



Dial Log



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Jody Georgeson, editor.

Director's Message

2016 was a very interesting year. Here at THG we participated in the usual activities of Doors Open Denver, National History Day Colorado, SeaFair in Seattle and many public tours in both Seattle and Denver. We welcomed a new partner, Level 3, participated in their video series, and look forward to continue working with them in the years to come. Another partnership we are grateful for is with History Colorado. We conducted tours for over 60 people as part of their "Cocoa on Historic 14th Street" program. The participants were History Colorado members that participate in the Tours and Treks program. Dr. Bill Convery was the featured speaker who shared some interesting history about 14th Street in downtown Denver. Thanks to History Colorado for letting us participate.

We celebrated our fantastic volunteers with an appreciation BBQ in Seattle and a luncheon in Denver. We are extremely grateful to our volunteers for their support and dedication. If you are interested in volunteering your time, be sure to contact us at 303-296-1221 or email us at telcomhist@aol.com.

In previous issues, I mentioned our 3-year strategic plan approved by our THG Board. We have four areas we are focusing on:

- 1.) Achieve financial sustainability
- 2.) Increase our relevance and reputation through innovative programs and delivery,
- 3.) Raise the visibility and impact of THG, and
- 4.) Strengthen the infrastructure that supports the goals of THG.

Committees are working diligently on action items in each of these categories. If you are interested in offering your expertise, we would love to have you join us.

Happy Holidays to you all.
Lisa Berquist

The Minot to Portal

by Don Warsavage

This article first appeared as "Person to Person," in the AUSWR Guardian. Chet Lund retired from Northwestern Bell in North Dakota on January 1, 1986. We thank him for the following contribution:

It was mid-summer in the late nineteen-fifties. Chet Lund, lineman for Northwestern Bell, and four of his mates plus their foreman were trudging down the railroad tracks eight miles north of Minot, North Dakota. They were sweating with their effort, carrying hand-lines, slack blocks, 2 pound hammers, hand drills, safety belts and straps; not to mention lag screws, nails, coils of wire, brackets and insulators.

The Minot to Portal toll line ran for nearly a hundred miles alongside the tracks. It carried two cross-arms of copper wire and the long-distance conversations between cities. Along with other crews, they were re-transposing four wires on the top cross arm. Transposing required the four wires to be passed over each other at specific intervals to improve transmission. Every pole had to be climbed. The job would take weeks and each day the toll test board would shut down those circuits during the time the work was being done, forcing all the conversations to the remaining wires.

There was a work ethic involved. Each lineman took his turn, no matter the condition of the pole. It could be a clean pole with no cracks, not too tall and perfectly vertical. Likewise, it could be a ninety footer leaning sharply with long splits and splinters. Either way, it was your pole—you climbed it, did your work and came down. Things were going well, no mishaps, smooth work on top. Chet, Bob, Vic, Ben and their boss, Richard, were professionals. The next view though, brought them to a halt. Three straight poles and their reflections glimmered out of a slough as if they had grown from the swampy water. Two of the poles were at each edge, but the center one was smack in the middle. It was Ben's pole. They considered it for a while, especially Ben, who'd determined it was maybe hip-deep at the base.

This required some discussion. Suggestions and counter-proposals were made. A plan emerged. They had seen some odd scraps of lumber and some railroad ties scattered along the edge of the tracks, probably left there by the Great Northern Railroad. They clustered on their knees pounding nails, fitting some odd boards and rejected others. This crew of linemen manufactured a raft. They lugged, dragged and shoved it to the edge of the water.

Two lay-up sticks were fastened together making a ten-foot pole for Ben to propel the raft. His shoulders were loaded down with equipment and the pouches on his belt were filled with tools. His gaffs were strapped on his boots. Hand lines were attached to the raft. Poling forward through the swampy water on a hot summer day, it was Tom Sawyer or Huckleberry Finn, aka Ben.

Chet, a veteran rafter from his youth, assured Ben that the raft would not sink, though heavy with creosote-treated ties along with Ben's weighty self. As it sluggishly approached the pole the water rose up to Ben's ankles. Ben was not a veteran rafter and he decided it was sinking so he leaped at the pole hoping to jab his climber into the wood, then climb the pole. He missed. Spontaneous comments erupted from all the



Courtesy of AT&T Archives and History Center

men. As Chet recalls, they were stronger versions of, “aw shucks.” But Ben’s splash revealed another relevant fact: the slough was over hip-deep.

As his mates watched from shore, Ben hauled himself from the swamp, climbed into position at the top of the pole. With the water from Ben’s soaked clothing dripping down on the wires below and running in rivulets down the pole, he successfully completed the transposition.

The railroads tied the country together with passenger trains that earned their famous names: Great Northern’s “Dakota;” Illinois Central’s “City of New Orleans;” CB&Q’s “California Zephyr.” The Bell System hard-wired cities together with their many named toll lines: “The Denver-Salt Lake;” “The Salt Lake-San Francisco;” and “The Minot to Portal” of our story. Chet’s tale reflects the many stories about what it took to build and maintain the best telephone system in the world in its day.

Ben didn’t bother with the raft on the way back. He slogged heavily through water all the way out. They all continued their work and at the end of the day Ben showered and one of the men suggested “It was about time he cleaned up his act.”

The Leadville Daily/Evening Chronicle, September 9, 1889

The foremost city in the west is now in Telephonic connection with the greatest mining camp on earth. First call between representatives of the press of Denver and Leadville, by telephone. “Hello, how is Leadville?,” “Still booming – how is Denver?,” “Still on this end of the line.” First caller Mr. Elder, a reporter for the Rocky Mountain News, Denver. 157 miles away it was answered by a reporter of the Herald Democrat. “Whisper,” as though you were talking to your best girl when the old folks were abed.” Then, “I can hear you plainly.” Answered by the News man in a low tone. E.B. Field of the Colorado Telephone Company also exchanged messages. The Denver representatives were in the central office at the company in the Tabor Block.

The line was a great success so far as transmission was concerned. “Tell us something of the line, “asked the Leadville reporter of manager Field through the phone. Mr. Field’s answer was clear and every word intelligible. “It is without doubt the highest telephone system in the world,” he said. On the cost of long distance between Leadville and Denver, the operator keeps “time” and after the customary “Hello” the charge is \$1 for a five minute conversation. At the end of five minutes the talkers are notified. Of course the operator lets only responsible parties talk.

Casper Yost

This information was first published on myomahaobsession.com, and is used with their permission. Much more can be found about Casper and his family on that site. Thanks to Cindy Hadsell for bringing it to our attention. We have a large collection of Yost's correspondence in the THG Archives.

Casper Yost must have been a remarkable person. From the West Farnam Story by B. F. Sylvester, upon arrival in Omaha in 1864, Casper, a Michigan law graduate "became U. S. Marshal for the territory of Nebraska and Omaha Postmaster." According to Savage and Bell's History of the City of Omaha Nebraska and South Omaha, where Casper is mentioned often and in a positive light, he had a hand in numerous Omaha endeavors. By July of 1866 Casper was secretary to the Twelfth Session of the Douglas County Courthouse as well as Omaha Postmaster. In 1875, the Omaha Republican became the property of a stock company, with Casper Yost as business manager. Casper, along with Fred Nye, bought the paper in 1881. They later sold it off in the fall of 1886. Casper was brought in a year later after the untimely death of the new purchaser. This time his role was that of receiver, appointed by the court to protect the interests of various stockholders. The Republican ceased to exist by July 29, 1890.

Casper took six months off to consider his future. A chance meeting on the streets of New York City after a night at the theater introduced Casper to Edgar M. Morsman, then director of the Nebraska Telephone Company. The story holds that Morsman asked, "Why can't you become general manager of the Telephone Company in Omaha?" Yes, fine readers, this was how business was done and probably is still done, when you're in the right place at the right time with the right connections, the right talent and savior faire. So at the age of 47, Casper became President of the Nebraska Telephone Company and eased into the new field of telephony. He went on to become



president of three telephone companies, which later merged to become Northwestern Bell. Casper was believed to be largely responsible for the company's headquarters being in Omaha instead of Minneapolis.

Casper Yost in 1917. (Photo courtesy of the Bostwick-Frohardt/KM3TV Photography Collection at The Durham Museum Photo Archive).

The Green Box Series

When you visit the Telecommunications History Group Archives you will see the Robert K. Timothy Library, named for the last president of Mountain Bell and former THG Board member. To your left as you enter the library are 32 forest green manuscript boxes containing unpublished manuscripts and unproduced movie and television scripts, all about telecom history. Most represent first-hand accounts of events witnessed or committed by the author. Our archives contain thousands of stories published in other venues, but those in the green boxes have not been published elsewhere. I hope you enjoy the series.

Herb Hackenburg

The Indian Incident

by Charles E. Hall

Charles E. Hall was an executive officer of Northwestern Bell who retired in 1930 after 46 years of service. He was born before the telephone was invented. This story is of his early years, before he became a telephone man in 1884. It really has nothing to do with phones, but serves as a background to his life.

Something of the years preceding 1884 may be shown to give the story a background, even as the background of a picture serves to bring out its highlights and values. The incidents related, scenes pictured and conditions described are of another day, now forever gone.

When I was 2 years old my parents decided to go to far away Iowa [from Michigan where Hall was born in 1861] where land was cheap. We settled in Mt. Vernon Township, Black Hawk County, about 6 miles across the prairie from the farm broken from the virgin sod by Theo. N. Vail.

The first public school I attended was on the prairie, south of our log cabin home. The Thompson children went to school with me and sometimes I carried little Lora's books and dinner pail for hour as she was 15 months younger than I. That was 62 years ago and she has been my wife for nearly 45 years.

I wish that I might have the space and the powers of description to portray some of the incidents in the life of those pioneer days. To tell of the customs, conditions and privations, now gone forever. However, there are scenes that now come back to me after 60 years that are so vivid in my memory that I would have you see with me again, the virgin prairie in all of its incomparable beauty and charm. The mirages at twilight; tall grasses waving like the sea; beautiful flowers in profusion hard to imagine, many species now extinct, buried by the settler's plow; the home of the wild prairie chickens in large flocks that were so tame that they gathered around the grain stacks near human habitations; the creeks fringed with wild plum trees and crab-apples, while wild strawberries grew almost everywhere; wild pigeons, ducks, geese and cranes in great flocks almost darkened the sky at times. Such was the prairie stretching away in the distance to the westward as far as my childish vision could discern and my imagination penetrate.

There were other scenes and conditions connected with the prairie that were not so alluring, though they were intensely thrilling – the Indians and prairie fires. [We have omitted details of the Spirit Lake massacre] . . . a long line of Indians on their ponies

silhouetted against the western sky as they rode along a distant ridge headed our way was a signal to my frightened mother to clasp her little boy in her arms and run across the prairie to our nearest neighbor.

I recall very vividly and incident connected with one of these Indian visits. We lived in a log cabin with a board roof; shingles were out of the question unless made by hand out of oak blocks. During one of the severe summer storms we call tornadoes now, the roof of our house went sailing off over the prairie. Our nearest neighbor, Mr. M., a bachelor, lived in a good frame dwelling three-fourths of a mile away. He kindly invited us to stay in his house until we could gather up the scattered boards of our roof and replace it again. We accepted and a few days after his house and sheds were completely surrounded by Indians. It seems that he alone of all the settlers near us, could speak the tongue of these Indians and had often traded with them. In fact, he was about the only white man around who could act as an interpreter or as an intermediary between the settlers and the Indians.

When the Indians began to shout for him to come out and talk with them, he started for the door and told my father, to come with him. He further said, "Take the little lad along, he will enjoy seeing the Indians."

To this my mother strenuously objected but our host assured us there was no danger and my father, reluctantly I believe, decided to accompany our friend. Before doing so, though, he picked up his rifle and with my hand in his we followed Mr. M. to the sheds in the rear of his house. On the way out, Mr. M. told my father that the Indian probably wanted to sell him an Indian pony colt and while he had no objection to buying at a satisfactory price, it might take a lot of dickering or the Indians would steal the colt from him within three nights of the sale. He further told my father to just watch the proceedings; that he would not understand the conversation but the experience would be interesting, nevertheless. He was right. It did become very interesting, indeed.

The Indian band that morning was from 60 to 100 persons; probably about 15 braves, as many squaws and 30 or more youths and papooses. The Chief or near Chief



conducting the bartering had noticed the strange white man, the little boy and the white-faced women peering out of the window. The Chief gave some sign unnoticed by us, to a squaw seated on a white pony standing near us, and she rode up behind us and when I let go of my father's hand for a moment, she reached down and grabbed me, lifted me onto the pony before her and dashed off across the prairie. My father instantly brought his rifle into play and, intending to shoot the horse, blazed away but Mr. M. knocked the rifle muzzle upward so that the shot went wild. He then gave a shrill cry at which the squaw stopped the horse and came jogging back and set me down near Mr. M. The chief explained so Mr. M. interpreted that he meant no harm, he "just wanted to see what the white man and white squaw do if he would pretend to steal the boy," but my mother never believed it and being afraid of Indians before, she suffered keenly at every subsequent approach of them. No one was happier than she when we left the prairie for good. *[Hall's family returned to Michigan when he was 11 years old.]*

Live from New York via Crow Creek Hill

By Jim Hebbeln

Initially, telephone and telegraph were the primary services provided by the Bell System, but by the mid-20th century, television networks were added to the mix. The following is a short history.

Great fanfare on January 25, 1915 announced the opening of AT&T's first transcontinental long distance line from New York City to San Francisco. This iconic pole line ran from New York through Philadelphia, Pittsburgh, Chicago, Omaha, Denver, Cheyenne, Salt Lake City, and Reno to San Francisco. The technical feat was made possible by purchasing the right to use Lee de Forest's patent for the *Audion* – the first electron triode tube – from which AT&T engineers perfected a workable amplifier to boost the loudness of voices spoken across the continent. (*See story in Dialog, Summer 2014.*)

In 1942, in the midst of World War II (but using 1930's K-carrier technology), AT&T buried a pair of long distance cables (transmit and receive) across the country - again via Omaha, Cheyenne, Salt Lake City, and Sacramento. These cables could carry 12 callers' voices on each pair of wires and each contained up to 100 pairs of wires, yielding more than 1,000 call circuits. The older open-wire pole routes could carry only about 250 calls.

Before WWII, Bell Labs and others experimented with extremely high frequency radio waves and discovered that these "micro" radio waves could be focused into beams and aimed like a searchlight. From this research, radar was developed to spot distant approaching bombers and help to win the war.

After WWII, AT&T and Bell Labs redeployed their new knowledge of microwave radio to develop and build a trial system of seven microwave radio relay towers between Boston and New York City in 1947. Each tower required line of sight to the next tower, anywhere from 9 to 50 miles ahead, over which the microwave beam was relayed. This microwave system successfully proved that hundreds of telephone calls *and* the emerging television networks could be interconnected between cities at less cost than through buried coaxial cables – a few of which had been installed in the 1940s along the densely populated east coast.

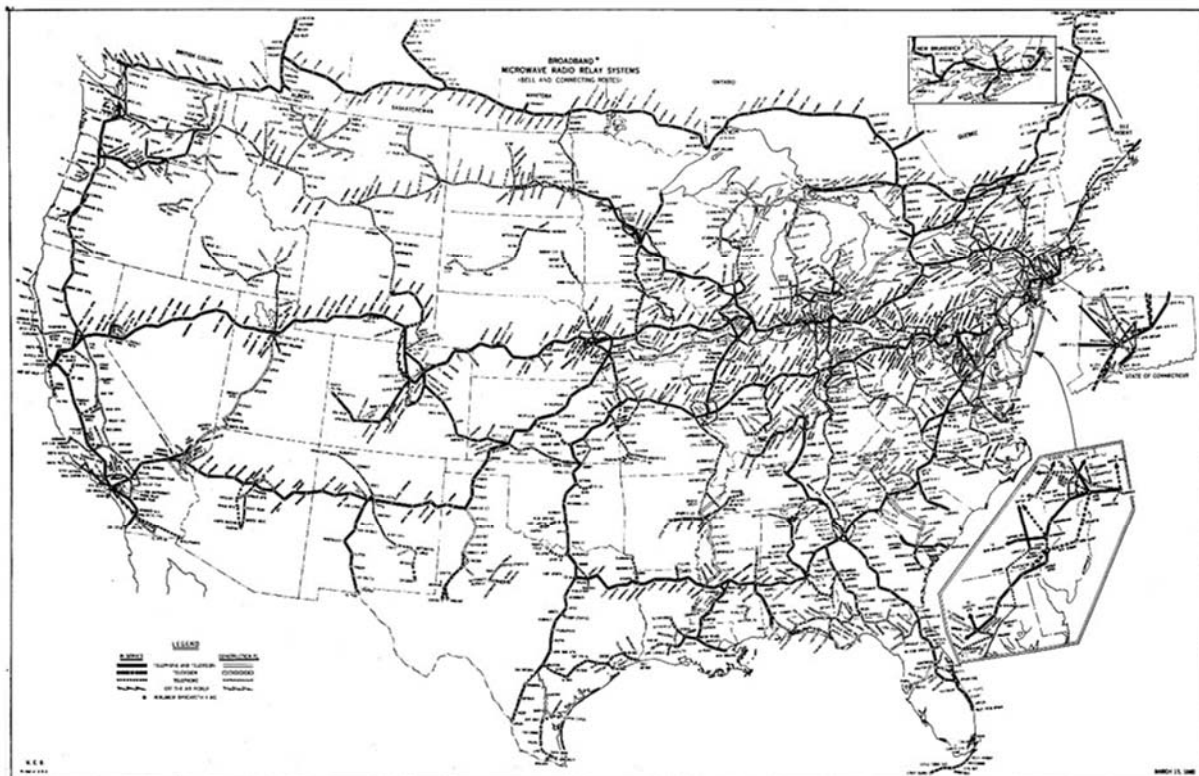
Based upon the success of this trial microwave radio route, AT&T installed 33 more relay towers - spanning 838 miles - to link New York to Philadelphia, Pittsburgh, Cleveland, and Chicago by September 1, 1950. By the end of the same month the radio relay system was extended to Des Moines and Omaha. The 400-foot tower in Des Moines was the tallest and it still stands today.

But transcontinental television and more and less expensive long distance circuits were the ultimate goals. Major radio relay tower construction projects continued through 1950-1951 as concurrent construction activity occurred in Nebraska, Colorado, Wyoming, Utah, Nevada, and California, to build 73 additional towers to link Omaha, Denver, Cheyenne, Salt Lake City, Reno, Sacramento, and San Francisco with the operational eastern system – essentially following the same route as the first transcontinental pole line and the 1869 Transcontinental Railroad. Additionally, Pacific Telephone & Telegraph Co. also built 8 towers to extend the microwave link from San Francisco south to Los Angeles.

However, the last tower to be completed – the so called Golden Spike Tower - was giving AT&T's construction crew problems due to the strong winds in Wyoming that often blow over the mountains between Laramie and Cheyenne. This last relay tower site on Crow Creek Hill at an elevation of 8,885 feet, was about one-half mile higher than Cheyenne. Although the 10 by 10 foot square microwave antennas (with a pyramid-like feed horn on the backside) each weighed about a ton, the large but hollow antennas acted like kites in the wind, making it dangerous to lift them atop the 50 foot tower. The builders eventually realized that the wind subsided at night, so the antennas were hoisted at daybreak just before the winds commenced.

With the completion of Crow Creek Hill, the \$40,000,000 coast-to-coast New York City to San Francisco microwave radio relay system began functioning on August 17, 1951 and by September 28 regularly scheduled network television service began.

It wasn't long before the television networks in the 1950s would 'crow' before their evening programs, "*From coast-to-coast! Live from New York! It's the (whichever) Show!*" Alternately, programs would also be fed "Live from Los Angeles" toward the East Coast. This phrase was discontinued in the 1960s as programs were videotaped for playback at an appropriate time in each time zone. In 1975, *Saturday Night Live* resurrected the phrase in their opening skit as they began their midnight live comedy show. But it was Crow Creek Hill that enabled that phrase, still in use every Saturday night.



1960 AT&T route map showing how microwave systems proliferated in a decade after the first transcontinental microwave radio route was completed. None of the towers are in use today, and AT&T now owns very few of the sites.

Interestingly, the Crow Creek Hill site is geographically near other historically 'highest' locations: the highest elevation on the 1869 Transcontinental Railroad is about 7.5 miles southeast at Sherman Hill; the highest point of US Highway 30 (the first paved road across America) is about 600 feet east; and the highest location of Interstate 80 is at the Lincoln Memorial rest stop about one half mile east of the Crow Creek Hill tower. Indeed, the tower still can be seen from the rest stop, although the original antennas are gone and the tower is now owned by a private company. The first 1915 transcontinental pole line also passed about two miles north.

Crow Creek Hill was just one of a chain of 107 microwave radio relay towers binding together the coasts and the dispersed civilization of America, but a chain is no stronger than its weakest link. Therefore, Crow Creek was just as important as any of the other sites on the microwave route that introduced television to much of America.

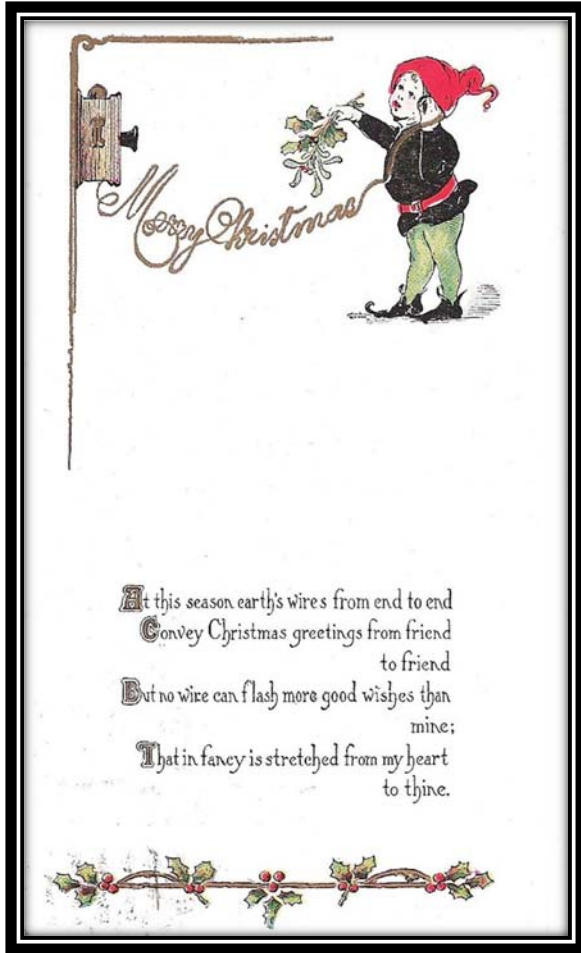
By the 1970s, 65% of all state-to-state long distance telephone calls were carried over the nationwide web of microwave systems, as was television. Thousands of long distance calls could be carried over each route, thereby achieving great economies of scale causing interstate toll rates to plummet in the 1970s.

In the 1980s, the television networks started using geosynchronous satellites to feed programs directly to their local television stations, and by the early 1990s fiber optic cables, carrying trillions of digitally-coded flashes of laser light each second, replaced the microwave radio systems. However, the rugged, 65-year-old microwave towers still stand as sentinels upon the plains and atop mountains. Now most have cell site antennas on them – or nothing at all. AT&T no longer owns most of them.

Readers may find the <http://long-lines.net> website (moderated by Albert LaFrance with hundreds of pictures of towers and old route maps) of great interest. This site is not part of The Telecommunications History Group and is no longer being updated.



Circa 1951, the 50 foot tall tower on Crow Creek Hill nears completion. Note two workers standing at the base of the tower. The wave guides still need to be installed from the feed horn on the back of each antenna down to the radios in the repeater hut, and the hut needs to be painted white



Postcards depicting telephones -- from candlestick to cell phone and in nearly every country in the world -- have been used to convey greetings throughout the years. Here are just a few of the seasonal greetings we have in the THG archives.





To all of our members,
We hope you and you families enjoy a wonderful,
safe and happy holiday season!





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