



# CONNECTIONS *news*

[www.telcomhist.org](http://www.telcomhist.org)

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Dave Felice, editor

## A message from our director

Here's hoping you have the happiest of holidays and a prosperous new year. Thanks to your generous, sincere, and continuing support, the Telecommunications History Group had a very successful 2025, preserving and promoting the history and importance of telecommunications.

Members, volunteers, and staff are thrilled with plans for new visitor experiences in 2026, at the museums in Denver and Seattle, in print, and online. We'll continue to emphasize touchable, operational, and functional displays with which visitors can personally interact.

One of the most unusual new items which will be displayed in Seattle is a yellow Bell System garden trowel. It has the 1969 "Saul Bass" Bell logo on the handle and the words "Dig in with good safety habits." We presume this was a promotional give-away item. If any of our readers know more about why it was created we would love to hear from you.



In this edition of Communications News, you'll read about new THG developments along with the story of Joe Engressia, the very talented blind individual who became a *de facto* leader of Phone Phreaks. There's also a story about how a Vermont engineer is staging a revival of public phones in rural areas.

We appreciate your comments. Several readers have written to say they liked stories about THG improvements, Code Talkers, and Norman Rockwell's *Lineman* painting.

Thank you for your continuing support and involvement.

Renee Lang  
Managing Director

## Wi-Fi is meaningless

A founding member of the "Wireless Ethernet Compatibility Alliance" (WECA) sets the record straight and declares: "Wi-Fi doesn't stand for anything. It is not an acronym. There is no meaning." Phil Berlander says the protocol name was selected because it sounded good and helped sell the new wireless communications technology.

The consulting firm Interbrand coined the name *Wi-Fi* when the Wi-Fi Alliance asked for a name "a little catchier than 'IEEE 802.11b Direct Sequence'." Wi-Fi was chosen from a list of ten proposed names. Interbrand also created the "yin-yang" logo to show interoperability. Although there are variations, Wi-Fi is the proper way of writing the name, according to the Alliance.



Berlander also says Wi-Fi is not the short form of "wireless fidelity" even though the Alliance once used the advertising slogan "The Standard for Wireless Fidelity." Interbrand suggested consumers might make the association that the wireless protocol is equivalent to high fidelity.

Alliance Chairman Dennis Eaton says the term is not generic. The name and logo are only for 802.11 products that have been tested and certified.

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### ***Your telephone story is important***

*Do you have a story you'd like to share, an idea for a story, or something you'd like to see? Send e-mail to [telcomhist@aol.com](mailto:telcomhist@aol.com).*

*Put the word Editor in the subject field.*

*Contact THG at [telcomhist.com](http://telcomhist.com) for an advance evaluation of documents or artifacts you think might be worth donating to the Telecommunications History Group.*

## Historic telephone switch relocates to Colorado museum

Telecommunications history is coming back to life in Arvada, Colorado. A team of THG volunteers recently completed the challenging task of decommissioning and relocating a Lucent 5ESS digital telephone switch, donated by Everfast Fiber Networks, from Lenexa, Kansas, to THG's new Connections Museum in the Denver suburb of Arvada.

The 5ESS (or No. 5 Electronic Switching System) is a significant piece of telecommunications history, having been a backbone of the public switched telephone network for decades.



*Volunteers prepare to move the 5ESS from Lenexa*



*Volunteer Matt Mullins works on the Communications Module*

Developed by Bell Labs and manufactured by Western Electric and later Lucent Technologies, the 5ESS handled countless calls across the country and around the world. While many of them are still in use, the pace of retirements is accelerating as more cost effective and energy efficient Voice over Internet (VoIP) systems replace them. The first 5ESS was placed into service in

1982 in Seneca, Illinois, but the machine donated to THG is the newer 5ESS-2000 version, introduced in the 1990s and manufactured until 2003.

With 5ESS switches rapidly disappearing from service, the museum team saw an opportunity to preserve this technology for future generations. One volunteer traveled to Kansas to assess the hardware and help plan its removal. The move process itself involved extensive documentation, careful de-cabling, and strategic disassembly to ensure the switch could be reassembled for



*Movers carry one 5ESS frame into the new museum in Arvada Colorado*

display. Fortunately, the museum crew was also able to secure the assistance of Phil McCarter, an experienced 5ESS switchman. As described in the Summer newsletter, McCarter's personal collection of telephones and switches will form the basis of the new Colorado museum.



*Volunteers Sarah and Angela remove complex cabling*

The preparation process was labor-intensive, with a team of volunteers untangling complex cabling and carefully labeling connections to facilitate future reconnection. Despite the challenges, the team finished ahead of schedule. A data center moving company then loaded all the frames, cables, and spare parts into a truck and transported everything to the Colorado site.

Upon arrival, the switch was staged for eventual installation in the museum,

where it will serve as a centerpiece for visitors interested in the evolution of digital communications. The museum staff and volunteers are excited to share this piece of history and educate the public about the technology that connected phone calls for generations.

Work on other aspects of the new museum continues. More artifacts from various donors have been arriving, and plans for the museum interior layout have been reviewed with the architecture firm. The bulk of the McCarter collection is scheduled to be moved from Oregon to Colorado in the early Spring of 2026. Look for our next update in the Spring THG newsletter.



*Switch components are ready to be transported*

*Left to Right: Michi Lumin, Angela Morley, Matt Mullins, Alan David, Phil McCarter. Front: Sarah Autumn*



## Phones erase mourning boundaries



A Seattle nonprofit organization takes a novel approach to the wind phone concept with help from the Telecommunications History Group.

Pamela Belyea founded and operates the Grievors Library. Moving beyond providing books for the bereaved, the organization has launched a "Wind Phone Lending Library." The project uses donated rotary dial phones and backpacks, to offer "mobile" wind phones enabling people to virtually connect with loved ones who have died.

THG's *Connections Museum* has contributed several Model 500 phone sets from surplus stock. Wind phones to-go are available for loan from Seattle-area bereavement organizations. One such agency is the Compassionate Friends of King County. Wind phone backpacks are also available from The Widowed Information and Consulting Service (WICS). The phones proved popular at the WICS Annual Grief Retreat in late May at Seabeck Conference Center. The retreat center also has a wind phone in the nearby woods.

Belyea says the program is based on the popular wind phone concept (風の電話 *Kaze no Denwa*) started by Japanese garden designer Itaru Sasaki. In 2010, Sasaki installed an unconnected phone to help himself cope with his cousin's death. The Sasaki phone opened to the public in the following year after an earthquake and tsunami killed over 15,000 people in the region. Over 30,000 people have visited the original wind phone. More than 250 wind phones have been installed around the world, including Priest Point Park in Olympia, Washington. There are eight in Washington state.

Mary Jane Copps, The Phone Lady, specializes in training for effective telephone use. Copps says wind phones provide comfort for those who have lost a loved one:

"Part of grieving is having conversations, in our mind, with those we have lost. These can persist as a background hum to all our days. When we grasp the rotary phone in our hand, its shape and weight demand our stillness and complete attention. Our conversations become tangible and we are not only able to voice our regrets, sorrow and love, but also to fully embrace our grief."

Belyea says the lending idea developed after local woodworker Wayne Myers built a booth for Grievors Library under a cedar tree in the northwest corner of Crown Hill Cemetery, in Seattle's Ballard area. "This rustic wooden booth, built of reclaimed materials, offers a contemplative space for private connection during the daytime hours." She calls this peaceful, reflective space "Seattle's only sanctuary wind phone" because of its tranquility. She says Myers set out to build "the most beautiful wind phone in the world."



The Grievors Library started with little "book boxes" offering literature on grief recovery. The boxes are similar to what people know as free libraries. Belyea says she had trouble finding acceptable locations and the boxes also got vandalized. "Even the City of Seattle said the boxes were 'inappropriate' for placement near community centers."

She asked to place the Sanctuary Wind Phone booth with a stool at Crown Hill Cemetery after the manager generously allowed a Grievors Library book box near the entrance. Then she got suggestions from people who envisioned wind phones in "beautiful, poetic" places. "That's when I decided a 'lending library' would allow anyone to go anywhere to speak with their loved one."

Belyea tells of a Grief Conference participant named Angel who enthusiastically borrowed a Wind Phone backpack. Angel returned, elated that she could make a connection with her deceased son. "An eagle appeared," said Angel. "He always talks to me through eagles or songs."



Because the idea was so well-received at the conference, the board of directors decided to expand the program. Jansport contributed more backpacks, and THG provided phones. "I'm excited that Telecommunications History Group is interested in helping us succeed with this project," exclaims Belyea.

A plaque at the Crown Hill wind phone reads, in part: "This phone is not connected to any lines. It is here for you to speak to those you miss, loved ones who have died, are far away, or cannot be reached. Let the wind carry your words."

The nonprofit Grievors Library is run entirely by volunteers. Anyone who wants to get involved or donate a vintage rotary phone can contact the organization at [www.grievorslibrary.com](http://www.grievorslibrary.com) or call 206-852-7959.

THG original story by Dave Felice  
Photographs provided by Pamela Belyea

Mary Jane Copps (<https://thephonelady.com/>) is based in Halifax, Nova Scotia. The land is Mi'kma'ki, the ancestral and unceded territory of the Mi'kmaq People



*Examples of other wind phones*



## Vermont engineer revives public phones

In north-central Vermont, an aerospace engineer is combining old and new technology to improve communication in rural villages. The *Seven Days* weekly newspaper of Burlington published this story by Sam Harnett in late July. Edited for space, it is reprinted with permission.

Story by Sam Harnett

Patrick Schlott has installed three RandTel phones — in Randolph, North Tunbridge and Thetford. It's an old-school way to connect in our digital age.

On the porch of the North Tunbridge General Store, next to a bulletin board, hangs a 20th-century black box — a pay telephone. Not only is it a working pay phone, it's also free. The uncommon device offers a way to call for a tow or check if bread is on the shopping list.

"Every day, usually at least one person uses it," said store proprietor Lois Gross.

The phone's vintage exterior is misleading. Its innards connect to the internet to make calls, all thanks to Patrick Schlott, a Randolph electrical engineer who repurposes old pay phones to bridge the gap in rural communication. At a time when pay telephones have all but disappeared from the U.S., Schlott's company, [RandTel](#), offers a grassroots alternative for connection.

"We still have a certain population of people who reside in a place with no cell service," said Hunter Thompson, telecommunications director for the state Department of Public Service.

"I think what Mr. Schlott is doing is wonderful."



Schlott, 31, is just old enough to have used the pay phones in downtown Montpelier when he was growing up. He created his one-man operation, with his own money and as a hobby — from his fondness for tinkering and old-school technology.

"I'm fighting back against the society that forces us to own smartphones and then be addicted to social media," he said.

A couple of years ago, Schlott came across a telephone handset in his parents'

garage, most likely a relic from his uncle's days at AT&T. It was a space-saver phone without a dial, designed only for receiving calls. Schlott realized he had all the parts needed to put together an analog phone. Then, he learned about an analog-to-digital phone adapter.

The resurrected phones make calls on an internet connection through an adapter that converts POTS (plain old telephone service) signals into digital ones. Schlott pays for the calls at a cost of less than a penny a minute. He also staffs an operator line through his personal cellphone, from which he can redirect calls and help people who dial "0" for information.

Schlott's research on resurrecting pay phones led him to a pair of innovative free calling services: Philadelphia-based PhilTel and Futel in Portland, Ore., two collectives that install and operate similar phones in their cities. Unhoused residents are often the users, as Futel intended, because denial of phone service "has long been a tactic used against undesirable populations, and our devices will counteract that," the organization's website says.

Schlott's phones are in rural areas. He thinks they offer an important value to the community. The only other traditional pay phones registered in Vermont are located in a few state parks.

"What I'm doing is attempting to bridge the communications gap for, let's say, less-than-privileged populations," Schlott said. "The urban areas are more likely to get high-speed connectivity these days than the rural areas, and they're left behind."

There's a different challenge in the village of Thetford. The local middle/high school was one of the first Vermont schools to ban cellphones for students during the school day. Some parents, who had heard about RandTel approached Holly Lague, director of the nearby Latham Memorial Library, to see if one of the phones could be installed there for kids who needed to call home. Parents didn't want their kids to grow up with their faces buried in a screen but still wanted to keep in contact. Soon, Schlott had installed a push-button pay phone on the library's back porch.

The phone with push-button numbers has also revealed a gap in kids' knowledge — they haven't memorized phone numbers, since their cellphones store them. So the RandTel phone offers a learning opportunity, Lague said: "It's really good to teach them certain numbers that are important for you to know."

"It's there any time that kids need it" Schlott said. "I think one of the kids ordered a pizza."

Even as the nationwide cell network has grown, many service providers don't have an economic incentive to build cell towers for a relatively small number of residents who live in signal-blocking terrain, such as the area surrounding North Tunbridge.

Lois and Mike Gross reopened the nearly 200-year-old village store in 2022, after it had sat idle for four years. "The main reason (the phone) is here is not the store; it's for the community," Mike Gross said. The Grosses provide electricity and internet, and Schlott handles the rest.

A few miles west of North Tunbridge, just off Interstate 89 in Randolph, an unstaffed information booth sits at a McDonald's parking lot. Inside, a visitor can find tourist pamphlets and Schlott's most striking relic, a telephone with a rotary dial straight out of the 1950s.

Lift the phone receiver and dial tone hums nostalgically. The rotary dial is as smooth as ever, elegantly gliding to its original position after each number. But the coin box now houses digital circuitry powered by a solar panel.

Although the area does have cell service, this phone still sees use, Schlott said, primarily by people visiting Randolph or nearby towns.

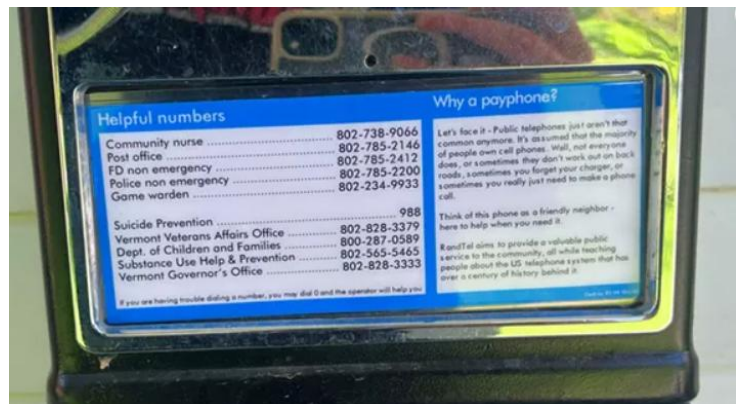
The White River Valley Chamber of Commerce runs the booth and thinks it might inspire other such phones.

Schlott has a day job as a manufacturing engineer at Beta Technologies, and he has a new baby. Nevertheless, he's thinking about how to put more phones in more places.

"It's cool to be able to use these things to hint at a world where we don't need to have smartphones," Schlott said. "That's a pretty lofty goal. But, I mean, this is a start."

Every year, the *Seven Days* newspaper hosts the Vermont Tech Jam, a career and tech expo. The 2025 Tech Jam was on Saturday, October 25; more info at [techjamvt.com](https://techjamvt.com).

Hartnett's work is supported by the University of Vermont's Community News Service summer reporting program. A recent graduate of the University, Hartnett also worked for the Community News Service. Full original story at: <https://www.sevendaysvt.com/news/vermont-engineer-creates-free-internet-connected-pay-phones-44058923>.



## Vision specialist suggests learning from phone hacking

A consultant on the condition known as optic nerve hypoplasia (ONH) says the experiences of a famous phone hacker can lead to better understanding of autistic behaviors.

ONH is a congenital under-development of the optic nerves, leading to varying levels of visual problems. Christopher Sabine, head of ONH Consulting, describes phone phreaker Josef Engressia Jr. as "a man who, in his own way, helped contribute to the very fabric of how we communicate."



*Joe Engressia, circa 1980*

In his well-researched book Exploding the Phone, Phil Lapsley introduces Engressia as someone obsessed with the telephone. In exclusive comments for *Connections News*, Lapsley agrees with Sabine's assessment. "Many of the phone phreaks were incredibly talented. Through their activities, they brought a greater, and valuable, recognition of people with different abilities, especially in the communications business," says Lapsley.

Engressia and his sister were born blind. "Jojo" became well-known for his perfect pitch, which enabled him to manipulate telephone switches by imitating special operating sounds. After learning to dial time of day, Joe became intrigued by the placement of numbers on the dial. "Play in the world of the telephone was fantastic. And it was challenging. It was a laboratory, a place where a little kid...could conduct as many experiments as he wanted," writes Lapsley.

Like many of the pioneers of telecommunications, Joe's telephone activities were based on guided trial and error. Lapsley writes that Joe later learned adults called this the scientific method. For Joe, seeing what would happen was a game; a *joie de vivre*.

Sabine says re-creating the signals to access the phone network was particularly attractive to young people, many of whom were blind. "Whether or not these children have ONH or other conditions linked to the Autism Spectrum...is unknown. But like many children today who also have Autism characteristics, Engressia and other children of the telephone network...had difficulty in a traditional school environment."

Phone phreaking peaked in the 60s and 70s. Engressia accomplished his signaling by whistling. Joe shared a birthday with fellow phone hacker Bill Acker, who was also born blind. Another famed phreaker, John Draper, became known as Captain Crunch for his use of a toy whistle from a cereal box. Other phreakers used a tone generator device called "blue box." Lapsley comments, "several phreaks I spoke with felt Joe's ability to whistle was far more sophisticated, and cooler, than anything they would ever come up with using a blue box."

Engressia became expert in the operation of the telephone network. At the University of South Florida, he became known as "Whistler" for his ability to get free long distance calls for other students. A suspicious operator in Montreal prompted an investigation leading to Joe. He escaped prosecution, dropped out of school, and went on to bigger exploits.

He openly staged a series of phone stunts to intentionally get arrested. He got a suspended sentence for a minor mischief charge. Publicity enabled him to get a job at a local phone company near Memphis.



*Typical Blue Box*

As his activities became widely known, Joe emerged as a leader of the underground group of people who liked to play with the telephone network. The phone phreaks communicated with each other using various blue boxes and other techniques to manipulate the network.

In 1975, Engressia moved to Denver and worked for Mountain Bell as a troubleshooter, specializing in switching processes. He had difficulty working within bureaucratic regulations and corporate culture.

Joe went to Minneapolis in 1982, and changed his name to Joybubbles. He promoted a multi-cultural organization in Denver, set up a weekly phone line presenting "Stories and Stuff" and demonstrated a fascination with children's TV host Mr. Rogers. He also declared his intention to continue living as a child. In 2007, Joybubbles died at age 57 of natural causes.

Lapsley says electronic switching equipment closed many of the phone network's vulnerabilities. The conference communications of phone phreaks foreshadowed development of computer bulletin boards and timesharing networks. Steve Wozniak, co-founder of Apple Computer, wrote the forward to Lapsley's book. Wozniak recalls his attraction to phone network operations and says he built his own blue box: "It was digital, and...had some of the cleverest, most off-the-wall design techniques I've ever put into anything. It was...my passport into the phone phreaks' underground network."



*Christopher Sabine*

In his ONH blog, Sabine says he shares many of Engressia's developmental characteristics and fascination with phone switching. Like Jojo, Sabine says he found the telephone network to be "a vast, undiscovered playground," and that "drawing myself away from (the phone network) and toward more normal activities was one of the greatest struggles of early adolescence."

The social networking is also important, says Sabine: "Those interested in promoting adequate educational supports for children with Blindness and Autism characteristics need to study his (Engressia's) life and the society he created. We as professionals need to understand our children's unique strengths and the creative ways they solve problems in their environment."

Sabine himself is visually impaired because of optic nerve hypoplasia. He uses a cane, reads Braille, and his computer reads the screen in a synthesized voice. He is based in Cincinnati, as head of an organization helping to develop assistance for those with ONH.

Some of Lapsley's original material is not in the book because of space limitations. In these notes, Lapsley quotes the president of Millington Telephone Company, northwest of Memphis, where Engressia was employed after his conviction. Echoing Sabine's comments about differing talents, W.S. "Babe" Howard said: "With a brain like his, (Joe) should be in a phone research lab where he can capitalize on his hearing, but some companies don't hire the blind."

Howard said he would give Joe a chance, and Engressia worked as a network troubleshooter. Joe's friend Bill Acker recalled, "Millington wasn't large enough to have much of a network to test." Joe found the work restrictive and was eventually dismissed — something Engressia said he welcomed. Even then, Howard was optimistic, saying "if I spent billions of dollars setting up a foolproof system, I probably wouldn't want some school kid telling me how easy it was to break. But I believe I'd want him on my side."

*Editor's Notes: At Mountain Bell in the 1980s, I was associated for many years with Russ Carrick, a blind employee. Russ could recognize someone who spoke to him by the sound of the voice. When he worked as a repair dispatcher in the 90s, Russ had a CRT (tube) monitor on his computer, which was never turned on. Russ had a device which translated screen information to Braille. He was fast. Sometimes I thought the field technicians to whom he was talking did not know he was blind.*

*Also at Mountain Bell, Telecommunications History Group co-founder Herb Hackenburg was well-acquainted with Joybubbles. In the THG newsletter of August 2015, Hackenburg told how former Colorado General Manager Lloyd Leger hired Engressia and enlisted his help to fix a badly wired switch at New York Telephone. "Joe was not one to ever give up," wrote Hackenburg. In the process, said Hackenburg, Leger was warned about "Super Phone Freak" Engressia by security people at AT&T and Southwestern Bell.*

*Hackenburg also wrote about how Engressia's elderly guide dog had to be retired. "The Telephone Pioneers made the old dog an Honorary Life Member." A Pioneer family is believed to have adopted the dog.*

*In 1992, U S WEST had 14 blind employees. Corporate communications contracted with a Denver audio production firm to record and distribute the employee newspaper on tape. Every two weeks, visually impaired workers got recorded text of U S WEST Today on cassette tapes labeled in Braille. Examples of these cassettes are held in the THG Archives in Denver.*

Phil Lapsley's book Exploding the Phone, subtitled "The Untold Story of the Teenagers and Outlaws Who Hacked Ma Bell", is written in casual style. It is comprehensive, carefully documented, and easily readable. The book is considered the definitive work on phone phreaking, including a brief history of communicating over distances and the discovery of phone hacking at Harvard University.

Phil Lapsley contributed to editing this story. His 2013 book, published by Grove Press (New York) is available from the *Connections Museum*. A readable PDF is at <https://tinyurl.com/ynzrrznb>. Lapsley has donated his research papers to the Telecommunications History Group.

Scans of original Engressia documents Lapsley used in research are at <https://tinyurl.com/455zcf>.

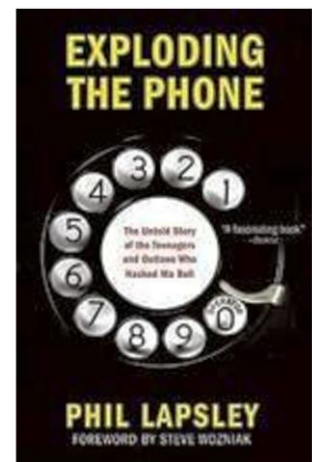
A 1991 interview with Joybubbles is at <https://www.2600.com/offthehook/1991/1191.html>.

On YouTube, Sarah Autumn of the THG *Connections Museum* offers an explanation of blue-boxing at <https://tinyurl.com/4f2c26uw>.

Well-known phreaker Evan Doorbell has a site featuring thousands of recordings at <http://www.wideweb.com/phonetrips/>.

Around the country, the Neurodiversity Alliance is helping students learn to deal with cognitive differences such as autism and ADHD: <https://thendalliance.org/>.

THG exclusive original story by Dave Felice, an award-winning member of National Writers Union.





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