



PCARA Update



Volume 21, Issue 7 Peekskill/Cortlandt Amateur Radio Association Inc. July 2020

Phase 3 plans

On Wednesday June 24, 2020 PCARA passed a milestone of sorts. At 7:30 p.m. that evening, the **100th consecutive PCARA Roundtable Net** was convened! The participation has been marvelous and the net has been an unqualified success. It has allowed the amateur community to stay updated on current conditions and news in our region during the COVID-19 pandemic. The success is due to the dedication of **our members**. Thank you! Things appear to be winding down and with the local area in Phase 3, we might consider returning to the weekly Old Goats Net on Thursday evenings at 8:00 p.m. There is no reason the daily PCARA Roundtable Nets need to end — it's up to the membership. Please feel free to share your thoughts and ideas on this.

ARRL Field Day 2020 might be remembered as the year that set a record for the number of stations operating Class 1D or 1E. On June 27th and 28th PCARA



Joe WA2MCR, Field Day 2020.

members operated from home and registered their contacts online with the ARRL on PCARA's behalf. A full article can be found in this month's *PCARA Update* with stories and pictures from

our members. Thank you to all who participated. Even a pandemic can't stop PCARA!

Members should have received their PCARA **Annual Membership Renewal** letters via snail mail. Please be sure to send in your dues because we have repeater expenses to cover. Every penny counts. If you know of someone interested in joining please refer them to the club website. To everyone — thanks for your continued support.

There have been rumblings, perhaps *borborygmia* in nature, concerning the return of PCARA Breakfasts in the form of outdoor gatherings. The PCARA Breakfast founders Jared KD2HXZ and Lou KD2ITZ have suggested that we perhaps could gather at the pavilion in Downing Park in Yorktown. PLEASE STAY TUNED for

further information.

We are now in our Summer Break for July and August so there aren't monthly Membership Meetings. Come September we must be creative if we want to have *vis-à-vis*. For obvious reasons our traditional monthly meeting location of NewYork-Presbyterian/Hudson Valley Hospital is no longer available. So, *as of the time of writing*, our next regularly scheduled **On Air** PCARA Membership Meeting will be on Sunday September 13, 2020 at 3:00 p.m. on the 146.670 MHz repeater. I look forward to hearing each of you there.

- 73 de Greg, KB2CQE

Contents

Phase 3 plans - KB2CQE	1
Adventures in DXing - N2KZ	2
Field Day 2020 - NM9J	5
13 Colonies Special Event	10
Essential ₂ stretchy - NM9J	11

PCARA Board

President:

Greg Appleyard, KB2CQE; kb2cqce 'at' arrl.net

Vice President/Treasurer:

Joe Calabrese, WA2MCR; wa2mcr 'at' arrl.net

Secretary:

Lou Cassetta, KD2ITZ, radiocassetta 'at' gmail.com

Directors:

Bob Tarsio, N2CBH

Mike Dvorozniak, W2IG

Net night

During the COVID-19 epidemic, Peekskill/Cortlandt Amateur Radio Association has been holding a nightly Roundtable net on the 146.67 MHz W2NYW repeater at 7:30 p.m. This replaces the previous weekly net on Thursday evenings.

Join the Roundtable net for news and neighborly information.

Adventures in DXing

- N2KZ

A Long Time Ago in a Galaxy Far, Far Away

1965 was a momentous year. I was 11 years old and just finishing up grade school. Being 11 years old is awkward. You are just getting your footing. Self-esteem is almost in your grasp. If you are lucky, you have a bicycle. At that age, a bicycle might as well be a Maserati. If you are really cool, you have figured out how to get clothes pins to make baseball cards slap



against the spokes of your back wheel. Now you had a motorcycle!

I felt like I was the ultimate of cool. Through some divine miracle, my parents had gifted me with a four-tube shortwave radio. It had four bands! I more than understood the AM broadcast band, so I had a start. What was to come later was like opening the door that led to Narnia. The dial said some interesting things: POLICE, GOVERNMENT, AVIATION. COLUMBIA, INDIA, CHINA, USSR. PARIS, VATICAN CITY. ALASKA! ICELAND! and what did WWV mean?



Tuning dial of Karl's Hallicrafters S-120 receiver, covering 0.55 - 1.6, 1.6 - 4.4, 4 - 12, and 11 - 30 MC* in four bands, plus bandspread range, 0-100, at top. [N2KZ pics]

Just above AM broadcast was a relentless, annoying and mechanical beehive buzz. I later discovered this was the navigational system called LORAN. As I continued up the dial of the mysterious band 2, I could hear two-way radio telephone calls from cruise ships and yachts from something called New York Radio. Very rich people talking about very rich things in simplex all in the clear and easy to hear. Would they ever catch me listening in?

Band three (4 to 12 mcs*) really got interesting.

*[This is from pre-megahertz times when frequencies were measured in megacycles or kilocycles per second. -Ed.]

Using just the store-provided 30 or 50 feet of thin black wire tossed out of my apartment window, the world was waiting for me to listen. London, Sweden, Switzerland, Holland, Germany, Norway, Moscow and even Egypt! The radio sat on my school desk and was my companion every night when I sat down to study and do my homework.

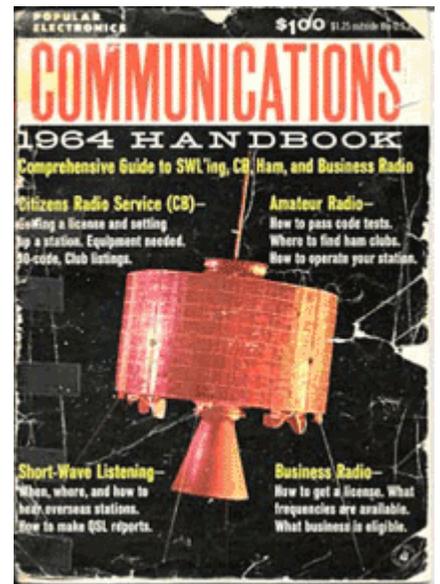


Hallicrafters S-120 AM/SW receiver.

I got acquainted very quickly! After a few days of experimentation and documentation, I developed a little schedule that would take me across Europe every evening. Most stations broadcast 15, 30 or maybe 50 minute programs each night in English to North America. I learned how to juggle my favorites to create a parade of fascinating listening while I studied. What countries should I visit tonight? I spent a lot of time in freeform mode looking deeper and deeper within all the signals out there. What else could I find between the heterodynes, static and fading?

One charming personality quirk of *shortwave* listening was each station's interval signal. In a world that had never heard of a digital frequency readout, how could you quickly tune to a specific station buried in the nightly *mêlée* found on 31, 41 or 49 meters? Interval signals were charming musical signatures, choral singing or even bird calls to guide you to them just before the big show would start. It made life so much easier!

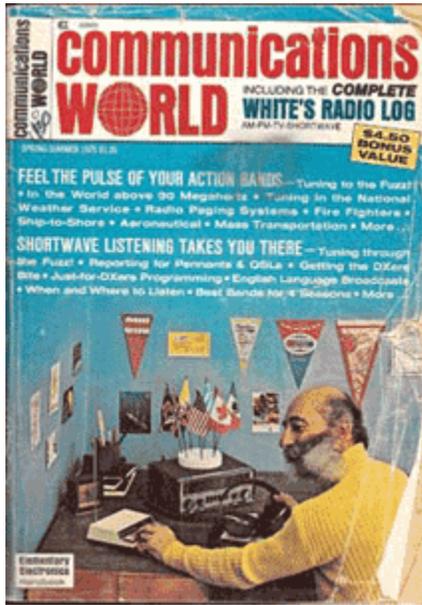
Reading was an essential part of my radio education. Weekend visits to our local library helped. I found beginner project books and even some informative primers actually all about shortwave listening. My penciled note papers turned into a rather organized log book of all my listening adventures. What was SINPO? What are QSL cards and International Reply Coupons? What is a Windom and a dipole? One night, my Dad brought home something he found in a used magazine store: A dog-eared copy of *Popular Electronics'* 1964 *Communications Handbook*. It



1964 Communications Handbook.

might as well have been Aladdin's lamp! The clouds opened up to blue skies. So much to learn!

I felt like I had been given the holy grail. That magazine certainly made a big difference! Here in a few dozen pages of newspaper print was all I needed to



Communications World 1975.

know about the mysteries that could be found within my now precious glow-in-the-dark gift. This was, after all, my first real radio that I owned myself... and it even had dial lights! Later on, I even received another similar magazine that contained a copy of the legendary *White's Radio Log*. How much of a breakthrough was this? Keep in mind,

the Internet would not become reality for another 30 years or more!

Dawn is Different

My shortwave radio came with a set of round black Bakelite headphones. I knew how to use them... and use them I did! One morning, I was up early and decided it was time to hear what I could hear. As the night's darkness slowly disappeared into the west, our early morning propagation focused my reception towards Australasia and the Pacific Rim. A whole new world!

Getting up before dawn brought great surprises and wonderful entries into my log. I could just feel how far away these broadcasts had traveled. Radio Peking would arrive with white noise and fast flutter due to multi-hop skip. Radio Japan was even harder to receive. The ultimate challenge for beginners was Radio New Zealand using only a couple of kilowatts. So far away!

One outstanding signal came from Radio Australia from their legendary transmitting facility in Shepparton, Victoria about 100 miles north of Melbourne. I was not familiar with their flamethrower signal on 9580 kcs and I convinced myself that this big signal was just another superpower station close by. Completely overlooking the obvious, I first logged all sorts of exotic regional shortwave stations run by the Australian Broadcasting Corporation and listened to them regularly from distant, faraway places like Wanneroo and Perth.

Frustrated that I could not hear the main RA international broadcasts to North America, I charted out all the other stations I could identify on 31 meters to guess where 9580 kcs might be on the dial. All of a sudden it hit me! That big signal is Radio Australia! Wow!



Australian Broadcasting Commission QSL for Wanneroo, Station VLX9.

Get Organized!

My lesson was learned. Good organization would save me from a repeat performance! I immediately started to chart all the major shortwave broadcast bands using my bandspread's more accurate calibration. Each band would have a cornerstone from which I would build my frequency charts. 49 meters was based on ever-present Canadian re-broadcaster CFCX on 6005 kcs. 41 meters used Canada's CHU time signal as a reference post. 31 meters was easy: WWV's time signal on 10 mcs was omnipresent. Now that I was calibrated, I could even tune in *before* the interval signals started. How cool was that?

TIME SIGNAL FROM DOMINION OBSERVATORY
 Addr: 3, Observatory Crescent, Ottawa 4, Ontario, Canada. Te: 232-8211 - L.P: Adm: Dr. J. Hodgson, Dir. Tec: M. M. Thomson.
 Stations: CHU 3330kc 90.09m 3kW - 7335kc 40.90m 3kW - 14670kc 20.45m 3kW - T.S: Continuous in voice and second pulses - Ann: English: "CHU Canada, Eastern Standard Time". French: "CHU Canada, Heure normale de l'est" - V. by QSL-card. Re. welcomed - Pub: Prgr.schedule free.

Canada's Standard Frequency & Time station CHU operated on 7335 kc, 40.90m. [1965 World Radio TV Handbook].

More research led me to more adventure. I found stations in Asia and the Pacific also broadcast during North American evenings but on much higher frequencies than I could have ever imagined. Who would look at 19 and 16 meters at night, but sure enough, you could hear tentative signals from Radio Peking, Radio Australia and even Radio New Zealand if you could make it through the oppressive flutter.

The mid 1960s became a time of technological breakthrough in the history of shortwave listening. Slowly but surely, international broadcasters were upgrading their transmission facilities to double digit kilowatts — many for the first time. The standard

power output for dominant stations became a full 50 kilowatts making reception much more reliable and possible even with simple radios with basic antennas. Megawatt broadcasts and using more strategically placed worldwide relay stations would be innovations that were even decades away. Even with newfound transmitter upgrades, DXing could be quite challenging in the mid 1960s!

Montréal Magic

Were the voices I heard through my magical shortwave radio actually from real live people? I was about to find out! My father had always been enamored with World's Fairs since his visits to the spectacular presentation he experienced in New York in 1939 and 1940. My turn to visit one came in 1964 and 1965 when a new World's Fair came to New York City. Could our family resist going to yet *another* world's fair? Commemorating the centennial of Canada's confederation, **Expo '67** made a trip to nearby Montréal irresistible!

The summer of 1967 arrived and off we went up north! We spent day after day collecting souvenir



CBC Expo '67 QSL card.

exhibit stamps into our Expo '67 souvenir passports. Dozens and dozens of countries participated, each capturing the essence of their

languages and their cultures. It really was like a trip around the world without the airfare — or a radio. How appropriate for a beginning shortwave listener!

One day came as a total surprise. Before we ventured off to the fair, my father had arranged a side trip to a tall brick building in the downtown business district. My eyes lit up when I saw where we had arrived. We were standing in front of the headquarters of the CBC — Canadian Broadcasting Corporation.

It was a tall and firm brick building constructed with formidable plaster and steel lath walls. I learned later that the radio studios actually floated within the main structure on custom



Radio Canada / CBC Headquarters.

shock absorbers, providing professional-grade sound proofing. Very impressive!

A young receptionist greeted us on the main floor and spoke to us while we waited to enter the offices of Radio Canada Shortwave. It was an interesting conversation. Québec was entwined in controversy considering secession from the confederacy. It was a heated time in French Canada. What would happen next?

I felt like we were about to visit The Wizard of Oz, and through my young eyes, we really were! Before I knew it, my

Dad and I were in the company of every CBC shortwave celebrity imaginable: Pip Duke, Elaine McMaster, Duncan Nicholson, Earle Fisher and even Ian



RCI's Ian McFarland (left) with Bob MacGregor at CBC studios, April 1973.

McFarland! I am pleased to tell you that I felt quite welcomed. I was quizzed on all the frequencies I listened to down in New York City and how my reception was on each one. At the time, the CBC morning broadcast to North America was on 11720 kcs and Radio Australia had just appeared on 11710 kcs causing adjacent channel interference and concern. I felt so proud: They asked for *my* opinion about what they should do. I was dancing up in the clouds! What a wonderful time it was.



Autographed picture of Radio Canada Shortwave Club personalities Pip Duke, Duncan Nicholson and Elaine McMaster.

Mom and the Eskimos

Even my mother became enamored with the sounds from up north... way, way up north. Every

afternoon, the CBC Northern Service would broadcast programs to their citizenry in Arctic Canada. There was much to be said about the many different communities, their lifestyles and especially their music and cultures.

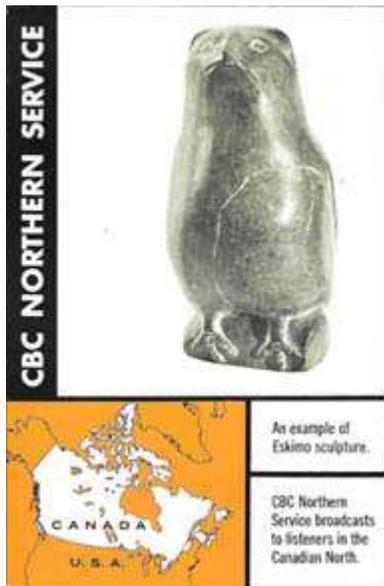
I would find them on 5970 and 9625 kcs serving as the perfect casual listen just before dinner. The indigenous songs and chants combined with lengthy news, talk and commentary in native languages like Inuktitut and Mi'kmaq made my mother's eyes light up. How exotic and unusual these sounds were. See? She could travel far away with my shortwave radio, too!

It's Not Over Yet!

The beat goes on. Even in the year 2020, there is so much to discover and explore. Shortwave's mysteries are still only a few clicks or spins of the dial away. The next great revelation may be yours. Don't limit your explorations! A careful scan through the great frontiers in between the known shortwave broadcast bands could yield fascinating results. You never know where things might pop up. Also, remember you can use the resources of the Internet to instantly verify your source. Go to the 'Listen Live' button on a likely candidate and see if the audio streams match.

Also, make use of the invaluable and free diagnostic tool at: <https://www.short-wave.info/index.php>. Learn to use all the options at Short-Wave Info! You can immediately see who is authorized to broadcast on any frequency at the present time or a time you enter. Choose a well-known broadcaster and see what frequencies they might currently be on. Search 'Any Station' and 'Now' and you'll get a comprehensive list for stations to try for. So useful!

Enjoy the summer and exercise your listening skills. Adventure is out there waiting for you! 73 de N2KZ Karl Zuk "The Old Goat" dit-dit.



CBC Northern Service QSL.

Field Day 2020

PCARA Update for July usually has a multi-page report on the club's most popular activity — ARRL Field Day. Topics covered include antenna raising at Walter Panas High School, shelter erection, station setup, computer logging, Field Day food, overnight operating and bonus points scored. There are many opportunities for team work, co-operation and general *bonhomie*, not to mention visits from ARRL representatives — along with Mr Murphy and his rule book.



Unfortunately, the novel coronavirus SARS-CoV-2 and resulting COVID-19 pandemic put paid to PCARA's plans for 2020. Although Joe WA2MCR had booked Walter Panas High School for the weekend of June 27-28, we were no longer welcome in the school grounds and a large collection of people might have contravened the 'New York State on PAUSE' rule about Public Gatherings.

PCARA decided to take advantage of the May 27 temporary rule waiver from ARRL stating that "Class D stations may work all other Field Day stations, including other Class D stations, for points". Class D stations are home stations operating on commercial power.

A second change said: "In addition for 2020 only, an aggregate club score will be published, which will be the sum of all individual entries indicating a specific club (similar to the aggregate score totals used in ARRL affiliated club competitions)."

A short article in the June newsletter explained the rule changes and suggested ways for PCARA members to take part in Field Day 2020. Your editor asked participants to submit their entries to ARRL, mentioning the name of the club *and* to send a short report to the editor with a station photo. Reports below are mostly based on these submissions.

WA2MCR

Our Field Day stalwart and major contest enthusiast is Joe, WA2MCR. Instead of packing up his entire home station, tables, chairs and antennas into a rental truck, Joe operated Field Day 2020 from his basement, using a Carolina Windom antenna. Joe employed most bands and modes, making 178 CW QSOs, 187 phone and 113 Digital mode contacts – both FT8 and FT4. The preliminary total score with bonus points was **1,688**. Joe reported conditions on Saturday June 27 to be only 'so-so' though at midnight, 80 meters improved dramatically with S9+ reports for an hour into the Midwest and Florida. Joe found that about one third of

the stations worked were true Field Day stations (Class A/B) with the remainder mostly 1D. Joe's operating times were similar to his previous long hours at the High School, working from 2:00 p.m. to 2:00 a.m. Saturday and 5:00 a.m. to 2:00 p.m. Sunday.

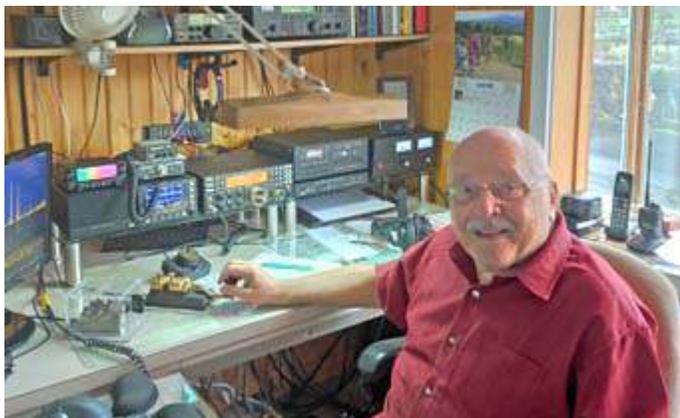


Joe WA2MCR's basement shack, all set up for Field Day.

N2SO

Charles N2SO planned to operate an all-CW Field Day from his home station. He was using a relatively new antenna erected with assistance from WA2MCR, N2EAB and NM9J in November 2019. This was a Buxcomm Windom strung between the trees, with all coaxial cable recently upgraded to match a new amplifier.

When your editor asked about that amplifier and why N2SO had not been heard during the contest, Charles replied: "Yes, I love my new amp. It just sits there chugging out the watts and I hardly ever have to touch anything. When I designed my new antenna (which you helped install) you probably remember that we put in a null in your direction. Hi Hi!" Charles made a total of 163 CW QSOs on 40, 20 and 15 meters with a claimed total score of 390.



Charles N2SO operating from his well-equipped home station. [Pics are all courtesy of the respective operators].

N2HTT

Mike, N2HTT was operating away from home, in ARRL Section WNY. Mike reported "Well not such a great outcome for me, we had thunderstorms today and I was too tired to stay up late last night, so... eleven 5W CW QSOs on 40, for a score of 44. Had I realized that you can't claim QRP and run mains I could have run battery and gotten a bigger multiplier, but oh well..." Mike's antenna was an end-fed inverted-V and the tiny radio was a Sky-SDR HF+6 meter All Mode SDR QRP transceiver.



N2HTT Field Day station was running 5 watts CW, QRP.

N2KZ

Karl N2KZ sent the following report on his efforts, copying the ARRL Field Day Bulletin as transmitted by W1AW.

"My Field Day experience was fast and frenetic. It started a few minutes before 10 a.m. Saturday as I heard W1AW warming up on 80m CW. I had never copied a W1AW Field Day Bulletin before and did not know what to expect. This was only for the seasoned CW operator. Foolish me, thinking that it would be repeated at more humane speeds."

"What we heard was very much like a W1AW practice session featuring the text of QST. Endless non-conversational text and interesting punctuation. No breaks! The text flew by at a

SPCA CW 10 FOLLOWS SPC CW 10
 FOLLOWS QST DE W1AW HR SPC
 CW 10 FROM ARRL HQ NEWINGTON
 CT JUNE 06 0600 TO ALL RADIO
 AMATEURS - ARED FIELD DAY IS AMATEUR
 RADIOS LARGEST ON AIR ACTIVITY, IN
 2019, OVER 36,000 AMATEURS FROM
 AGE 5 TO 98, PARTICIPATED IN THIS
 24 HOUR EVENT. QST DE W1AW
 FIELD DAY 2020 WILL BE LIKE THOSE
 RECENT DECADES. TODAY'S AMATEUR
 OPERATORS ARE CHALLENGED WITH
 ADAPTING TO OUR NEW NORMAL
 SOCIAL ENVIRONMENT WHILE
 DETERMINING HOW TO CARRY OUT
 SUPPORT COMMUNICATIONS TO ASSIST
 SECURED AGENCIES AND THE PUBLIC.
 THIS YEAR HAS UNUSUAL BEING IN

W1AW Field Day CW Bulletin as hand-copied by Karl, N2KZ.

nice clip. It was a consistent 20 words per minute.”

“I did not use decoding software. I used my decoding brain. I need more RAM. This was really fast for me.”

“A couple of things threw me. The date was for Friday — not Saturday. They sent one ampersand. This is not a character I have ever heard before, but I did recognize it.

The broadcast broke text twice to include a legal ID: QST DE W1AW. What does SPCL CW10 mean?”

“They also sent ‘HASHTAG.’ Thank goodness they didn’t send that in Morse. They spelled it out in English. I took a breath and then typed out my scribbles for humans to read.”

“I worked **one** station — VA1AVR — in Nova Scotia on 20 meter SSB. It was an interesting call sign so I looked it up. There was also a Dutch station holding court and gathering QSOs for the King of Spain SSB contest in the middle of our North American *mêlée*.”

“The big lesson here was: To retain sanity, get up early and work stations before 6 a.m. when people start getting up and getting crazy again. Maybe next year. I simply can’t handle the energy and the relentless pace. Is this adventure worth an official report to the ARRL?”

“I took credit for copying the ARRL message and having Field Day on our Facebook page, preliminary total score 252 points.”



Karl N2KZ’s shack during Field Day.



Screenshot of the PCARA Facebook page maintained by Karl, N2KZ.

N2EAB

Mike, N2EAB writes as follows. “Living in a Homeowners Association community with shared common areas sometimes proves challenging. My Field Day antenna plans quickly changed on Saturday as my neighbor was preparing for an outdoor graduation party right where my ground mounted vertical with radials was to be set up. Here is a photo of my modified St. Louis Vertical used during FD, with only one counterpoise wire employed. I did manage to snag 60 contacts over 10 hours with this compromised setup.”



St. Louis vertical antenna used by N2EAB, covers 10 - 40 meters.

“I worked **one** station — VA1AVR — in Nova Scotia on 20 meter SSB. It was an interesting call sign so I looked it up. There was also a Dutch station holding court and gathering QSOs for the King of Spain SSB contest in the middle of our North American *mêlée*.”

Mike’s sixty phone contacts on 40, 20, 15 and 10 meters plus bonus points for Field Day bulletin and web submittal gave a preliminary total score of 270 points.

K2WPM

David K2WPM was another member operating away from home, this time from ARRL section VA in 4-land. He reports: “I was embarrassed and surprised to learn that the usual contest multipliers (section) don’t apply. I think I was not alone. In the final half hour there were maybe 150 stations trying to get the WP3 guy in Puerto Rico section, for another ‘multiplier.’ ”

“No shack photo — too many empty beer cans and pizza boxes. I had planned to operate portable (1B), but ended up 1E.”

David made a total of 132 QSOs on 80, 40 and 20 meter phone. By operating on emergency power, he gained an additional multiplier, for a preliminary total score of 414 points.

N2CBH – W2NYW

As trustee of the club call sign, Bob N2CBH decided to put W2NYW on the air for Field Day 2020. Instead of signing ‘2A ENY’ from Walter Panas High School, Bob was operating in class 1D away from home

in ARRL Section EPA, with assistance from Jerry WA2ZOA. Using a dipole, they made a total of 111 contacts on phone, mostly on 80 meters and 40 meters. Bob would have included some digital contacts, but had left his USB cable behind. At one point Bob's station worked N3FJP, creator of the computer logging software used by many members this year — the software pops up a special message when this call sign is entered.

WD2L

Members may remember that in 2019 Greg KC2UZN was at PCARA's Field Day at Walter Panas High School, with his well-equipped RV. Since then Greg has upgraded to Extra, changed call sign to WD2L and moved to Knoxville, TN. Greg writes: "Had a lot of fun working stations for Field Day. I worked as class 1E section TN and worked about 170 stations. Even though I moved out of state I am sending in my points to be awarded to PCARA. Attached are pics of my homebrew 40/20 meter ghost dipole antenna at 40 ft modeled by



WD2L 'ghost' dipole.



Greg WD2L's solar panel and 200 Ah battery.

Jay NE2Q, my 200+ Ah batteries charged via 100 watts of solar and my humble radio station. Hope everyone had a fun, successful Field Day back in NY."

"Received successful confirmation of upload from ARRL listing Peekskill/Cortlandt ARA as the club. Preliminary score of 598."



Greg WD2L's radio station in Tennessee.

KD2EVI

David KD2EVI was operating from his elevated location near Route 6. He writes: "I managed 43 contacts, most on Sunday. I stayed with the 'search and pounce' method."

"Conditions Saturday evening were poor at my location. I had to call 5 or 6 stations (S5 or better) before anyone came back to me. Sunday morning was

much more productive, every strong station I called came back. 20 meters was dead at 6:45 Sunday morning so I jumped on 40 meters and



The KD2EVI shack with Alinco DX-SR8.

started making contacts. 20 opened up a little later and I made a couple of contacts there."

"40 meters was my most productive band, with 36 contacts, five on 20 and two on 15 meters for a total of 43, all on sideband. The N3FJP software made things much easier."

N2MUZ

Todd N2MUZ was operating from his Croton-on-Hudson location. Todd writes:

"It was a fun Field Day! I operated SSB for a couple of hours Saturday afternoon, an hour Sunday evening and 2-3 hours on Sunday on 40, 20, 15, 10 meters, making 77 contacts and scoring 358 points in total. This was the most I've operated in a long time. Weather and schedules finally cooperated."

"Over half the contacts were made on 40 meters, then in descending order 15m, 20m and 10m. The rigs and antennas used were Kenwood TS-820 on 40m with AG6IF loop antenna; Icom IC-765 with AG6IF loop on 20, 15 meters and Cushcraft R5 vertical on 10m. I've attached a picture of the shack."



The N2MUZ Field Day shack with TS-820 and IC-765.

W2VJ

Verle W2VJ was operating from his location across the Hudson at Pearl River, in ARRL Section **ENY**. Verle writes: “Here is the email from ARRL acknowledging my submission. Attached is a selfie with my rig — the Icom IC-7300 that I've fallen in love with. Considering how few contacts that I made, I'm grateful for the multipliers. Unfortunately, there does not seem to be a multiplier for

wearing an official ARRL Field Day T-shirt while contesting, HI. I'm looking forward to seeing the next issue of the *PCARA Update*.

Thanks for making this unusual Field Day a success.”

Verle made 42 digital mode contacts on 40 meters and 20 meters. His preliminary total score was 218 points.



Verle W2VJ was dressed for Field Day.

N2CKD

Lovji N2CKD was operating in Class 1D on 40, 20, 15 and 10 meters, making 49 phone contacts. His preliminary total score is 148.

NM9J

Your editor operated from home in Class 1D from the start of Field Day on Saturday June 27 to the finish on Sunday, with suitable breaks for meals, rest and relaxation. Because of **close proximity** to the high power

WA2MCR contest station, Joe and I had to co-ordinate operating frequencies and employ W3NQN bandpass filters to

avoid receiver overload and harmonic radiation. I was hoping to try out my newer Yaesu FT-991A transceiver for digital modes, but found it easier to use the Icom IC-7410 transceiver on all modes — CW, phone and digital. Separate controls on the IC-7410 for band, mode, power output, filter bandwidth and passband tuning make operation on crowded bands much easier than with the touch-screen menus and ‘multi’ control knob of the FT-991A. I was also using my Hamcrafters



W3NQN-style bandpass filter.

K44 CW Keyboard for canned messages and occasional copying of high speed code while I was otherwise distracted!



The Field Day operating position at NM9J. Note the Hamcrafters K44 CW keyboard on top of the IC-7410.

Like others, I found opening hours on Saturday slow going, but conditions improved on Sunday, with many more QSOs, mostly CW on the 20 meter and 15 meter bands. (I left 40 meters alone, for Joe to clean up.) Using N3FJP's Field Day logging software, I could see the ARRL Section Map filling with color in a broad swath to the WSW, reaching several states that I had never worked before, all the way out to Utah, Arizona, Nevada, California, Washington State and British Columbia.

As well as the N3FJP logging software, I was using Fldigi for PSK31 contacts and WSJT-X in Field Day mode for FT-8 contacts. I was able to make the N3FJP software cooperate with Fldigi, but had less success with WSJT-X — too many programs wanting to control the transceiver over the same COM port. Fortunately, you can still enter band, mode and station details manually into the N3FJP software.

At the end of Field Day, I had made 162 CW QSOs, 16 digital mode contacts and 17 phone QSOs. With bonuses for copying the Field Day bulletin and web submittal, and a power multiplier of 2× my preliminary total score was 864 points.

Conclusions

First of all, a big thank you to all PCARA members who operated in Field Day and contributed their scores to the aggregate total. Results should appear in the December issue of *QST* along with a chance to compare results with our neighbors in nearby clubs. The entry details that came in via e-mail were from WA2MCR, N2SO, N2HTT, N2KZ, N2EAB, K2WPM, N2CBH (as W2NYW), WD2L, KD2EVI, N2MUZ, W2VJ, N2CKD and NM9J. If you were active in Field Day but did not send your results to ARRL yet, entries must be postmarked or submitted by Tuesday July 28, 2020.

Here is a summary of total points claimed by PCARA members (where known):

Call	Class	Section	Total points
WA2MCR	1D	ENY	1688
N2SO	1D	ENY	390
N2HTT	1D	WNY	44?
N2KZ	1D	ENY	252
N2EAB	1D	ENY	270
K2WPM	1E	VA	414
W2NYW	1D	EPA	272
WD2L	1E	TN	598
KD2EVI	1D	ENY	?
N2MUZ	1D	ENY	358
W2VJ	1D	ENY	218
N2CKD	1D	ENY	148
NM9J	1D	ENY	864

What lessons can we learn from this Field Day? With so many members operating from home in 2020, it may be difficult to make predictions for what we hope will be a traditional Field Day in 2021. But we can say that digital modes like FT8 and FT4 may be even more important next time — so the difficulties of integrating WSJT-X with logging software need to be addressed.

Operating CW from home using your familiar key, transceiver and well-behaved logging software is a lot easier than from a noisy Field Day site, worrying about mosquitoes, ticks, baseball games, bathrooms and rainstorms. But we still miss the camaraderie, the shared experience and the sense of achievement at 2:00 p.m. on Sunday afternoon when the bands go quiet for yet another year.



Inverted-V antenna used by N2HTT from ARRL Section WNY.

- NM9J

13 Colonies Special Event

If you find yourself bored after the excitement of Field Day, don't forget that the annual **13 Colonies Special Event** occupies Independence Week, starting on Wednesday June 1 and running through to July 7.

Stations representing the original 13 British colonies (K2A - to - K2M), plus two bonus stations, will be on the air with 1×1 call signs. Participants do not need to work all 13 colony stations to obtain a certificate and do not need to work the two bonus stations for a clean sweep. All HF bands will be in use, including WARC bands — apart from 60 meters. Simplex on 2 meters and 6 meters is encouraged. All modes of operation may be represented. Bonus station WM3PEN will be in Philadelphia commemorating the Pennsylvania colony's founder, William Penn, while bonus station GB13COL will be operating from the UK.



For full details of how to take part and apply for your commemorative certificate, pay a visit to the site <http://www.13colonies.us/>. The 13 US Special Event stations will be:

- K2A New York
- K2B Virginia
- K2C Rhode Island
- K2D Connecticut
- K2E Delaware
- K2F Maryland
- K2G Georgia
- K2H Massachusetts
- K2I New Jersey
- K2J North Carolina
- K2K New Hampshire
- K2L South Carolina
- K2M Pennsylvania

Essential₂ stretchy

The case of the distressed cover

A few weeks ago, I noticed that the SC-51 Soft Case for my Kenwood TH-F6A handi-talkie was in distress. The case was sticking to the radio, with black powder obscuring the clear vinyl section of the case over the display. I managed to remove the case and clean up the sticky radio, then noted that all the “stretchiness” of the original nylon fabric had disappeared.

I have seen similar behavior for old Icom HT carry-cases and some sportswear — loss of elasticity and partial degradation of the fabric to a black powder. What was happening?



Kenwood SC-51 Soft Case after removal from TH-F6A.

It's a stretch

The common factor in these products is the presence of a synthetic elastic fiber known by the generic names **spandex** or **elastane**. **Lycra**[®] is the trade name for this material, originally registered to E. I. du Pont de Nemours and Company, an organization more commonly



known as **DuPont**.

Shaky start

The story begins with U.S. Chemist Joseph C. Shivers of Moorestown, NJ. Between 1942 and 1946 he earned B.Sc., M.A. and Ph.D. degrees in organic chemistry from Duke University in Durham, NC. While still a graduate student, he worked with the U.S. government on synthetic quinine to combat malaria for troops serving overseas.

After graduating in 1946, Joseph Shivers joined DuPont where he was involved in early work on Orlon[®] acrylic fiber and Dacron[®] polyester fiber. (For more on polyesters, see “Essential₂ ‘domes’”, PCUD April 2015 and “Essential₂ antennas” PCUD, September 2006.) His next assignment was to find a synthetic replacement for the heavy rubber threads then used to manufacture foundation garments. Rubber had been in short supply during

World War II as stocks were diverted to the war effort and rubber-producing countries in Asia were invaded by Japan. The research team had some success with an elastic fiber, producing a material that could breathe and lengthen under load — but it would not snap back like natural rubber. DuPont shelved the project and disbanded the research team in 1950.



Joseph C. Shivers.

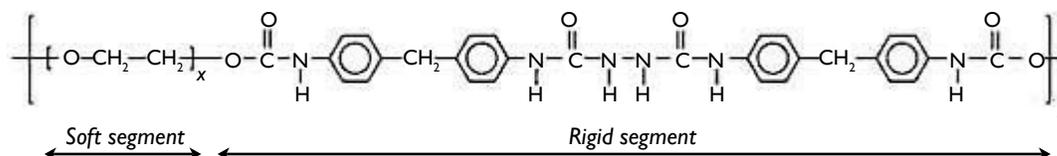
But Joseph Shivers continued working on elastomers at DuPont's Benger Research Laboratory in Waynesboro, VA. He was studying modification of Dacron polyester to give it rubber-like qualities. In May 1958 he submitted a Patent Application which was granted in February 1962 as U.S. Patent 3,023,192 “Segmented Copolyetherester Elastomers”. This patent proposed copolymers of a polyester with a polyether, for example polyethylene terephthalate with poly(ethylene oxide), producing fibers with good extensibility and elastic recovery.

A few months later in August 1958 there was a second Patent Application which Joseph Shivers co-authored with fellow DuPont chemist John Schaeffgen. This was granted in July 1962 as U.S. Patent 3,044,987, “Segmented Copolymers and Process for Preparing Same”. They claimed a copolymer of a “soft”, low-melting polyether or polyester, with the second component now a “hard” high-melting nitrogen-containing compound such as a polyurethane or polyurea. The two segments are connected through ester links. These compounds could be spun into fibers with good extensibility and elastic recovery.

Special K

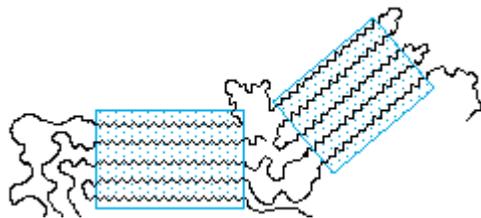
DuPont's team originally referred to their new product as “Fiber K”, then named the material ‘spandex’ — an anagram of the word “expands”. The company applied for registered trade name Lycra[®] and began marketing the new fibers for foundation garments in 1962.

The polymer molecules in spandex are folded



Chemical structure of spandex with ‘soft’, rubbery segment ($x \sim 40$) alternating with ‘rigid’, polyurethane/urea segment.

together in a zig-zag pattern, with the 'hard' polyurethane segments aligned close to each other. When spandex



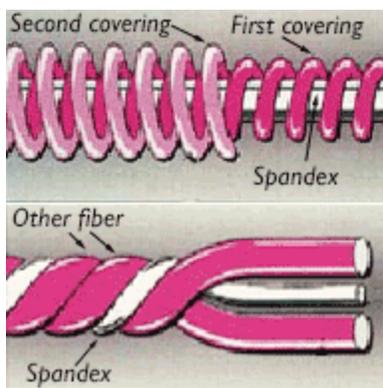
Rigid polyurethane segments in spandex align themselves when fiber is relaxed.



Yoga instructor Rebecca Pacheco demonstrates Lycra's stretchiness in the video: "See how LYCRA® fiber is made", <https://youtu.be/jAs2HxIB3o8>.

is placed under tension, the polyurethane segments separate and the flexible polyether segments straighten out. This allows the fibers to be stretched up to **five times** their original length, then fully retract when the tension is released.

Spandex is seldom used alone, but is usually blended with other fibers such as cotton, wool, polyester or nylon. If you examine the care label in many garments, you will find the proportion of Lycra, spandex or elastane varies from 1 to 2 percent, up to 20% in especially stretchy material. These **blended fabrics** are prepared by wrapping other fibers such as cotton or nylon around a central spandex core, or twisting the fibers together, followed by weaving or knitting the elastic thread into a portion of the overall fabric.



How to make a blended fabric. Spandex core is wrapped (top) or twisted together (middle) with another fiber such as cotton or nylon then the elastic thread is woven or knitted into the finished fabric (below).

From foundation to space and swim

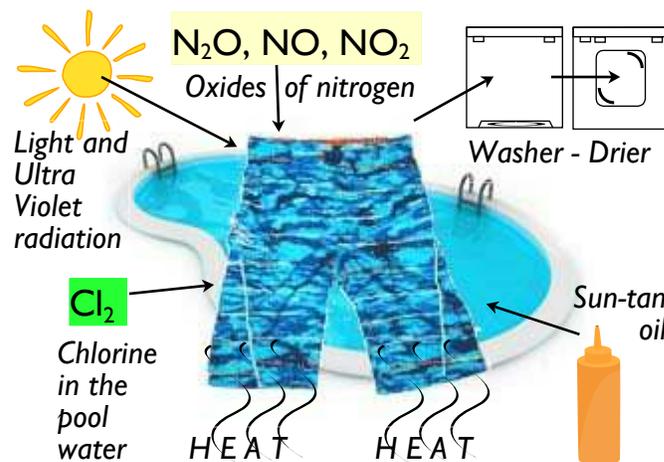
When originally released, Lycra became a popular component of women's foundation garments, replacing rubber thread. As girdles gave way to soft-support pantyhose in the mid-1960s, Lycra was still present in the stretchy fabric. Lycra was incorporated into NASA's spacesuits for the 1969 lunar landing — a nylon/Lycra blend in the liquid cooling garment held PVC tubing close to the astronaut's skin.



NASA liquid cooling garment of 1960's

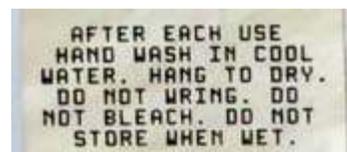
Lycra began to be incorporated into sportswear, with France's Olympic ski team of 1968 wearing ski-suits of Lycra-containing fabric. Another popular application was swimwear, with many Olympic teams favoring form-fitting suits for the 1972 Olympics.

Swimwear containing spandex proved popular with athletes and the general public alike — but it also revealed flaws in the elastomer's composition. The fiber was vulnerable to damage caused by heat, light, UV, atmospheric contaminants, chlorine and sunscreen oil — all of which might be encountered on a trip to the pool, followed by laundering in the washer/drier. Individual spandex fibers would break off and poke out of the fabric — which would then lose its elastic qualities.



A trip to the pool could be the ultimate test for early swimsuits containing a high percentages of spandex.

As a result, care labels for swimwear had to be worded like this one: "After each use hand wash in cool water. Hang to dry. Do not wring. Do not bleach. Do not store when wet." Early spandex swimsuits might only last a single season!



Make it better!

Many improvements have been made to spandex fibers to overcome those early problems. Antioxidants such as hindered phenols are incorporated to prevent heat damage, while UV absorbers such as hydroxybenzotriazoles can prevent degradation by ultraviolet radiation. Tertiary amines slow discoloration by scavenging nitrogen oxides that contaminate the air while anti-mildew additives stop attack by mold when swimsuits are stored wet. Resistance to the chlorinated water in swimming pools can be improved by modifying the polymer composition to favor aliphatic polyester diols and by incorporating metal compounds such as zinc oxide, basic magnesium carbonate or calcium carbonate to absorb the chlorine.

Applications of spandex fiber have grown since those early problems of stretch swimwear. As well as shirts, jeans and pants, spandex can be found nowadays in socks, gloves, side panels of shoes, diapers, bandages, belts... and the stretchy form-fitting covers for almost anything including table-tops, mattresses and of course **handi-talkies**.

Long-lived Kenwood

I can only imagine that the **SC-51** soft case for my Kenwood **TH-F6A** tribander HT was based on an early, low-grade stretch fabric that predates recent improvements in durability. TH-F6A accessories are no longer available. The TH-F6A — introduced in mid-2001 — remained on-sale until October 2016 when it was replaced by



Shirt and sock labels show presence of elastane, Lycra and spandex.



Kenwood TH-F6A transceiver for 144, 222 & 440 MHz with original SC-51 soft case.

Kenwood's new TH-D74A tribander. Luckily, I found a 'new old-stock' SC-51 case at Gigaparts.

While Kenwood Corporation can trace its lineage back over seventy years, the recent history of Lycra is more complicated. In 2003, DuPont formed its Textile & Interiors unit from the famous Textile Fibers division, headquartered in Wilmington, Delaware. The unit was renamed "Invista™" then **sold** to U.S. Company Koch Industries Inc. in 2004. The sale included tradenames Lycra®, Stainmaster®, Cordura®, Coolmax® and Tactel®.

Invista's Apparel and Advanced Textile business was then **sold** by Koch Industries in 2019 to Chinese company Shandong Ruyi Investment Holding. The new standalone business operates worldwide as "The Lycra Company", a subsidiary of the Ruyi Group.

Speak up

Alert readers may have noted that spandex is partly a polyurethane and that degradation of polyurethanes features in other areas of electronics and sound reproduction. This includes the "foam rot" problem which causes loudspeaker cones to become partly detached from a speaker's metal frame as the foam surround deteriorates.

From the late 1970s onward, instead of using a flexible surround made of pleated paper, loudspeaker manufacturers began using a glued-on ring of polyurethane foam to reduce audio distortion during heavy movement of the woofer cone. Unfortunately, early polyurethane foam suffered from similar problems to spandex — when subjected to moisture, light, UV, air and fungal attack it would slowly decompose, losing elasticity and crumbling away. Warmth and high humidity accelerated the hydrolysis process. With holes in the foam surround, the air seal between front and back of the speaker cone was broken.



Example of loudspeaker foam rot.

The solution was similar to spandex — make a better choice of the polyurethane components then incorporate antioxidants such as hindered phenols and aromatic amines plus UV stabilizers such as benzotriazoles.

If you ever purchase a vintage loudspeaker, be sure to take off the front cover and examine the speaker surround for damage before parting with your money! And if you *do* have a problem, speaker repair kits are available from companies such as:

<https://www.speakerworks.com>, [simplyspeakers.com](https://www.simplyspeakers.com) and [parts-express.com](https://www.parts-express.com).

- NM9J

Peekskill / Cortlandt Amateur Radio Association

Mail: PCARA, PO Box 146, Crompond, NY 10517

E-Mail: mail 'at' pcara.org

Web site: <http://www.pcara.org>

PCARA on Facebook: <http://facebook.com/pcarahamradio>

PCARA Update Editor: Malcolm Pritchard, NM9J

E-mail: NM9J 'at' arrl.net

Newsletter contributions are always very welcome!

Archive: <http://nm9j.com/pcara/newslett.htm>

PCARA Information

PCARA is a **Non-Profit Community Service**

Organization. PCARA meetings take place the first Sunday of each month (apart from holidays and July/August break). Talk-in is available on the 146.67 repeater.

PCARA Repeaters

W2NYW: 146.67 MHz -0.6, PL 156.7Hz

KB2CQE: 449.925MHz -5.0, PL 179.9Hz

N2CBH: 448.725MHz -5.0, PL 107.2Hz

PCARA Calendar

NOTE: In view of restrictions on activities as a result of the novel coronavirus (COVID-19) pandemic, many calendar events for July have been canceled. **Check before leaving!**

After Field Day on Jun 27-28, PCARA will be on summer break until September. Keep an eye on the web site, Facebook Page and Yahoo! Group for announcements during this period, including a possible venue for the September 13 meeting.

Hamfests (Check before leaving!)

Sun July 12: CANCELED: Sussex County ARC Hamfest, Sussex County Show Fairgrounds, 37 Plains Road, Augusta. NJ 8:00 a.m

Sat Jul 25: New Jersey Antique RC tailgate Hamfest, InFo Age Science & Learning Center, 2201 Marconi Rd, Wall Township, NJ.

Sat Aug 15: Ramapo Mountain ARC Hamfest, St. Catherine RC Church, 112 Erskine Road, Ringwood, NJ 07456. 8:00 a.m.

Sun Aug 23: Candlewood ARA Western Connecticut Hamfest, Edmond Town Hall, 45 Main St., Newtown CT. 8:00 a.m.

VE Test Sessions

Most Volunteer Examiner Test Sessions in our local area have been **canceled** because of the "New York State on PAUSE" Executive Order — and similar executive orders in New Jersey and Connecticut. Check ARRL's web site for upcoming V.E. Test Sessions

(http://www.arrl.org/exam_sessions/search) and **check** with the named Contact before leaving.



Peekskill / Cortlandt Amateur Radio Association Inc.
PO Box 146
Crompond, NY 10517