



TELECOMMUNICATIONS  
HISTORY GROUP

# CONNECTIONS *news*

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Dave Felice, editor

## A Message from Our Director

In this newsletter, you'll learn how intrepid volunteers overcame obstacles to get a British phone booth from Eastern England to Seattle. A Western Electric microphone changes modern recording. Contributing writer John Swartley is back with some Pioneer remembrances.

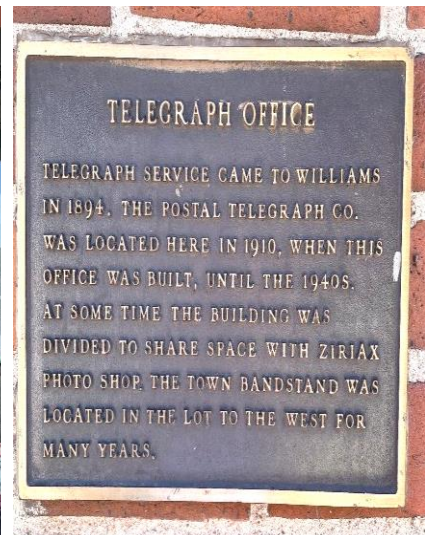
Seattle Connections Museum volunteers get involved with a community revival of a decommissioned steam production plant.

On a recent trip to historic Route 66 through New Mexico and Arizona, I found a few working phone booths. They are still out there!

Have a wonderful winter. Thanks for your continued involvement in the fascinating history of telecommunications.

Sincerely,

Renee Lang, Managing Director



## THG volunteers get steamed at historic power plant

Seattle's Georgetown Steam Plant may be experiencing a "back to the future" moment. The plant was built in 1906 to power the region's growing electric streetcar system. At that time the facility was at the center of the rapidly growing separate municipality of Georgetown, now just a few blocks away from the Telecommunications History Group's Connections Museum.



The electricity producing plant was designed to run on either coal or oil. Shortly after it was built, hydropower became the region's primary source of electrical energy, and the steam operation became a backup power source. In 1977, production stopped for the last time.

Since the Georgetown plant was taken out of service, building owner Seattle City Light has worked to preserve and restore the facility. The site is recognized as a National Historic Landmark, a Seattle Landmark and Historic Mechanical Engineering Landmark. Like some switching machinery at the Connections Museum, the steam plant turbines are some of the last preserved examples of their type to still exist.

A nonprofit Community Development Authority was recently established with the objective of making this historic landmark as safe and accessible as possible, while realizing the Georgetown Steam Plant's potential as a community cultural center.

Some THG Seattle volunteers are involved. "We believe helping out there is useful to THG's overall mission to connect the past to evolving technologies and cultures," says THG Board President Peter Amstein. "It's important for THG to have strong working relationships with other science and technology museums in our area."

THG volunteers recently restored the plant's original magneto telephone system to working condition. Several telephones connected workers on the fairly simple party line system. In addition to telephone bells the system has extraordinarily loud DC powered horns so someone could hear the telephone "ringing" over the din of the machinery.

In September, the steam plant held the first of a planned annual series of science fairs. The event proved extremely popular, bringing several thousand visitors to the plant. Seattle museum volunteers set up a display of various old phones connected by a small PBX, so young children could learn how to work a dial. The museum also provided a display of "Jacob's ladders," a device not directly related to telephony perhaps but still an interesting exhibit of fundamental electrical principles. In the display, sparks "climb" between parallel wires, showing how electrons move.

Unlike a similar plant in downtown Seattle and other cities, excess steam from the Georgetown plant was not used to heat other buildings. Instead, the steam was cooled and condensed back into water which was released to the nearby Duwamish River.

Around the world, steam is being re-evaluated as an energy source which minimizes the use of fossil fuels and reduces emissions.



## Complex museum caper involves many participants

*Adapted from Don Ostrand's original 1995 story*

A ham radio contact, a planned U.S. holiday, a visit to The Vintage Telephone Equipment Museum and a dream, are the preamble to a story of international cooperation and friendships.

Since 1985, the Vintage Telephone Equipment Museum (now THG Connections Museum in Seattle), has become a great experience, both for those involved and for the general public. Amateur radio operator ("ham") Dick Bendicksen (N7ZL) told the museum story over the airwaves and began the adventure known as "The Call Box Caper".

In the 1994 time of internet infancy, Dick made radio contact with hams Paul Turnham (G4VLS) and Roger Cooke (G3LDI) in the U.K. Talk turned to Dick's museum project in Seattle. Tom and Roger were planning to visit the U.S., so Dick and his wife, Bev, invited Paul, his wife Pearl, and Roger to include Seattle on their trip. Visiting the museum, they dreamed of adding an iconic red British "call box" (phone booth) to add an international flavor.

Upon return to Norwich (in Eastern England), Paul and Roger contacted British Telecom to see about donating a "call box" for the Seattle Museum. (This was long before BT determined it could sell and ship the booths.) About a year later, the museum sent a follow-up letter (by postal mail) through Paul. BT's Steve Chamberlin (G0UYA) and Martin Galea (G7PDO) sent a response to Paul and Roger over the local 2-meter ham repeater. BT was donating a call box equipped with an appropriate coin phone. Pearl and Paul Turnham had it delivered to their home's front garden in Norwich. As a landmark, the booth became the talk of the town!



With a call box in hand, transporting a 3/4 ton item from Norwich, Norfolk, England to Seattle, Washington, USA posed a question. Officials at both nearby Milldenhall U.S Air Force Base in Surrey, and Virgin Airlines air freight declined requests for assistance. Sir Jimmy Saville, host of a TV show "Jim Will Fix It" was unable to help. Paul and Roger considered alternatives.

They even discussed Paul's idea of sending a letter to No. 10 Downing Street. Roger said "You can't send a letter to the Prime Minister" but Paul thought "Why not? If people don't know you need help, they can't help you."

They sent a letter to Prime Minister John Major. Within three days "No. 10" responded. The Prime Minister had contacted his "Foreign Office" and the British Consulate in Seattle to coordinate and expedite the "Call Box Caper".

Mike Upton, British Consulate in Seattle, got the task. A miracle worker was on the job. One of his first tasks was to verify that the whole caper was not a hoax! As if by magic, Mike discovered the Rolls Royce Company shipped jet engines for the new Boeing 777 aircraft to the Seattle/Everett area. Phil Powell of Rolls said it would be possible to fit the call box on a flight to Seattle. Roger and Paul had struck it rich. Now the call box was just 74 miles from the Derby, East



Midlands airport and the lift to the United States.

You don't just move a 1500-pound red call box at the wink of your eye. So again, there was a need for help in moving the call box to the East Midlands airport. BBC Norfolk Radio aired a story in a routine newscast. Both local independent Anglia TV and BBC TV then sent film crews.

Again, some magic was at work. Royal Air Force (RAF) truck driver Corporal Julia Scarff, accompanied by RAF boom operator Corp. Paul Edwards, arrived at the Turnham's residence to make the haul.



With BT officials joining the entire neighborhood, the box was secured for transport to the airport. The RAF folks were hosted overnight in Derby by the Rolls Royce Company after the precious cargo had been delivered to Wayne Tranmer of Rolls Royce.

So close to departure, a question of "customs" documentation arose. Without proper documentation the call box could not be loaded for export. The problem was in Seattle. As the point of contact for the Boeing Company in Seattle, Bill Gray got involved. Paul Turnham said, to the best of his recollection, the call box had shipping labels and the accompanying carton had the contents listed on the exterior as required by customs.



Gray contacted Customs Broker Donna Medlen. She could handle the problem, but she needed "power of attorney". After frantic back-and-forth conversations about forms and payments, Donna sent five pages of instructions and one form to the museum. Donna said the payment could be waived and the forms were acceptable.

Now the call box was loaded on the Antonov 124 Russian transport aircraft and on the way! Happiness is the East Midlands airport finally in the rear-view mirror. The flight got off on schedule at 6:00 p.m. London time. Due to crew flight time there would be a layover in Iceland with an Estimated Time of Arrival (ETA) in Seattle of 3:00 p.m. the next day.

Dick and Bev, Paul and Pearl, Lois and Ron from the museum, Don Fagerholm, and Don Ostrand – arrived at Boeing Field slightly late. The massive 4-engine Antonov was already on the ground with engines still running. This is the second biggest aircraft in the world; the largest is the 6-engine Antonov. As the rear cargo door opened, they could only see a Rolls Royce engine bigger than imaginable. Soon, the Russian crew members had the engine hanging from the overhead hoist built into the plane and were moving the engine and accessories out the cargo door.

Now the call box was in line to be unloaded. Unfortunately, the Boeing truck that had been

volunteered to haul it to the museum had developed a fuel filter leak and would not start. A second Rolls Royce engine was unloaded while a Boeing mechanic fixed the fuel problem. The truck was finally backed into place. The overhead crane was attached to the call box and the lift began. At last, the team could get a good view of it.

Soon, the call box emerged and was lowered onto the now fixed Boeing truck. Driver Bill Murphy chauffeured it to the museum in Seattle. With the boom truck in place and the sling straps around the call box, the final 10-15 foot journey began. The call box was lifted off the Boeing truck and was hanging loose. Bill Murphy bid farewell.



*(L-R) Don Ostrand, Dick Bendicksen and British radio amateur Paul Turnham at the museum.*

The second-floor door was open and a smiling crew was eagerly awaiting. Slowly the call box was raised to the equipment door and was pulled partially onto the floor. One sling strap hit the building above the door. As the slings were being loosened, the wooden pallet started to crack. That momentum was all it took and the call box fell off the second floor into space.

A dreadful picture was taking place right before our eyes. After 8000 miles the call box was surely going to be destroyed. As luck would have it, the second sling and the winch and line were still attached and lassoed the call box by the slight flair of the base. A substantial glancing blow to the first-floor door helped break the fall. It looked like a bungee-jumping phone booth. The strap held and the call box survived with minimal damage. With some careful re-engineering by Bob Dickensheets of the museum crew, the booth was pulled inside. With a four wheel cart and a pallet jack, the call box rolled uneventfully into its new home. Everyone decided to wait until the next day to move the booth to a vertical position.

Using heavy timbers, chains, a floor jack, pieces of steel pipe, and a lot of manual energy and creativity, the crew managed to maneuver the call box upright and into its place. The task lasted about four hours and we still needed finishing touches for a reception at 4:00 that afternoon.

As guests arrived, everyone was amazed that there was no damage. We reminded them that we had all aged rapidly due to the exhausting and challenging experience. With brief words from Mike Upton and a toast, Frances Tomlinson removed the British flag from the booth and the entire museum crew welcomed the call box.

On the following Tuesday work continued. Don Fagerholm, Les Anderson, and Don West connected a line to the set and were able to place actual calls on the internal museum network from the #1 Crossbar. The window glass and lighting was installed. Patching the floor completed the project.

The story could have been make believe, but a visit to the museum will be proof it is very true.

*Editor's Note: Dave Felice adapted and edited this story, assisted by Peter Amstein, from an original first-person account by Don Ostrand (now deceased). Ostrand was Curator of the Vintage Telephone Museum, predecessor to the THG Connections Museum in Seattle. At the time, participants sent paper letters, made wired phone calls, used real film and audio tape, and made contact by amateur radio. As reported previously in Connections News, British Telecom now arranges for sale and transport of surplus red call boxes.*

## Western birdcage revolutionizes audio

One of the most famous products bearing the Western Electric name is only indirectly related to telephony. Anyone who has listened to recorded music or broadcasting since the 1940s has likely heard the sound produced by the legendary Western Electric 639A/B "birdcage" microphone.

By 1935, the audio division of Bell Labs had already achieved success with the Model 630 omnidirectional dynamic microphone known as the Eight Ball because of its round head shape. In the subsequent design of the 639A/B, the company hoped to develop a new multi-pattern design to compete with the popular capsule-shaped RCA DX77 and angular BX44 series, without infringing on RCA patents. Up to this point, Western had not made a ribbon microphone, although Bell Labs invented the dynamic mic design.



Introduced in 1938, the 639A provided three selectable pick-up patterns, featuring a unique combination of dynamic and ribbon microphones and windscreen, in one shell. The 639B expanded the choice of patterns to six. The elements – dynamic moving coil or ribbon velocity actuated – could be used independently or combined by a selector switch at the base. Frequency response in any position was 40Hz to 10KHz, a respectable rating even today.



Buddy Holly with 639A and Neumann U47 microphones at Norman Petty's studio in Clovis, New Mexico.

Low output impedance of 30 to 50 ohms enabled the 639 mics to be used far away from amplifiers without increased noise, hum, or signal deterioration. This was an attractive feature for covering a large space. An internal transformer provided amplification and impedance matching for the velocity ribbon section. The directional characteristics made the 639A/B an outstanding choice for clear and separate pick up of multiple distinct sources.

The 639A/Bs are large, measuring five-and-a-half inches high by about six inches around with a weight to match the size. Even so the microphones became immediately popular in just about any application, from studio recording to congressional hearings. The 639 microphones were also used at the United Nations assemblies. Photographs of radio performers of the time often show the 639 microphones.

From a 639 sales brochure: "Here is a microphone that brings a new concept of quality, performance, and universality – a microphone that sets new high standards of efficiency, convenience, appearance, and functional control."

Broadcasters liked the "bright" reproduction of lower (bass) tones. The microphones were in use in the Denver area as late as the 1980s. They are still in high demand today, sometimes selling for thousands of dollars.

Western Electric formed Electric Research Products, Inc. (ERPI), in 1928, to manufacture, install, and service talking picture systems in studios and theatres. By 1936, Western Electric divested ERPI. Management formed the "All Technical Services" Company, Altec Service Company, to continue service contracts and manufacture some theatre sound equipment.

In accordance with a federal anti-monopoly order, WE spun off its audio business to become Altec in October 1949. Other than the name, the Altec and WE 639 microphones are identical.

To assure uninterrupted service and maintenance to owners of these products, we have entered into an agreement, effective Oct. 1, 1949, with the ALTEC LANSING CORPORATION of Hollywood, California. Under the terms of this agreement the Altec Lansing Corporation receives all necessary engineering information, as well as our inventory of the above equipments and their parts, and will make available service, maintenance, repair and replacement parts for the products listed.

The Graybar Electric Company will act as distributor for the Altec Lansing Corporation, as it has for Western Electric, in serving customers' needs on these equipments, under terms of an agreement recently concluded between the Graybar Electric Company and the Altec Lansing Corporation.

The leadership and integrity of the Altec Lansing Corporation make us completely confident that all users of the Western Electric equipments listed will continue to have available to them service of the very highest quality.

*J. R. Lack*  
Vice Presid

**Western Electric Company**  
INCORPORATED  
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Western Electric notified customers by letter about the transfer of business to Altec Lansing. The transfer covered microphones, speakers, and some sound reproduction equipment.

tube invented by Dr. Lee de Forest as early as 1906. After graduating from Yale, de Forest's first job was at Western Electric in Chicago, where he developed his first radio receiver. De Forest is sometimes called "the Father of Radio." His development of amplification circuitry is crucial to broadcasting, long distance telephony, motion picture sound, and countless other applications.

In early 1941, William Harry and Robert Marshall of Bell Laboratories got a 639 design patent.

*Original story by Dave Felice, based on personal experience and with material from multiple sources. Retired veteran broadcaster Don Bishop contributed.*

In 1941, Altec Service Company bought nearly bankrupt Lansing Manufacturing Company, and formed Altec Lansing Corporation. One of the founders, James B. Lansing, left to form his audio products company known as JBL. Through corporate restructuring and mergers for nearly 100 years, Altec Lansing continues to produce highly-regarded consumer and professional equipment, particularly speakers. Both Altec Lansing and JBL share the Western Electric heritage with only a few degrees of separation.

The development of higher quality microphones fits with the Bell System's continuous interest in carrying voice, both on wired phone systems and broadcasting. The advance of both relied on electronic amplification, through the three-element audion triode vacuum



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## Disconnected territory gets special phone arrangements

There's a community in the United States which is only accessible by going through Canada or by sea. Now, the "census designated" community of Point Roberts is getting a new underwater cable from an island 70 miles south in Puget Sound. Whidbey Telecom currently provides wireline phone and broadband service by its own microwave and leased fiber cable through Canada. The company completes the connection with buried fiber to customer premises.

Through an oddity in mapmaking, Point Roberts is an *exclave* (unconnected territory) of the U.S., linked only to the Tsawwassen Peninsula of the Canadian mainland. In the middle 1800s, a British-American treaty set the border along the 49th Parallel from the Rocky Mountains to the Strait of Georgia. Surveyors later discovered the straight line boundary would isolate Point Roberts. Unsuccessful negotiations left the almost five-square-mile territory in the U.S., as part of Whatcom County, Washington.

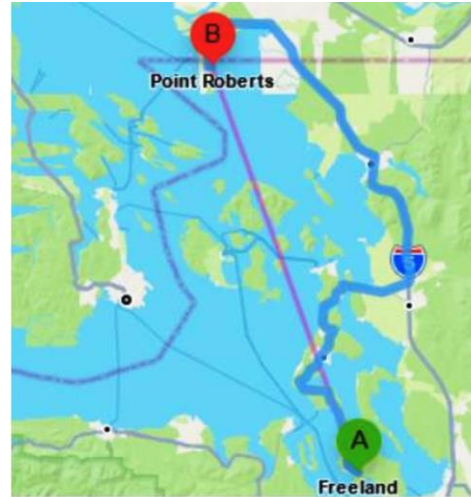
Whidbey Telecom has received a new federal "Middle Mile" grant to help fund additional terrestrial U.S. and submarine fiber connections in the Puget Sound area. When complete, the Point Roberts Bipartisan Infrastructure Project will provide broadband access to Point Roberts, locations on Whidbey Island, the Lummi Tribal Nation, and areas of San Juan County. The project also will provide needed redundancy to Naval Air Station Whidbey Island. There will be 47 miles of new terrestrial underground fiber and 63 miles of undersea fiber from the \$11.7 million grant.

To meet expanding requirements on South Whidbey Island and smaller Hat (Gedney) Island, Whidbey Telecom owner David Henny purchased a Western Electric #5ESS in 1986. The new digital switch included a remote module that could be used at Point Roberts.

After learning in 1983 that British Columbia Telephone Co. served the small peninsula as "unassigned territory," Henny negotiated to acquire the BC Tel operations. Whidbey also applied to the Washington Utilities and Transportation Commission to provide service to Point Roberts.

Henny paid BC Tel \$45,000 for all facilities, wiring, and pay phones. In June 1988, the transition to digital switching was accomplished. Whidbey Telecom also registered as an extra provincial company in British Columbia.

About the same time, Henny tried to find a redundant microwave to the 300-foot Bayview tower on Whidbey and 200-foot tower at Point Roberts. He acquired a 5-acre site southeast of Bellingham, near the Washington coast. The new microwave system, installed in 1992, also provided another link between Whidbey Telecom and U S WEST in Bellingham.



*Point Roberts (B) is 71 straight line miles from Freeland, Whidbey Island (A) or 127 miles driving on State Road 525, SR-20, and I-5 north. The Canadian Border on the 49th parallel runs straight until the Strait of Georgia, where it zig-zags south to include Vancouver Island (L on map).*





Cellular service in Point Roberts comes from major American companies, predominately AT&T, T-Mobile, Verizon, and U.S. Cellular. Canadian companies Bell, Rogers, Telus, and Shaw also provide some service. Prior to 4G (4th Generation) cellular, most mobile phones were confined to either American or Canadian networks. Cell phone users who crossed the border frequently needed two different handsets. Now, cross-border cellular service can be seamless.



At the southern end of 56th Street in the town of Tsawwassen, there are two gate houses, one each for U.S. and Canadian Customs and Border Patrol. Anyone entering or leaving Point Roberts must go through an

identification and customs check. Signs and border posts mark the east-west boundary.

When the Canadian government closed the border during the pandemic, travel in and out of Point Roberts was nearly impossible. Package delivery continued however, because the trucks were sealed until reaching their destination. Parcel transit is an important business because packages are shipped to an "American" address.



About 1300 people live full time on Point Roberts. The transient population swells with several thousand vacationers during summer.

Point Roberts was in Area Code 206 (Seattle) under BC Tel (now Telus) operation. Calls could also go through Canadian Area Code 604. The community now has one exchange, 945, in the larger 360 Area Code.

Whidbey Telecom offices in Point Roberts are located in a woodland with tall evergreens. There is a large service garage and a business office. The on-site staff consists of a construction foreman, an office supervisor, and a service (customer experience) representative.

Businesses on the south end of Whidbey Island established Whidbey Telecom in 1908. David Henny bought the company in 1953. From his childhood in Pennsylvania, Henny was known as "the boy who loved telephones." Soon after purchasing the independent company, he embarked on expansion, including digital radio and switching improvements. David Henny also occasionally worked the operator switchboard, and had a small cordboard in his office. The company now provides multi-gigabyte connections in most of its territory and continues its service growth. Whidbey Telecom is still owned by the Henny family.

By 1961 Whidbey was the first telephone company in the nation to put all local lines underground. The company pioneered internet and data transport services in the area, and converted all its phone booths to provide free local service.



Original story by Dave Felice, with material from multiple sources including the book, *Hello Central – Whidbey Telecom, Over 100 Years of Visionary Service* by Marion Fay Henny

## Swartley's Stories: Pioneer Handicap Projects

Upon re-reading H.M. (Henry) Boettinger's scholarly 1976 work, *The Telephone Book*, I'm drawn to the section on Telephone Pioneer projects enriching the lives of handicapped people. I also have to put in perspective the era these projects were built. The Pioneer builders did not have modern small printed circuit boards; they had to improvise.



The Telephone Pioneers of America was founded in 1911, with Alexander Graham Bell as Pioneer No. 1. Bell and his family started the philanthropic traditions of aiding the needy, the deaf, the blind and the infirm.

When the Telephone Pioneers was chartered, it was one big organization, under an AT&T umbrella. The big breakup in 1984 scattered the Pioneers, mainly divided between the Bell operating companies and AT&T. As retirees of AT&T our group became part of the AT&T Pioneers. Now constituted as a volunteer network, Pioneers are divided into 30 different chapters in the United States.

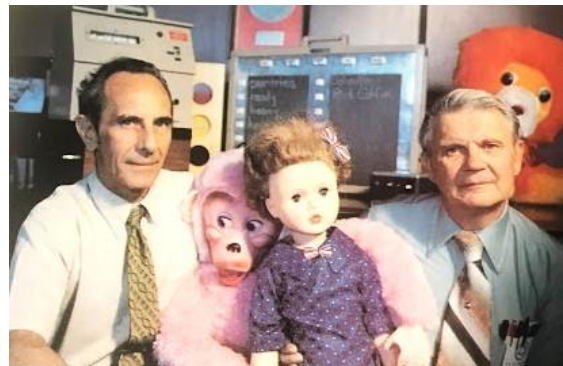
In our prime years as Telephone Pioneers, I worked with Charlie Parker. He was connected to handicapped groups and knew their needs. He would request items from a group of Pioneers at the CHARM shop in Lee's Summit (Missouri) for some of his items. CHARM is an acronym for 'Children Helped and Rehabilitation Motivated'. The CHARM shop was established in 1983. It has produced and distributed over 36,000 therapeutic devices to 25 agencies in its life span.



I found the CHARM shop, (above photo,) is alive and well, operating under the New Outlook West Pioneer organization. The shop is now a 3500 sq ft shop provided by benefactors, Seasons Memory Care (an Alzheimer's facility), and One Community Hospice in Kansas City. All three organizations benefit from this alliance.

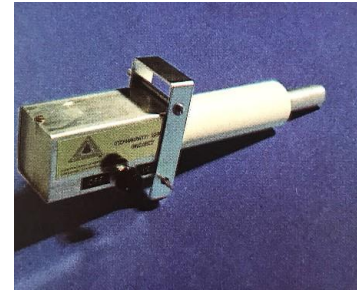
Charlie drew up several special needs projects that he and I would build in my shop. We built several handicap ramps, and somehow, he knew where they were needed.

Pioneers (R) Walter Zimmerman and C.F. Boettcher developed talking dolls, using Electrical Communication Devices (ELCODE). With this device, therapists could communicate wirelessly with dolls that handicapped children would relate to better than humans. Hundreds of dogs, bears, rabbits, and other animals as well as dolls were distributed to speech therapists. (Remember this was in 1975-76.)





Pioneers designed and built a "Cricket," Audio Directional Device for aiding the blind.



The chair shown below was designed for children with limited muscle control. In addition to a rack to hang crutches on, the special worktable had a lock-in cabinet portion to hold physically handicapped children in an upright position.



Pioneers spent many volunteer hours repairing electronic instruments used by the handicapped. Most of us are aware of the famous "Beep Ball," designed and built by the Pioneers allowing blind baseball players to enjoy the sport. A group of Canadian Pioneers developed a beep hockey puck. The 2024 Beep Ball Baseball World Series was in St. Charles, Missouri in July.

In 1991, Telephone Pioneers moved its national headquarters from New York to Denver. The organization also began a partnership with the National Park



Service to improve accessibility to all state and national parks.

Pioneer telecommunications employees and retirees make up the world's largest industry association devoted to community well-being. The Pioneers concentrate on programs in education, life enrichment, health and human services, environment, and military support. The objective is to make immediate and tangible contributions in partnership with local and national sponsors. After corporate reorganizations resulting from Divestiture, Pioneers now get primary support from eight organizations. They are AT&T, Bell Aliant, FairPoint Communications, Frontier Communications, Legacy West (formerly Qwest and successors), SaskTel, Verizon Foundation, and the self-sponsored New Outlook Pioneers from Lucent, Avaya, and Agere Systems.



When I arrived in Rogersville in 1996, I was looking to make new friends. Someone told me about the AT&T Pioneer meetings at a local cafeteria. There I found a large group of very active Pioneers who welcomed my wife, Barb, and me. We soon made lifetime friends while serving our community. I am sorry to report Father Time has taken its toll. The few of us that are left are ending our famous first Thursday luncheon. Over the years at these meetings, we would plan our next activities, exchange

Christmas presents, catch up on the gossip, find out who was ill, just like a large family.

I am proud of my Life Pioneer Plaque on my wall, all it stands for, and all the wonderful memories I have of being a Telephone Pioneer!

Keep having fun. I am. – Swartley



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