

JIM STRICKLAND

In 1894, most of the equipment that he had built and rented to the census office for the 1890 census had been returned and little money was coming in. He did contract for the Russian census of 1896 and the French census and some other statistical jobs, but he saw that census work was periodic and generated income sporadically. He needed commercial customers who would use his equipment year in and year out. (In 1890, he had rented two tabulators to Prudential Insurance but he largely ignored that customer for a number of years. His “one-man company” had little time to work with them.

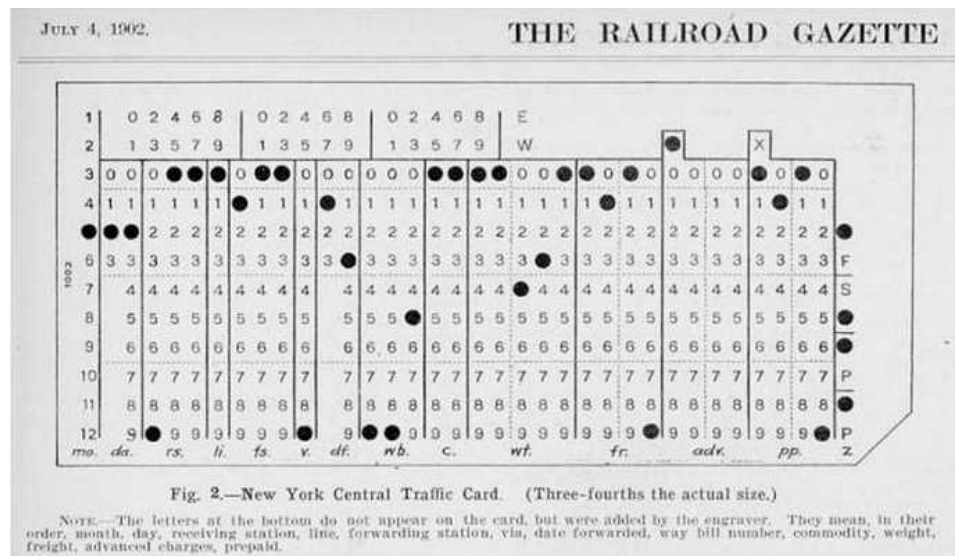
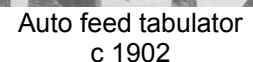
But he was an inventor and tinkerer and he learned what the NYC needed and responded. To make a long story short, to satisfy the NYC, he modified his cards and invented equipment.

- New format with a (mostly) columnar right. Note that the 1890 census card has 36 columns. Some data fields were one position, others were more.
- Card size is 7 3/8 x 3 1/4 inches.
- Card has 36 columns; 12 rows (0-9 and two additional rows).
- Tabulator that could add--with four counters.
- Wiring panels (An idea adopted by telephone companies from an 1890 invention by Otto Schlöffler of Vienna.)
- Columnar keypunch with 11 keys.

For more on early customers and the NYC application.
(See VIE 1.08, page 2.)

For 1900, Congress required a farm census for the first time and that necessitated the capability to add acres, bushels etc. necessitating an adding tabulator (Hollerith called it the "integrating" tabulator). Hollerith was ready. He adapted the NYC card and created a new shorter card (5 5/8 inches) for crop statistics. Both cards used the new key punch that had been developed for the NYC.

That led to a new sorter with automatic feeding of cards. It ran at 200 cards per minute. He then added the automatic feed to his tabulators. (These developments were undoubtedly fed back to the NYC RR application.)



[For pictures and explanation of 1900 Farm census equipment. \(See VIE 2.04 page 5\)](#)

The 1890 farm census was a success and generated significant income.

Now, let's turn back to the commercial side of the Hollerith house.

The NYC added other applications such as passenger and car accounts. He sold the waybill application and other accounting uses to additional railroads while offering new services to the NYC. But sales to other railroads were slow.

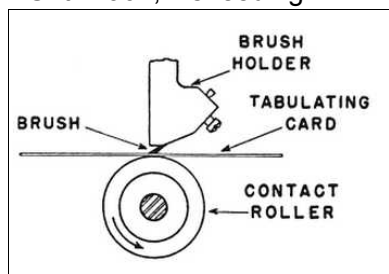
He received some indirect help in 1902 when the Interstate Commerce Commission ordered railroads to report more statistics. The New York Central said these demands would pose no problems; other lines protested the expense of (manually) tabulating the data. After others saw the New York Central using Hollerith's equipment to do the job, they fell in line and began renting his equipment. The Long Island Railroad became his second railroad customer in 1902.

Up until 1905, Hollerith still concentrated on the census. But in 1902, Congress has created a permanent agency, the Census Bureau, to replace the ad hoc Census Office. A short version of what came next is that Hollerith lost the census business and had to alter his business strategy.

Prior to this, his approach had been to tailor equipment to individual customers. For example, the tabulators at the NYC were different from the population tabulators and different from the farm census tabulators.

Now he began to standardize and he did so around a new card feeding system. Until 1907, his feeding devices, fed a card, stopped it, read it, then fed a new card. The new dynamic system was based on reading a moving card.

This is exactly the concept that (with a few exceptions) lasted



through the life of IBM's unit record equipment. To see it clearly look at the sorter in the 1401 room.

Along with the dynamic card feed system came other significant changes:

- Automatic group control, a facility to generate subtotals and grand total. This was the earliest example of conditional programming of a punched card machine, that is, control of processing of punched cards based on information on consecutive cards. (Later patented.)
- Steel frames and black metal panels.
- Wiring panels on all tabulators which allowed customers to wire the tabulator without needing Hollerith mechanics.
- A vertical sorter to save floor space (at the expense of comfort; it was nicknamed the "back breaker").

After 1907, Hollerith was no longer a "one-man" inventor, salesman, builder. Now he manufactured a standardized set of machines which the customer could tailor to his needs.

It was not all smooth sailing for Hollerith and financial troubles came and went until, in June of 1911, he sold his company to Charles Flint who consolidated four companies, Hollerith's The Tabulating Machine Co., International Time Recording, Bundy Mfg and Dayton Scale to form CTR (Computing Tabulating and Recording Company). And in 1914, CTR hired Thomas Watson Sr. and set itself on the path to IBM.

By the way, why are there 12 rows in the NYC card? Hollerith only need ten rows to cover the digits from 0-9. My guess is that he wanted to allow for the month to be in a single column. Note the first column in the NYC traffic card design on the preceding page.

That, probably incidental decision, led to the card that lasted for 24 years and greatly influenced the 1928 card that lasted for over 60 years.

Recent Acquisitions

CHRIS GARCIA

Disney Dream Computer, US, 2004

Many companies have attempted to sell computers aimed at children. Firms like Mattel and V-Tech have made systems that were usually under powered versions of computers and game systems that adults would purchase, often themed around some existing brand such as Barbie, or Hot Wheels. While some of these computers sold in large numbers, none were groundbreaking technologically.

Disney, better known for its movies and theme parks, developed the Disney Dream Desk PC as collaboration with industrial design firm frog

