it would be several years before UPC scanning became ubiquitous. For example, in 1976, *BusinessWeek* published an article entitled, "The Supermarket Scanner that Failed."

WAP Forum

June 26, 1997

The Wireless Application Protocol (WAP) Forum was established by Ericsson [May 20], Motorola [Sept 25], Nokia [May 12], and Unwired Planet, to develop a technical standard for transferring information over mobile wireless networks.

The first WAP specification was released in Feb., and revised a few times during 1999-2000. It supported the interoperability of various network technologies, such as GSM [Feb 16] and CDMA, by defining a Wireless Datagram Protocol (WDP) that made every network datum look a bit like UDP [May 5].

At the top-level was the Wireless Markup Language (WML), based on XML [Feb 10]. It provided navigational support, data input, hyperlinks, text and image presentation, and forms, much like HTML [Dec 18].

WAP was fairly popular in the early 2000's, but by the 2010's it had been largely superseded by HTTP-capable smartphones [Jan 9].