The Pole Line

A publication of The Telephone Museum

Where if it rings, it's for you!

Friends, Lovers of All Things Analog, and Fans of *Exploding the Phone:*

The telephone switching machines of yesteryear are alive in "the Barn" just outside Ellsworth, Maine. No longer needed by the world they served, they should not be functioning – by all rights they should be dead, recycled into a fender on a Honda or be in a landfill and forgotten.

But they're not.

Instead, in this most unlikely place, an incredible array of amazing machines and devices, representing some of the best of communications technologies from the late 1800s through the 1970s come to life once again each year. Here at **The Telephone Museum,** you can "explore" a working #5 Crossbar switch, play with functioning switchboards and even place a call from an 1898 magneto phone to your best friend's cell phone. In the Museum's Visitor Center, there is a temporary exhibit inspired by Phil Lapsley's book *Exploding the Phone*. The exhibit introduces visitors to the inventions, inventors and engineers who created the analog switching machines and networks that intrigued the first hackers and facilitated their explorations.

At the moment however, the focus is on "the Barn", our main exhibit building, because it has a serious problem. Built 30 years ago in 1987, the barn is sided with a plywood product known as T11. This siding serves both decorative *and* structural functions – and it is failing. To prevent the collapse of the barn, we need to stabilize it by re-skinning it with exterior grade plywood and then applying a new architecturally consistent siding. Naturally, due to the size of this building, this is not an inexpensive proposition.

Of the approximately $50,000 needed to begin the work this spring, fundraising is a little over halfway to what is needed. We are excited to have come this far in the fundraising, but we now need your special donation to contribute to the

overall total to save the Barn and its historically significant and working artifacts.

Contributions of any size help and are appreciated. Gifts of $150 or more will be *specially acknowledged* on a plaque installed in the barn after the re-siding is complete. The plaque will reflect the level of each donation, especially honoring those who pledge $1,000 or more.

Your gift can be made by cash, check or via PayPal using the link on The Telephone Museum website http://thetelephonemuseum.org/join-support. Please note "Barn Fund" on your check, or when entering the "Reason for Donation".

The Telephone Museum is a 501(c)3 organization; **your contributions are tax-deductible.** *We are very grateful for your help in saving this unique history.*

Donations may be mailed to:

The Barn Fund
c/o The Telephone Museum
PO Box 1377
Ellsworth, ME 04605-1377

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Postage Stamp on Spring Newsletter

The image that appeared on the stamp of the Spring Newsletter was that of New York Telephone Co. lineman Wallace Burdick making repairs on telephone lines between Vallhalla [sic] and Brewster, N.Y.

The photo by Margaret Bourke-White has a file date of 1 January, 1938, and comes from the historical archives of LIFE Magazine.

#

No. Volume Control

Despite the utmost care taken to ensure a seamless transition between previous newsletter editors, including a check of the archives, we managed to "loose" Vol. 12, No. 1 and subsequently duplicated the Autumn 2014 volume in 2015. As a result this edition would have been Vol. 15, No. 2 instead of Vol. 14, No. 2. In researching this we found this also happened once before with Vol. 10, No. 1 in 2012. As a result this edition of the Pole Line is corrected at Vol. 16, No 2.

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No Back Issues?

Members wishing to obtain back issues of The Pole Line and/or The Main Frame may request copies in writing or by e-mailing the.tel.museum at gmail.com. Donations for P&H appreciated.

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**Transcontinental Cable Marker
411 Preserved and on Display**

A Transcontinental cable marker from the Boston-Miami L-4 carrier route north of Blackstone, MA is now marking cables between buildings at The Telephone Museum. In order to get the distance from the marker post to the museum's cables to match the distance stamped on the marker plate, Chad Perkins dug them up and measured it out; hence the fresh dirt in the photo. The orange flag is the real location of the 'B' cable. The cables run behind Chad in the photo near where the tire below his elbow is then to the clump of bushes in the back before taking a left turn to the "barn".

The cables were about 4' down and Chad was pretty tired by the time the photo was taken from digging the hole by hand in the humidity we had between rain showers that day and setting the marker post. The post is in a mailbox-post bracket with a 24" spike, which was jointly sledge hammered into the ground, as the marker post had to be shortened to eliminate rot. Further labor included filling the hole back in and tidying the site back up.

Thanks to Steve Pater for his assistance in hewing the rough-cut post down to size so we could get it into the bracket and taking the picture.

#

**Number 5 Crossbar
Gets a Working Trouble Indicator**
Martin Harriss

Over the past year, I have been hard at work restoring the trouble indicator on the museum's Number 5 Crossbar (5XB) switch. If the switching system encounters a problem while it is setting up a call, it calls in the trouble indicator and records what it was trying to do at the time of the failure. Maintenance personnel can review the trouble indication and use the information to pinpoint the cause of the problem.

The trouble indicator is a series of lights that indicate the state of various relays in the brains of the switching system, known as the *marker*, when the problem occurred. The lights give information about the telephone line making the call, the number dialed, which pieces of equipment were used in connecting the call, and so on.

Often, just knowing which piece of equipment was being used can help in finding the fault. The trouble indicator has already proved its usefulness in finding problems – for example, several failures were detected recently when a certain register was taken into use, but the trouble only surfaced when trying to dial certain numbers. The indicator displayed which register was having problems, and which dialed digit was in error. This directed me to a specific relay in the specific register, and a quick inspection revealed a broken wire. Problem solved!

Larger 5XB offices had a large, expensive unit known as a trouble recorder which would produce a punched card every time a trouble occurred. If several troubles happened, say overnight, maintenance staff would find a pile of trouble cards when they arrived in the morning. The trouble indicator that the   museum's 5XB has is a lower cost arrangement that was developed for smaller offices. Its disadvantage is that unlike the full blown trouble recorder, it can only display one trouble record at a time and needs to be reset each time it is called up.

Getting the trouble indicator to work involved a lot of work – there were well over a thousand leads (wires) that had to be connected to make the indicator operational. But now it is working it is a great help in finding problems as restoration of the rest of the switch proceeds. Additionally, it provides a nice display of blinky lights for visitors to see!

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Headlines, News and Notes From *Telephony* 50 Years Ago: 1967

[Editors note: I am amazed how many items and issues in the summer and fall of 1967 shaped, and continue to shape the communications landscape in the United States and around the world.]

- Bell System to Stop Mfg. 10-Button Touch Tone sets. Bell has standardized on the 12-button set for telephone instruments. The two additional buttons, while presently performing no useful function, will one day be used frequently in the average customer's dialing procedures. New services such as Picturephone, abbreviated dialing to an adjacent numbering plan area, and some of the custom calling services, such as speed calling, could utilize either or both of these buttons as a prefix or suffix. Introduction of the 12-button instruments follows successful customer trials in Rutherford, N.J., and Tuckahoe, N.Y.

- Stromberg-Carlson Debuts 12-Button, TONE-DIAL *Miniwall* TD telephone as standard for the future services which will be offered [now known as the Model 2554].

- Automatic Electric announces Series 70 12-Button Touch Calling Coin Telephones.

- Bell Unveils New One-Slot 12-Button Public Telephones, first in the country, outside IBT HQ in Chicago.

- General Telephone Co. of California Hires 120 Women as 'Framemen' (19 young men employed as telephone operators too).

- To permit the use of the CarterFone device could open the floodgates of interconnection with the inevitable result that result communications service to the public would be adversely affected, AT&T VP H. L. Kertz said last week. The FCC subsequently ordered companies to submit revised tariffs to allow (the devices).

- Western Union expands "Hot/Line" telephone service: Chicago and Washington.

- Microwave Communications, Inc. (MCI) won a significant round in a long fight to establish a 275-mile point-to-point microwave carrier service between Chicago and St. Louis as result of FCC Common Carrier Bureau's recommendation to grant the MCI application.

- Congressman J. Edward Roush has introduced a resolution in the House of Representatives, citing the need for two nationwide telephone numbers, one for police and the other for fire emergencies.

- Bell Labs Developing New Lineless Telephone. The new portable telephone has a range of 100 to 1,500 feet from the base station depending on the radio frequency environment. The Henry Dreyfus design is built around a trimline dial and would weigh two pounds .

In other news:

- Whitehouse Ceremonies Mark Installation of the Nation's 100 Millionth Telephone using a gold Western Electric Trimline. (the actual 100 Millionth telephone in the U.S. was never identified).

- 28 Miles of Cable Will Serve Twin 110-Story Towers in N.Y.C. Project will include about 40,000 telephones

- Vatican City Replacing Manual System making 18,000 calls per day With Automatic Dialing.

- Automatic Electric Step-by-Step Goes Where you need it ... no other switching gear offers such reusability.

- Stromberg-Carlson Electronic Switching System Control adds electronic intelligence to step-by-step offices, alternate routing, service codes and TONE-DIAL (TM).
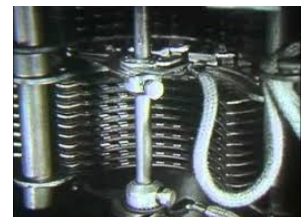
- Continental (Telephone) Acquiring Companies "by the dozen". Maine Company Merging With Continental Company .

- To get into CATV or not, and to what extent.

- Innovative Sea Plow Developed by BTL for undersea cables.

- A TOUCH-TONE coin operated radio-telephone system will be placed in operation on the Pennsylvania Railroad's high-speed, New York to Washington run later this year. This new system is the result of a two year $2 million development project of the Bell System

- Nations police have a new ally in LETS, the Law Enforcement Teletypewriter System. Linking the 48 CONUS state, messages can be exchanged in minutes rather than hours or days

- Benefits of Shared Time computers

- Autodin expansion completed by Western Union in the Wahiawa, Hawaii facility is the ninth and final computerized communications center to be added to the network.

- Solar Gas Turbines, where standby power is a <u>must</u> (with pictorial of manual board).

- North Common Control PABX with NX Versatility, Efficiency and Economy (AKD-741, ARD-561).

- Telephony Magazine moves after 44 years from the Transportation Building at 608 S. Dearborn St., Chicago, to Suite 815 of the famed Monadnock Building, 53 W. Jackson Blvd. (home to Telephony previously between 1908 to 1918). The landmark building was originally created as four separate structures. each named for a New England mountain: Manadnock, Kearsarge, Katahdin, and Wachusett. This was later changed to operate the entire building as a single entity. When erected it was the largest office structure in the world, with the north half of the 16-story building completed in 1891. It very may still be the highest commercial structure of wall-bearing masonry construction, which is distinguished by its 6-foot thick walls at the base floors, marble corridors and wide curved staircases framed by simple wrought-iron railings.

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VOLUNTEERS NEEDED

Volunteer opportunities abound at The Telephone Museum. During the short but busy summer season volunteer docents (guides) are needed, as are folks interested in maintenance and operations. Attend a Work Day, meet the "regulars", and find how you can help keep the doors open and the bells a-ringing!

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End of the 1AESS Era

The Western Electric No. 1 Electronic Switching System (1ESS) was designed for population areas with large numbers of lines with heavy traffic. It generally served between 10,000 and 65,000 lines. The 1AESS switch, introduced in 1976 as a second generation Electronic Switching System (ESS), passed into history this year early on the morning of June 3, 2017 when the last 1AESS in service was retired.

This switching unit, located in the Lincoln Central Office in Odessa, TX, saw over thirty-eight years of service, having gone online on February 25, 1979. The 1AESS switch was converted to a new Genband G6/G5 switch. The final cutover was a reportedly a "flawless success". For AT&T, the last operator of 1AESS machines, the final replacements began seven and half years earlier in 2010. During that time 56 1AESS machines, representing over 700,000 lines, were retired - and most also replaced by earlier Genband products.

Given the introduction of the first 1ESS in Succasunna, NJ in 1965, this last retirement represents a 52-year run for this ESS technology as well as the incorporation of many new technologies and changes in the art of telephony overall. Among those included the incorporation of digital T1 carrier systems and first out of band signaling systems that brought an end to the golden age of the phone "phreaks".

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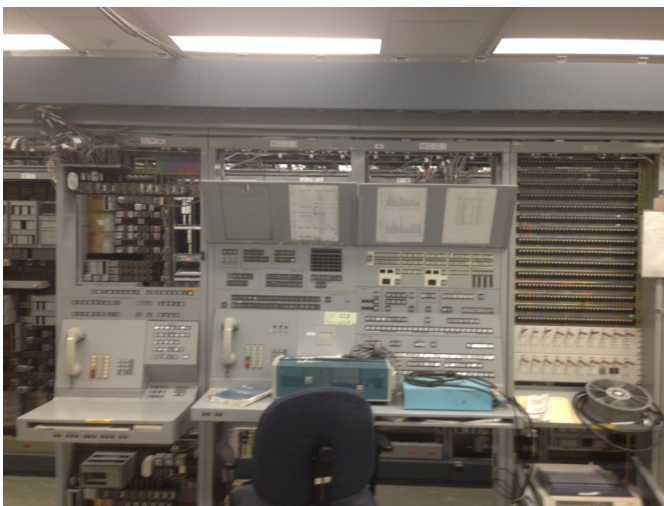
Restoring Service

Restoring Service is the title of a painting by Alan Riegler. Mr. Riegler, a 27 year veteran of Pacific Telephone & Telegraph and self-taught artist, kindly donated the right to use the image of *Restoring Service* for our photo stamp feature in mailing this edition of *The Pole Line*. In the course of conversing with Alan a couple times since last fall (by telephone of course), I have had the pleasure to learn a little of his career and work, much of which was in the deserts of southeastern California, which included piking poles in swamps and line construction work in blistering 120 degree heat of Death Valley.

You may think that this image doesn't look like California; and when I asked Alan about it, he pleasantly but bluntly said "It isn't"! With the patience of an artist, Alan proceeded explain about a Telephone Pioneers calendar many years ago with black and white photos that depicted work being done after a flood in Iowa in the late 1940's. As a young fellow I took my share of art, drafting and photography classes, and I have to say the amount of detail is amazing.

After further conversation we come to learn that copies of this print hang in two other telephone museums, and upon learning more about The Telephone Museum Alan graciously donated a copy of *Restoring Service* for display in our museum in Ellsworth, Maine. So please do seek it out on your next visit and see for yourself beauty of this print - not traveling to Maine soon, not a problem, Alan sells the 24x18" open edition print, for more information go to: https://www.insulators.info/forsale/insulator-print.htm, or you order from him directly:

ALAN RIEGLER
89 HAYMARKET CORNER RD
MAYFIELD KY 42066
ariegler@bellsouth.net
(270) 247-6973

[Editor]

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Innovation In Telephony That Spans the Years

That was the theme of the exhibit by The Telephone Museum at **Telephone Association of New England (TANE)** conference in October.

The exhibit illustrates the development from magneto, through dial step-by-step and common control to digital and VoIP switching.

Also included in the exhibit were matching telephones and components from magneto, rotary, 10-button touch-tone, 12-button touch tone and digital VoIP sets.

In addition to the exhibit, Steve Head of TANE reached out the Chad Perkins of The Telephone Museum and offered us a ten minute slot during the program for an innovation presentation. After chatting about innovation and the museum's role of preserving the history of communications innovations as opposed to being an innovator per se, we hit upon the fact that this was the 50th anniversary of the modern (12 button) Touch-Tone telephone, an innovation onto itself.

A couple telephone call and e-mails later Chad was scrambling to put together his first Microsoft PowerPoint presentation ever. Many thanks to his wife Tonya for helping save the day!

TANE posted all the PowerPoint presentations online after the conference, so if you want to learn a little something about the history and use of the Touch-Tone telephone, you can see it here: http://www.tane.org/2017-tane-annual-meeting-and-convention-presentations/.

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2018 Telephone Museum Calendar

Saturday January 6	Board Meeting: 1 PM @ Muddy Rudder, Yarmouth, ME
Saturday April 7	Board Meeting: 1 PM @ Muddy Rudder, Yarmouth, ME
Saturday May 19	Volunteer Day: 10 AM – 4 PM @ The Telephone Museum
Saturday June 16	Volunteer Day: 10 AM – 4 PM @ The Telephone Museum
Thu - Sun June 21-24	Exploding The Phone – TFH Reunion @ The Telephone Museum
Saturday July 7	Museum Opens for the season **Saturdays 1 – 4 PM**
Saturday July 21	Volunteer Day: 10 AM – 4 PM @ The Telephone Museum
Sunday July 22	Board Meeting: 10 AM @ TTM Visitor Center
Saturday August 18	Volunteer Day: 10 AM – 4 PM @ The Telephone Museum
Saturday September 15	Volunteer Day: 10 AM – 4 PM @ The Telephone Museum
Saturday September 29	Museum Closes for the season 4 PM
Saturday October 6	Volunteer Day: 10 AM – 4 PM @ The Telephone Museum
Sunday October 7	Board Meeting: 10 AM @ TTM Visitor Center

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Become a Telephone Museum Subscriber, or renew today!

Receive free admission to the museum, notification of special events, a free listing in the Museum Directory, and newsletters, like "The Pole Line"

Mail to:

> The Telephone Museum
> 166 Winkumpaugh Road
> PO Box 1377
> Ellsworth, ME 04605-1377

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☐ Individual $30
☐ Participating $100
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