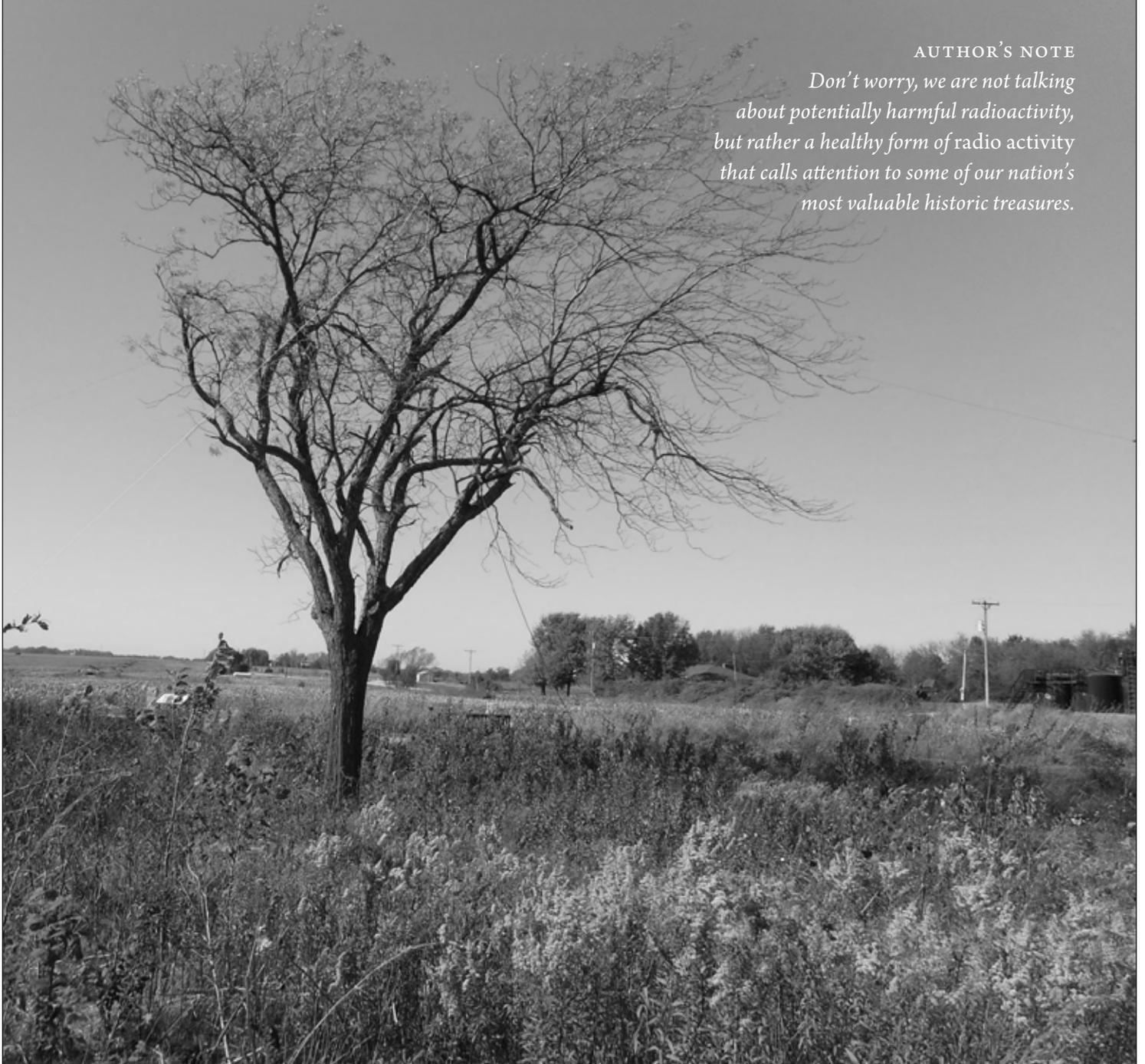


making our historic trails
RADIO ⚡ ACTIVE

BY JIM ANDERA, KØNK

AUTHOR'S NOTE

*Don't worry, we are not talking
about potentially harmful radioactivity,
but rather a healthy form of radio activity
that calls attention to some of our nation's
most valuable historic treasures.*



all across this great nation

ARE WONDERFUL SITES AND POINTS OF INTEREST. SOME ARE HUGE AND WELL KNOWN. OTHERS ARE TINY AND OBSCURE, MAYBE EVEN HIDDEN. SOME ARE HISTORIC AND OTHERS ARE SCENIC—AND OFTENTIMES THEY ARE BOTH.

Amateur radio operators have come up with a way to unlock the hidden, commemorate the well known, and celebrate the value these treasures hold for the nation and the world.

In 2016, in recognition of the centennial anniversary of the National Park Service (NPS), amateur radio operators across the nation helped the NPS celebrate by temporarily setting up amateur radio stations in our national parks and similar sites—including along many of our nation’s historic trails. Throughout the year these amateur radio stations helped call attention to notable NPS-related points of interest and allowed other amateur radio operators from across the country and around the world to “visit” these scenic and historic sites over the radio.¹

Called National Parks on the Air (NPOTA), these events were immensely popular among amateur radio operators (also known as ham radio operators or, more simply, as “hams”). The activity took on a bit of the flavor of a game. Hams who set up radio stations on the trails and in the parks were called “activators” because they were enabling that site to be active on the air. Other hams who visited these sites over the radio were called

“chasers.” The chasers tried to talk to as many activated sites as possible on the NPS list. In the process, everyone’s knowledge about NPS points of interest was increased.

In October 2016, our Olathe, Kansas–based Santa Fe Trail Amateur Radio Club (SFTARC) participated in an NPOTA event from a unique location—Gardner Junction, Kansas—where the Santa Fe and Oregon/California Trails split off.² This point, about forty miles southwest of the trails’ starting points of Independence and Westport, Missouri, is now marked by a two-acre roadside park, built in 2008 as a cooperative effort between multiple organizations and agencies, including the National Park Service. Today Gardner Junction is managed by the Gardner (Kansas) Parks and Recreation Department.

On a beautiful Saturday morning in October, members of the SFTARC gathered at the junction to set up multiple ham radio stations. One of the stations operated on frequencies that supported communications generally within the midwestern United States. Another station operated on frequencies that would reach the east and west coasts and as far away as Europe. While two stations operated in voice mode, a third station engaged in communications using the Morse code. With three stations on the air, SFTARC members had the opportunity to tell those on the other end of the communications link about Gardner Junction and its significance in the westward overland migration of the 1800s.

Some estimates place the number of emigrants who traveled through this area during the westward movement between 350,000 and half a million people. From Gardner Junction

¹ The inspiration for this article came from OCTA members Bill and Jan Hill, who I had the chance opportunity to meet at the 2016 Hollenberg Pony Express Station Festival in August 2016, as they were returning home after the Fort Hall OCTA Convention. Fellow Crown Amateur Radio Association member Charlie Hett and I visited with Bill and Jan and shared with them an overview of the NPOTA events. They suggested that OCTA members might enjoy hearing about the NPOTA. Thus the seed for this article was planted. In return, we were introduced to OCTA and the *Overland Journal*.

OPPOSITE The lone tree at the Gardner Junction Park serves as a support for one of our antennas. While the wire antenna tends to blend in with the surroundings, readers with a keen eye may be able to see multiple wires extending from an upper branch of the tree. Agricultural activity has erased the wagon ruts along this part of the trail. PHOTO BY JIM ANDERA.

² Gardner Junction Park has a paved 400-foot nature walk planted with six species of native grasses and thirty types of wildflowers that travelers would have encountered on their way west. Three display panels tell the story of the three trails. (Information courtesy of <http://www.kansastravel.org/gardnerjunctionpark.htm>.)

the California and Oregon Trails veered off to the northwest, crowded with emigrants looking for a new home. From this same spot the wagons traveling the Santa Fe Trail headed southwesterly, generally loaded with cargo and merchandise to support a developing Santa Fe population.

The trails that separate at Gardner Junction are three of seventeen historic trails that were recognized by the NPS as part of the NPOTA activity (see sidebar 1). Numerous national parks, monuments, grasslands, battlefields, and scenic trails were also part of the NPOTA activity. Each location has its own story to tell about the part it played in our nation's history, or the role it plays today in allowing the public to experience the physical beauty and splendor the United States has to offer.

During the five hours we were on the air at Gardner Junction, SFTARC members exchanged greetings with hundreds of other radio operators, some as close as just up the road or as far away as Germany and Bosnia. As an added benefit, every SFTARC member who participated gained a deeper understanding of this unique place in American history that sits in our own backyard.

With 2016 behind us, the NPOTA events have come to an end. But that does not mean amateur radio will disappear from our parks or along the trails. At the time of this writing, however, the American Radio Relay League (ARRL) has not announced an organized event similar to the National Parks On The Air 2016 activities to celebrate 2018—the fiftieth anniversary of the National Trails System Act.

Amateur radio operators tend to enjoy operating from unique and interesting places. As an example, through the efforts of another Olathe-based club, the Crown Amateur Radio Association (CARA), every August for the past eighteen years, an amateur radio station has taken part in the Hollenberg Pony Express Station Festival near Hanover, Kansas. Built in 1857, this Pony Express stop and Cottonwood Creek crossing on the Oregon Trail is another one of the state's historic treasures. During the festival, which depicts life in early America, our amateur radio station takes the form of an 1860s telegraph office, where visitors can observe a working telegraph office and try their hand at sending the Morse code. Through the telegraph office, ham radio operators from around the country get to talk to the Hollenberg Station using Morse code. They also receive a certificate in recognition of their "visit" with the Hollenberg site. Such an on-the-air operation, called a Special Event Station, helps people from around the country learn

about a wide variety of places, festivals, and activities that add to the richness of American culture.³

Like other amateur radio operators across the county, SFTARC members look for opportunities to operate from historic sites. They may do it as individuals, or as part of a radio-club activity. In October 2017, for example, SFTARC members operated a Special Event Station from the grounds of a one-room school house museum, the Lanesfield School Museum. This well-preserved limestone structure is a unique piece of Kansas history that sits in our backyard yet seems hidden away on a gravel road—but is now a little more revealed with the help of amateur radio. Throughout 2017 our club operated from sites of historic significance ranging from the Tallgrass Prairie National Preserve in eastern Kansas to the World War I Museum and Memorial in Kansas City, Missouri, to the Ensor Museum in Olathe, Kansas. The fiftieth anniversary of the National Trails Systems Act may inspire some similar operations from points along our trails.⁴ Without a doubt, hams across the country will continue the practice of operating their radio equipment from scenic and historic places throughout the nation.

OCTANS (and others) who travel along historic trails and enjoy the nation's parks may come across radio equipment set up under a canopy or on a picnic table. Think "amateur radio." Stop by, take a look at the setup, and feel free to talk to the radio operators and ask questions. Hams love to talk about radio and explain what they are up to.

If you ask amateur radio operators what motivates them to set up these temporary stations, you may get a variety of answers. Some hams may say it is always fun to operate from a unique and interesting location and tell others about it. Others may reply that as enjoyable and educational as amateur radio is, there is also a serious side to the hobby. They are right. One of the basic functions of amateur radio is to provide emergency communications in the aftermath of tornados, hurricanes,

3 A searchable list of Special Event Stations can be found online at <http://www.arrl.org/special-event-stations>. You can search for events by parameters such as city and/or state or keyword. Note that the addresses given are often mailing address, rather than the physical address of the event. The links that are provided may offer more details on the event.

4 As new year-long, on-the-air celebrations like these are organized and added in 2018, they will generally be posted online at <http://www.arrl.org/on-the-air>. For example, if the National Trails fiftieth anniversary were to become an event celebrated by the ARRL, this is where the event site would be listed.



Members of the Crown Amateur Radio Association (CARA), Olathe, Kansas, have made ham radio communications a part of the Hollenberg Pony Express Festival for eighteen years. Here, Charlie Hett, KØTHN, stands ready to explain the Morse code to visitors. This display is really multiple exhibits in one: On the front counter of the telegraph office is a display of Morse code-sending apparatus, and behind that is the radio station. During the festival we are engaged in communications with other ham radio operators around the country, letting them participate in the festival. Many visitors remark that "this is the first time I have ever seen anyone using the Morse code to communicate." PHOTO BY JIM ANDERA.

Some 490 parks, trails, and other sites

were part of the 2016 NPOTA activity, each one called an NPS Unit. Each Unit is given a four-character designator to help hams keep track of their various locations. Seventeen NPS Units are national historic trails. They are:

- TR07 Oregon National Historic Trail
- TR08 Mormon Pioneer National Historic Trail
- TR09 Lewis and Clark National Historic Trail
- TR10 Overmountain Victory National Historic Trail
- TR11 Santa Fe National Historic Trail
- TR12 Trail of Tears National Historic Trail
- TR13 Juan Bautista de Anza National Historic Trail
- TR14 California National Historic Trail
- TR15 Pony Express National Historic Trail
- TR16 Selma to Montgomery National Historic Trail
- TR17 El Camino Real de Tierra Adentro National Historic Trail
- TR18 Ala Kahakai National Historic Trail
- TR19 Old Spanish National Historic Trail
- TR20 El Camino Real de los Tejas National Historic Trail
- TR21 Captain John Smith Chesapeake National Historic Trail
- TR22 Star-Spangled Banner National Historic Trail
- TR23 Washington-Rochambeau Revolutionary Route National Historic Trail

For a full list of the 490 sites, visit <https://www.arrl.org/npota-list>.

floods, and anything else nature might deliver. Each time we set up and operate our stations in a temporary fashion, we are honing the skills that provide communication support when regular means of communications fail or become overloaded. Amateur radio operators have a unique ability to communicate over hundreds and thousands of miles—independent of the complex communication infrastructure that other communication services—such as cell phones and television networks—rely on.

That same unique ability to communicate can be very useful to the everyday person on an everyday basis. It can be particularly valuable to those who enjoy traveling and exploring. When you are in the middle of “nowhere,” following 150-year-old wagon ruts and you look down at your cell phone and see the dreaded “No Service” message, how can you communicate with the rest of your party or call for help if needed? What if someone in your party needs an ambulance, or if you break down beside the road? Having a ham radio operator in the group could be very beneficial in situations like these.

In addition to being fun, amateur radio offers a lot of utility. For example, when I go on backpacking trips into the Rocky Mountains I carry two ham radios: One is a small handheld radio used primarily to communicate with the other ham operators in my party. The other radio, somewhat larger, lets me reach distances of a thousand miles or more and talk to other hams around the country, including my ham radio buddies back home in Kansas. As we are generally in wilderness areas well beyond cell phone range, we often regard this second radio as our wilderness version of a 911 system. In a distress situation, we would send an SOS-type call and ask any ham operator who replies to us to make a telephone call to the appropriate responders in our area—typically the closest county sheriff’s office.

HAM RADIO, HOWEVER, IS NOT AN OFF-THE-SHELF, plug-and-play tool the way a cell phone is. Ham radio use requires that the operator be licensed by the Federal Communications Commission (FCC), which includes passing a thirty-five-question exam that covers radio regulations and basic radio and electronic knowledge. Self-study and classroom study are both common ways people prepare for the license exam. Both printed and on-line study guides list all the approximately four hundred possible test questions—and

Each August, the Hollenberg Pony Express Station comes alive with Old West activities and exhibits during its annual festival. To help visitors get a flavor for early American transportation, visitors may get to ride the grounds 1860s style in a covered wagon. On loan from the Rock Creek Station in Nebraska, this wagon is driven by Kirk Schroder, whose son Ethan rides along. The Rock Creek Station is another Pony Express stop on the Oregon-California Trail. Here the wagon is only a stone's throw from our Telegraph Office, where visitors can experience a taste of early communications. PHOTO BY JIM ANDERA.



associated answers—that could be found on the thirty-five question exam. Often those pursuing a ham radio license can find a local ham radio club to help mentor them in their studies. Volunteer examiners administer the test on behalf of the FCC.

Several levels of Amateur Radio Licenses are available. As a person obtains higher levels of licenses, he or she is rewarded with more frequencies to operate on. The entry-level license, called the Technician Class license, permits the operator to use radios and frequencies that generally support short-range communications, typically ranges within fifty miles or so. (However, there are some tricks and techniques that allow for much greater communication distance.) The next license class, General Class, provides for operation on frequencies that are more suitable for communication ranges of hundreds and even thousands of miles. General Class—as one might guess—also requires passing another thirty-five-question exam. Upon passing the exam(s), the FCC issues the Amateur Radio license, which includes a call sign generally consisting

of four or five letters with a number in the middle, which is unique to the operator and his or her radio station. That license authorizes the holder to transmit on the air using amateur-radio frequencies.

After obtaining a license, the next step in your adventure with ham radio is purchasing the radio (called a transceiver). For many people the most practical radio to purchase first is one that can be installed in your vehicle. Those who want to stay in contact with the rest of the party as they explore the trails may also consider purchasing a handheld radio that can be clipped to their belt as they hike. There are at least 101 choices of radios and antennas to select from. Here too it can be beneficial for the newly licensed ham to locate a ham radio club in their area to take advantage of advice from experienced radio operators. Those who decide to learn about ham radio operation should pay special attention to the lessons on radio-wave propagation, that is, how radio signals travel. Radio frequencies, called VHF and UHF, in their simplest forms are direct line-of-sight



On a picture-perfect October day, Santa Fe Trail Amateur Radio Club members came together to place the historic Gardner Junction on the air. Just as amateur radio is made up of a mix of people working together, this Gardner Junction Park was built through the combined efforts of multiple organizations, including the National Park Service. PHOTO BY GIL LUDWIG.



Located near Hanover Kansas, the Hollenberg Pony Express Station is said to be the only Pony Express Station in the nation to be preserved and left on its original foundation. This station was located at the Cottonwood Creek crossing of the Oregon Trail and served as a general store and tavern for the early travelers. Some reports suggest that as many as a thousand wagons a day crossed the creek here in the height of the westward movement. Today this station and associated visitor's center are operated by the Kansas Historical Society. PHOTO BY JIM ANDERA.

communications, where the antennas of the two radios must more or less “see” each other to allow communications to be received. In open areas, radios used in a vehicle can provide ranges of ten miles or more to another vehicle, although this range is very dependent on the terrain.

The next step-up in communication range involves the use of repeaters. Repeaters are special amateur radio stations located on tall buildings, towers, or mountaintops, which instantly relay a radio signal to extend the range often to fifty miles or more. In many areas of the United States, multiple repeaters are linked together to give wide-area coverage, often coverage over an entire state. For example, a ham may be in one corner of Colorado talking into a local repeater, and if that repeater is permanently linked to other repeaters across the state, he or she may have clear communications with someone in the opposite corner of the state. Taken one step further, some repeaters are linked to the internet, so that from a local repeater a person can (on demand) connect to a repeater in a distant U.S. city of choice, or even in another country. And what surprises many who are not familiar with ham radio is that there are no charges or fees for accessing and using these repeaters. Part of the culture of amateur radio is sharing these communication resources for the benefit of everyone. This sharing also means there is no such thing as a truly private conversation with ham radio; others can hear what you are saying. As a practical matter, however, that “party-line” environment also provides an advantage over cell phones when working with a group such as a trail maintenance crew: everyone automatically hears what others are reporting over the radio, providing much better situational awareness.

Another form of radio frequency propagation involves the use of what are called the HF frequencies. These frequencies have the unique characteristic of being reflected back to earth by an upper layer of the atmosphere—the ionosphere. This permits communications over hundreds and thousands of miles without the need for any manmade infrastructure in between. This is what many hams regard as the “magic” of radio communications and it holds special allure. It lets us talk to our friends many miles away, or perhaps better yet, meet new people. By sending out a radio call over the air using the term CQ (which means “I am calling anyone who wants to answer me”), the sender never knows who may respond for a casual conversation. It could be a student, farmer, engineer, retiree, nurse, teacher, pilot . . . the list is endless.

WHO ARE *amateur radio operators?*

Amateur Radio operators, or more commonly called “hams,” are everyday people from all walks of life. Some are technical geeks; others have little or no technical background. The hobby draws in boys and girls (sometimes as young as eight or ten years old) as well as men and women of all ages. Collectively we come together to make up the Amateur Radio Service, as defined by the Federal Communications Commission in the United States. All U.S. hams are licensed by the FCC after successfully passing examinations that deal with electrical and radio principles, as well as the rules and regulations governing radio communications. Similar governmental agencies are responsible for issuing amateur radio licenses in other countries. The FCC license comes with a call sign, a unique identifier that distinguishes each individual from the other 2.6 million hams worldwide (the author’s is KØNK). Radio clubs, too, can be issued call signs, such as KSØKS, used by the Santa Fe Trail Amateur Radio Club, or KØASA, used by the Crown Amateur Radio Association. We set up radio stations in our homes and cars for the purpose of communicating with other hams. As ham radio operators interspersed throughout our communities, we are close at hand when disasters strike. Amateur radio operators also provide safety communications during events such as bike-a-thons, walk-a-thons, or Pony Express re-rides.



Thousands of ham radio operators across North America take their radios outdoors in an annual Field Day event that is held the fourth weekend of June. SFTARC members Peg Nichols, KDØVQO, and Ed Kurtz, KUØRTZ, operate the radios from the front porch of the 1890s house at the Ensor Park and Museum in Olathe, Kansas, during a Field Day event. The story of the Ensor Museum is rich in ham-radio history and is a blend of radio, life on a dairy farm, and woodworking craftsmanship set in the early-to-mid-1900s. SFTARC members also serve as tour guides for the museum. PHOTO BY JEFF DARBY.

Topics discussed over the radio may range from the weather to the radio equipment the hams are using, to other hobbies they enjoy, to grandkids, to the latest projects they are building or books they are reading. Or they may exchange a little bit about the history of the area they are in. Conversations over the radio are informal, friendly, and introductions are done on a first-name-only basis; after all, hams have no need to use last names over the air—their call signs uniquely identify them.⁵ These conversations may involve two people or dozens of people in a round-table manner. They may be operating from their home or car, a campground, a boat, a historic site, or a local festival. More adventurous hams (carrying radio gear) may even kayak out to an uninhabited island a few miles offshore and spend an afternoon talking on the radio from the island. Others may climb a mountain peak to operate their radios. On multiple occasions, while on winter backpacking trips I have had the opportunity to operate from igloos in the Colorado wilderness. There are even hams who go on expeditions to desolate islands in places ranging from the tropics to near Antarctica—just to talk on the radio from these distant and exotic locations.

Readers who find this appealing may want to make obtaining an amateur radio license a winter project. And don't be shy about inviting other members of your family to join you. My wife and daughter are both hams; for many years we have used ham radio to support family activities. And the amateur radio community is delighted to see an ever-increasing number of women becoming hams.

In some areas, local clubs conduct ham radio classes during the winter months. Then in the spring, as a new ham you can add a radio or two to your vehicle. By the time summer rolls around and you find yourself on a trail following historic wagon ruts, you will have the pleasure of using a ham radio. And when the cell phone says "No Service," you can just smile to yourself knowing that you have other communications options. Even before you hit the road you may want to set up a station in your house so you can talk to other hams in your area, or those on adventures across the county or even around the world.

⁵ Many hams post short ham radio-related autobiographies on a ham radio website called QRZ.com. To learn more about a specific ham radio operator, go to the website. In the "by Callsign" search window, type in the call sign of that ham radio operator. If the ham has a biographical note posted, it will be here. For example, type in KØNK to learn about the author (note: the second character in the call sign is a zero).



We all hope to pass the passion we have for our favorite hobbies down to the younger generations. Here, eleven-year-old Jim Krentzel, KEØGEY, tells another ham radio operator about Gardner Junction, while grey-whiskered Jim Alexander, KIØCT, uses a laptop to log the communications into the electronic logbook. Our Gardner Junction event was an educational experience for both the young and the not-so-young. PHOTO BY JIM ANDERA.

The author of this article, Jim Andera, KØNK, becomes a telegraph operator each August during the Hollenberg Pony Express festival, using Morse code to greet other amateur radio operators around the country. Jim has been an amateur radio operator for over forty years, and tends to prefer Morse code communications to the use of voice or digital (computer-to-computer) modes; all three modes are popular among ham radio operators today. In addition to operating from historic sites, he is involved in the educational aspects of ham radio and is active in emergency-communications organizations. Jim can be reached at jandera@embarqmail.com. PHOTO BY CHARLIE HETT.



The American Radio Relay League (ARRL) website can help those who are interested find classes and study materials as well as testing locations and radio clubs in their areas.⁶ The ARRL also publishes several study manuals and guides for each class of license. Another popular selection of study guides is available from the Gordon West Radio School, offering both printed and audio versions.

Historic emigrant trails are one of our nation's most valuable treasures, a resource we all want to spread the word about and

encourage younger generations to appreciate. In the same way, amateur radio is often said to be a valuable national resource, promoting education, international goodwill, and communication in times of emergency. Blending history and amateur radio together has proved to be a winning combination. If you choose to become a ham radio operator, perhaps we will get to talk to each other over the radio—maybe while you are operating your radio from your favorite places on the California or Oregon trails. 

⁶ The online site <http://www.arrl.org/licensing-education-training> is a good place to start. This website also offers a wealth of information about ham radio operation as well as insights into what makes amateur radio so valuable.