

The Birth
And Early Days
of the Calculagraph

By
HENRY ABBOTT

Historical Sketch . . .

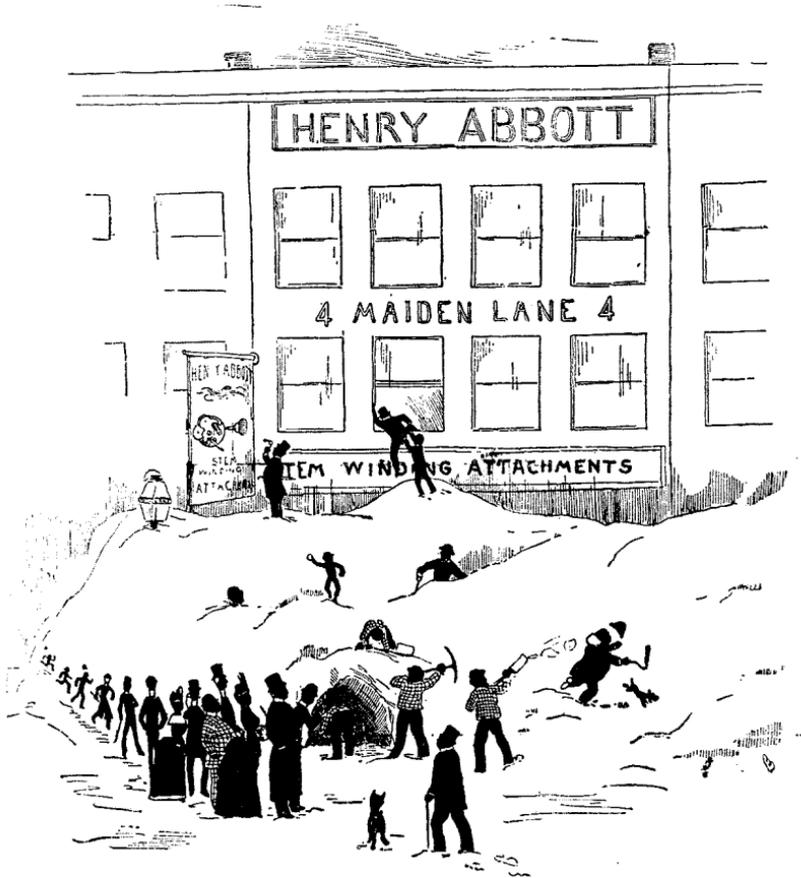
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The first place on the Lane dug out after the BLIZZARD.

New York, March 12th, 1888.

IT was a cold day! The coldest day in all history on Maiden Lane, New York. It was Monday, March twelfth in the year 1888. It was the day of "*The Blizzard*".

Blizzards are common enough in the mid-west of the United States but on the Atlantic seaboard the blizzard of '88 was the only one known to the present generation. On that day the high winds piled the drifting snow up against the south side of the street until one could climb from the snow-bank into second story windows.

It was on such a day; on that particular day, that *The Calculagraph* was born. After many months of experimentation, the first set of working drawings were completed. Like most infants, the machine at birth had no name. The name was later constructed by combining the words "calculate", meaning to compute and "graph" to write or print. Thus "Calculagraph" — a machine that by mechanical means subtracts one time-of-day from another time-of-day and prints the difference, the elapsed or expired time, the time consumed in a service that is

sold or labor that is bought, the cost of a service or of a manufactured product, etc.

Machines capable of printing the time-of-day had been known for more than a hundred years. They have been variously known as "time stamps", "time recorders" and (improperly) as "time clocks".

In every case where such machines are used one must also use pen or pencil with some mental-arithmetic to determine time-values for any purpose.

The first Calculagraph sold was bought by Morris Daily, a famous billiard expert of his day. Morris had doubtless the largest billiard parlor of his time and he was the most expert player. He also boasted of being the *first* man with nerve enough to buy and use a Calculagraph. His machine printed on a ticket the amount in dollars and cents that he charged his customer for the use of a billiard table, at the rate of fifty cents per hour. Morris said "no one ever disputed the record after the first day."

Another early user was a job printer in a mid-western city who also was a "liberal advertiser" of the period 1890-1910. His advertisements of those days would contain such statements as—

"We will do your job printing at cost plus ten per cent. We will prove to your satisfaction that we know

our costs. We use the Calculagraph. This machine makes a printed record of actual working time of every operation. *It makes no clerical errors.* These records will be submitted to you with our bill.”

Under this plan the business of this printer grew from a small beginning until its buildings covered an entire city block.

One day a dentist appeared and said he wanted a machine to print on a ticket the money value of his time expended upon a customer's chewing equipment at the rate of fifteen dollars per hour. A set of gears to compute time values at that rate was promptly supplied and now the dentist wastes no valuable time in bookkeeping. His assistant pulls one handle of a Calculagraph when the victim opens his mouth and another handle when the job is finished and thereby prints upon a ticket the amount in dollars and cents that must be “coughed up”.

In the early days of the “Safety Bicycle” every man, woman and child in the land “took lessons” in the art of riding in “Bicycle Schools”. The universal charge for this education including use of a “Bike” was at the rate of fifty cents for the first hour and twenty-five cents per hour thereafter. A special model of Calculagraph which would compute the value of time at this double rate was sup-

plied for this need and continued to be standard until the bicycle was crowded off of the highways by the automobile.

A gang of sixteen men were employed to operate a powerful hydraulic press which was being used to bend into their final shape the sills of Railway passenger cars. The bending dies required frequent adjustments, which meant that the operating gang was idle frequently and were smoking their pipes, while the tool makers were busy with re-adjusting the tools in the press.

In this case, the "idle time" became more important than "working-time". So a Calculagraph was used to record *idle time* of sixteen men who had nothing to do, while three tool-makers repaired and re-adjusted the dies in the press.

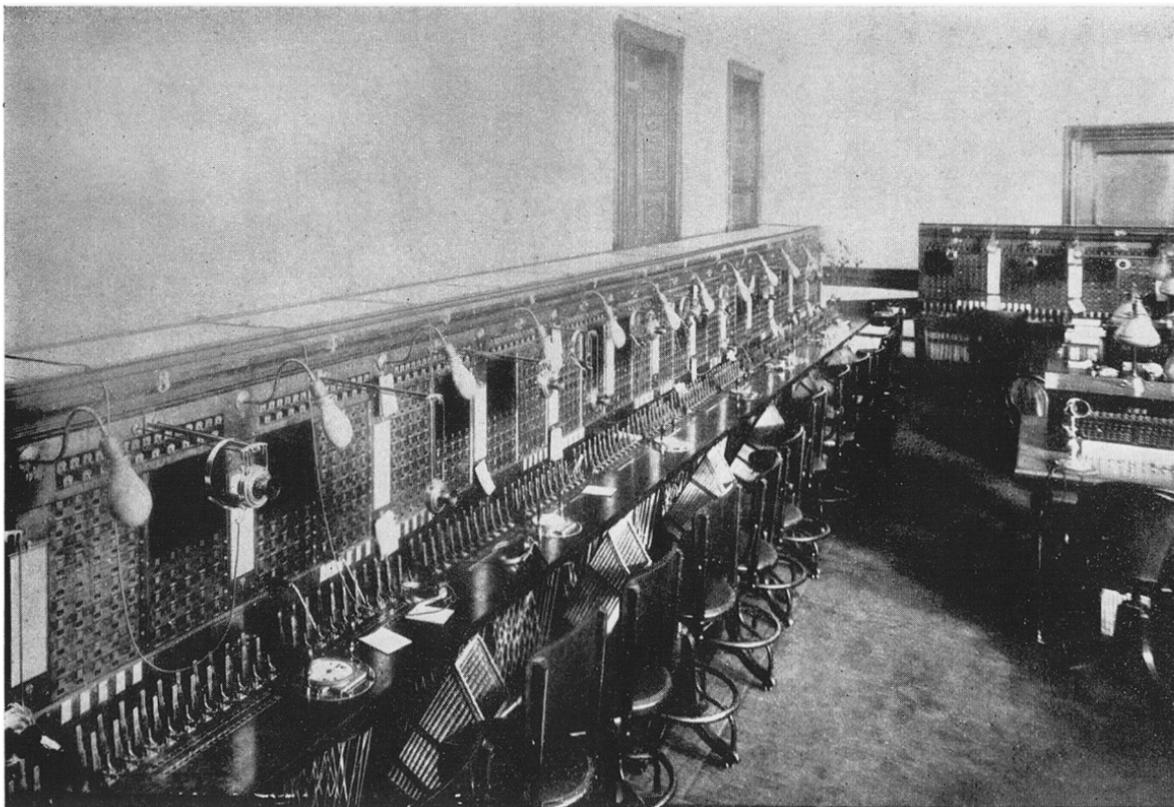
A manufacturer of furniture, (a corporation) bought fifteen Calculagraphs to be used in learning the costs of their products. Six weeks later they wrote us that one of the facts they learned from Calculagraph records was that a desk was being sold for eighty dollars less a cash discount, which desk cost ninety dollars to make. That, for more than a year this particular product had been pushed as "a leader". That now it was discontinued.

One day in the summer of 1894, armed with a letter of

introduction written by Mr. F. J. Hovey, I called on Mr. F. A. Pickernell, Chief Engineer of the American Telephone and Telegraph Company at his office in Cedar Street, New York City. I had, under an arm, a Calculagraph of the type we were selling to manufacturers.

I was introduced to Pickernell's assistants who were John Barrett, who, just then, had eliminated "cross-talk" by transposing parallel wires and thus had made long distance telephony possible, H. H. Sikes, who later became General Manager of the Southern New England Telephone Company, and George M. Yorke, who for many years and up to his recent death, was Vice President and Chief Engineer of the Western Union Telegraph Company.

All of these men were present whenever I called thereafter, to discuss various changes in my model which I suggested would adapt it to the requirements of telephone toll service. The newer model we had designed and made after these several conferences, which recorded time consumed in a telephone toll conversation down to a quarter of a minute, it was agreed should be put in service the following morning. When I called the next day as agreed, to start the people in the operating room in the proper use of the Calculagraph, I was told that Mr. John



FIRST TELEPHONE TOLL SWITCH BOARD
designed for and equipped with Twenty Calculagraphs. Installed April First 1895.

I. Sabin, President of the Pacific Telephone and Telegraph Company called last night, saw the Calculagraph, wanted it and had taken it with his hand baggage on the train and he then was well on his way back to San Francisco. "He will send a check for it." *He did.* He sent a check for \$100.00, which was the selling price we had agreed upon, when tools had been made for quantity production.

Ten weeks later our second hand-made model was finished. It had cost more than \$400.00. We then were able to start our service test, which was made by Mr. James S. McCulloh, who then was Chief Operator in the A. T. & T. operating room on the seventh floor of the building No. 18 Cortlandt Street, New York. Later, McCulloh was for many years President of the New York Telephone Company. He now is "retired".

As a result of the McCulloh test, an order for twenty machines was personally written by Mr. E. J. Hall, then General Manager of the A. T. & T. Co., and by him handed to me early in September 1894. The twenty "model six" Calculagraphs were completed and were delivered and mounted in a new toll board especially designed with spaces for sinking the then *new* model six Calculagraph in switchboard shelf on the first day of April, 1895.

On that same day, Mr. Hall, with some show of ceremony, personally wrote and handed to me the Company's check in payment for those twenty Calculagraphs. The Calculagraph then became part of Standard Specifications for "Toll Board Equipment."

Looking back over the forty-four years that have elapsed, I now know that Mr. Hall then realized, as I did not, that he was *actually* celebrating an occasion that was vastly more important to his company than it was to me.

In 1925, in a lot of Calculagraphs that were returned to our factory for repairs, three were found, the serial numbers of which proved that they were a part of that first installment of twenty put in service in 1895, and doubtless had been in service for thirty years. I have been wondering what an automobile would look like after thirty years of use? Also, what would a tailor live on, who got an order for a suit of clothes from each customer only once every thirty years?

About a year after the incident recited above I was in San Francisco, called upon Mr. John I. Sabin and introduced myself. Sabin was profuse in apologies for having "swiped" my model at an inconvenient time. He explained that "Toll Service" was still young. That it was a mere infant on the Pacific Coast. At the time when

he "stole" my model, he had just finished his first "toll line" which connected San Francisco with another city five hundred miles away. Service on this line was scheduled to open between these two cities immediately on his return from that trip to New York. He knew he "*must have that machine*", so he took it and got away before "Pick" had time to argue about it.

Sabin told me of his first advertisement which was placed in all newspapers in both cities.

As I remember it, they read about as follows—

"If you talk fast, you can speak over our new *Telephone Toll Line* between San Francisco and Los Angeles, forty or fifty words in *Fifteen Seconds* and get an immediate answer for less than a ten word telegram will cost."

Then followed advice to "boil down" and write out what you want to say. Also specimens of such messages were shown in the advertisements.

Sabin said his company made a profit on that type of service but he was limiting the "service in seconds" to a few "long lines".

Sabin then gave me an order for equipping toll offices throughout the Pacific territory at that time. Similar orders have continued to come from that district throughout the

forty-five years that have elapsed since the incident recited above.

In 1906 I arrived in San Francisco, six days after the historic quake and fire which destroyed that city. I found temporary telephone service was in operation in one story buildings made of rough, unfinished lumber. Operators were sitting on soap-boxes in front of improvised switch-boards and Calculagraphs were mounted on barrels within reach of operators. The hotel where I slept two nights was in the park and was made of the same rough lumber.

Calculagraphs have been profitably employed in many different industries. In many corporations, leaks these machines have stopped have been sufficient to pay dividends where dividends could not be paid before.

It stops big leaks at the "bung hole" while others vainly try to save "drips at the spigot".

It has survived and continued to give service for more than forty-five years while scores of competitors are now dead and forgotten.

The Calculagraph has a wide distribution throughout the civilized world. These machines may be found working in Alaska, on the shores of Hudson Bay, in Patagonia and in all way stations between. They are in Cairo and Cape Town, throughout Europe, Asia and islands of the seven seas, including Iceland and Australia. They may even be seen in Jerusalem and in Germany.