



Dial Log



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Editor, Jody Georgeson

Director's Report

By Jody Georgeson

It has been 134 years today (March 10, 1876) since Thomas Watson heard Alexander Graham Bell's voice over a wire summoning him from another room. What a long way the industry has come since then! I'm sure neither could have imagined the impact their invention would have on our lives.

Now we have smart phones and voice over internet, wireless voice and data transmission, and instant communication to and from anywhere in the world.

All of this is a direct consequence of that first telephone conversation. It is also due to the devoted service and hard work of telecom professionals like many of you.

We have been quite busy processing new collections in the archives. Volunteer **Mimi Dionne** arranged for us to copy several boxes full of documents having to do with U S WEST subsidiaries. Now **Ken Pratt** and **Dale Norblom** are busy entering them into the database. **Jo Lynne Whiting** has donated several boxes full of documents and memorabilia having to do with DEX and U S West Women, among various other things. One of our favorite acquisitions is a book about Mabel Bell (A.G.'s wife) donated by Monna Hoffman. There's a waiting list for it!

Another book that we're looking forward to reading is **Stan Swihart's** new publication about dials and switches. Be sure to read **George Howard's** review on page 8 of this issue.

If you happen to be surfing the internet, check out youtube.com and search for "Museum of Communications." They have mounted some fascinating videos, including ones with working teletype machines and the Audiochron, and one of the world's first submarine fiber optic lay performed by AT&T and Pacific Northwest Bell on September 30th, 1981 on Lake Washington in Seattle.

THG Board member **John Herbolich** not only wrote an article, but donated his football. You'll have to read his article on page 7 to find out what that means!

Speaking of the Board, we have some great new members this year. The entire board is really starting the year off right with fundraising and marketing committees dedicated to perpetuating THG's existence. I know you'll join me in thanking them for their support and service in our common cause.

And thanks to all of you who have donated documents and artifacts to our group, and who support our efforts to preserve and publicize the history of this industry with your membership.



THG Board of Directors 2010

THG's Board provides voluntary service in the form of oversight and management of the organization. They are instrumental in the planning, development and fundraising that supports our efforts to preserve the history of the telecommunications industry.

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Poles of Stone

By Ron Flannery

This article was published previously in *EnCompass* magazine, *AAA Colorado* March/April 2010, and is used with their permission and that of Mr. Flannery. Photos are from the Flannery family album.



We were motoring up U.S. Highway 50 in the canyon east of Cotapaxi [Colorado]. As usual, my dad scanned things beyond the road itself. Suddenly, he said, “Yep, they’re still there.”

Not seeing anything but the steep canyon wall on one side and the Arkansas River on the other, I asked, “What’s still there?”

“The spikes in the wall.”

“Huh, where? I don’t see.”

He pulled over at the next wide spot. We got out and he pointed up the sheer stone wall. “See those steel pins sticking out about 30 feet up?” I nodded yes, with a “So what?” look.

“We had no place to set poles. That stone wall had to be the support for the first telephone lines we brought up this way. Within that stone must be ghostly echoes of all those words people shared on that pair of copper wires.”

One more time, my dad surprised and impressed me with a first-hand pioneering story. On the Ouray to Silverton Pass, he had previously pointed out the remains of a first-time telephone pole line made from spruce trees. The limbs had been hacked off, cross-arms mounted on the remaining stumps and wire attached. There were miles of similar pole lines in other rugged terrain.

In addition to helping build those first strands of telephone service, my dad maintained those open wire circuits as a toll patrolman. Sometimes he walked a short distance from the truck to make repairs. Other times he snow-shoed along wilderness routes on mountain passes to restore service. In honest jest, Dad chuckled at the simple fact that folks “only knew you were OK when you came out on the other side.”

Most of the copper wire has been salvaged. Interstate highways bypass those old roads paralleled with poles. Now camouflaged radio towers and satellites transmit broad channels of traffic. The canyon highway has been widened and the pins that carried those circuits are now only phantoms. But deep in the stone are the voices.



A 77-year-old Woman Who Gets it Right

By Andy Parker

This article appeared in the Oregonian, January 11, 2010, page A6, and is used with their permission. Thelma Haggemiller was a Frame Supervisor for PNB.

She's 77 now. And the retired telephone company employee is still running her own step-on guide service for local tour groups. She still has boarders sharing her sprawling ranch home, including a once homeless and unemployed woman who knocked on her door looking for some help. She's got an aging dog named Jake and a yard full of plants to take care of and a house piled high with the artifacts of 40 years of living, from child-rearing to her careers. . .

Please view the rest of this story on Oregonlive.com:

http://www.oregonlive.com/news/oregonian/andy_parker/index.ssf/2010/01/a_77-year-old_woman_who_gets_i.html

While temporarily inhabiting the jail at Bowling Green, Ohio a man was informed that his wife wanted to talk to him. He followed the sheriff to the latter's office, where he failed to find his wife. Told to pick up the telephone and say "Hello," he did so. When his wife answered, he dropped the telephone in amazement.

"Where is she?" he demanded. He had never used a telephone before.

Shaking his head, he commented: "This country has funny things. Not like the old country. It's a lot better, though!"

International News Service, July 1941



THG has joined other nonprofit organizations in supporting the 2010 United States Census effort. We encourage all of our members to fill out and return their census forms as soon as possible.

The U.S. Census counts every resident in the United States, and is required by the Constitution to take place every 10 years. The 2010 Census will help communities receive more than \$400 billion in federal funds each year for things like:

- Hospitals
- Job training centers
- Schools
- Senior centers
- Bridges, tunnels and other-public works projects
- Emergency services

The data collected by the census also help determine the number of seats your state has in the U.S. House of Representatives.

When you fill out the census form, you're making a statement about what resources your community needs going forward.

In addition, residents themselves have used census data to support community initiatives involving environmental legislation, quality-of-life issues and consumer advocacy.

The Census is safe and confidential and the Census Bureau cannot share information with any individual, private or government entity; including immigration, IRS or Welfare. The information cannot be used against individuals in any way to collect back taxes, child support or alimony, if you have a law violation or warrant, to investigate your legal status or to garnish your wages.

THG Exhibit at the Denver Public Library

May 1 – July 31, 2011

The Telecommunications History Group is partnering with the Denver Public Library's Western History Department to show how telecommunications changes our lives and our world. The co-sponsored exhibit will open in May 2011 for three months on the fifth floor of the Central Library, 10 W. 14th Avenue Parkway.

Throughout history, human beings have had an innate desire to communicate. The exhibit will feature a timeline starting with face-to-face communications of the mid-19th Century and continuing to today's instant, global communications. It will pose the question: "What's next?"

The exhibit will use Allen True's "Wings of Thought" mural as a motif. Displays will highlight documents, directories, and photographs from Telecommunications History Group archives. Artifacts including early telegraph equipment, a switchboard, telephone sets of various eras, and cable sections will show progress over 150 years.

The exhibit will focus on four eras:

- Mid 19th century to early 20th century -- Telecommunications progressed from weeks-long message delivery to operator-assisted long-distance calling
- Early to mid 20th century – Telecommunications advanced from cross-country direct dialing to operator-assisted international calling

- Late 20th century – Telecommunications connected direct calls by individuals or organizations from any location via wireless devices and internet
- 21st century – Smart phones offer multiple applications; internet offers VoIP; internet providers move large-batch messages to stimulate local and global economies and social interactions. *What's Next?*

Accompanying text will explain how telecommunications innovations changed our lives and our world. It will show how future progress depends on understanding the past and the present.

Mystery Tube

THG member **John Swartley** sent us this picture of a 219D Western Electric tube. It's in a stand that has old-looking patina and looks like it was custom made to hold the tube. According to John it looks complete and unbroken. We'd like to know more about it. How was it used? Could shipping the tube break the filament? Is it rare enough to belong in a museum? Do you have suggestions for John about putting it up for sale? Contact us at THG and we'll pass your ideas along.



SHARP

By John Herbolich

This information is based on John's recollection and personal involvement as Transmission Engineer for the U S West Mountain States in 1989-1992.

In January 1990, U S West made a strategic decision to deploy "Self Healing" fiber optic ring networks in the four major cities of Denver, Minneapolis, Seattle and Phoenix by mid-year. It was announced by Bob Hawk, VP Marketing, at the Tavern on the Green in New York City's Central Park. The announcement was made to a select group of industry guests and the media. Hawk let them know we were taking a bold step by introducing a new digital fiber optic service, whereby we would guarantee service within seven days of order, and guarantee that if there was a service interruption, we would not charge them for that month's service. When asked how we defined "service interruption", Bob responded that it was not days, hours minutes or seconds, but 50 milliseconds—absolutely unheard of in 1990!

In order to offer this SHARP—Self Healing Alternate Route Protection—service, fiber optic networks had to be built to connect three central offices with underground conduit. In Denver the COs were Main, Curtis Park and Capital Hill. The customer had to be on or near the street where the cable was located. In Denver, 17th was one of the main streets. We extended the cable into buildings, either to the basement or to the customer's floor, where we installed the equipment to connect them to one of the three central offices. Should the primary transmission equipment fail (circuit pack, wiring, or cable disruption between the customer location and Denver main) service would be rerouted via one of the other offices within 50 milliseconds (MS) so no data would be lost and the customer would be unaware of the momentary interruption. Service would be extended to its



final destination in Colorado or anywhere in the country.

In March we introduced the service in Denver to appropriate business customers and leaders at a large reception in the Embassy Suites Hotel Ballroom at 19th and Curtis. After a welcome address and explanation of this fail-safe backup service to the technologically sophisticated customers, the service was demonstrated. Two TV sets were side-by-side on the stage, showing the same picture. One set was connected to the hotel's cable network, and the other was receiving its video signal via our U S West network. We "unplugged" the transmission equipment from the primary fiber route to depict a service outage. 50 ms later, the picture reappeared demonstrating no loss of data. Most could not detect any interruption.

Gary Kubiak (John Elway's backup quarterback for the Broncos) had been introduced and he discussed his role on the team. As backup quarterback, he always had to be prepared and ready to go, not knowing if or when John might get injured or become ill and unable to play. The Broncos still expected a win. And customers expect to always have service, so you need U S West's SHARP service for your backup protection. The audience loved it. Each received a football from Gary and had an opportunity to talk with him. Kubiak is now coach of the Houston Texans. Most were surprised how physically fit and big professional quarterbacks are up-close—even in a business suit and tie.

Soon the orders came in, far exceeding our expectations I do not know how the other cities introduced SHARP service, but it could not have had more impact than that first one in Denver. Total Petroleum was our first customer.

SHNS, Self Healing Network Service, was much higher dedicated capacity for very large customer requirements, built partially on the customer's campus. IBM in Boulder was our first SHNS customer.

Telephone Dials and Pushbuttons: Their Usage, Development and History by Stanley Swihart

A review by **George Howard**

Mr. Swihart, a frequent contributor to the history of telephony, explores the interface between the telephone system and its customer, writing from the customer's point of view. He begins the book by describing how operators made telephone connections [*before switches enabled dial-up connections*].

His book is richly illustrated with dials and push buttons (including the Bell System's trial 16-push-button layouts), and their development in many countries, including China, Hong Kong, and Saudi Arabia. Swihart classifies dials for us; full-alphabet, partial alphabet, symbol, offset, and the so-called "reverse order" dials from countries such as New Zealand.

The book presents several themes, including changes in numbering schemes over the decades and the change from operator-handled calls to direct dialing. He also writes about the earliest implementation and improvement of telephone technologies and the role that the largest company in the U.S. played in providing telephone service

Telephone numbering schemes in the early days were simple, since there were a limited number of customers who placed calls through human operators. As the number of telephones in larger cities increased, numbering schemes had to be reorganized into "exchanges".

Swihart describes the story of exchange names in the U.S., their transition into the later 2-letters and 5-numbers scheme, which ultimately morphed into the all-digit numbering scheme. He also details numbering schemes and histories in cities around the world, such as Vienna, Amsterdam, London, Copenhagen, Mexico City, and Buenos Aires.

We are likely to assume that most telephone technologies were introduced in the U.S. Swihart surprises us by reporting the story of the telephone around the globe. For example, the first subscriber-dialed long distance system was in the province of Bavaria in Germany in 1923. Subscriber-dialed long distance service began in Switzerland in 1930, and by the end of WWII, 75% of Swiss subscribers could direct-dial their long distance calls. Compare that with the development in the U.S. The Bell System in the U.S. began testing subscriber long-distance dialing in 1951; by 1960, it had not yet been implemented throughout the country. In fact, some large cities, such as Philadelphia, had just then started on it.



The Strowger Dial

Connecting telephones by dial switches was first successfully conceived by Almon B. Strowger, [see *Strowger's story in the THG Virtual Museum, "How Phones Work"*]. Under Strowger's patent, the first "dial" switch was installed in 1892 in La Porte, Indiana. Over a period of a few years, it was adopted as the central feature of the Independent [*non-Bell System*] telephone industry, allowing them to out-compete the monopolistic Bell System.

For many years, the Bell System's Chief Engineer, Carty, refused to endorse dial switches, and in 1910, delivered a stunning

paper¹ at a European telephone industry conference, in which he denounced dial telephones. He created and enforced, the policy that the Bell System would use only humans to switch calls.

Contrary to Carty's public position, the Bell System did begin experiments with electro-mechanical switching as early as 1906. The result was the introduction of Bell's own electro-mechanical "panel" machine switching system, which went into commercial service in 1921. Far more complicated and expensive than the Strowger system, it had the advantage of having been invented within the Bell System. While Bell would not admit failure, it was exposed when the U.S. Government studied the delivery of telephone service in the U.S. and published its report.²

The Bell System was also reluctant to adopt other important services, like handset telephones and direct inward dialing, that were popular with customers, but were not invented in the Bell System. These policies were roundly criticized by the Government's study report.

I have a large collection of telephone books in my library, but I consider this one to be one of the most informative. "Staggering" is the most accurate description of Swihert's reportage. He spent years researching the topic, and the thoroughness of his work shows.



You can purchase Telephone Dials and Pushbuttons: Their Usage, Development and History, by Stanley Swihart for \$75 before May 1, 2010. There is a special price of \$59 for current members of TCI, ATCA, THG, NZTA, or other telecom collector or historical societies, plus postage and handling. For USA and Canada \$12, using check or money order on drawn on US bank or send US cash. Shipping and handling to other countries is US\$45, using international postal money order. Order from Lyle Wright, 4732 Herrin Way, Pleasanton CA 9458. 8 USA Phone +1 925 417 0569.

Anyone who previously purchased or reserved the dial book, at the lower price for the much smaller initial version, will receive the greatly enlarged version at whatever price was in effect at the time of order.

¹ "The Manual Switchboard System versus the Automatic Switchboard System", by John J. Carty. The paper was stunning because dial telephone systems were then being planned for adoption in Europe, and one was already in public service in Munich. Carty's was the main dissenting view of the matter. Moreover, Carty's views were clearly uninformed, and the Europeans were embarrassed for Carty.
² Styled "The Walker Report", the underlying study was made by the Federal Communications Commission and published by the Government Printing Office in 1939 under the title "Investigation of the Telephone Industry in the United States". Paul A. Walker was one of the Commissioners.

