



TELECOMMUNICATIONS  
HISTORY GROUP

# CONNECTIONS *news*

[www.telcomhistory.org](http://www.telcomhistory.org)  
Spring 2019, Vol. 24, no.1

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Jody Georgeson, editor

## **A Message from Our Director**

2019 is off to a busy start with our Seattle location continuing to expand their exhibits and sprucing up the museum. The Denver location is getting ready to support National History Day Colorado by participating as judges and by providing a special award for the best project specific to telecommunications history.

This is also the 90th anniversary of the completion of the historic 931-14th Street Mountain States Telephone & Telegraph Company (now Centurylink) building, as well as the 80th anniversary of the first opening of a telecom museum in that building. We are in the early stages of planning a celebration so stay tuned for more information as plans unfold.

The THG Board held their strategy session last month, and one of the focuses this year is on volunteer recruitment and retention. We are so grateful for our volunteers and we welcome anyone who wants to visit either of our locations to volunteer to help preserve the history of the telecommunications industry. Visit our website at [www.telcomhistory.org](http://www.telcomhistory.org) for more information.

Warm regards,

Lisa Berquist

Executive Director



## Board of Directors

THG's Board provides voluntary service in the form of oversight and management of the organization. (Several of our Board members are also active volunteers at the Archives and the Seattle and Denver museums.) They are instrumental in the planning, development and fundraising that supports our efforts to preserve the history of the telecommunications industry.

Valued member Cliff Stice has retired from the Board, and Phil Grate has moved to the THG Advisory Board. We're sad to see them go but thank them for their service and wish them continued success.

### Officers

President - **Jack Shea**, Executive Director, Benefits (ret.) U S West  
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Vice President - **John C. Darrow**, Senior Software Developer (ret.) U S WEST/Qwest  
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**Mary Retka**, Director, Network Policy - CenturyLink

## Call Traffic Simulator for the Seattle Museum

By Sarah Autumn

Two years ago, I visited Phil McCarter down in Oregon and took a tour of his switchroom. I deeply enjoyed spending time with Phil and seeing his outstanding collection, but what really stuck with me was the call simulator that he used to generate traffic on his switching equipment. As I walked through the aisles and heard the switches come to life, I wondered why we didn't have something similar at our museum. Our collection of switching equipment is certainly among the best in the world, and with some kind of traffic generator, we could finally present our machines as they really were: alive, busily clicking and clattering away.

After searching the Internet for a similar project, I came to the conclusion that I would have to code this myself, as no existing tools came close to meeting my requirements. I wanted something versatile, easy to use, and safe. I had to take into account the technological and physical limitations of our machines and ensure that the program only placed calls that could theoretically be completed. To that end, I gathered museum documentation compiled by fellow volunteers, and wrote up a "wishlist" of features. Once I was satisfied, I tentatively began writing the code and over the next few weeks the program began to take shape. As I hit stumbling blocks, fellow volunteers Astrid and Andrew offered assistance, for which I am very grateful.

In a few months' time, I had enough functionality to finally run the simulator on the panel switch. Andrew helped me wire the subscriber lines I needed in order to originate calls, and I put the finishing touches on the code. To my amazement, the program ran, and the panel switch came to life! I was ecstatic! I was--quite literally--jumping with joy! You see, until this moment, I had never experienced more than one call go through at a time. With just a few keystrokes on my laptop, I sent multiple simultaneous calls through the switch just as though actual subscribers were dialing, talking, and hanging up. Since that time, about a year and a half ago, I have been running the program weekly during tours, and have also expanded it for use with our No. 5 Crossbar machine.



For the more technical reader, I will offer a brief description of the internal workings of the program. The code consists of abstractions of lines, switches, and timers, plus a user interface that displays its current status of execution on the screen. As the program runs, it creates lines, and assigns them countdown timers according to an algorithm that simulates human behavior. When a line's timer reaches zero, a call is placed, and another timer is set to count down to when the line should hang up. This process is repeated for as many lines as specified, and on whichever switch the user desires to demonstrate. The physical telephone lines themselves are handled via

Asterisk, which is a free and open-source PBX that runs on the same computer. After Asterisk is told to place a call, it communicates with an Adit 600 channel bank, which handles the conversion between the digital world of the computer and the analog workings of the switches. From the channel bank, 24 analog telephone lines branch out to the three main switches: Panel, No. 5 Crossbar, and No. 1 Crossbar. On the computer, a console allows me to change the behavior of the program in real-time, so that I can customize the traffic flow throughout the museum.

The most recent developments are two new interfaces that can be accessed by museum volunteers at any time. The first is an iPhone app that presents simple “START” and “STOP” buttons that volunteers can use during tours, without any knowledge of how the program works under the hood. The second is a key and lamp, discreetly mounted in the No. 5 Crossbar, that allows the same functionality. The key and lamp work in tandem with the iPhone app, so the program execution can be controlled from either interface, at any time. This is all in addition to the more “administrative” console interface that can manage the program execution in a more detailed manner.

There were several interesting real-world challenges that I had to overcome. For one thing, all our switches are only able to handle a certain amount of traffic, based on how many lines, senders, and trunks are available at any given time. In order to avoid “traffic jams”, I had to try different timing techniques to ensure that most calls would be completed successfully. (An unintended consequence of this program was that it really showed me where our bottlenecks were, and what particular equipment needed serious attention!) Another similar challenge is that the program must gracefully deal with unexpected issues that arise in the switching equipment or in the software itself. It has to be tolerant of such issues, and when they occur, the program must be able to exit gracefully, without leaving the switches in an unusable state.

I am extremely proud of how well this has turned out! In addition to breathing new life into our switches, it has been an awesome learning experience for me. I hope that this continues to enrich our visitor experience and promote a deeper appreciation of the unique nature of our collection.

The code for this project is regularly updated and is shared under a Creative Commons BY-SA license. It can be accessed at [http://www.github.com/theautumn/panel\\_gen](http://www.github.com/theautumn/panel_gen)

## Letters from Our Members



This courtesy telephone hangs in a phone booth in the lobby of the Majestic Hotel, located in the heart of the historic seaside town of Anacortes, Washington. The working wall phone features separate mouth and ear pieces, a rotary dial, and fabric-covered cord. The hotel was originally a hardware store and office building, built in 1890. Anacortes, a working fishing port, is halfway between Seattle and Vancouver, British Columbia.

Dave Felice

Re: North American Numbering Plan

When I started working for AT&T at 195 Broadway in NYC in 1972, Mel Werander sat next to me. He personally developed the Numbering Plan, and then traveled to all the telcos educating them on what the future network would look like, how to evolve, and how it would operate. Was I ever impressed - but that was the caliber of AT&T Engineering.

John Herbolich

# The Telephone Directory

By Berton Braley

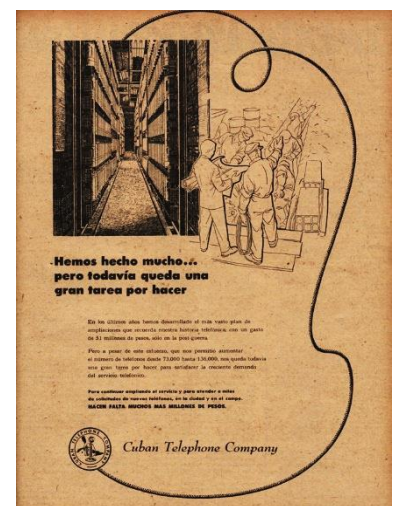
THG Director Pam Laird brought us this poem. **Berton Braley** (29 January 1882 – 23 January 1966) was a prolific author of poems, prose, plays, and humorous non-fiction articles.



What is there seeming duller than this book,  
This solid volume of prosaic print?  
And yet it is a glass through which we look  
On wonderland and marvels without stint.  
It is a key which will unlock the gate  
Of distance and of time and circumstance.  
A wand that makes the wires articulate  
With hum of trade and whisper of romance!

Somehow there is enchantment in each page –  
The whirr of wheels, the murmurs of the mart,  
The myriad mighty voices of the age,  
The throbbing of the great world's restless heart, --  
Such are the sounds this volume seems to store  
For him who feels the magic of its thrall,  
Who views the vistas it unrolls before  
His eyes that scarce can comprehend them all!

Here is the guide to all the vast extent  
The wires have bound together, this will show  
The way to help when need is imminent,  
When terror threatens or when life burns low;  
This brings the lover to his heart's desire,  
That he may speak to her o'er hill and lea,  
This is the secret of the singing wire,  
To all the "world without" this is the key!





## 15 Unwritten Rules of Communicating in the Digital Age According to People on Twitter

*This appeared originally in USA Today, 2/22/2019,  
and was brought to our attention by Dave Felice.*

1. Don't randomly *FaceTime* people. If you want to *Facetime*, shoot them a text or call first.
2. One-word texts like OK and LOL are conversation killers. Don't respond with one word, unless you don't want to talk anymore.
3. If someone you know comments on a photo or video you posted, you should respond.
4. If someone communicates to you using a certain form of communication, e.g. e-mail, then you are expected to respond using the same form of communication.
5. Don't like your own posts. People see that, and it makes you look weird.
6. Don't ask for likes, comments or shares.
7. Don't take hours to respond without an excuse.
8. You don't have to leave a voice message.
9. If someone asks you multiple questions via text, don't just reply to part of the message.
10. Don't post dozens of photos of cheezy quotes back to back.
11. It's OK to text Happy Birthday, Merry Christmas, etc. You don't have to call. *[Unless it's your mother – always call your mother! – ed.]*
12. Don't have one-on-ones in the group-chat. Better yet, send group chats only rarely. They're mostly annoying and usually avoidable.
13. Try not to deliver bad news via text. Don't deliver bad news via DMs.
14. If you don't get a response, you don't have to get angry. It's not always that big of a deal.
15. If you have time to post on Snapchat, you have time to respond to text messages.



## A Legacy

By Don Warsavage

“We lived in a shack built of four by eight plywood sheets and covered with canvas, our sleeping bags inside. We were entertained by the Aurora Borealis and the occasional polar bear roaming around. Once in a while, my friend from Morrison, Knudesen, would shoot a few ptarmigan to improve our diet.”

George Lauritsen (Bud) was describing what it was like on Barter Island, north of the Arctic Circle, and of Alaska, in the Beaufort Sea. He was on loan to Western Electric from Northwestern Bell, helping to build the Distance Early Warning System (The DEW Line).

Digging holes. Wielding a shovel, digging bar and scoop; that’s how he started his career fresh out of high school. It was in Redfield, South Dakota in 1940 — the youngest guy on the line crew, the new kid. They were building a telephone line. His crew mates changed his job description. Too young to be served a beer, he became the “designated driver,” to get them all home safely from the bar after work.



The same class as above: Left to right, Robert E. Chaney, George H. Lauritsen, Edward D. McMakin, Robert Popp, Raymond S. Port, Joseph J. Miller and Edward L. Towey, instructor.

Plant training in Omaha, 1940

World War II scattered everyone. America didn’t have enough pilots to compete with the Germans and Japanese. The U.S. Navy knew they must train more of them fast, so they lowered the prerequisite for flight school from 2 years of college to a high school diploma. Lauritsen had joined the Navy and decided to give flying a try.

He found himself in the rear seat of a dual control Piper Cub NE-1, his instructor sitting in front. This was the plane the Navy used to wash out those recruits who were not suited to be a pilot. Lauritsen knew if he could learn to take off, land and perform a set of maneuvers in 30 days he could qualify. And he did, becoming a Naval Aviation Cadet in their V-5 program. He learned to fly other aircraft, to fly in formation, and attended gunnery school. He did so well he was kept on as a flight instructor so he could train more cadets. By the end of the war, the Navy had trained over 65,000 pilots.

Lauritsen earned his greatest prize of all while in the service. One he could bring home to show to his Danish immigrant parents and his two brothers and three sisters. It was Dona, his wife and partner for the years ahead.

“Roll out the barrel! We’ll have a barrel of fun! Roll out the Barrel; we’ll have the blues on the run...”

That was Lauritsen belting out the song, “Roll Out the Barrel.” It was his strong voice over the phone as he was being interviewed for this article. Pretty darn good for a guy of 95 years. He was being coached in the background by his daughter, Kathy Coufal, who was laughing with pride at her amazing Dad.

Back at Northwestern Bell, it didn’t take him long to be promoted to foreman and then to engineer. He was assigned to the “Gordon Project of Rural Service Improvement.” Gordon is a small town centered in rural Nebraska not far from South Dakota. In those days many rural homes had no telephone service and farmer owned lines were often strung along fence posts or laid across the fields. Service was unreliable.

A remarkable agreement was reached. Northwestern Bell would provide the engineering and supervision for the project. The farmers would do all the actual work.

When finished they had placed over 8,000 telephone poles and nearly 1,500 miles of wire in rural Nebraska and South Dakota. It was a daunting project, but the next job Lauritsen would take on would make this one seem like small potatoes.

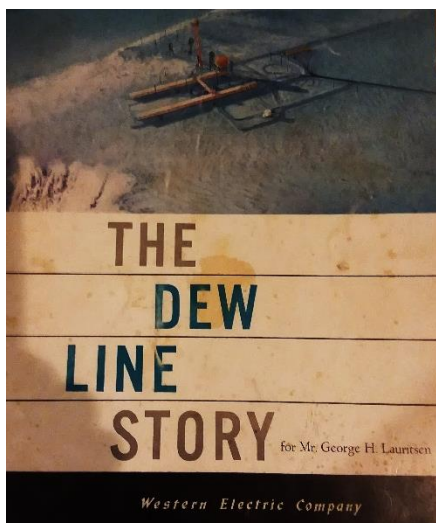
He was sent to New York City for a month of training to begin his work on the DEW line. The Cold War with the Soviet Union was on, threatening to become a hot war. The U.S. and Canada were vulnerable to a surprise attack coming over the polar icecap.

The DEW line was an early warning system that would require construction of over 50 advanced radar stations north of the Arctic Circle, stretching for over 3,000 miles from the tip of Alaska to Baffin Island off the east coast of Greenland. The U.S. Air Force turned to the only entity in possession of the personnel and resources to handle such a vast project — The Bell System.

Lauritsen, in addition to working the actual construction sites, was also responsible for orienting new recruits and getting them to their assigned sites. He was in the air constantly, taking his new recruits to remote landing strips in small airplanes piloted by Alaska’s famous bush pilots.

“I loaded my family of six along with our Irish setter into the family car and we moved to a rented house in Tacoma, Washington.” That way he could reconnect with his family on weekends.

The DEW line project was completed in 32 months.





*"THE DEW LINE STORY for Mr. George H. Lauritsen."* That's the title on the cover of the 23-page brochure that was given to Lauritsen. Inside, the first page features a letter from the Vice President of Western Electric thanking Lauritsen for his work on the DEW line.

Lauritsen continued his work in Alaska by working on the White Alice project that linked the DEW line together and established a more comprehensive, reliable communications system for the Territory of Alaska. Lauritsen then returned with his family to Omaha.

If you saw this peculiar softball game in Omaha, you'd have to take a second look. The crowd watching was totally silent. The batter was blindfolded and so were the fielders. The ball was emitting beeping sounds as it was pitched to the batter who was given four strikes instead of three

It was "beep baseball" for kids who were sight impaired. The blindfolds were to equalize things because the degree of sight impairment could vary. The watchers, parents and friends were instructed to stay silent so the players could listen for the ball. They cheered after each play was concluded.

Beep baseball was one of the many activities conducted by the Telephone Pioneers. And Lauritsen was asked to take over as the president of the Omaha Chapter of the Pioneers, which covered Sioux Falls and Rapid City in South Dakota and Omaha, North Platte, and Grand Island in Nebraska.

Lauritsen oversaw many events of a wide variety during his term in office. Additional programs for the sight impaired included "talking books," and hidden Easter Eggs beeping their way into the hands of delighted children. The Omaha Council of Telephone Pioneers assisted the elderly and handicapped to see the rock faces of Abraham Lincoln and his fellow presidents at Mount Rushmore with a program of volunteers that helped them from their cars in the parking lot to observation platform. They built a handicapped ramp that enabled wheelchair people to observe the beautiful Snake River Falls near Valentine, Nebraska.

Lauritsen, when concluding his term as President of the Omaha Council gave a talk to an audience of Pioneers. He said, "When I took this job, I felt like Liz Taylor's sixth husband before the wedding. Now, looking back, working with the Pioneers has been like enjoying dessert after a fine meal."

Lauritsen retired from Northwestern Bell with over 41 years of service. It was people like him that dealt first hand with The Great Depression, World War II and The Cold War. Tom Brokaw anointed the heroes of that incredible era as our "Greatest Generation." Lauritsen's story reflects that same character and sense of duty that made the Bell System the best in the world.



*We wish you and your families a busy, happy Spring  
full of fun and flowers!*



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