Dots, Dashes and Talking Wires: Communication on the Narrow Gauge
with John B. Norwood and Ed Trump

A Philatelist’s Tour of the Rio Grande & C&TS
Remembering Ernie Robart
Important Changes in the Friends’ Safety Program
President’s Forum

Another Year with Opportunities

We closed out our 30th Anniversary year in December with some very good news and some very sad news. Thanks to the generosity of our members, the Friends had a record month for support and revenue. The organization had a very solid year financially and we appreciate everyone’s gifts.

We also received sad news around the holidays when long-time Friends member Ernie Robart suffered a stroke in Albuquerque on December 18th and passed away on December 24th. Ernie was a renowned photographer and began documenting the end of the narrow gauge in the late 1960s, and was one of the early volunteers on the Cumbres & Toltec. The Friends has purchased his vast photo and map collection from his estate. It is estimated that there are approximately 34,000 images in the collection. Ernie was a wonderful individual who, along with many of the Friends, was also involved in the restoration of Santa Fe Locomotive 2926 here in Albuquerque.

We also learned that Friends member and former Board Member Frank Yokey passed away on February 10, 2019. Frank resided in Loveland, Colorado, and supervised the docent program for several years, as well as serving on the search committee when I arrived 15 years ago. He was always the voice of reason. He is survived by his wife Joanne.

Now 2019 is upon us and work session registrations are coming in, always a good sign. I would like to encourage those who typically don’t attend work sessions to seriously consider it this year. Our volunteer numbers were down a bit last year, so we are asking you to consider registering for a session, maybe even two, back-to-back. We have a number of continuing projects so there are plenty of opportunities.

Even better, if you have never attended a Friends’ Restoration Work Session before, we will waive the $20 registration fee for your first Work Session in 2019. The offer is only for those members who have not previously participated in a session. Check out the opposite page for details on this great 2019 offer.

The Railroad had a great 2018 as ridership was up 12.6% over 2017. If you have not ridden the C&TS in a while, then why not make 2019 the year that you come and re-experience the beauty of the San Juan Mountains in southern Colorado and northern New Mexico. There has never been a better time to ride the Cumbres & Toltec! The Railroad is an adventure for the whole family, the ride quality is terrific, Stephen Flower’s lunch at Osier is delicious and our docents provide a fantastic narrative for passengers during the journey.

The Friends is also resuming its “regional membership” meetings, with this year’s taking place on Saturday, May 4th, at the Austin Steam Train Association. We will have a meeting, a train ride and lunch as part of the day’s events. Board Chairman Bob Ross and I will be on hand to pres-

On the Cover:
Two railroaders pose at the Cumbres Depot sometime in the early 1930s. Beside the depot door are two signs that offer the only means of communication from that remote place. Not only was the telegraph essential for the safe operation of the Railroad, it, along with the Cumbres Post Office, provided a needed connection to the outside world.

Photo by Charles Lively, C&TS Dorman Collection, RDO13-039
At the October Board Meeting, the Board of Directors approved an incentive for the 2019 Work Session Season to those Friends members who are thinking about attending a work session for the first time. If you have never attended a Friends work session, we will waive the $20 registration fee for your first work session week during 2019. This offer is for those members who have not previously registered for a work session but desire to attend during 2019. Please indicate at the time of registration that you are a first-time attendee so we can verify that in our database. We welcome those who want to experience a work session for the first time and the satisfaction that comes with it. Please call our Albuquerque Office at 505-880-1311 or e-mail timtennant@cumbrestoltec.org if you have any questions.

For volunteering information and requirements, visit: https://www.cumbrestoltec.org/volunteer.html
Ernie Robart: 1947—2018

Ernie was a driving force behind the effort to save what became the C&TS. While Terry Ross led the effort, it was Ernie who often administered and coordinated the movement. Ernie lobbied and developed contacts both within New Mexico and Colorado. He met with New Mexico governor Dave Cargo, who became a staunch proponent and supporter of the effort to save the Railroad. Without Ernie’s strong support, we might not have the C&TS today. ~ Bill Moyers

Ernie’s love of railroads, especially steam, started at a very young age when his parents took him along to tent revivals held in Mountainaire, New Mexico, in the mid 1950’s, close to the Mountainaire wye. He remembered nothing of the services, but did recall seeing the big Santa Fe steamers turning on the wye after helping trains over the Abo grade. But Ernie’s first love was always the D&RGW narrow gauge! One of his favorite activities over the years was to hike the old D&RGW “Chili Line” right-of-way. ~ Bryan Mosley

Ernie was a self-taught photographer who had the gift. Whether by luck or intent, his photos always had beautiful composition and lighting. Ernie was a person fascinated with all of life around him. He had many interests and hobbies, and he had dedication and persistence beyond most of us. When he decided to climb “fourteeners” in Colorado, he kept at it until he climbed all 54 of them! ~ Dan Pyzel

My heart goes out to Lourdes, the family, and his many friends. I know that you will carry on in the best Ernie Robart tradition and honor his legacy forever. There never was a more kind, selfless, and gentle soul. We will miss him more than words can describe. ~ Kathy Fisher

Around 30 people, Friends, the AT&SF 2926 restoration crew, Ernie’s wife, Lourdes, and others honored Ernie with a trip on the RailRunner from Albuquerque to Santa Fe for dinner and memories at Tomasa’s, in the old D&RG depot, on January 11th. ~ Chris James

What I remember most about Ernie is his generosity. He was always willing to share his experiences with anyone who had enough energy to keep up with him. He helped me find a lot of special places to get photos, and kept me up-to-date on special events. I always felt that he had done so much for all of us that there was no way we could ever fully repay him. ~ Russ Sperry

Of all those who were able to be there [to celebrate the 40th birthday of the Railroad], Ernie was the one person whom I felt certain would return for the 50th birthday in 2020. I still can’t believe he’s gone ~ Russ Sperry

Ernie testified at the ICC abandonment hearings and rebutted testimony of the D&RGW witnesses who neglected to report on several revenue trains that were actually run. When cross-examined by the D&RGW attorneys as to how he knew these trains had operated, he asked if they would like to see his photographs of those trains. They asked him no further questions. ~ Bill Moyers

Watch the YouTube video (2:47) Ernie: In His Own Words https://tinyurl.com/ernie-robart

Quotes and comments were either sent directly to me or were posted on the Narrow Gauge Discussion Forum at http://ngdiscussion.net/phorum/index.php

Thank you! ~ Chris James, Editor
Get out your calendars and mark down these dates! You may think that the 2018 Restoration Work Session Season just ended, but that means the 2019 Season is just around the corner! Skilled, amateur or just plain interested in helping, there’s a place for you this summer in Chama, Antonito or along the right-of-way. And if you have never attended a Work Session before, we’ll waive the $20 registration fee. See Page 3 for details!

So grab your gloves and a hard hat and head for the C&TS! You will never regret it!

The 2019 work schedule is as follows:

- Session A 5/20 thru 5/24
- Session B 5/27 thru 5/31
- Session C 6/17 thru 6/21
- Session D 6/24 thru 6/28
- Session E 7/29 thru 8/2
- Session F 8/5 thru 8/9
- Session G 9/23 thru 9/27

Additional “Special Sessions” may also be announced.

To learn more, visit https://www.cumbrestoltec.org/volunteer.html

Requirements and fees for volunteer work:
- You must be a current member of the Friends.
- Session registration: $20.00 for each session.
- Lunches: $35.00 per session (or $7/day).
- You must have personal health and accident insurance.
- There is an additional $15.00 charge per year for supplemental insurance through the Friends.
- **Important!** Read the Safety Program changes below.

Last year the Friends experienced an unfortunate incident that could have resulted in serious injury to our volunteers. This eye-opening experience required a close look at our existing Safety Program. Adhering to State and Federal regulations are a part of what we do on the Railroad. We had no choice but to upgrade to current safety standards, requiring a revamp of the **Friends Safety Manual**.

In addition, the Railroad is overhauling its own safety program with the appointment of a new Railroad Safety Officer, Brad Lounsbury, whom many of you know is the paint car leader. Working with John Bush, president of the Cumbres & Toltec Operating, LLC, it has been decided that the Friends Safety Program in Chama will be managed by the Railroad Safety Officer, who will provide oversight at each scheduled work session. While the Friends shall retain authority over the Antonito CRF, the rules and standards must still comply with the **Friends Safety Manual** as it still involves railroad equipment.

The **Friends Safety Manual** has been taken apart and put back together to meet the current safety standards which define specific tasks that are mandated for industrial and/or construction and requires that a specific procedure be followed. Many of these tasks as outlined bring us into compliance with current State, Federal and FRA railroad procedures.

The point is, whether you are a Railroad employee or a volunteer on the Railroad, the safety standards are the same and are defined in the **Friends Safety Manual**.

The revised **Friends Safety Manual** can be found on the Friends website along with the other volunteer registration forms at https://www.cumbrestoltec.org/volunteer/work-session-forms.html. The Safety Manual is Form R-8 and it is required reading for all volunteers.

Thank you.

John Engs, Projects Chair,
Friends of the Cumbres & Toltec Scenic Railroad, Inc.
James Weigant's Philatelic Tour of the Cumbres & Toltec Scenic Railroad

by Chris James

Over the last almost-fifty years, folks have taken many different kinds of "tours" over the Cumbres and Toltec. There have been geology tours, botany tours, tours with Galloping Geese and tours with family reunions, weddings and birthdays. But a "philatelic" tour?

Friends member James Weigant is an avid "philatelist," that is, in its most basic terms, a "stamp collector." His family also has a cabin along the Los Pinos River near Toltec Gorge and he's a longtime fan of the Railroad. Over the years he has sought out philatelic objects—stamps, postcards, postmarks, envelopes—from the D&RG San Juan Extension and C&TS.

Weigant published a short article in the journal American Stamp Dealer and Collector in 2016, and re-posted it on the Friends Forum last year. It was suggested that it could be reprinted in the Dispatch as well for those who might have missed the Forum posting. Since this issue of the Dispatch focuses on communication, it appears fitting that many of the items from James Weigant's collection should be reproduced here. It is an interesting slice of history that is often overlooked in the history of the Railroad.

One of the oldest pieces in Weigant's Cumbres collection is an envelope postmarked at Osier, addressed to the "Bloomingdale Bros." in New York City. Although the exact year of the Osier postmark is unclear, a New York receiving postmark on the back side of the envelope indicates it was mailed in 1884. The envelope may have contained a mail order request from an Osier local. The Osier Post Office operated from 1882 through 1928.

An early D&RG picture postcard in Weigant's collection is an image from the depths of Toltec Gorge, a "colorized" version of the famous photograph William Henry Jackson shot in July, 1893 (top right). You can just see the train in the upper right-hand corner. The note from "Grace" to "Clara" mentions a "fun trip" that probably included a snowy look into Toltec Gorge in December, 1906.

Clara's December trip might even have been pulled by D&RG Locomotive No. 205, shown (right, center) equipped with a huge wedge plow as it arrived in Chama "after a hard battle with the snow." It was featured on a postcard postmarked in Chama in August, 1907.

In 1913, "Marshall" sent a "Howdy" to "Constance Roberts" in Jefferson City, Missouri, saying he was in Coxo. The 1¢ postage stamp was postmarked at Cumbres in September 14, so his train may have been eastbound and he dropped it off at the Cumbres Post Office. According to
Marshall, “They have a lake there that has no bottom at all.” If this “bottomless lake” is near Cumbres Pass, the Railroad would probably love to know more about it!

Durango was in a then-remote corner of Colorado and the fastest way to get the mail to the town in La Plata County was via the D&RGW’s Railway Post Office service between Alamosa and Durango. The railroad owned a fleet of RPO cars, including RPO 54, now restored by the Friends. Mail carried and sorted via the Railway Post Office carried a unique RPO postmark such as the one to the right, stamped somewhere between Alamosa and Durango in 1928.

Amateur radio operators, “Hams,” often exchange “QSL” cards with other hams they have spoken to via shortwave radio. The cards proudly display the call sign of their transmitter and a ham’s status is often measured by the number and diversity of a operator’s QSL collection. Ed Buckley was one of the last Postmasters at Cumbres and he too was a ham operator.

While the Chama Post Office had closed by the time Ed Buckley sent this QSL card to one of his radio contacts, it was still carried and postmarked on one of the D&RGW’s Railway Post Office Cars, maybe even No. 54. RPO service between Alamosa and Durango ended with the cancellation of passenger service in 1951.

What was probably one of the last letters sent out from the D&RGW before the Railroad was turned over to

the States of New Mexico and Colorado was sent from the Railroad’s office in Chama to Amsterdam, Holland in 1968. There is no small degree of irony that a letter from one of the last centers of 19th and 20th century narrow gauge operation in the West was sent via “Air Mail.”

By 1974, the new Cumbres & Toltec Scenic Railroad was establishing itself as a living museum, worthy of postcards depicting Mudhens, trestles and scenery along the line, suitable for mailing from Antonito and elsewhere.

Over the years, C&TS postcards would travel to every corner of the globe, along with “opening day” cards and “first day of issue” envelopes for newly-issued commemorative stamps.

Perhaps some of the most unique stamps have come from the most unlikely of places, the tiny Caribbean islands of Granada and Nevis. As a source of income, they issue many stamps for collectors, trains being a popular topic.

Postcards, stamps, envelopes: it seems that the D&RGW and the C&TS, that little narrow gauge line to the San Juans, has always been quite the favorite for travelers, tourists and railfans—as well as at least one philatelist—worldwide!
A narrow gauge railfan, I am fascinated by the sight, sounds, and smells of the engines that can still be seen on the Cumbres & Toltec and Durango & Silverton Railroads. Being an electrical engineer employed in the field of communications, I have wondered what equipment and methods were used to communicate on the D&RGW.

Writings on this subject seem to be scarce. Fortunately I was able to correspond with an expert who has extensive historical data and stories of how communicating was done on the narrow gauge. The late John B. Norwood is well-known among aficionados of the narrow gauge. His 39-year career with the D&RGW spanned a time when the narrow gauge was still using steam locomotives from the 1880s, to the era of modern railroading with diesel engines, and centralized dispatching with computer control. Beginning as a telegrapher, he rose to the position of Assistant Vice President of Operations.

Prior to his passing, in 2008, I posted to him a number of questions about how things worked on the Railroad regarding electrical communications, particularly on the narrow gauge. John’s sharp memory was able to recall in great detail his experiences as a telegrapher and dispatcher. Additional information and illustrations came from L. E. Trump, who began his career as a fireman on the Alamosa-Durango line in the early 60s. After graduating with a degree in electrical engineering, he was employed by the D&RGW as a communications engineer and is familiar with the communications facilities as they existed in the last years prior to abandonment of most of the narrow gauge lines. Both of these gentleman were kind enough to share their knowledge about how things were done on the narrow gauge based upon their own hands-on experience.

What follows are their recollections.

Gregory S. Raven

This story, along with additional material from L. E. “Ed” Trump, originally appeared on the Telegraph Lore website http://www.telegraphlore.com/and is reproduced here with minimal editing with the kind permission of the author and website owner. Thank you! ~ Chris James, Editor, C&TS Dispatch

A “Lightning Slinger” on the D&RGW

The ad for telegraphers was bona fide with some hidden bait in it. What made it necessary was results of the Big Depression layoffs and the unanticipated length of it.

Learning to Telegraph

How did I learn to telegraph? A lot harder and longer than I like to admit. You can lead a horse to water but you can’t make him drink. My dad and “Auz” Rogers literally pounded it into my head. They both were convinced that being a Morse telegrapher was the only worthwhile and honorable craft a man could aspire to.

From about the beginning of my 13th year to near the end of my 14th, those two rode my back. Dad in winter,
Auz Rogers in summer when I went to Gato (Pagosa Junction) and did chores for Auz and his wife around the small hotel/eating house they operated there. Each day they saw to it I spent a couple hours sending and another couple hours copying their telegraphy or using a Morse telegraph they bought for me. Sending was from the stock sections of the D&RGW Book of Rules for words and numbers. It took 30-45 days to go through the rule book. Once completed I started again at the beginning. The result? Years later I was to be credited with being an authority on it.

By 1929, Dad and Auz made me into an employable Morse “lightning slinger,” anywhere except in the Relay Department offices in Alamosa, Pueblo, Grand Junction, Salt Lake City, and of course the main one at Denver, by 1929. I was 14 years old. In 1930 the Big Depression was in full flower and railroads were cutting men off instead of hiring. On the Alamosa Division it was so bad my Dad could only hold the Extra Board. In 1930 he got only enough relief work to earn $600. I made about half that much from the sale of furs trapped on a fifteen mile trap line and a couple hundred more trapping coyotes for the New Mexico Wool Association.

My two mentors insisted times would get better and I’d get a job, but they didn’t. So I went on the bum, riding the rails in search of work.

By 1929, I was fully grown, strong in the back and foolish in the head. Fortunately my voice had changed a few years earlier and I had a noticeable beard. Most of all I was a convincing liar; I claimed I was 20-21 years old and experienced in whatever was necessary to get a few days or weeks of employment. Frequently I got caught in my lies but I was a quick learner. By then I’d been bumming on one railroad or another and I despised anything connected with them. I had it out with them in words they strenuously objected to: “I would rather get a tin bill and peck shit on a manure pile than be a railroader.” But by 1939, the railroads were hiring again and, despite my feelings, I found work on the D&RGW as a telegrapher at Romeo, Colorado, between Antonito and Chama, just west of Manassa.

Morse Code

Morse code is the combination of dots, dashes and long dashes that represent letters, numerals, or punctuation. In truth, there are no “dashes” in telegraphy. All messages are made up of “dots” (•); the “dash” is made by the timed space between the dots; •• would translate as “dot-dot,” (the letter i); ••• would become “dash, dot-dot,” (the letter u). Long dashes, spaces; ••, (i, u) separated the letters, Some telegraphers referred to the dots and dashes as “dits and dahs.” At the receiving end, a “register” embossed the dots and “dashes” onto a moving paper tape. This was a cumbersome arrangement and was soon re-placed by sound reading from the much simpler “sounder,” which converted the electrical pulses of the Morse code into audible clicking sounds. When energized, two coils in the sounder set up magnetic fields that pulled a spring-loaded “arm” bearing an armature down. When power was off, the spring-loaded arm moved upward and struck the “sounder” end of the gadget to make clicking sounds—short, long and extra long pauses and, with time and practice, one could “read” the telegraph by sound alone.

Adept listening to the clicks and converting them to letters was like possessing a second language. Almost all of us could carry on a conversation with someone as we typed or wrote the words of an incoming message. Many commercial and railroad relay operators could work as much as 10-15 words behind. My father was one such but my tenure as an operator was too short—three or four words behind was the best I ever achieved.

The writing of operators became stylized into a flowing rounded form so universal it was easy to recognize an ex-lightning slinger by his writing. It was a result of having to write rapidly and clearly but in a manner that did not tire or cramp. All handwriting and key operation depended upon the rounded forearm just below the elbow and above the wrist “rolling” freely, the elbow firmly on the desktop and the lower portion, wrist and hand “floating” freely and touching no surfaces.

Typical Telegrapher's Script

“Telegrapher’s arm” became an occupational hazard caused by too many repetitive movements. Known today as “carpal tunnel syndrome,” many telegraphers had to quit, learn to send with their left hand or use a “Vibroplex bug,” a telegraph key that makes dots automatically. Today, carpal tunnel syndrome is a common malady with computer users.

Training the Telegrapher

Several factors determined how long it took to become proficient enough to hire out. When operators were plentiful, a beginner was expected to send good, readable Morse at a minimum of thirty words-per-minute and to receive and copy the incoming information at a bit higher rate. Receiving must be accomplished without having to open the key and send “BRK” (Break, I’m lost) to which the sender would make code for a question mark, “?,” (••—••); in effect “Where have you got to?”

A well-run Morse telegraph school could turn out an employable operator in five-to-six months of intense
training. Most learned Morse as I did; by a parent or some other relative, or as my father did, doing the chores and heavy lifting for a local agent in exchange for help in learning and permission to sit in at the office to practice. Under these conditions, it could require from a year to two years to be employable under standards based on the primary requirement that the new operator would, in all likelihood, hire out as an all-around telegrapher whose primary duties would involve train orders.

Like riding a bicycle, once learned, a Morse man never forgets it—he may get rusty sending, but receiving comes right back. Also, you never forget the call letters for any station or job you worked at or were sent to regularly. If you doze off on a night job it takes only a few repeats to waken you. And you quickly learn to not go to sleep with your head resting on your hands crossed and laying on the desktop, for the best you can hope to do with your paralyzed hands is to knock the key open until you get feeling and control back in them to answer “i i,” (••  ••).

A student who was an amateur musician or danced as his favorite pastime had the advantage over someone like me. Their trained ears recognized the musical notes clearly or, when dancing, were capable of hearing and adjusting the timing and rhythm of the dance above the din of a dance hall. Those with good manual dexterity became excellent senders of clean, consistent Morse. On the other hand, the hands of a farmer, jack-of-all-trades, seaman, miner—those with muscular, calloused hands found it difficult to make clear-sounding Morse because their hands were not sensitive enough to learn the “feel,” the technique of making “dots,” “dashes,” or “long-dashes.” They had particular difficulty in making letters such as C (dot dash dot dash, •  • •  •) or R (dot dash dot •  • •) because of the small, almost undetectable “spaces” in the code between the letters.

Good penmanship was also a must, although not all learned that rolling rounded telegrapher’s script that was the trademark of the old-time Brass Pounder. On the whole, telegraphers wrote in a clear clean telegrapher’s script.

Another thing necessary to develop was a writing pressure just sufficient to make impression for the number of copies of train orders being made, yet not tear the “flimsies,” dialect for train orders because of the fine thin paper used and the fact there was a carbon paper between each sheet. Each operator at multiple-shift train order offices was expected to leave two or three pads set up for the next shift.

**Train Orders**

Rules specified the operator had to hand up one set of flimsies, tied to a hoop, to the headend (engineman), and two sets for the rear end, conductor and rear trainman. On the narrow gauge in helper engine territory, the engineman on the second, third, sometimes even fourth engine had to have copies as well. The dispatcher gave you a tip as to how many engines there would be, (for a single engine train) by sending, “CY 4 East (or West)” or “CY 5, 6 or 7 East (or West). But even the dispatcher did not always know where the additional engines would be placed in the train. You just had to stand there with the hoops in your hands and figure out where the next delivery would be made and pray you did not pass up the hoop with the two sets for the rear to a helper. This was doubly hard because the helpers ran with extinguished headlamps. Wintertime this was hell at hill jobs, what with snow falling or being driven by a cold wind. It was bad enough to toe the safety clearance mark, hold up the hoop with one hand as high as possible and at an angle for the recipient to make the pickup. With the other hand you were holding an oil-burning lantern to illuminate the hoop, while trying to keep from dropping the hoops for the rear end, or cut-in helpers.

The type of hoop used at the time I was employed as an operator was made of cane staves bent at the small end to form an almost round end; there was a clip at the point where the tips crossed and were fastened to make the hoop. The orders to be delivered had to be firmly and neatly folded so they would not become dislodged at delivery. The recipient stuck his arm through the hoop, stripped off the orders and threw the hoop off. The operator had to go find them in the weeds or snow and return them to the office, all the while slipping and sliding on mud, plowing through snow and wet weeds, and cursing the fireman, engineman or trainman for throwing them so far from the track.

**Gravity Cells**

Gravity cells were used to provide local circuit power at telegraph offices. I despised them. In my first years as a telegrapher I invariably was stationed at a one-man office or was low man on the totem pole at two- or three-man offices, and had to maintain the jars and rebuild them as the reacting metals and chemicals were consumed by electrolysis (see facing page).

**The Telegraphone**

The “telegraphone” was a type of telephone that was adapted to use existing telegraph wires and was used on both the D&RGW and Rio Grande Southern Railroads, primarily for routine communication between section crews. They were not used for dispatching, as the telegraph was still used to transmit train orders. This continu-
Gravity Cell Used to Power a Telegrapher’s Practice Set with Side Bar

The gravity cell battery came into use around 1850. The copper electrode was placed in the bottom of the cell’s glass tumbler, and copper sulphate crystals were arranged around it. The copper’s wire lead was insulated so it did not come into contact with the cell contents. Clean rainwater was then used to fill up the tumbler above the level of the zinc ‘crowfoot’ at the top.

Next, sulfuric acid was added to the water and the terminals of the cell were deliberately short-circuited to start the cell’s chemical reaction.

When operating, zinc sulphate solution forms around the zinc element…and copper sulphate solution forms around the copper element. The specific gravity of the copper solution is higher so a blue layer of copper sulphate solution forms in the bottom half of the cell.

Zinc is “consumed” as it passes into solution. The busy little ions in solution eventually cause dissolved copper sulphate to electroplate as elemental copper onto the copper electrode. When the cell needed renewal, the copper mass was removed for factory reprocessing and most of the zinc element had disappeared into solution.

As the battery was used, zinc solution could be siphoned out and replaced with rainwater. Going “by the book,” the copper was not to be replenished by dropping copper sulphate crystals in from the top. When the original charge of copper sulphate crystals was gone, it was time to clean out the tumbler and renew the battery.

A 1913 textbook states that the gravity battery would last five-to-eight weeks in a local station circuit, or two months on a mainline circuit.

http://members.kos.net/sdgagnon/te4.html

ued to be true on the narrow gauge, at least until the late 1940s.

I have never found any information giving the name of the inventor. I do remember in circa 1920, my dad had one on the wall in Flippin, Arkansas, on the Missouri Pacific. It resembled those old wall phones including provision of the crank-operated ringer, a hand-held receiver and a container at bottom of the phone that held two dry-cells. The top of the containers lifted upward on hinges and when closed provided a small writing surface.

Did the telegraphone replace or only supplement the telegraph? It did neither but was rather a system within itself and possible because it could be installed using Morse wires already in place.

Why didn’t the railroad not simply install conventional telephones? Primarily because stringing wires is an expensive proposition, sometimes hundreds of dollars per mile. Telegraphones were superimposed upon existing telegraph lines by capacitive coupling, along with a “retard coil” to act as an audio-frequency filter. Because telegraph signals are concentrated at low frequencies, and the human voice as transmitted by a telephone is above the highest telegraph frequency, a filter was used in the circuits to separate the telegraph and telephone signals. This allowed use of the telegraph wire for simultaneous voice and Morse communication without any significant capital expense. The telegraphone worked; however, they were nothing like today’s telephones.

While gravity cells were a pain in the butt, dry-cells at each telegraphone were more so—and expensive. Sub-zero temperature lowering their voltage; snow filled booths or snow filtering into battery containers; rainstorm-saturated batteries; electrical grounds drying out in hot, arid locations; birds and rodents nesting atop battery terminals, and farmers or hikers taking batteries for their own use—you name it. There are a dozen stories of ordinary occurrences that escalated into crisis for lack of the nine volts needed at each telegraphone installation.
There was, however, an unexpected feature discovered in using these telegraphones. By induction, the receivers on the phones acted to give an easily and clearly-read clicking sound, the same as the telegraph sounders. Several employees on the Salida-Montrose and Alamosa-Durango lines, the Chili Line, and other branches transferred from telegraph service to train or engine service. If their train was being delayed for meets or passing or because of presence of some natural or man-made emergency, they would go to the nearest phone booth or box, or cut into the line, put a receiver to their ear and get a lot of information via the dots and dashes heard in the phone receiver.

The telegraphone was the instrument mounted in the phone booths along the line. No telegraph gear was in any booth. But not only were they in the booths, telegraphones were also post-mounted in protective boxes fastened to rock walls of canyons, on tree trunks and elsewhere. Section foremen had them; on-line coal supply points where a coal heaver was maintained had them; isolated jobs where operators lived in other than quarters in the depot/station had them. Essentially they constituted a communication system for use by non-telegraphers. In the Alamosa Division Timetable issued in 1949, telegraphones were retained at the worst trouble spots between stations.

There was no telephone use out on the line. All of the new telephone sets were placed in agency-telegraph offices except at the most trouble-prone locations. The old telegraphones were left in place as communication points between section gangs and the like, not for general use. The phones at the listed locations were put there to report problems. Were they used to routinely report progress? Could be, of course, but on the narrow gauge each construction project, wreck clearance, or snow job was put in charge of an appropriate competent supervisor. Headquarters waited until the project or problem was completed to get a report. Situations on the narrow gauge were small potatoes and handled by Division supervisors. Denver or Pueblo did not lose much sleep over the three-foot gauge operations.

### Portable Telegraphic Communications

Back in the day, many work cars and business cars were equipped with what were called “Pony Sets” (i.e. a portable telegraph, also called a “Wreck Box” or “KOB—Key on Board”) that could cut in on any telegraph wire if there was an telegrapher on board, assuming a wire was available. There were long sections where the line diverged to cross canyons as a matter of economy. When a line wire broke in any of these sections, the Western Union lineman, contracted for maintenance, had his work cut out.

If by chance the cut-in was to be made near a phone booth, it would be convenient to cut in without having to put the long pole together to reach a wire, and in the winter, much more comfortable.

### Communication Points Over Cumbres Pass

#### Big Horn

Big Horn was named by the anglicization of El Cuerno Grande, the small peaklet at the west switch and wye. In the fall, the heaviest tonnage-producing season, or in worse than normal snowfall years, Big Horn (BG) was often opened as a communication point. Quarters for the operator(s) and...
equipment were in an outfit (bunk) car spurred out at the west switch of the Big Horn siding. It was never in the Big Horn section house, which was located at The Loops and too far away to be used as a communication point for delivering train orders and messages to trains.

**Sublette**

For a few years after construction finished, Sublette had a depot and was an open office because at that period, there was a small community based on logging and lumber production. Along with the railroad structures, there was a store, a school and some dwellings. Later, it was opened as a communication point under same as-needed governing conditions as Big Horn.

**Osier**

Osier was an open station during the era of small engines when there was need for helper locomotives on westward trains from Los Pinos to Cumbres. Even with the advent of the K-27 class locomotives (Nos. 452-464), Osier was activated if any situation arose for a prolonged use of helper engines westward. This was because the turntable at Osier was only fifty feet long and would not accommodate the newer engines above and including the K-27’s. Even when the bigger engines made helpers unnecessary, Osier was opened as a weather reporting station, often with two operators. Telegraph equipment at Sublette and Osier was kept in place for many years.

**Cumbres Pass**

In the winter time at telegraph offices such as Cumbres Pass, Marshall Pass, or Silverton Branch, the operator often had difficulty sending (and writing) because of flimsy stations warmed only by a heavy cast-iron barrel heater fueled by coal or wood. It took tough men to live in such primitive quarters; worst of all, imagine, if you can, what sleeping must have been like when temperatures were sub-zero and the wind was whipping the snow.

Once while still telegraphing, I was called to man Cumbres for three weeks. The second or third day a blizzard swooped in that produced a blockade for two weeks. By this time the station was a well-built frame construction, but while the worst of the blizzard blew I got only intermittent intervals of sleep due to having to stoke the office stove every couple of hours. I was to report the weather every three hours. So I attempted to have a hot stove heating up around the desk. Once in a while the dispatcher called at other times, and Morse sent by freezing fingers is far from readable.

Train dispatching in the days of telegraph, when density was heavy, mandated quick OS reports of trains or engines as they passed communicating points.

Less known is the fact that situations created by the density of train and light engine movements during some shipping seasons or because of backed-up tonnage delayed by snow blockades, meant that open points of telegraph communication were sometimes established at Lava, Toltec Section House, Los Pinos, Coxo, Cresco, and Lobato. When opened, equipped bunkcars were used.

**The Chili Line**

What was used to communicate between Antonito and Santa Fe on the Chili Line? The 1923 roster shows only one wire between Antonito and Sante Fe. This was the DS wire from La Veta to Durango with the designated wire reserved for use of dispatchers in train order handling. It was a joint wire with Western Union Antonito to Sante Fe. The 1923 roster shows T for telephones at several locations. I can only remember it as being usable to Taos Junction. Beyond that point it was used more as a local gossip line. If needed, trains in trouble could ring in Espanola to relay information to the Alamosa Dispatcher by Morse.

The Salida-Montrose Line was pulled up before telephones came to it so it was the last piece of the narrow gauge to never have been other than a telegrapher’s domain. The San Juan Line suffered the disgrace of finally having train orders and messages transmitted by telephone, although all telegraph facilities were retained and maintained. All the agent-telegraphers, telegraphers and dispatchers who were still working at the remaining points of communication stuck to the telegraph.

**Communication During WWII**

At the outbreak of World War II, the country turned to railroads as one of the critically-needed transportation means. There became a need for Morse in some cases, but as a whole telephones on main lines and teletypewriters took up the slack. The D&RGW employed a number of Western Union telegraphers and gave them a brainwashing in handling receipt and delivery of train orders to passing trains. It was not a gladsome substitute.

On the Rio Grande there were many branch and secondary mains where messages and train orders depended on Morse. In the beginning there were only four of us younger dispatchers already assigned who could work with both Morse and telephones on such districts. More Morse operators were in training for train dispatching, but they were not yet ready.
A second set of dispatchers was established at Salida and the four of us were assigned to man it. We were on this about two months when four of the students were promoted and assigned to the second set of dispatchers at Salida. Our team was sent to Grand Junction to man another dispatching office. As at Salida, when four more newly-promoted students became available, our team was moved to Salt Lake and manned a desk for handling all the branches and portions of the Main Line. We had to use both Morse and telephone at each of these new assignments. Proper equipment was difficult to get.

At each of the three dispatcher assignments a combination talk/listen apparatus was furnished to keep in place over the left ear for use for telephone communication; telegraph equipment remained for communication in non-phone Districts. We had only one headset for all of us; a heavy transmitter rested on our chest hanging on a strap around our necks. The receiver was an old-fashioned round one held in place by a piece made of a springy steel spring wire; there was no padding. The receiver had to be worn constantly as there was no speaker to tell us a telephoner was on the line.

Try listening to an aural report coming by phone and a second one being received via a chattering sounder and try to keep the contents separated and in proper context. You ain't lived until you experience this day by day.

When the war was over, phone equipment became available readily and cheaply and teletypewriters were sold a dime a dozen, Morse men became anachronisms—the dinosaurs of the railroad industry.

**Western Union Commercial Wire Service**

In theory Western Union maintained commercial telegram service to and from narrow gauge agencies until December 29, 1969. As long as any community had an open Rio Grande agent-telegrapher office they could send and receive WU messages. But think about the culture and industries in this territory. They were poor people and industries were such that they did not require the speedy exchange of information WU could provide. Why pay $.35 - $1.00 for a WU telegram when a $.03 stamp got you the desired information in a few days, fast enough to satisfy most needs. As agent-telegrapher December 1937 to Spring 1939, I sometimes did not send a WU telegram for weeks nor receive one to deliver. In Chama there were maybe 20-25 a month; Dulce and Ignacio, because of the Jicarilla Ute Reservation headquarters, were about the same. The Western Union commission from handling these messages would not buy a cheap quart of whiskey.

In larger towns, when the supply of teletypewriters became better and where commercial telephone service was available, Western Union came in, subsidized and equipped a business concern to be their Western Union provider for commission and subsidy. Almost without exception drugstores, if available, were preferred by Western Union. But up until the last agency was closed in 1969, Western Union messages could be transmitted to or received from “FY Alamosa WU,” the D&RGW having priority.

**New Methods**

High frequency radio, telephone and teletypewriters were far more useful for railroad use in transmitting reports, information and the like. So by the end of the Great Depression, or at least by 1940, the Morse telegraph had been entirely replaced by a system of telephones, even in train dispatching, on all but the smaller railroads or branch lines of larger ones.

About 1948, the Rio Grande either devised or copied a method of using its wires on the Creede Branch where a telephone “jumped” to the wires by radio and the mes-
sage traveled to the Alamosa Relay Office (AS) and the train dispatcher (RM) over the wires. Telephones were in use from all narrow gauge offices still open as points of communication. Actually it was only an improved type of the telegraphphone but it did work well. On our Main Lines, for train dispatching, Morse was gone; the Morse instruments were removed except at any office from which trains on branches were dispatched. On many of these, a system was set up so trains operated under Yard Limit Rules without any form of train orders.

The old boomer operator in his black sateen sleeve guards, personal “Bug,” and a stub of indelible pencil was way out of date along with the tobacco juice stains at his left shirt pocket; just before going on duty, operators working at commercial or railroad Relay Offices would roll up a cone from several thicknesses of paper and stick it in their left shirt pocket to be used as a “spittoon” to receive the juice of their Redman or Beechnut chewing tobacco. Samuel F. B. Morse's telegraph had come a long way in a century but was well on the way to becoming an anachronism.

Epilogue

The computer and its constant improvements made possible by the “chip” came so rapidly that one generation soon was replaced by a new, better one; “Whiz Kids” coming up with incredible new ideas that work. Somewhere in all this the Morse keys, Vibroplexes, relays, quadruplexes, sounders and gravity cells became just another phase of history. All the instruments and gadgets of telegraphy are now museum displays, their use explained. Overlooked, however, is the prime factor in their use, the telegrapher. Without the men and women who learned the new language of dots and dashes, developed the requisite manual dexterity to transmit information by manipulating a key or Vibroplex, the techniques of telegraphy would have been just another toy for amusement.

**John Norwood’s Hints on Using Wayside Phone Booths**

(From the *C&TS Dispatch*, Winter, 2003)

“Carry a stick with you as you approach the booth. Check for snakes, scorpions and yellow jackets (they nest underground). Chase any snakes or scorpions back under the booth. Don’t step on nests of yellow jackets. Unlock (if necessary). Enter. Look up in the ceiling for wasp or hornet structures. If they are present and you must use the phone, do so quietly and unobtrusively—do not disturb the permanent residents.”

**Nine Telegraphone Booths on the C&TS Antonito to Chama**

- Lava MP 296
- Big Horn MP 299.7
- Toltec Siding MP 310.5
- Mud Tunnel MP 311.2
- Rock Tunnel MP 314.7
- Los Pinos East MP 322.9
- Apache Canyon MP 327.6
- Coxo MP 332.9
- Cresco MP 335.2

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*John B. Norwood* retired from the D&RGW in 1975. After night classes in journalism, he began writing for a number of magazines, wrote three narrow gauge books and a cookbook. He passed away at 93 in 2008.
In about 1966 or ‘67, I was given the task of traveling over the remaining portion of operating narrow gauge trackage between Alamosa, Colorado and Chama, New Mexico, for the purpose of evaluating the condition of the telegraph pole line and to recommend necessary repairs to keep it going until the Railroad discontinued operation.

I was staying in Pueblo, working on details of another job, when I got word on this task. There were no roads into the territory where this line went so I would have to use a narrow gauge putt-putt motor car to make the trip.

The tracks had a pole line paralleling it all the way, with a dispatcher's phone pair and two Morse wires on it. All the wires were No. 8 iron on one 6-or-8-pin crossarm. The DS (dispatcher’s) phone terminated in a carrier channel from Denver, where the Dispatchers were located. The telegraph wires took their battery power at Alamosa and at Chama—the line west of Chama to Durango had already been cut and abandoned. There were open train-order offices at AS (Alamosa), JR (La Jara,), NA (Antonito) and CH (Chama), each with a two-letter Morse office call designation.

I knew I’d have to use the Morse wire to call in along the route, as the DS didn’t want us yakking on his phone, as it was also bridged with the DS phone along the main line between Pueblo and Alamosa, and was fairly busy. So I’d have to use the Morse wire to work with Alamosa and relay via the operator to the head office in Denver. The operator was an Italian we all called by his last name, Ficci.

I needed a portable set to pack along and couldn’t find anything around the Tel & Tel maintainer’s shop in Pueblo so I dug through the junk box and came up with an old 15B main line sounder and most of the parts of a pole-changer key. I also found a chunk of ¾-inch Bakelite paneling large enough to cut for a base. The sounder’s wood base was all broken, in pretty terrible shape and missing some parts but these also turned up in the junk box.

I had nothing to do that evening so I set to work in the shop using a drill press and other tools to build up a little portable set. I cut the Bakelite about five by eight inches and mounted the sounder on it. Luckily, the windings in the coils were OK. I had to splice some wire on the pigtail leads but that was no problem. The old pole-changer key yielded a trunnion and screws, plus the key lever. I mounted these on the base with the sounder and cobbled up a circuit closer for the key out of parts from the original pole-changer switch. I found an old key knob that was broken off on one edge, leaving about half of it, and fitted it to the key lever with the broken edge parallel to the edge of the base. It came out nice so I just left it that way. With the addition of a couple of binding posts, I was in business. In a couple of hours, I had a nice, compact portable set that would fit into the top of my leather tool case. I fixed up some leads with alligator clips and took the set to the switchboard and put it on a wire to check it. As it turned out, the sounder had a beautiful tone and was very pleasant to copy. The key was nice, too.

This assignment was a once-in-a-lifetime chance and I fully intended to have a good time while at it. The section lineman had a huge territory, of which the narrow gauge was but a small, distant piece. He generally regarded going over there as a pain in the behind and never went unless he absolutely had to. Being a young squirt and full of enthusiasm, I was rarin’ to go. The lineman said he didn’t care if I bent the union contract and did any necessary repair work I felt I could do while over there either, so I had pretty much carte blanche for the trip. The boss was only interested in the results and it was left up to me how to get the job done.

Next day I set out. After a three-hour drive over to Alamosa, I got a room and went down to the motor car shed to check out the narrow gauge putt-putt. It was a little Fairmont AA double-cylinder model that Western Union turned over to us there. It was in good shape and would go like hell. I spent the rest of the day lining up tools, wire, glass insulators, splicing sleeves and all that sort of stuff.

Early the next morning I got a line-up form from Ficci and came up with an

Ed Trump’s “Homemade” KOB Set

This story originally appeared in the October, November, December, 1992 issue of Dots & Dashes, a publication of the Morse Code Telegraph Club, Inc. and reprinted on the Telegraph Lore website http://www.telegraphlore.com/index.shtml. It is reproduced here with the kind permission of the author and website owner. Thank you! ~ Chris James, Editor, C&TS Dispatch
at first a little leery letting me in, not being used to visitors
another test. The sectionman’s wife, a nice Mexican lady, was
which I told them I would do. I put everything back together
wanted, some transpositions checked in a particular section,
the DS phone so we ended up relaying thru Ficci what he
said to call him on the other phone so we could talk direct.
Ficci called the head office and got the chief engineer, who
wanted to talk to me so I told him I’d check in with them.
the Denver office
when Alamosa took the battery off the other wire, so I knew
which direction the cross was. My voltmeter swung to zero
I didn’t write up much between Alamosa and Antonito as it was all easily accessible by road.
After lunch (damn…that chile was hot!) and a break at Anto-
tonito, I set out westbound toward the pass.
The Morse wires hadn’t been working well west of An-	onito and I was determined to find out why. There were two
wires and I figured they were probably crossed. Continuing along, I wrote
up the leaning poles, broken glass insulators, floaters and all the other
things I was supposed to be doing. I enjoyed myself, as it was a nice day in the
mountains. Nobody, but nobody was around. At Osier I encountered
the work train, the crew eating lunch. I knew most of the crew and spent
an hour or so shooting the bull with them before setting out again.

An Original KOB Set Key and Sounder

At Toltec I stopped to make a test for the crossed wires
and cut in the portable set to call in. Toltec was one of the
break iron test points and I had to climb a pole to test. I got
Ficci on the wire and had him open the other wire to see
which direction the cross was. My voltmeter swung to zero
when Alamosa took the battery off the other wire, so I knew
I was still east of the problem. I checked the phone pair with
the DS and told him where I was. He said the Denver office
wanted to talk to me so I told him I’d check in with them.
Ficci called the head office and got the chief engineer, who
said to call him on the other phone so we could talk direct.
I don’t believe he understood just where I was—there wasn’t
a telephone within 100 miles of the place! We couldn’t use
the DS phone so we ended up relaying thru Ficci what he
wanted, some transpositions checked in a particular section,
which I told them I would do. I put everything back together
and headed on up the pass. An hour or so later I got to Cum-
bres and went into the section house to check in and make
another test. The sectionman’s wife, a nice Mexican lady, was
at first a little leery letting me in, not being used to visitors
there, especially strangers. The telegraph table was still intact
over in the corner of the room and the place had Fahnestock
unit switchboards for each of the wires. The sounders were
all there as was the master set, jack box, resonator, etc. The
only thing missing was the Morse key, which someone had
swiped so I had to go outside and get my portable set in
order to call in. Ficci told me it had been years since he had
heard “MB,” the call for Cumbres Pass, on the wire. It had
been closed as a train order office long before my time.

Another test showed me to be still east of the crossed
Morse wires. The DS phone and local batteries were OK so
I loaded up and set off downgrade toward Chama. Nothing
was coming east so I had the railroad to myself. It was also
going late in the afternoon and I didn’t relish the thought of
banging along in the dark with no lights on the motor car. I’d
be sure to lose the battle in a collision with a stray heifer or
deer.

Somewhere below Cresco tank I stopped and climbed
another pole to make a test. I cut in my set and got the night
man at Alamosa to open the other wire where I was and put
the voltmeter on it. With the wire we were using closed, I
could see positive battery on the other wire, east of my open
wire. Aha! Now I knew I was west of the trouble. If the wire
had been clear to the east, I should have seen no battery
when Alamosa took off his terminal battery. There was an
obvious cross between the Morse wires east of me, between Cresco tank and Cumbres Pass. I watched the voltage fluctu-
ate on the opened No. 2 wire while
I worked the key telling Alamosa to
close up the wire. I closed up every-
thing and ran in reverse a couple of
miles back up the hill, taking a good
close look at the wires. Sure enough,
I saw a wrapped span down in a gully
where I hadn’t noticed it earlier. A
quick climb up the nearest pole and a
good shake or two, and the wrap came
free. I wrote up the spot as needing the
slack pulled and was on my way.

Since I had to return the same way next day, I didn’t stop
any more on the way into Chama. The office was closed but
I let myself in with my switch key. A quick test showed both
wires to be clear, so I had fixed the problem. I put the motor
car in the shed and headed up the hill to Foster’s Hotel and
beanery to tie up for the night. All the railroaders stayed at
Foster’s Hotel. It was quite a place, worth a story in itself.

Following supper, a few beers in the cantina and good
night’s rest, I headed east, retracing my way back to Ala-
mosa. I never got to make the trip again but that was one
fun time. I’ll never forget it.

L. E. “Ed” Trump worked on the D&RGW narrow gauge as a fire-
man and brakeman in 1963-4. After earning a degree in Elec-
trical Engineering at Colorado State University, he returned to the
D&RGW as a telecommunications engineer until 1974. Purchas-
ing and flying his own plane, he landed in Alaska in 1975. With
his EE Degree and an FCC Radiotelegraph license, he took tele-
communication jobs in Nome and Fairbanks with RCA Alascom,
often communicating in Morse Code. He retired after 34 years
with RCA Alascom/AT&T in 2009.
SS-7 was called to prepare several pieces of rolling stock for the March Charter. Site Leader John Engs was joined by Greg Coit, Don Atkinson and Patti Lounsbury.

Arrangements were made with the Railroad to move the Bunk Car and the Caboose to the C&TS Car Shop to permit the cars to warm up enough for lettering.

In Caboose 0759 the coal stove was connected to the new roof jack and the angle cock was replaced on Cook Car 053.

All of the work on the rolling stock was completed by noon on Sunday, December 9th.

John, Don and Greg did the final installation of the stove in Bunk Car 04258 while Patti did the stenciling and detail work of the Bunk Car’s lettering.

With the interior now complete, the car is ready to return to the Railroad. The opening in the floor of the car is the access point to the rod connector.
Dashing Through the Snow!

The C&TS ran their fifth season of Christmas Benefit Trains out of Chama on December 8th and 9th and Antonito on the 15th and 16th, as well as a special train for Antonito schools on December 17th.

Brad “Santa” Lounsbury and Mrs. Claus (aka Corrine Williams) took time off from their North Pole workshop to visit both towns and check up on who’s been naughty and nice.

The trains carried 4,503 people and volunteers collected 7600 pounds (3.8 tons!) of food and 1279 toys for the Toys for Tots program. Volunteers from both communities’ food banks and other individuals assisted in supporting the five events. ~ John Bush

If you have not yet had a chance to view The Railroader, a 10:50-minute mini-documentary featuring C&TS President John Bush, you have missed one of the most beautiful pieces of filmmaking ever created along the Railroad.

Created by John Bush’s son Russell and Russell’s wife Annie, both New York filmmakers, the film captures John Bush’s at times emotional vision of what the Cumbres & Toltec means to him and what the Railroad represents to the history and culture of America.

The videography, particularly the drone footage along the many parts of the Railroad, is stunning. But equally stunning is John Bush’s lyrical narration of the importance of the Cumbres & Toltec in preserving the history and technology of early railroading in the West.

The film was a National Geographic Short Film Showcase Official Selection.

View the award-winning film at https://tinyurl.com/c-tsjohnbush

“America built the railroads and the railroads built America.” - John Bush
The Chama Post Office opened on December 22, 1880 shortly before D&RG’s manager of construction, Robert Weitbrec, noted, “…the track…was completed to Chama, January 18, 1881.” During the first year of operation, the Chama Post Office hand-wrote the postmark and “manuscript canceled” the stamp. The first Chama postmark device was not recorded in use until December of 1881. See more from James Weigant’s philatelic collection on pages 6 and 7.