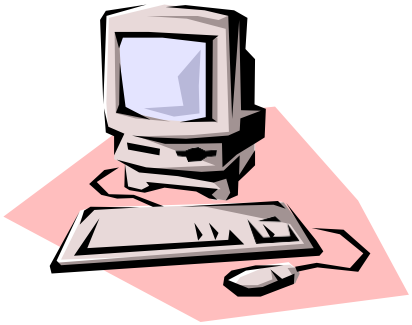
COMPUTER CORNER

Happy Birthday Herman!

by mike@blackledge.com



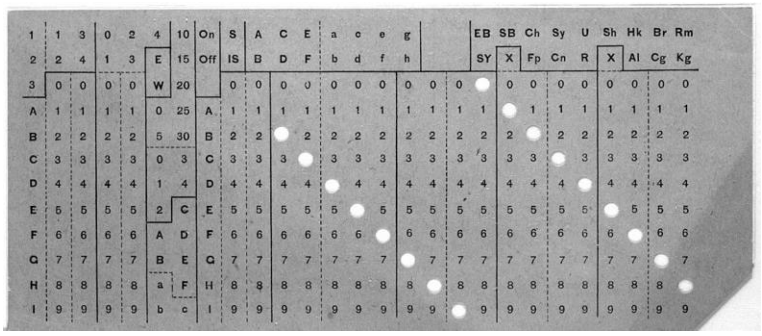
It has been said that genealogy and computers are a match made in Salt Lake City. If there is any truth to that, then Herman Hollerith has to be considered one of the primary match-makers. Every genealogist should know his name, yet probably few do. This month, on February 29, 2020, will be his 160th birthday – or would it be more correct to say his 40th birthday, since he only gets a 'real' anniversary date each leap year.

Herman Hollerith was born in Buffalo, NY on February 29,1860, prior to the outbreak of the Civil War and prior to the eighth Federal census whose census date was July 4, 1860. The eighth census lists a Henry Hollerith, residence Erie, New York, 9th City Ward of Buffalo, age 0 years, male, page 1, family 4, film number 803748.

Herman entered the City College of New York in 1875 (yes, at age 15) and graduated from the Columbia University School of Mines with an "Engineer of Mines" degree in 1879. In 1880 he listed himself as a mining engineer while living in Manhattan, and received an honorary Ph.D. in 1890 at Columbia University in recognition of his work.

While Herman was being born, another influential gentleman, John Shaw Billings, was completing his surgeon studies at the original Medical College of Ohio (now the University Of Cincinnati College Of Medicine). Billings then became medical inspector of the Army of the Potomac during the American Civil War, and then head of the Library of the Surgeon General's Office in Washington D.C. From this position, Billings served as Supervisor of the 1880 Federal Census, and later the 1890 Census. The 1880 census took eight years to compile, and it was estimated that the 1890 Census would take 13 years to tabulate.

John Shaw Billings is considered influential because: a) he inspired Andrew Carnegie to provide funds for the construction of sixty-five branch libraries throughout New York and 2509 libraries in cities and towns across North America and Britain (*note*: of the three Carnegie libraries established in New Mexico, the one in Raton burned down, the one in Roswell is boarded up, and the one in Las Vegas is fully operational today); and b) he urged Herman Hollerith to develop a machine to tabulate census data. A key idea was that data could be coded numerically. Hollerith determined that if numbers could be punched in specified locations on a card, in the now-familiar rows and columns, then the cards could be counted or sorted mechanically and the data recorded. A description of this system, *An Electric Tabulating System* (1889), was submitted by Hollerith to Columbia University as his doctoral thesis.



A Hollerith punched card

Hollerith built machines under contract for the Census Office, which used them to tabulate the 1890 census in only one year. Herman Hollerith was awarded a series of patents in 1889 for mechanical tabulating machines. These patents described both paper tape and rectangular cards as possible recording media. The card shown in U.S. Patent 395,781 of June 8 was preprinted with a template and had holes arranged close to the edges so they could be reached by a railroad conductor's ticket punch, with the center reserved for written descriptions.

Hollerith was originally inspired by railroad tickets that let the conductor encode a rough description of the passenger:

> I was traveling in the West and I had a ticket with what I think was called a punch photograph...the conductor...punched out a description of the individual, as light hair, dark eyes, large nose, etc. So you see, I only made a punch photograph of each person [in the census].

Use of the conductor's ticket punch proved tiring and error prone, so Hollerith invented a "keyboard punch" that allowed the entire card area to be used. It also eliminated the need for a printed template on each card. Instead a master template was used at the punch; a printed reading board could be placed under a card that was to be read manually. Hollerith envisioned a number of card sizes. In an article he wrote describing his proposed system for tabulating the 1890 U.S. Census, Hollerith suggested a card 3 inches by 5½ inches of Manila stock "would be sufficient to answer all ordinary purposes."

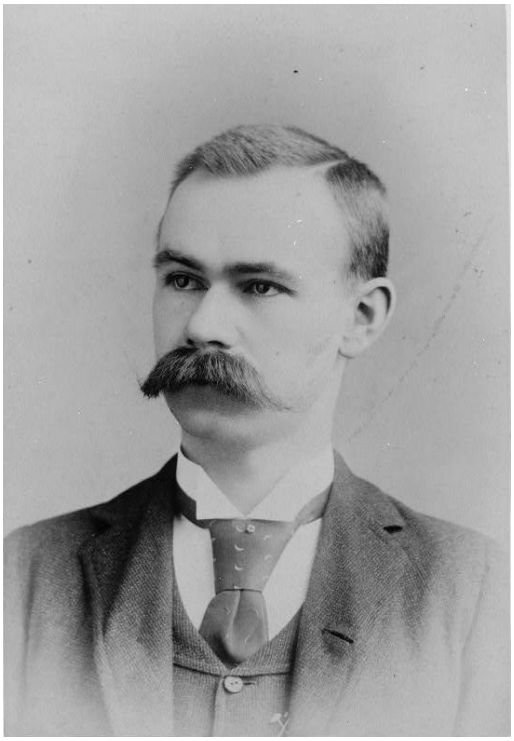
December 31, 1919 census worker with Hollerith Pantograph Punch machine. For the 1920 Census

Hollerith started his own business in 1896 founding the Tabulating Machine Company. Most of the major census bureaus around the world leased his equipment and purchased his cards, as did major insurance companies. To make

his system work, he invented the first automatic card-feed mechanism and the first key punch; a skilled operator could punch 200–300 cards per hour. He also invented a tabulator. The 1890 Tabulator was hardwired to operate only on 1890 Census cards. A plugboard control panel in his 1906 Type I Tabulator allowed it to do different jobs without being rebuilt (the first step towards programming). These inventions were among the foundations of the modern information processing industry.

In 1911 four corporations, including Hollerith's firm, merged to form the Computing Tabulating Recording Corporation (CTR). Under the presidency of Thomas J. Watson, it was renamed International Business Machines Corporation (IBM) in 1924. Hollerith died on 17 Nov 1929 and is buried at Oak Hill Cemetery in Georgetown, Washington, DC. His Find A Grave memorial number is 14503488.

Herman would have loved to see where computers have taken us. When we gained access to the sixteenth Federal Census on 2 Apr 2012, we had the first census released on-line as digital images free to the public. In only two years we get another one, the 1950 Federal Census. On this Leap Day, I hope you remember Herman Hollerith and what he has done for your research efforts. Happy Birthday, Herman!



Herman Hollerith
Circa 1900