NCJ

NATIONAL CONTEST JOURNAL

$4

September/October 2000

Volume 28 Number 5

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- WRTC2000—The S582A Story
- Antennas with Gain and Bandwidth for 80 and 160 Meters
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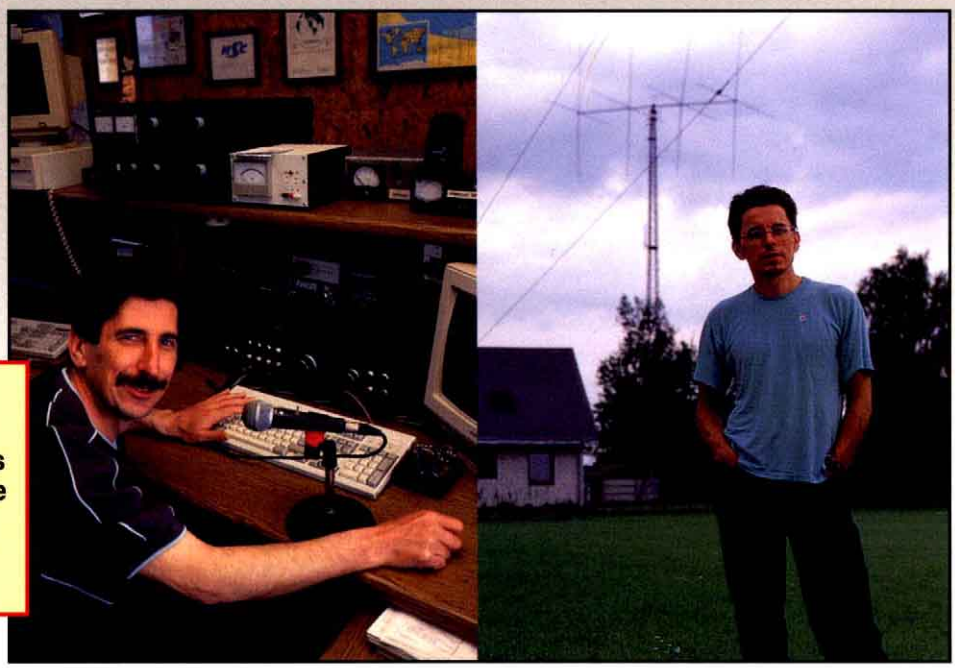

Kazimierz, SP2FAX's, HF antennas are primarily Yagis. Chris, SP7GIQ, uses mostly quads. Which is the more effective antenna? Henryk, SMØJHF, is determined to find out.

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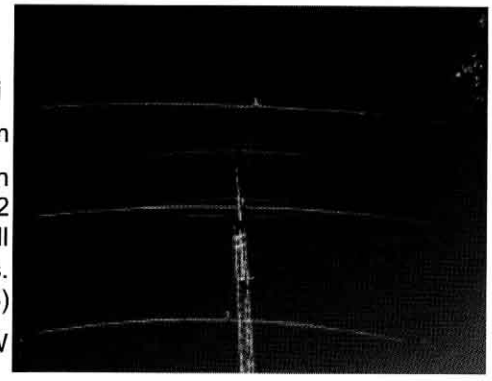

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Editorial

Dennis Motschenbacher, K7BV

The September/October issue of the *NCJ* is always special in that its arrival signals the adrenaline to begin its magic as the new winter contest season rapidly approaches. This is the time of year that contesters complete the final phases of their antenna projects and shack upgrades.

We also experience some added tension now. This is also the time to spend some extra hours with the family to build up the "points"—that we most certainly will run short of—needed to pay for the upcoming back-to-back procession of contest weekends. Our passion for contesting can be a test of the strength of our relationships with our families, coworkers and friends.

We cannot help it, though—nor would we want to change a thing. The next several months will serve to consume some of that fire in our gut that has driven us on each year since we first discovered the unique thrill that contesting stirs inside us. Life offers many similar thrills, but only a contester can understand what another contester is feeling in those final hours before the starting bell rings at 0000Z.

January NAQP SSB Results

We trust that most of you have seen the reflector announcements directing you to the *NCJ* Web site for the final results of the winter NAQP SSB Contest. Bruce, WA7BNM, has asked that we extend his apologizes for the delay in getting them into your eager hands.

WRTC2000

Maybe the "thrill" mentioned above is one of the contributing factors that make a gathering of contesters such an exciting occurrence. If that is true, then WRTC2000 had to be the most incredible "thrill" a contester could ever dream of experiencing.

The entire WRTC2000 experience—that started for me with Ralph, K9ZO's, telephone call asking me to be his teammate in Slovenia—was totally overwhelming.

So many fantastic people met, so many old friendships renewed, so many new friendships initiated, so much contesting excellence gathered in such close quarters, so many smiles and laughs, so much unconditional and unselfish kindness and respect, so many handshakes and hugs—the list goes on and on.

I found that being there was truly a humbling experience. It would have been very easy for me, with my meager list of accomplishments, to find myself quite uneasy amongst all those well-known and hugely successful characters that previously only existed in my mind as faceless call signs. After returning home, I was compelled to write a note, thanking those hundreds of my "Contest Heroes" for graciously and generously accepting me and my shy wife, Lieska, into their sphere of friends each day and night in Slovenia.

Frankly, I expected to see at least some of that boring ego-driven one-upsmanship that you sometimes encounter when attending contest club meetings and gatherings. Had I thought the matter through more thoroughly though, I would not have had such concerns.

This was a gathering of The-Best-of-The-Best. Most had nothing more to prove—all that had already been accomplished with their activities on the bands long before their arrival in Slovenia. For the most part these were confident people, just glad to have a good reason and the good fortune to be at that place on the face of the Earth at that important moment.

The actual contest was exciting for me—but no more so than the nightly dinners and story telling sessions. Rarely an hour passed that I didn't bump into yet another contester I knew so well but had never met in person before.

I was also grateful to see all the people who were there not as competitors but merely to add passion to the moment—they made the WRTC2000 an even more rewarding experience for those of us lucky enough to actually take part in the competitive events.

I saw so much sharing amongst the competitors. Sharing of equipment to help others with gear damaged by the "airline gorillas." Sharing of medicine for the unsettled stomachs. Sharing of strategy and operating opinions.

Yes, they all wanted to win. They wanted a shot at one of the medals, but they were willing to do everything possible to ensure that it wasn't a win cheapened by selfishness. The Slovenian's organization of WRTC2000 set this tone of cooperation and friendly competition and it prevailed throughout the entire week.

I was one of those who arrived with a smashed radio. That rig and shipping case had been on a few rough and tumble DXpeditions to places like St Pauls Island and Market Reef without incident—but no such luck this time around. The shock of the realization that I was going into battle without my trusty 'MP was very unsettling—and my reaction was quite visible to my wife and friends.

But our Slovenian friends were quick to respond and find a replacement radio for Ralph and me. Things like this were occurring all over Bled on the day before the start of the contest. While placing a lot of pressure on the S5s, they were easily up to the task of getting everyone started in the contests with all things being relatively equal. To their credit, I haven't heard any post-contest whining about unequal stations—yet—and hopefully I won't.

From my heart, I wish to extend my deepest gratitude to the Slovenia Contest Club and the WRTC2000 Committee for their efforts to make this historic event happen. I love "movers and shakers"—and these individuals are every ounce that!

To my new Slovenia family, Pappa 'Pol, S57U, and his Number One Son Samo, S57KAA—my heart pounds with emotion now as I try to thank you for opening your personal world to Ralph and me. All of us now have a greatly extended family to share more ties with in the years to come. Family is forever.

Lieska, my wife, will never forget the warmth of the women who, like her, traveled to Slovenia and tried to comprehend the magnitude of the adventure their mates were living. (A note to Nora—XYL of A61AJ. Lieska says she will be in Dubai visiting you sooner than you think!)

A special thank you to our newest Hall of Famer, Walter, DJ6QT, who opened his home to us, took all my feisty abuse and ribbing—and tossed plenty back in return. But even more importantly, he was kind enough to offer me some personal consul that I shall never forget.

Each WRTC event seems to breathe a life and character of its own—I can hardly wait until the next gathering comes along with its own flavor and memories.

73, Dennis Motschenbacher, K7BV—S566Z

Cover Photo

The age-old question, "Which is the better antenna—the Yagi or the quad?" is one that has been batted around for decades.

Henryk Kotowski, SM0JHF/K6JHF/SO5JHF, has concocted a scheme that could conceivably help move us closer to an answer. Be sure to check out "The Polish Yagis vs Quads Big Gun Shootout." Perhaps you will choose to be a participant in his noble experiment. ■

The Polish Yagis vs Quads Big Gun Shootout

Henryk Kotowski, SM0JHF/K6JHF/SO5JHF
sm0jhf@arrl.net

Ever since I first became interested in Amateur Radio, I've sought the answer to the following question—"Which antenna is better, a Yagi or a quad?" After 40 years without receiving a straightforward answer, I have decided to attempt to find an answer.

The Test Range

Being an intelligent guy, I've decided that the simplest way to perform this evaluation is to let *other people* build the antennas and conduct the on-the-air tests. Although perhaps not the ultimate in testing criteria, why not let the entire world serve as our antenna testing range and have our test periods correspond to the running of the large contests?

The Operators

I've secretly selected two contesters to assist us in conducting these tests. A distance of only 100 miles separates their stations. The operators have similar backgrounds and hold similar Amateur Radio records. They had no idea of my interest in their activities while they were developing their station configurations.

The Quad-Generated Signal Source—SP7GIQ

Chris, SP7GIQ, is 44 years old. He earned his license at the age of 16 while he was living near Warsaw, Poland. His first ten years of Amateur Radio activity were spent at different local clubs, learning the fine arts of contesting and antenna construction.

In the early '90s, Chris bought some land and started building large quad antennas. With those quads, he began winning contests. He is particularly fond of the IARU HF Championship, but awards for his performance in the ARRL DX Contest, the Japan International DX Contest, the CQWW, the All Asian and others decorate the walls of his home.

The Antennas at SP7GIQ

160 meters	Quarter-wave vertical and Beverages
80 meters	Half-wave vertical and Beverages
40 meters	2-element cubical quad
20 meters	4-element cubical quad at 35 meters and a 4-element cubical quad at 19 meters
15 meters	4-element cubical quad at 35 meters and a 4-element cubical quad at 19 meters
10 meters	5-element cubical quad at 35 meters and a 5-element cubical quad at 19 meters

(See *QST*, March 1999, page 22 for a picture of his previous 4-element 40-meter quad.)

The Yagi-Generated Signal Source—SP2FAX

Kazimierz, SP2FAX, is 46. He received his first license shortly after turning 15.

Until all Amateur Radio operation was suspended in Poland at the end of 1981, Kazik had been very active in a few clubs, mainly SP2PDI in his hometown of Bydgoszcz.

He built quads—but found them difficult to keep up in the air. Around 1995, he returned to Amateur Radio—and he did it in a very big way!

After carefully checking the soil conductivity charts over a large area, he bought a piece of land in the countryside and started building large Yagi antennas—and winning contests. Separate antenna supports and a spacious home allows him to host multi-operator efforts. These often use the special call sign SN2B.

The Antennas at SP2FAX

160 meters	Quarter-wave vertical and Beverages
80 meters	4 quadrant system and Beverages
40 meters	3-element Yagi at 42 meters
20 meters	6-element Yagi at 47 meters and a fixed 6-element Yagi pointed towards the USA
15 meters	6 over 6 Yagis at 32 meters
10 meters	6 over 6 Yagis on a 32-meter tower

A Level Playing Field

There is more that they have in common. They are both married with children and both erected their antenna systems *before building their houses*. Both operators use approximately the same power (the power limit in Poland is 750 W dc input) and they both are excellent CW operators—but use SSB as well.

Interestingly, both fellows have extensive experience with Yagis and quads—they obviously arrived at different conclusions about which antenna configuration was better. Lastly, neither one of them is professionally engaged in the radio communications industry.

They are modest gentlemen and are already Elmers, introducing younger hams into the world of contesting.

Chris, SP7GIQ, opens his shack for Przemek, SP7VC, who is learning fast and sometimes shares the antennas that he helps build and maintain. Kazik, SP2FAX, encourages Lech, SP2WKB, to follow in his footsteps. Lech made over 2,000 QSOs in the recent ARRL DX Contest on 20-meter SSB.

And Now for the Comparison

I think I have adequately outlined the parameters of this comparison and have provided sufficient information to convince you that the test results will be just and fair. So now for the actual comparison.

Again—being smart—I will let *other people* do the comparison. You, the readers, will be the *other people.*

During the next few large contests, turn your antennas towards Poland. Check the DX Cluster information if you are in a hurry and spot these two stations. A receiver input attenuator might be needed to bring their signals down into the lower part of your S-meter so that you can obtain more distinguishable readings—these guys are almost always *LOUD*.

Making several observations and comparisons over a period of time will minimize the influence of any propagation differences that exist between these two stations. Prepare a chart in advance and fill in the signal strengths.

You can be a participant in the noble experiment that may provide the final answer to the ubiquitous question: "Which is the better antenna—a Yagi or a quad?"

Send your test results to me via e-mail at **sm0jhf@arrl.net**. It would be interesting to know the type of antenna you were using when you made your observations. Assuming that I receive enough input, I will put together a short follow-up article for the *NCJ*.

Amateur Radio in Poland

Here is a bit of background information on ham radio in Poland.

Poland is a central European country with a stormy history. Political change in this region ten years ago resulted in a more independent system of government. The country has recently become a member of NATO. Some 40 million people live here but there are probably that many more Poles scattered around the world.

There are currently 15,000 licensed amateurs in Poland. Most of the new hams hold no-code licenses and are limited to the VHF frequencies.

Standard prefixes are SP and SQ. Special event stations can get a call sign starting with 3Z or SN. Foreign nationals, visiting or permanently settled in Poland, are given an SO prefix.

(Continued on page 13)

WRTC2000—The S582A Story

Doug Grant, K1DG

I woke up around 9 AM local time on the day of the contest and found John, K1AR, already at the rig. He was warming up by running guys. He'd been up for an hour. We had some coffee and cereal and then spent a half-hour or so making sure everything in the station was working properly.

Our "run" radio was an ICOM IC-781. The spotting radio was an IC-706MKIIG—chosen for its small size and light weight (the only other rig readily available was another bulky '781). Many of the other competitors raised eyebrows or even chuckled when they heard we were using a '706.

Each rig was connected to Top Ten band decoders driving Dunestar 505 band-pass filters. We tested this setup at my house during Field Day and it worked pretty well.

Around noon, John; me; Referee Oms, PY5EG; and our hostesses Sasha and Mateja walked down the hill to a local restaurant and had lunch. During lunch, the rain started. We hoped that it wouldn't result in QRN or other ill effects.

After lunch we headed back to the station. We had about an hour left to finish setting up and shaking things out.

A few minutes into our testing, the SWR suddenly went haywire on 15 meters. It turned out that we had managed to burn out the 15-meter section of the Dunestar. When they say "100 Watts", they mean 100 Watts! We disconnected that position on the filter box, and got ready to rock.

It was time to break out our "carefully prepared" operating aids. First—some maps showing the sunrise-sunset areas for each hour of the contest. These certainly are handy to have, but we didn't end up paying enough attention to them.

Next—our beam-heading chart. We downloaded it from a Web site. Looking it over, we soon noticed that most of the headings weren't consistent with what we had been told by the locals and what we had observed in the pre-contest warm-up. Sure enough, we had forgotten to enter the longitude as a negative number. (If anyone is planning a boat trip in the Atlantic somewhere northwest of Spain and needs a beam-heading chart, give me a call.)

Finally—the Official ITU Zone map—also downloaded from the Web. We discovered that most of East Asia was chopped off at the right edge of the page! We still don't know which countries are in which zones over there. So much for our operating aids!

At 1:55 PM (1155Z), Oms opened the official envelope with our call sign... we had drawn S582A. Not bad... "A" suffixes are good on phone or CW.

The WRTC2000 awards ceremony. K1TO and N5TJ, on the high riser, finished in first place. To their right, RA3AUU and RV1AW, the team that earned second place honors. K1AR and K1DG—to their left—captured third.

We then flipped a coin to see who would operate first. It came up heads... I think. Although the coin-toss ceremony has always been a tradition whenever John and I operate together, since John gets us off to a great start, he always "wins," regardless of the results of the toss.

As the clock turned 1200Z we were off and running on 15 CW—and I do mean running. John turned to me and said "I have a huge pileup!!" He was *loving* it.

I decided to try a trick we'd used before and use the spotting radio to pull additional calls out of the pileup. When I attempted to listen to the 15-meter signals though, the '706 suddenly went deaf.

The good news is that I had installed a fuse in series with the '706's antenna input, and it had blown, protecting the receiver as it was intended to do. There was way too much coupling going on between the tribander and the Windom (the feedpoints were only about 2 feet apart) to allow us to use the spotting radio on the same band as the run radio. Phooey!

John however, was doing fine without my help. He turned to me with a big grin and said, "I bet nobody's doing this well!" The first 30 minutes netted 90 Qs with about an even split between US and European stations.

He decided to try SSB for a while. By 1250Z he had only managed 40 Qs on SSB—a slower rate than CW—so he returned to CW and finished the hour with 20 additional Qs in the remaining 10 minutes.

At 1300Z I took control of the run station. I kept up an okay rate on CW for awhile. At 1315 I decided to try SSB again—it took me 4 minutes to work my first Q. The rate picked up but it dried up occasionally. Moving a few kHz got it back, so I figured there was someone else I couldn't hear covering me up. I had to remind myself that I was operating barefoot with a tribander at 12 meters, and would have to keep moving!

At 1340Z we knew that we should go back to CW. It took me 2 minutes to work someone. The rate came up however, and as I completed the last Q of my hour, the "last 10"-Q meter showed a rate of 213.

John took the chair at 1400Z and ran Ws, EUs and some JAs. I went into the spotting mode and tuned 10 meters.

I found YB1AQS booming in, and heard a few other stations on. John switched to 10 meters at 1420Z. 'AQS was first in the log, then we CQed and got a small run going. The volume wasn't there however. I swept 15 for mults and scribbled them down on a piece of paper.

When John returned 15, he ran up the

"Team New Hampshire"—(left to right), Referee Oms, PY5EG; John, K1AR; station hostess Sasha; and Doug, K1DG.

Referee Oms listens in as John racks up the Qs.

band and nailed each of the stations I had spotted. While he did that, I tuned 20. The local European HQ stations were all pounding in, but not getting many answers. Again I put them on paper and John moved to 20 for a quick mult sweep, collecting 15 of them in 15 minutes to close out his shift.

By 1500Z we had 353 Qs in the log. Not bad for three hours' work, but we had a long way to go.

I switched back to 15 CW. The rate meter climbed back up and hung between 120 and 150. When it dropped below 100 at about 1530Z, we decided to try 10 again—this time on SSB.

I had heard some good zones and some HQ stations when I was spotting on that band earlier, so I decided to try working them. I fell into DXing mode, and the rate slowly sank into the 70s. A short burst on 10 CW yielded a quick 5 mults. I finished with a slow 88 hour. It was John's turn—we QSYed to 15 SSB.

From 1600 to 1630Z was tough sledding; John struggled to keep the rate meter over 100. In fact, at 1609Z, he went looking for a clear frequency to use, and tried several different spots. Finally, at around 1630Z, things clicked—the rate meter peaked at 393! John was nearly hyperventilating—I tuned 20 SSB and located more HQ multipliers.

When things cooled down a bit on 15, he ran through my list of 5 spots on 20 and worked a few stations in between. After that we QSYed back to 15 CW. We closed out with a nice 110 hour.

As I took the chair at 1700Z, we both wondered if 15 would continue to produce or whether we should think about going to 20. After about 10 minutes, it was clear that 15 was sagging, so I went to 20 CW.

Boom! The rate meter climbed as high as 250—and they just kept on calling. John tuned 15 for multipliers, since we hadn't done much mult-hunting on that band. I jumped there and grabbed a few mults, but went right back to 20. John said he thought 15 CW was getting good again, so I went there, and after a slow 5 or 6 minutes getting established, I found out he was right... the rate meter climbed back over 200.

At 1800Z it was John's turn again. Fifteen was slowing down, so he took a short spin through the band for multipliers and netted a few more European HQ stations and V63X for a good zone. I was tuning 10 for mults, and as I found 9V9HQ, John had just gone to 20! I encouraged him to go get the 9V, and one call put him in the log. Then it was back to 20 CW, which was okay, but not inspiring. After a short time, he went to 20 SSB, working nearly all Europeans—no Ws yet.

After spending a few minutes finding a clear frequency, the rate picked up a bit—but again, nothing inspiring. I spotted a bunch of mults on 10, so John finished the hour putting them in log.

By 1900Z we had 752 Qs, with 15-meter CW being our best producer. We took a minute to discuss tactics, since it was getting dark and we knew that we would have to come up with a low-band strategy soon. We decided to remain on 20 for awhile longer, and then move to 40 at the first sign that 20 was slowing down.

When I took the chair at 1900Z, it was on 20 SSB. After about 20 minutes at a 120 rate, I switched to CW. It took a few minutes to get rolling and then the rate meter stalled out at about 80.

John was listening on 40 and reported that one of the WRTC teams was running their brains out on 40 CW and we should be there. The instant he said that, the gang on 20 CW found me. The rate meter soared to 250 again. I couldn't very well leave this action and go to 40! I decided that we wouldn't lose much on 40 if we stayed on 20 until the end of the hour. I put 82 Qs in the log in 30 minutes.

At 2000Z we had 892 in the log. John took the keyboard and QSYed to 40. The rate was initially good—around 130 per hour—but it started to slip after about 15 minutes. At this point, we had no idea what the best band was, so we studied our CW/SSB breakdown.

We figured that our CW QSO total was okay, but SSB needed work. A quick trip to 15 was unproductive, with only 3 Qs in 5 minutes. We went back to 20 and collected 18 Qs in 10 minutes. During those bursts, I was tuning 40 SSB—wondering how it would play for a 100 W station with a low antenna. I wrote down the frequencies of all the loud CQing HQ stations and other mults and handed the list to John. He "ran the table," logging all 13 in 8 minutes. Then he went back to 20 CW, and ran off 32 Qs in 20 minutes while I tuned through 80 searching for mults.

At 2100Z it was my turn again, and I ran through all the stations I had spotted on 80: 12 mults in 11 minutes on CW, then 11 more in 14 minutes on SSB. Running did not seem reasonable, and John said that he was hearing a lot of action on 15. I QSYed to 15 SSB.

Fifteen was wide open. I pointed the beam to Asia and the JAs called (along with BY4CSR and DU1DX just to spice things up). When things slowed down, I turned the beam towards the USA and the Ws called. We sure wished we had some way to beam both directions at once! The rate was good—around 130—and by 2200Z, we had 1073 Qs in the log.

We knew that the rates on the high bands were still good, but we knew we needed to make use of the low bands during the darkness hours—before those bands went too long for our modest station. After 10 minutes on 15 SSB, John returned to 40 CW. Good move... we netted 55 QSOs in the next 22 minutes.

At 2215Z Oms smiled as PT7BZ went

in the log—but by then the rate was starting to slow down. I handed John a list of 5 mults that I had spotted on 20 SSB. Five minutes later he had 'em all and was setting up shop there for a run. It started off fast, with 25 mostly-W Qs in 11 minutes, but it wouldn't stay that way for long.

At 2300Z I took over and decided to stick with 20 SSB. The rate was bursty, with the last 10-Q meter peaking close to 300 but drooping under 70 at times. The first 30 minutes of the hour yielded 73 Qs, mostly Ws. P43ARC called in, and I successfully passed him to 15. This was the only multiplier we moved during the entire contest, which would eventually cost us. We decided to concentrate mostly on rate and the multipliers we found on the spotting rig instead of taking time from the rate to pass stations to other bands.

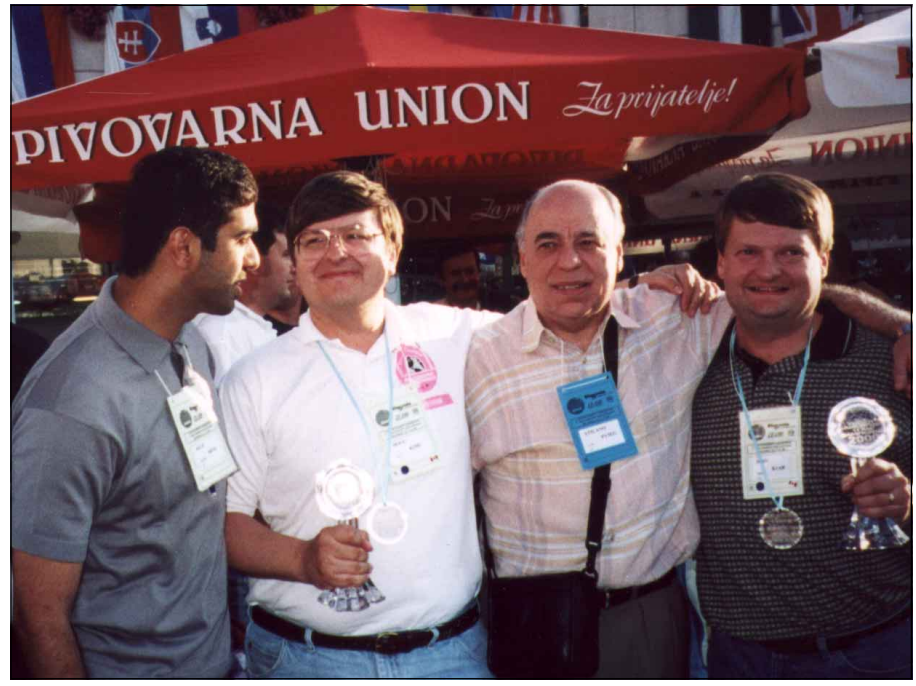
At 2335Z John handed me a list of 8 mults he had spotted on 80 CW. Five minutes later I'd worked them all and was calling stations on 80. When I decided to go back to 20 CW, John handed me a list of 3 mults there, and they went into the log quickly.

At 0000Z John took the chair with a list of 40-meter SSB stations he'd spotted. Ten minutes there yielded another 6 multipliers. He went to 15 and worked the mults he'd spotted there. Five minutes later, he had all of them, and decided to try running on 15 SSB. Remember... this was 2 AM local time!

The next 15 minutes netted 42 QSOs, but John thought it was slowing down, and 20 CW would probably be better since the USA would be peaking soon and we hadn't spent much time there. I argued that we needed to pump up the multipliers on the low bands, since we would be running out of darkness soon (sunrise in S5 was 0321). We compromised—John would go to 20, and I would get a multiplier band-map ready for 40 and 80.

Boom! Twenty-one Qs in 8 minutes on 20. I then handed him a list of 13 multipliers on 40, and he worked them all in 8 minutes. When I passed him the 80-meter list, he seemed to take it as a challenge to work them even faster. He ran through that list of 9 in 5 minutes flat. Amazing.

At 0100Z, we had a discussion about off-times. The rules stated that we needed to take 4 hours of off-time in a maximum of 3 periods. The activity had been strong and showed no sign of letting up, considering that we had 1400 QSOs in the log in the first 12 hours. We contemplated operating straight through the first 20 hours and taking the last 4 hours off. The logs from previous contests given to us by the S5s showed 0900-1200Z to be common off-times.



Ali, A61AJ, congratulates "Team New Hampshire" on their third-place finish.

While we were discussing this, the power went off.

We wondered if we were going to be forced to take an off-time just for having the nerve to talk about it! Luckily, the power came back on 2 minutes later. We decided to keep going for awhile. It seemed like 20 CW was the right place to be so I remained there for the entire hour.

John came back on at 0200Z, and by that time we had decided that we would take off-time the hour before sunrise. His half-hour produced 60 QSOs on 20—some CW, some SSB—and our only two North American stations on 80 (NU1AW and VE1ZJ). Other W1s and W4s were very readable, but they could not hear our 35-foot-high Windom and 100 W. At 0234Z we walked away from the rigs.

At 0334Z, we were back on, with a short flurry on 80, then 40, working Europe and the US as John finished out his hour.

At 0400Z I took over and switched to 20 SSB for 50 fast Qs in 20 minutes, mostly with the US, and these included a dozen or so W6s. It was clear that we had been spotted on packet. When that slowed down, I tried CW, but it was even slower.

John handed me a note at 0430Z that HS0AC and DU1MHX were on 10 CW, so I went there. 'AC was loud, and after I worked him, two UA6s called me. I moved up a bit and called a few CQs with no luck. I worked the DU and decided to change bands.

I went to 15 CW. It was good for 8 Qs in 5 minutes, and then *nothing*. Argh! A quick switch to 20 CW brought the rate meter back up to 120 or so. I finished the hour with 98.

John took over at 0500Z. He stayed on CW for 10 minutes or so, then switched to SSB. While tuning around for a clear frequency, he called K3ZO, K5TR and found W1AW/4 for a mult. But the band didn't seem runnable, and I'd located T90HQ for a mult on 15, so he went there.

He got the mult, then blah—nothing. By then, I'd found a couple of mults on 10 CW, so we went there. After 8 QSOs (including VR2BG) in 8 minutes, we were scratching our heads trying to figure out where to find rate.

In the meantime, I found T77C on 40 SSB, and since it was broad daylight—and this was probably our only chance for the mult—we went there.

We then decided that 20 was the place to be. John managed 8 Qs in 6 minutes on CW, then switched to SSB, where the rate was much better. The rate meter hovered near 120 and peaked at 189. The hour ended up netting us 75 Qs.

At 0600Z, we were thinking that an off-time would be a good idea. After 15 Qs in 15 minutes, including two quick trips to 15 for multipliers 5I3A and OH3X, we decided to take some time off. The rules stated that we had to be off at least one hour, with only a single 5-minute listening period to "sniff" the band and decide if we wanted to get back on.

At 0715Z, we sniffed—and elected to

stay off. During that time, we were wandering around the shack, trying to keep amused, all the while frustrated that we were at a nice shack during a contest, and we weren't allowed to operate!

At 0745Z, I got back on, starting out on 15 CW. Pow—17 Qs in 6 minutes! John said 10 sounded pretty good. Since we had already worked a ton of guys on 15, we knew that we should probably get on 10 as soon as it was open.

This was a good move—the band was very much open, and the rate was good and mults were calling in. John tracked down a few HQ mults on 15, and I swooped down to grab them and returned to 10 without missing a beat.

At 0830Z, I finished out my 60 minutes and John took over. After a few minutes, the CW rate began to slow so he went to SSB. Boom—the rate meter started to climb again, hovering around 200 for a good while.

At 0908Z, I handed him a list of 6 HQ mults on 15 SSB. John said to no one in particular on the frequency "Don't any of you go away... I'll be right back!" Two minutes later, all 6 were in the log, with R3SRR/2 as QSO number 2001 at 0910. Then he returned to 10, where the frequency was still clear, and picked up right where he'd left off until 0930Z. With people still calling, John decided that we should take our last 90 minutes of off-time and save the last hour.

Again, we hung around in the shack. We received a few visitors, including W6AQ with his video camera, A61AJ, S50A and others. It was tough explaining to them that, "Yes, the bands are pretty good right now, but we're taking off-time!" Without providing details, some of the guests hinted that we seemed to have a lot of Qs compared to other stations they had visited. That was good news, but if they were operating in the 10Z hour while we were off, they could have been passing us!

At 1100Z, I took the chair for the last hour. I decided that we needed Qs on 10 SSB and went to work.

The rate meter quickly jumped to 250, and then hovered around 200. I had a nice peak at 353, with the Qs a mix of hugely-loud Europeans and a smattering of relatively weak Ws. Thirty minutes later, I had 103 Qs already in the log.

A few minutes after that I began announcing "28030 at 1145" to every QSO to ensure a good start on CW. When I went there, there weren't as many calling as I had hoped, and John had a list of 4 HQ stations we needed on 15 CW written down.

At 1155Z, I went to 15, worked all 4 in two minutes, then finished out the contest there.

The last hour netted 168 Qs (there were several dupes, bringing the actual total down to 159). That was our best hour of the contest.

After the contest, we took everything apart, packed it up, and were on the road to Bled in a Slovenian Army jeep 45 minutes later. We felt that we had done okay in QSOs, but we knew that we had left enough multipliers on the table by not passing that we probably hadn't won. We figured we'd be happy with a Top-5 finish, since that would redeem us from our poor 13th place finish at WRTC96.

You can find out what happened after we returned to Bled, and my final feelings about the whole affair at **http://www.ncjweb.com**—visit the WRTC2000 Coverage section. The complete S582A log (as well as logs for all of the WRTC competitors) can be found at **http://wrtc2000.bit.si** along with numerous analyses and the UBN reports.

(Doug and John did indeed make the Top 5—placing third. Well done guys! Our congratulations also go out to the teams of K1TO and N5TJ; and RA3AUU and RV1AW on their first and second place finishes.—'BV) ■

WRTC Memories

Jim George, N3BB/5

It has taken me a couple of weeks since returning from Slovenia to absorb my experiences of the WRTC and to put my thoughts on paper. My wife, Diana, and I remained in Europe after the end of the competition and played tourist until that Friday. We rented a car and drove into Austria on Wednesday, and then over into eastern Slovenia and Croatia on Thursday.

Those travels, coupled with a minibus tour we took to Venice on Tuesday, enabled us to enjoy some new experiences and to visit several places for the first time. The whole WRTC Slovenian experience was terrific, and I'll never forget it.

The contest week really began for me at the Frankfurt airport when John, K4BAI; Bob, K4UEE; and I met for the flight to Ljubjana.

We were impressed with the efficiency of the military pick up support at the Ljubjana Aerodrome, and it was exciting to see the banners and promotional signs for the WRTC as we approached Bled.

Diana and I had been in Athens, Greece the week before on a business trip that had come up at the last minute, and I had missed the announcement of the results of the station location draws the week before. Alan, N3AD, and I had received e-mails from Ducan, S52DG, one of our four station hosts, welcoming us to their station.

The WRTC headquarters office at the Hotel Astoria was well organized, and the dispersal of the bags with the information and tee shirts, maps and additional materials was efficient. Alan and his wife, Gloria, showed up at the headquarters about the same time I did—one day earlier than originally planned—with a rental car that was packed to the gills. We were all there.

The initial gatherings around beers at the outside hotel tables were high energy and charged with excitement, and it was nice to see many old friends and to meet many, many new ones.

Bled is such a pretty location that it took my breath away. The lake, the island, the castle and the mountains reminded me of my boyhood home in the Appalachian Mountains in southern West Virginia.

The week was well planned, and the competitors' meeting was very interesting. It was clear that people had thought of a wide range of questions regarding things we had not considered. The Slovenian Contest Club handled things well, and their judgement call about off-times policy was well received.

Later, Alan and I set up his radio in his hotel room and soon discovered that the CW keying cable did not key the radio. The internal wiring had broken and was in bad shape. I hadn't brought my extra cable. The pressure was on.

Jeff, N5TJ, and Dan, K1TO, gave us an extra resistor and NPN transistor so that we could make another one if needed, but we didn't have the wiring diagram. Fortunately, John, VE3EJ, had an extra CW keying cable. Needless to say, we certainly appreciated everyone's generosity!

We had several small things to resolder and repair, and having the 220 V to 110 V transformer we brought along to run the soldering iron off of sure came in handy, even if it did weigh 12 kg!

One particularly exciting moment occurred when we plugged in my six-position ac power strip. It had oversurge protection MOVs in it, and they apparently didn't like 50 Hz power! They exploded with a tremendous bang, blowing the circuit breaker and shutting down the power to the room. It took four hours for the electrician to arrive. He was a ham, and he secretly explained to us where the breaker box was so that we could reset the breakers if we tripped them again.

Luckily, Alan's ac power strip worked fine, so at least we would have one working strip for the gear. While we were waiting for the electrician, we had set up the station on a table out in the 4th floor corridor of the Park Hotel. We received quite a few strange looks from the other hotel guests that passed by.

When Alan's wife Gloria returned to their hotel room, she nearly fainted when she saw it totally covered from one side to the other with radios, supporting gear, a laptop, cables, a monitor, soldering equipment and the big transformer.

Another unsettling moment for us was when we discovered that we had forgotten to bring an adapter for connecting an external keyboard to the laptop. Thanks to S53R and S59AA for helping us find not just one, but two of them! All-in-all, that day was unnerving!

The Pileup Tape Competition was held in the Bled Festival Center, a very nice facility. The process for conducting the competition was well done. Nervous energy was in the air by then for sure.

When Alan and I had the chance to meet the host group and our judge in a nearby ice rink over beers and a meal, it was really exciting. Our judge was the well-known Montenegrin contester, Ranko, YT6A. The hosts were two brothers, S52DG and S52LD, and their two good friends, S52QM and S52MW.

On Thursday, the opening ceremonies were quite impressive to us all, and everyone enjoyed the procession, the speeches, the dancers and the whole affair. Later, at dinner that night, the atmosphere turned a bit more serious as the week was moving on, and the time to drive to the stations was approaching the next day.

Our hosts had built a station on an 850-meter hilltop close to a very small village named Golica (pronounced Go-leech-ah), about 10 km from Zelezniki. That 10 km does take a while to drive however! It's nearly straight up, and the narrow road soon becomes gravel.

There is an electrical power line to the station—the ten houses that make up the town of Golica are only a kilometer away—so no generators are needed. The station was well designed with good electrical grounds and a terrific view of the valley below and beyond to the Austrian alps about 40 km away. There is a clear shot to the northwest (USA and Europe) and to the east.

One of the several stunning churches located in Slovenia is on a nearby hilltop about 100 meters higher than the station's position, and the carillon bells late at night and early in the morning are surreal sounding due to their clarity and loudness in the high mountain air.

The station is located in a container building about two or three meters wide by five or six meters long. A Slovenian army tent had been erected 30 meters away for us to sleep in. We were excited and ready to set up the station, but Ducan (pronounced Dushan), S52DG, politely requested that we first take a drive to meet the parents. "It will just take a few minutes," he said.

The meetings were terrific, with each of the three stops featuring a nice spread of white wine and some varieties of fruit juice, usually homemade, plus some killer good pastries and cookies. All of the parents were really nice and would not consider "no" a reasonable response when they offered their specialties. No one spoke a word of English, but there was a lot of serious smiling, grinning, gesturing and laughing, and things went swimmingly.

We got a chance to visit the home stations of the four hosts, as the hilltop station was fairly new, and all had main-

tained stations at home as well.

After three hours or so of the home tours, we were on our way back to the hilltop, but we had one more stop to make—lunch with the mayor of the region around Zelezniki.

The mayor is a nice man—he spoke some English—and Alan and I had a wonderful meal including veal and mushroom sauce, a terrific treat. We were presented gifts including the lace doilies and small cakes for which Zelezniki, a town of 5000 residents, is famous.

Zelezniki translates to "Iron City" in Slovenian. It has a history as an iron center that goes back 1000 years. The original iron metal smelter still stands in the town center.

By this time, we were anxious to set up the station and confirm that everything worked, plus we wanted to get on the air with our S5 portable calls.

The hosts told us that the weather forecast was dreadful, with a major cold front from the northwest dropping into Slovenia Saturday during the contest. The forecast was for very bad storms, with severe weather possible. Things looked bad. So the whole group drove back up to the hilltop dwelling on this news.

Since we were the closest station to Bled, about 50 minutes away, and since Ranko had his family with him, he returned to Bled Friday night.

The 1000 W transformer was running the station on 110 V quite well. There were a few RF feedback issues, but when we grounded all the equipment, that went away, and we appeared to be set. The hosts left, and we were sitting at an outside table eating a late snack right at dusk. Only the two of us were there.

Honestly, it was so beautiful that I half expected to see Julie Andrews walk up over the hillside to our meadow in the fading light, an orchestra to appear out of the thick woods nearby, and for Julie to launch into " …The hills are alive with the sound of music!" What a memorable scene. We completed setting up the station by about 9 PM.

Later, shortly after we got on the air, my KC CW keyer (to be used along with the keyboard) suddenly went berserk and would not send. A check of its small power supply showed that it was putting out only 7.8 V dc with the 50 Hz supply, and the spec on the keyer was 8-15 V. We swapped in another 13 V dc supply and it worked fine. Out came the soldering iron again and a spare male RCA plug was installed on some wire. We connected this to the 13 V output on the back of my FT-1000MP. All that took another hour to fix, with some additional angst, so by then it was 11 PM Friday night.

We taped a Great Circle map, our band plan and an ITU chart to the shack walls, and were finally ready! Both of us got on the air and worked some people, and the station seemed to get out well. It was time to force ourselves to get some sleep.

About 12:30 AM I headed for the tent. I lay there listening to the sound of Alan working people on SSB. About 1:30 AM, I walked back through the meadow to the station building and told Alan it was important for both of us to get a decent night's sleep. He finally came to the tent and immediately fell asleep with a serious case of loud high altitude snoring! So now *he* was asleep, and *I* was the one still awake!

It was hot Friday night before the weather front moved through, but the tent—at an elevation of 850 meters—was comfortable.

We both woke at sunrise—about 5 AM local time Saturday. We tried to nap a bit more but were soon up. It was hard to believe that this was the actual day the contest would begin, only a few hours from that time. For the past several years, I had hoped and planned for this day, and now it was here!

The carillon bells were serenading us with great church bell music, and the overall setting was fantastic. Soon, our wonderful station hosts arrived with a big continental breakfast that included terrific mocha coffee and home baked breads.

We spent the morning meeting quite a few of the townspeople from Golica and Zelezniki who had driven or walked up the mountain the see "the Americans who are going to represent our area" in the international competition, according to the newspaper interview with Ducan, S52DG. Apparently we were the first Americans to be in the area, and therefore we were quite a novelty.

As 1200Z approached, Ranko returned from Bled, the townspeople left, the hosts retreated to the tent, and we got ready to go.

Ranko opened the sealed envelope and revealed our call, S563X, which I could not pronounce. Each letter and number requires a wide variety of facial muscles to say, and the whole thing was, and still is, difficult for me. But since Alan was going to do the SSB and I the CW, it didn't matter that much—Alan had no problems pronouncing the call. We programmed the call into the laptop and, at 1200Z, the magical bell rang!

We started out on 15-meter SSB, but with no results at all! Finally we got one answer to our CQs, but it was clear that we could not run SSB at that time. We switched to CW, and had a good first hour.

The contest was a blur. The weather front hit Saturday night, and it rained all night steadily until Sunday morning—ten hours straight.

We suffered through S9 rain static for hours on end. The temperature dropped sharply, and we had to keep our shack door closed to keep warm. The cold weather clouds raced up from the valleys and across our hilltop. We did poorly on our mult plan, and we were unable to generate any decent phone rates. All-in-all we were very disappointed (and would like a replay), but such is life.

Shortly after the contest ended at 1200Z Sunday, my wife, Diana, arrived from Germany at Ljubjana, where our hosts met her at the airport. Gloria Donziger came up to the site, our host families brought their kids and parents, and all of us became one great big family.

A "combi" vehicle, big enough to carry all the radio gear, was there, and we packed up the station and loaded it on board. Goodbyes were made, and down the mountain we went, on our way to a wonderful restaurant on another high hilltop nearby.

Ducan, Borut, Tomasz and Neyo insisted on treating us all to a final great meal and we were able to wrap up the contest and be driven back to Bled.

Sunday night was fun, but the scores indicated that we had not reached our goals, and we were worried about that.

Monday brought the group excursion to the Postoina Caverns and the proscutto ham place on the bus tour, the closing ceremonies and the top three team awards and concluded with the final supper gathering in the ice rink.

On our Tuesday minibus trip to and from Venice, I got to know Gary, VA7RR; Gedas, LY3BA; and Eric, K3NA, a lot better. We talked about the contest almost the entire way there! Gary and his wife and Diana and I did the gondola ride together, and it was fun. What a week!

I speak for Alan in offering our sincere thanks to the SCC Organizing Committee—they did a first-class job. The gracious hospitality of the station hosts was a common theme among all the teams, and our hosts were simply wonderful. I believe that lifelong friendships were made.

Future WRTCs will have a high level of overall competence to match based on the Slovenian WRTC in 2000. Thanks to the competitors and judges for the collegial atmosphere. This was an experience of a lifetime!

73, Jim George, N3BB/5 ■

Memories of My First JOTA

Larry Wolfgang, WR1B
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Jamboree on the Air! It still makes my spine tingle with excitement. Talking with other Scouts from across the US and around the world. Operating a station with Scout friends and enjoying the camaraderie of a "campout." So many images come to mind from my first JOTA, making this one of my favorite operating activities today.

In 1968, I was 16 and a Novice (WN3JQM) for less than a year. Two other Scouts from Troop 180 in Gordon, Pennsylvania were also new Novices—Garry, WN3JQL, and Terry, WN3JQK. Assistant Scoutmaster Jack, W3AMD, had turned us on to ham radio a few years earlier. He had passed away before we earned those licenses, so in many ways, we were on our own.

The excitement ran high as we made our plans that year. We set up an old canvas wall tent salvaged from summer camp to use as an operating shelter. There are no floors in those Scout tents, so the feed line from my 80-40-meter dipole snaked in under the side wall, along with an extension cord from the house for ac power. We used my Knight-Kit T-60 transmitter (crystal controlled, of course) and Terry's Hammarlund receiver. My parents' large canvas "cabin" tent would serve as the sleeping quarters a few yards away. With the help of three other interested Scouts, we would operate as teams throughout the night, with each team taking a two-hour shift on the radio and a four-hour rest period.

The evening hours flew by with lots of CQ JOTA calls and a few contacts made. By 11 PM or so the others were ready to sleep. I took the first shift, with Terry and then Garry to follow. After my shift I noticed that some clouds had rolled in, and there were no stars visible. Terry took over, and I quickly fell asleep. A couple of hours later Garry was shaking me awake. We needed to evaluate our situation. It had been raining heavily, and the ground was getting pretty wet. As we sloshed into the operating tent I realized we had a problem. Terry was sitting at the metal folding table, on the metal folding chair, with his feet immersed in a growing puddle of water and his hand on the key! We quickly pulled the plug and everyone went to sleep for the rest of the night. We were disappointed, but a potential disaster had been avoided.

I don't remember how many contacts we made or how far we reached. I do remember that we had a sense of excitement and anticipation followed by some disappointment. There was still a great sense of accomplishment, though. I've operated JOTA stations many times since then, and really enjoy sharing my hobby with Cubs, Scouts and Leaders at every opportunity.

If you would like to make JOTA memories like this one, visit our Web site at **http://www.arrl.org/ead/#scout** or send e-mail to **scout@arrl.org** for current JOTA information.

(These words may not scream out "CONTEST!" but I bet they stir memories from deep within many a contester reading them. Maybe the JOTA is one more way to introduce the art of contesting to new prospects…—'BV) ■

ARRL Phone Sweepstakes and the Kids

Michael D. Ihry, N5KB
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My good friend, Tom Francis, KM5RX, had the pleasure of introducing his two grandchildren, Daniel and Joel, to Amateur Radio awhile back. Daniel, 14, soon earned his Technician license—KD5ETC. Joel, 10, has also shown some interest and is studying for his tests.

Daniel

Joel

My last couple of ARRL Phone Sweepstakes efforts weren't very impressive. I found myself looking for some motivation to participate. It occurred to me that it would be fun to have Daniel and Joel over and give them a taste of HF contesting.

The boys jumped at the chance to get on the air! Arrangements were made with their parents—it was agreed that they would come over on the Sunday afternoon of Sweepstakes weekend.

I operated the first part of the contest by myself. By the time the boys arrived, I had already completed my first ever "Clean Sweep" and was ready for some relief.

Daniel went first since he was the oldest—a non-debatable rule of life for youngsters—and because he already had a bit of on-the-air experience operating 2-meter FM.

He was a natural! He occasionally stumbled on the long exchange—but overall he did very well. He operated for about an hour while Joel watched and learned the exchange.

Then it was Joel's turn. He did exceptionally well—especially considering the fact that he had never talked into a microphone before. He occasionally had some trouble with the call signs, though. Joel is only 10 years old and lacked the confidence that his older brother had, but it wasn't long before he developed a rhythm of his own.

I kept a close ear on the action, did all the logging and stayed within "Control Op" range of the radio. They both knew that if they missed part of the call that they could rely on the computer screen for fills. They stayed for about six hours. Their parents picked them up just after the contest was over.

We finished with 431 QSOs and a Clean Sweep in the Low Power category—a new station record. The contest operating and the time we spent together was genuinely fun for all of us. The boys learned about HF, contesting, antennas and operating, and I feel like I have done my part to brew up a couple of new contesters who just might grow to dominate the bands in the years to come!

(An update: Daniel now has his Tech-Plus license and is hooked on Amateur Radio. Joel's interest continues to grow, but he's not quite ready to test.) ■

To Contest—Covenants Be Damned

Mike Condon, NE4S
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Do you live under the burden of covenants or restrictions? Is your G5RV held up by stealth black line? Do you feel the need to contest anyway? Here is how I get around those difficulties. My advice to you is pack up the station—and your love for contesting—drive to your dream contest site, and crank it up!

My unique contest station arrangement came about because of a covenant situation where I live. I have been improving the radio equipment—and the ride—for several years. For a closer look at my current setup, visit my Web site **http://www.homestead.com/ne4s/index.html**. My converted Dodge van, dubbed the "Imperial Cruiser" by my friends, is what I use to get out and play.

I first started contesting from the van in '99 with the 10-10 Day Sprint, a small contest sponsored by 10-10 International. That trip taught me a lot about setting up and operating contests with a mobile—or perhaps I should say portable—system. Shortly afterward I used the 10-10 CW QSO Party as a further warm-up and shakedown cruise for the main event—the 1999 ARRL 10-Meter Contest.

I decided to seek out a high and clear campsite for the ARRL 10-meter blast—I was hoping to optimize the signal take-off angle with an elevated location. A few weeks prior to the contest, I drove through the campgrounds at Black Rock Mountain State Park in Georgia, sizing up the place.

It looked promising. The campsites are located at about 3,300 feet ASL, which is not quite at the very top of the mountain. There's still a pretty clear shot in all directions though, since the actual 3,440-foot peak is about 2 miles north.

I jotted down a few campsite numbers that would allow enough space between the trees to swing the antenna and headed back home with excitement in my heart.

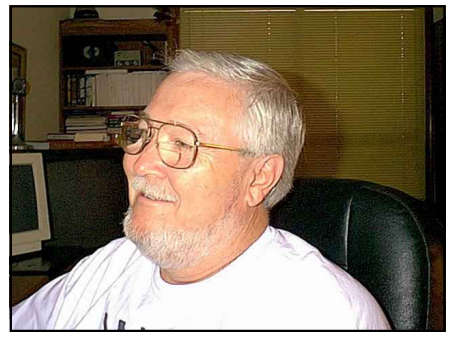
The Adventure Begins

On Friday December 11th, at zero-dark-thirty local time, I pulled out of Marietta, Georgia with a cooler packed full of sandwiches, sodas and other necessities. The APRS tracker in the van was transmitting my location so that Joan, my ever-tolerant spouse, could keep an eye on my travels on the World Wide Web.

I arrived at the campground at 9 AM, paid for two nights of camping, and started setting up my station on wheels on site #18.

The "Imperial Cruiser"—all set up and ready for some contest action.

A compact—but well-equipped—operating position.



Mike, NE4S, at his home station.

I began the station assembly by putting together my trusty 3-element 10-meter Yagi, a flimsy old CB Archer Arrow from RadioShack. Lopping off 5 inches or so from all of the elements and a little retuning was all that had been needed to make it play on 10 meters. It is the perfect antenna for my setup.

I need to keep things light for the pneumatic mast that I have installed inside the back of the van. The mast is a 30-foot "Will-Burt," and will lift about 50 lbs (at 20 psig) and keep it there for 12 hours.

I've got the antenna's element components marked to indicate their proper assembly positions and all of the nuts on the various parts are captive, so it goes together in about 10 minutes.

The Yagi fastens to the mast with a single clevis pin. The entire antenna and mast system goes together very quickly—this is a drill I've practiced several times.

Once the Yagi and the small ladder I carry to reach the top of the unextended mast are out of the van, I've got the room I need to set up the station.

Since ac power was available at the campsite, my new Ameritron AL-572 linear amplifier was going to be put to its first test. An FT-1000MP, an MFJ keyer, an old 486 laptop running *CT* and a brass racer Vibroplex completed the station. I carry ample back-up equipment: an FT-847, an FT-100, a Ten-Tec Hercules 12 V mobile amplifier, an R5 vertical and two computers.

If the ac power failed, I could switch over to 12 V dc. The 3 kW generator mounted under the rear of the van offered yet another power source option. Neither was needed; Murphy must have been visiting elsewhere that weekend.

I was all set up and ready to go. It was time for lunch.

My meals consisted of cold sandwiches and food I nuked in the microwave. Joan had supplied me with plenty of coffee for the late night shift. She also packed some of her secret recipe—"DX scones"—for breakfast. They always seem to bring in many calls from exotic places.

After lunch, I filled the time before the start of the contest practicing a bit with the amplifier. I made a few phone and CW QSOs, set the clock to UTC and checked out the computer.

Contest Time!

Finally the fun began. The contest opened with good propagation into Japan and other points west. I had some good runs going. Eventually the band went quiet. After a while the only signals remaining were the locals that I had already worked on ground wave.

I slept by leaning over and throwing a blanket over myself—the operating position was set up on the bed. I did have to run the engine a bit in the early morning hours—it got kind of cold. (Next time

I'll check out the propane furnace to make sure that it is working *ahead* of time…)

Once band conditions improved again, the remainder of the contest was spent following the propagation as it moved from east to west, Europe to Asia as the day passed. I had a great time and ended up with 1,104 QSOs and 125 multipliers for 550,500 points.

My most memorable moment occurred near the end of the contest when I got a call from BV2A! I almost couldn't copy the exchange from sheer disbelief.

The equipment all worked fine, although I did lose a few precious moments installing ferrites on some leads when RFI got into the keyer. The weak link in this operation was the operator.

The ARRL 10-Meter Contest was my first major event in many years. I found myself missing calls, asking for fills and dropping exchange information. I also had lots of trouble copying the "cut" numbers. The cure for this, I am sure, is "practice, practice and more practice."

I would like to put in some time on a multi-op contest team, perhaps for the Southeast Contest Club. I feel I particularly need to find ways to get the multiplier count up. Perhaps learning 2-radio contesting would help, too.

Packing Up

The weather by the time the contest ended was rainy and cold; the temperature was getting down uncomfortably close to freezing. I put all the station equipment back into its padding, and opened the air valve to drop the antenna. The cold numbed my fingers as I disassembled the Yagi. I began to worry about ice on the road that led down the mountain.

Thankfully, 30 minutes after the end of the contest, the whole van was secure and I was driving down the wet, but *not* icy, road. I arrived back home in Marietta at 10:30 PM. I logged on the Web to see how my score stacked up with others.

It appears that "NE4S SOHP CW Only—550,500 points" is going to be a respectable score, particularly given the setup. I just hope I didn't bust too many exchanges on those cut numbers.

I had a great time! This setup isn't going to win many contests, but it sure is fun. It has provided me with a personal best I could not even think of achieving from my covenant-challenged home. Maybe something along these lines could provide you with similar fun and satisfaction?

I have a few ideas for improvements. I wonder if the mast can support a 4 over 4 on 10 meters? Hmmm.

Wait 'til next time...

73, Mike, NE4S ■

The Polish Yagis vs Quads Big Gun Shootout

(Continued from page 4)

The PZK (*Polski Zwiûzek Krçtkofalowcçw*) organization has its headquarters in the small town of Leszno.

Unfortunately, the number of PZK members is diminishing rapidly. The total membership currently numbers only about 2,700. The membership fee is $16 per year.

The PZK together with the SP DX Club hosts an annual shortwave international contest in April—the SP DX Contest.

The address of the organization is Box 42, PL-64 100 Leszno 7, Poland, but the old Box 320, Warsaw 1 address is still valid for submitting SP DX Contest logs (there have been occasional problems with delivery to the "Box 320" address, however).

The country is divided into nine call sign districts. A new administrative system was implemented last year and this might affect the call sign districts in the future.

No CEPT agreement has been signed yet, so a visitor's license must be applied for. Send your request to the licensing authority PAR (*Pastwowa Agencja Radiokomunikacji*), Box 95, PL 00 961 Warszawa 42, Poland. Your application will most likely be handled by SP5WZ. There are several experienced hams employed at the PAR.

Arguably, serious contesting in Poland got its start from SP3GEM in the early '90s. He opened an antenna manufacturing business and field-tested his constructions. Several good operators noticed his antenna farm and this led to the creation of a top-ranked contest station in Europe, SN3A. Today Jerzy, SP3GEM, is particularly interested in the low bands. ■

Antennas with Gain and Bandwidth for 80 and 160 Meters

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On 80 and 160 meters an antenna with even modest gain can give you a very real edge in a contest. Unfortunately, the long wavelength (λ/4 is 70 feet at 3.510 MHz and 134 feet at 1.83 MHz) associated with these bands makes gain antennas very large.

An additional problem is the width of the 80-meter band. It's tough to design an efficient antenna that will work over more than a small portion of the band without retuning. Phased arrays of λ/4 verticals work great but require a great deal of effort, real estate and money to bring on line.

For most of us simple wire arrays, such as the half-square and bobtail curtain, are more practical. When compared to a ground-plane antenna over average ground they have gains of 2.1 dB and 4.6 dB respectively. While useful, both of these arrays have quite narrow SWR bandwidths, typically <100 kHz for SWR <2:1 on 80 meters. While it is possible to make these antennas resonant at multiple points within a band,[1] the SWR between these points will still be high. Various schemes for switching in and out tuner components have also been used. It would be better if we could keep the antenna really simple and still have the gain and bandwidth. Another problem with the bobtail curtain is that it is a full wavelength wide (approximately 280 feet on 80 meters), limiting its use to those with large lots.

The Bruce Array

There is another simple array that has been mostly forgotten by hams. The Bruce array has been around since the '20s.[2,3,4,5,6] This antenna has appeared in the *ARRL Antenna Book* since the first edition in 1939, but the section on the Bruce array has been abbreviated over time leaving out a number of interesting ideas.

A few variations of the Bruce array are shown in **Figure 1**. It is simply a wire one or more wavelengths long, folded so that the currents in the vertical portions are in phase, contributing to radiation and currents in the horizontal portions that tend to cancel. Note that the wire lengths of each side of the squares are 1.05 × λ/4. The square loops in the Bruce behave very much like quad loops—they also have to be made longer for resonance. This is a bi-directional broadside vertical array with all the elements in phase with more or less equal currents. This antenna offers a number of advantages:

- It is only λ/4 high.
- The size can be adjusted to fit the space available.
- It provides substantially greater SWR bandwidth than either the half-square or the bobtail curtain.
- It can be fed at several different points to suit a given installation.
- No ground system is required.

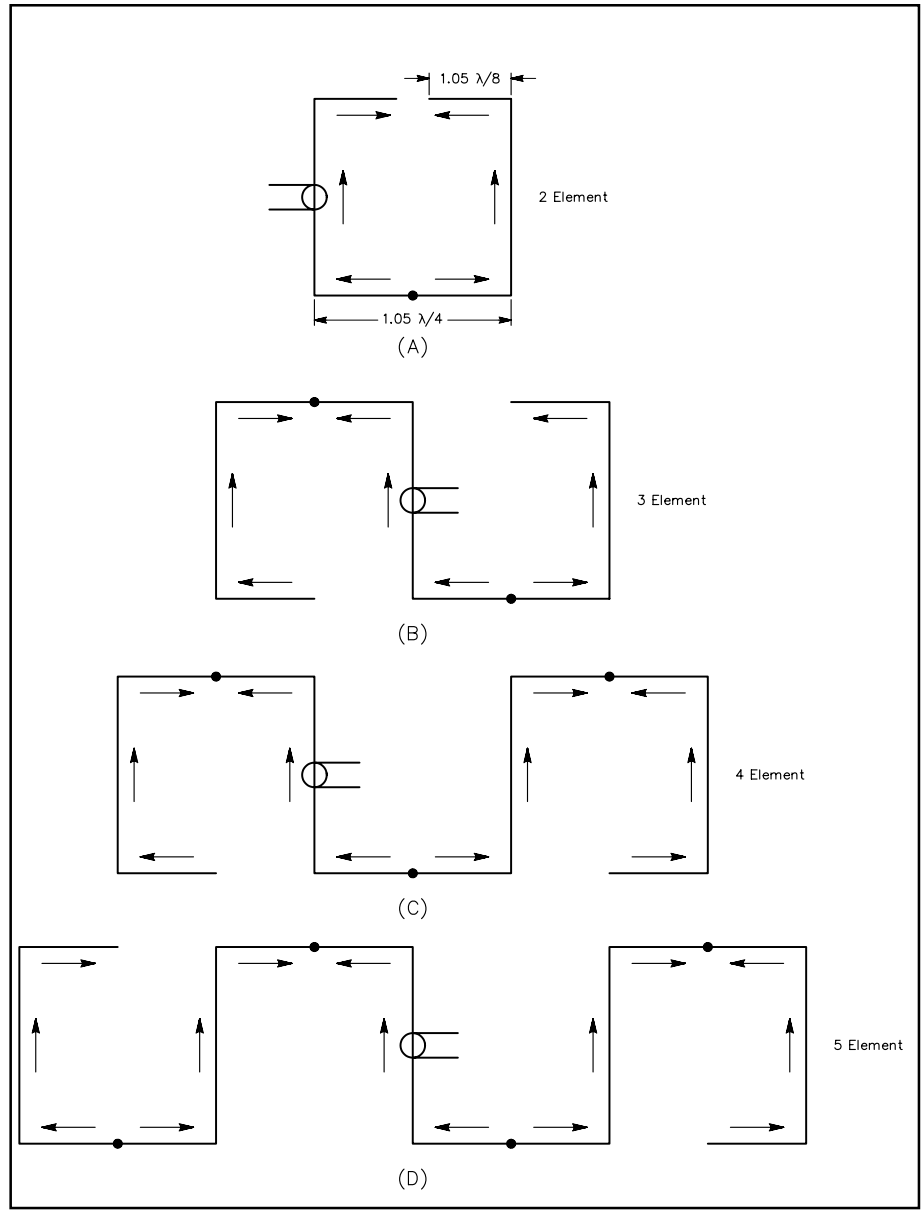

Figure 1—Bruce arrays with 2 to 5 elements. The feed points are nominal. See the text for other feed arrangements.

One comment on ground system requirements. Half-squares, bobtail curtains, Bruce arrays and other nominally ground-independent vertical antennas can all be operated without the usual ground system associated with single verticals. That is not to imply that an extensive ground system under these antennas would not reduce ground losses to at least some degree. As I show later (in **Figure 7**) an extensive ground system can be employed under

[1]Notes appear on page 16

the Bruce array if you have the space and patience to install one.

Figure 2 is an overlay of the free-space patterns for 2-, 3-, 4- and 5-element Bruce arrays. As you would expect, the wider the array the greater the gain. **Figure 3** shows a pattern comparison between a 4-element Bruce (3/4-λ wide) and a 3-element Bobtail curtain (1-λ wide). The Bruce has just as much gain but is a full λ/4 shorter (130 feet on 160-meters!).

As you make the Bruce wider (adding more elements) the gain increases, the pattern narrows and side lobes begin to appear. In general more than five elements are not worth the trouble—the pattern is already narrow and the sidelobes are starting to become significant. If you really want even more gain (approximately 3 dB), hang a Bruce reflector about λ/8 behind the main array. Alternatively you could space the second Bruce λ/4 away and drive it with a 90° phase shift. This would produce a unidirectional pattern that could be switched 180°. Of course this is getting away from the idea of

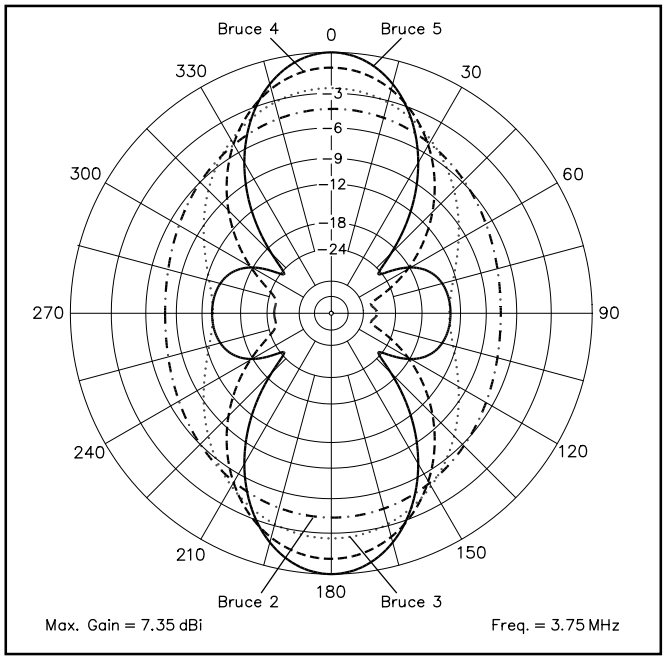

Figure 2—Comparison of free-space radiation patterns for 2 through 5 elements.

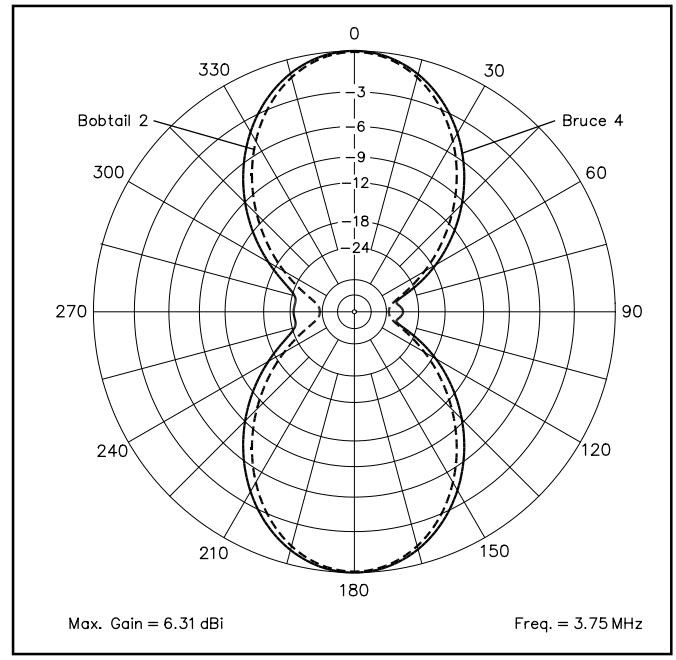

Figure 3—Comparison of free-space radiation patterns between a 4-element Bruce array and a bobtail curtain array.

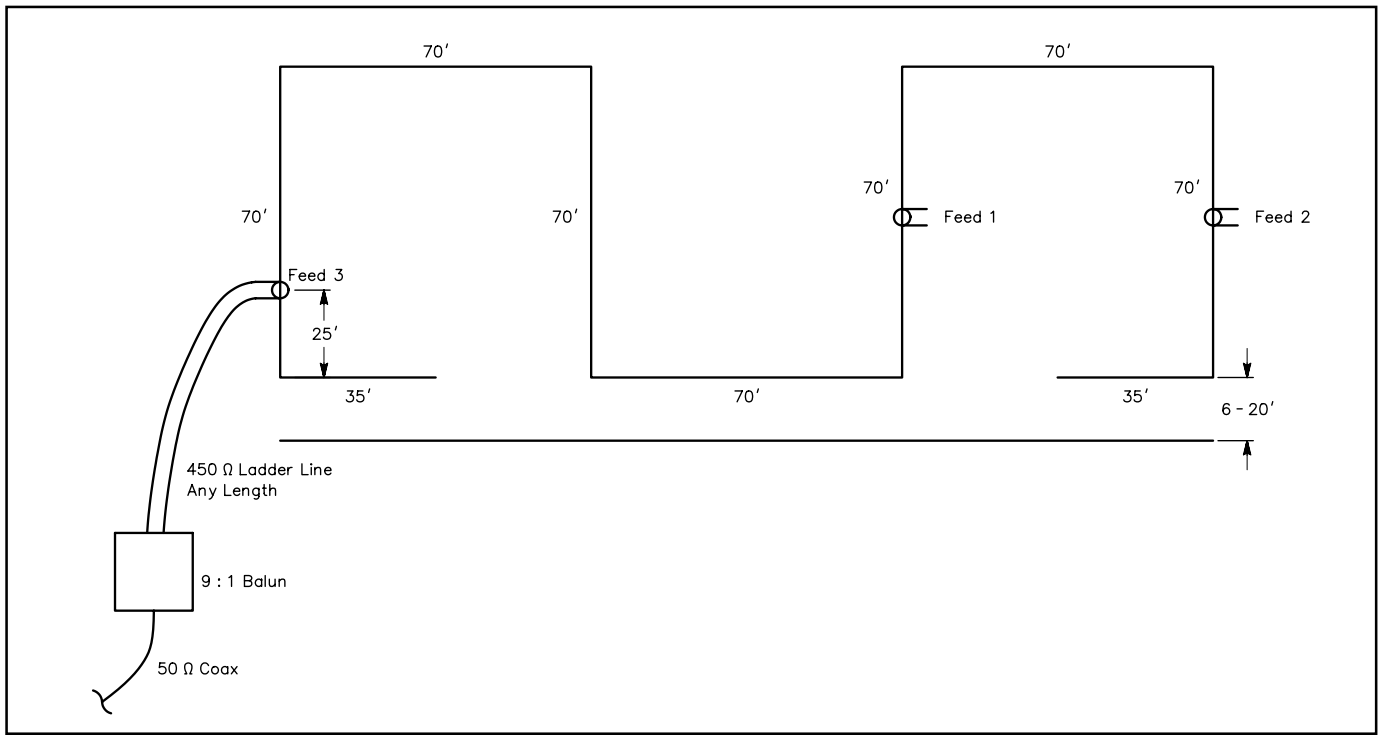

Figure 4—The 80-meter Bruce array employed at N6LF. Alternate feed points are indicated.

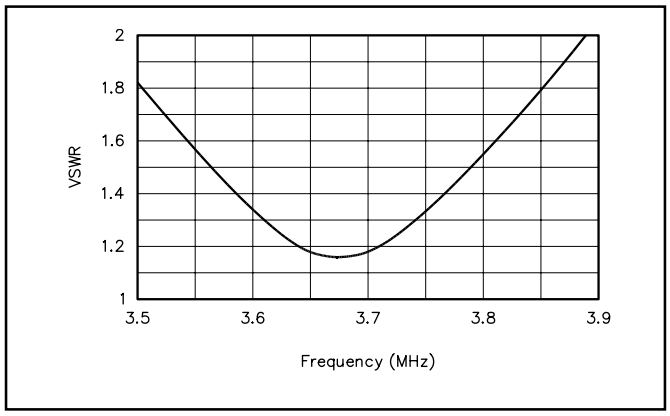

Figure 5—The SWR plot for the N6LF Bruce array.

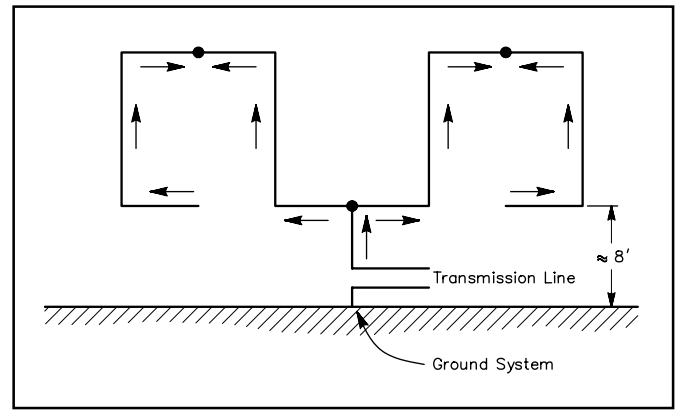

Figure 6—An example of driving a Bruce array against a ground system. This feed scheme produces a very symmetrical pattern with deep nulls off the ends if the array itself is symmetrical.

simplicity that is the basic advantage of the simple version of the Bruce.

I have used the 4-element Bruce array shown in **Figure 4** to good effect. As indicated, the array can be fed at several different points. (I've only shown a few of these.) The impedance at feed-1 and feed-2 is close to 370 Ω—a good match for #16 × 1-inch ladder line.

I chose to feed my antenna at feed-3, slightly off-center from a current maximum. At this point the input impedance is about 450 Ω. This works very nicely using #18 × 1-inch ladder line down to the ground where I connect a 9:1 balun and use 50-Ω coax for the run into the shack. The ladder-line can be any length as it is operated with low SWR.

Figure 5 shows a typical SWR plot that has a 2:1 SWR bandwidth >400 kHz. This covers most of the 75-/80-meter band. The actual bandwidth in a given installation will depend to some extent on the ground characteristics and the height above ground of the bottom of the array.

The gain of this antenna, when compared to a λ/4 vertical with 8 elevated λ/4 radials, is about 4.6 dB—very worthwhile indeed. The pattern is bi-directional with a –3 dB beamwidth of 55°. When fed at one of the inner vertical elements the pattern is very symmetrical. Feeding at one of the outside vertical sections, as I have done, introduces some asymmetry in the pattern but the small side lobe that appears is still 15 dB or more down from the main lobe.

Like the half-square and the bobtail curtain, the Bruce antenna has deep nulls off the ends and is relatively insensitive to the presence of a metal tower off the ends. If you space the outside elements 10 feet or more away from the tower you can use a tower (or towers!) as supports without degrading the pattern greatly. In my case I used a very tall (100 feet to the support point) fir tree at one end and a 95-foot pole at the other end.

One of the nice things about the Bruce antenna is that there are several other ways it can be fed. For example, if you already have a vertical with a ground system you can simply hang the Bruce over the ground system and feed it as you did the vertical (see **Figure 6**). The feedpoint impedance will be 200 to 400 Ω and may be reactive. This method of feed was used in the original versions of the Bruce array but they seem to have been forgotten by hams.

An alternative feed arrangement would be to use an elevated radial system as shown in **Figure 7**. A minimum of two radials are needed, but you could use more (just as you would for a ground-plane vertical). The dimensions shown in Figure 7 are for phone band (75-meter) operation.

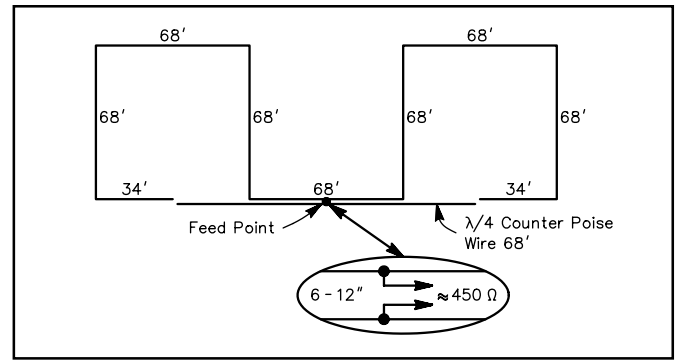

Figure 7—A 75-meter Bruce array driven against an elevated radial system. As few as two radials can be used. More radials will reduce ground losses somewhat.

Conclusion

If you have a couple of supports from which to hang an array, then you should give the Bruce array some consideration. It is very simple and flexible and is one of those antennas that just seems to "want to work."

I noticed that the dimensions are not critical. If you have some height but not enough width, you don't have to make the bays square—you can make the vertical sections taller and the horizontal sections shorter. Conversely, if you have plenty of width but not enough height, you can use shorter vertical sections and longer horizontal sections. Variations of up to ±20% in the height-to-width ratio have little effect on the gain and general performance.

Good luck! I'll listen for your thunderous 80-meter signal in the next contest.

Notes

[1] *ARRL Antenna Book*, 18th Edition, pp 6-13 - 6-16.
[2] Oswald, *Transatlantic Telephone Service*, Bell System Technical Journal, 1930, p 287.
[3] *Admiralty Handbook of Wireless Telegraphy*, 1931, pp 820-821.
[4] E.J. Sterba, *Directional Transmitting Systems*, IRE Proceedings, Volume 19, Number 7, July 1931, p 1202.
[5] *The "Radio" Antenna Handbook*, 1936, pp 57-58.
[6] *Admiralty Handbook of Wireless Telegraphy*, Volume 2, section 46.

■

NCJ Profiles—Dancing to the Drum Roll—Jay "J." Allen, VY1JA

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Vashon, WA 98070

Among the most exciting goals that a North American contester can attain is the coveted "Clean Sweep" in the ARRL Sweepstakes. There may be some difficult-to-find sections that stand between you and the sweep—VT, WY, ND, VO1 are some typical examples—but none of these as rare as VY1/VE8—Yukon & Northwest Territories. Hearing a VY1 answering your "CQ Sweepstakes!" call is something that even the most experienced veteran will still find thrilling.

In the past decade, VY1JA has been the person responsible for putting the Clean Sweep mug on many shack trophy shelves. Year after year, he has become steadily more adept at handing out the VY1 multiplier—and not just in the Sweepstakes. From his near-Arctic home, J. (It's "J.", not "Jay"—although on the air "Jay" can sometimes be a lot easier to get across) is active year-round, and is always in demand. It wasn't always quite like this, though.

"My initial attempt at contesting occurred back when I was in Michigan and signing WA8CAL. It was my first CQWW CW. I had an antenna supported by a weather balloon. Unfortunately, the antenna was too tempting a target and was shot down by a young neighbor with a .22 rifle. I ended up low in the results and the whole experience soured me on contesting."

J. developed an interest in electronics at the age of nine. His father, who repaired radios and TVs as a hobby, brought home a text on radio theory and an early *ARRL Handbook*. Soon, J. was building his own super-regenerative receivers.

At 14, he met John Davidson, now K8JD, who was not only receiving, but also transmitting signals from a cigar box 6AQ5 rig. Within weeks, J. was in the Detroit FCC office taking his Novice license exam.

The General and Extra classes quickly followed for both J. and John. They took

those exams at the earliest testing opportunities that they could arrange (even though in those days, the Extra carried no additional privileges).

J. acquired a taste for CW, rag chewing and QRP operation with simple wires. In the 1970s he became N8JA, a call he still holds today.

An electrician, married young with three sons, J. moved out of Detroit to raise his family, but the 1974 recession uprooted them. "I was unemployed for 13 months and was driving my lovely wife, Ann, nuts by just being around too much. I took a job offer in Swift Current, Saskatchewan, resumed my work as an electrician, and later became an instructor at Saskatchewan Technical Institute. Ann and I also developed a 54-head dairy farm.

"I was licensed as VE5BB. I soon found out that I was a legal bootlegger though—there was another guy that had already been issued VE5BB! Shortly thereafter I became VE5DB.

"I started 'Success Electric,' an electrical contracting business, but the name didn't quite stick. The farm and business

The Yukon Aurora by VY1JA

The aurora has a tendency to occur near, but not on, the north and south magnetic poles. The auroral oval looks like sort of a misshapen donut with its center on the magnetic pole. The Yukon experiences some degree of aurora for well over half of the days each year. They are more prevalent near the spring and fall equinox periods, centering on about March 21 and September 21, and less likely during the summer and winter solstice periods—June 21 and December 21.

When a "normal" fall aurora begins to appear, stations on the east coast of the US disappear completely. Over the north-south path, signal reports received by stations at the Yukon end begin to become lower than those we send out to comparable station setups on the opposite end of the path. This is typically one S-unit on 20, two S-units on 40 and four S-units on 80 meters. On 160 VY1JA is seldom heard at all—except by those that really LISTEN!

As the aurora becomes more intense, this directional propagation difference becomes even greater. Eventually I am limited to 20 meters only, and then later consigned to go out and watch the rather beautiful displays of light and color.

For worldwide contests, aurora results in the loss of the over-the-pole path. At first, signals exhibit the classic flutter, then they begin to fade, and finally the path is gone. If a station is located here up north, work it when you hear it, especially during auroral seasons. Realize that I am weak but you are strong—I can hear you. When my signal is just a speck of dust in the auroral, ethereal mist, I can almost certainly hear you and will answer you.

failed and Ann and I had to start over in Alberta. I became VE6DN with a TS-520 and wire antennas.

"Later I took a job with Alberta Power, which also operated the Yukon Electrical Company Limited utility. I added two more sons to my family and eventually accepted a transfer to the Yukon Territory. VY1JA was on the air."

With that call, contesting is bound to come knocking—or perhaps pounding is a better description—at your door. "One day I worked Chas, W6UQF, who was very excited about working Yukon… so much so, that when we exchanged QSLs, I marked my card with the message 'willing to schedule QSOs any time, any band.'

"Chas photocopied both sides of my QSL and sent *that* back, along with a request for an unusual sked—'somewhere' on 20 meters 'sometime' during the Sweepstakes contest period. I did find Chas that Sweepstakes… along with a WHOLE BUNCH of other people! I was only used to casual operation and quickly got swamped by some big, ugly pileups.

"My lack of skill combined with the stress level of the operators needing the VY1 multiplier resulted in the now-infamous 'VY1JA Chaos.' I was flamed on the contest reflector, but there was also an amazing amount of support and several offers of help. Many operators sent long e-mails—unfortunately there were lots of conflicting suggestions. I became even more confused."

The contest community rose to the occasion, realizing that J. was essentially on his own and without a contest mentor to help him out. "The folks at the Northern California Contest Club were very quick to respond, and Bruce Sawyer, N6NT (then AA6KX), volunteered to come up and operate a Sweepstakes with me sitting in the 'learn-by-watching' chair.

"I did have a contest Elmer—I credit my introduction to contesting to Chas—but Bruce's timely help kept me *in* contesting when I was ready to give up. Bruce has continued to be a good radio friend over the years since that Sweepstakes and has been especially patient with my CW."

Later, several others came to help. "Ken Widelitz, K6LA, from the Southern California Contest Club is also notable. His operating style is different than Bruce's and I was able to pick up some alternative contesting techniques. These two fine people are the best contesters I have seen in action. A trip to Yukon to operate a contest is long and expensive and nets a person an unforgettable experience with aurora, one-way propagation and a mediocre score—considering how rare the multiplier is.

"The odds of an aurora are better than 50-50 throughout the entire year—and much higher on dates nearer to September 21. November contests (read 'Sweepstakes') are only a month away from the peak, so the odds are great that aurora will inhibit your chances of netting a VY1/VE8 multiplier. Southwestern KL7 is bothered by aurora, too, but is not normally affected as much as the Yukon. This is a contributing factor to KL7 getting through while VY1/VE8 does not" (see the sidebar).

J. credits his maintained contest drive to the efforts of many people in the contesting community. He is often contacted by contest friends out of the blue with a "hello" and words of encouragement. When personal events forced him to dispose of his entire station, he was met with a number of offers—resulting in the rebuilding of the VY1JA station.

"The station is now an Omni-V, an Ameritron AL-80A and a Cushcraft A4 tribander at 58 feet. This is an amazing testimony to the heart of the contest community. I am still being asked if there is anything left that can be done.

"I appreciate the kindness of every one of the people that have helped with each part of the station. I have a neurological condition that from time to time makes my memory poor. I may not remember who did what for me, and I feel badly that this is so." If he fails to recognize you and connect you with the gift you have given, please just remind him and do not feel hurt.

J. is in the process of moving his tower away from the house because there is a 138 kV line less than 100 feet away. In the "cobbler's children go barefoot department," the noise from that line is severe—and J. works for the power company, so his line noise problem is the lowest on his company's list of priorities. Dang!

"I have decided to put in a large V-beam or 'broken rhombic' antenna with 900 feet on each leg, aimed towards the central part of the US. It will only be about 45 feet up, but this type of antenna is known for improved low angle radiation at low heights. I have the space, the wire and the poles—so this antenna is a good fit. It will have to be done a little at a time because I must do the antenna work alone and I have to watch my heart.

"I might buy a heavier rotator, but will not be purchasing any other radio equipment for at least a couple of years. I feel that my station works well and I am very happy with it. I need to change the grease in the AR-22 to a type intended for cold temperatures—hopefully then it will turn in the cold weather."

J. must act quickly during the short antenna repair season. "This year I need to get the tower back up. It's down for the move. I will run a long piece of 75-Ω CATV hardline out to the antenna location along with wires for the rotator and the remote antenna switch. It is a lot to do alone in a short season." J. also needs to cut and bring in firewood. It is his only source of heat.

How Cold Is It?

"It gets cold and it *stays* cold. It usually turns cold in October or November and does not get above freezing again until late February or March. Normally it hovers around -35 to -40 F."

The coldest day? "I work for the power company and on the coldest day of record—a few years ago—it was -67 F. The generators needed work at Faro, about 250 miles away. While driving there, it was so cold that both seals on the differential and the rear seal on the truck's manual transmission were damaged. I was lucky to get to Faro. There

What You Really Want to Know by VY1JA

The MUF in the northern latitudes is lower than it is in southern ones. This means that the great east-west opening you are experiencing on 10 or 15 may well not be happening in the Yukon. I make it a habit to start a contest off on the highest possible band. I usually get on a half hour to an hour early, find a frequency and begin working people. This allows me to establish a clear frequency for when the gong sounds and also lets everyone know where I am!

All you have to do to work Yukon is find me just before the contest and set a memory channel to that frequency. The pileup is only big for the first 10-20 minutes of the contest, and usually drops right off after those that spotted me before the contest have the contact in their logs. After that, I have a poorer rate than you would expect, because the beams in the lower 48 are all pointing east and west.

Here are the steps to an easy YT multiplier. Find me before the contest at my MUF. Note the frequency and, if you are a small gun, come back in 20 minutes. If you are QRP, remember that I often listen for QRP every hour on the half-hour plus or minus a few minutes.

Ways to make sure you have to wait—call me when I am trying to get the exchange from the other end or with a call unlike the one I am asking for. I have no qualms about making people wait if they create QRM.

When I am standing by for QRP and a station calls me, the precedence goes in my log as Q and the call is /QRP—no matter what was sent. This means that the QSO is a bad QSO if an A or B precedence station decides to call when I am standing by for QRP. Don't forget that I used to be an ardent QRPer and still have QRP blood flowing through my veins.

were NO other vehicles on the road. If that transmission or rear end had quit, I would have become an SK."

Last winter was a mild winter by Yukon standards. "I made it a point to aim the antenna south when the antenna was not in use and I'm glad that I did. The AR-22 froze but I was still able to work the Sweepstakes contests. Some people are lucky."

And then thar's baars in them thaar hills. "Russ, N8EEA came to visit, and when he was here the station was a free-standing cabin about 100 yards from the family home. Russ was surprised by a large brown bear that was so bold that it approached several adults while the wildlife officer was visiting to discuss a bear in the yard the previous day. It is a shame, but the bear had to be put to sleep. Russ had a chance to see a bear up much closer than he would have liked!"

So there you have some of the interesting details behind the VY1JA call sign. The road has been long with many turns, but J. is enthused about the support he has received from the contest community and the many friends he has made over the years. I think he'll be in the Yukon, handing out VY1JA QSOs, for a long time. "We love the Yukon for its fine people and the beautiful setting. There is no looking back for me and Ann." ■

Bosnia and Herzegovina Contesting Revealed

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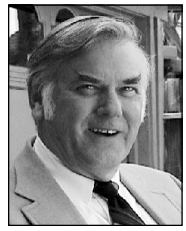


W5ASP

This month, in place of my usual column, we've decided to use these pages to introduce our newest NCJ *Regional Contributing Editor, Boris, T93Y. Boris is a well-known contester and is eager to provide us with information on Amateur Radio and contesting in Bosnia and Herzegovina.*

The NCJ *hopes that representatives from other countries will volunteer to serve as Regional Contributing Editors so that the world's contesters can come closer together by learning more about each other.*

Boris, T93Y

Before I introduce my country to you, I would like to introduce myself. I have been a ham since 1987, and until 1995 (when I received my first personal call—T94EU) I was active from the Radio Club "Novo Sarajevo," T91ENS (previously 4N4ENS, 4N4U, YU4ENS, T99MT). I passed the "A" Class exam in 1996 and became the first "Yankee" in Bosnia and Herzegovina with my T93Y call sign.

The first contest in which I participated was the OK DX Contest in 1988. Since then I've been "in business." My favorite mode is CW but I also like to operate SSB. In addition to participating in many contests from T9, I have also operated as 5B4/T93Y in 1998 and was a member of the A61AJ CQWW CW Contest multi-multi teams in 1998 and 1999.

I hope that you'll enjoy this article. It's devoted to contesting in Bosnia and Herzegovina and our activities from some other remote locations.

About Bosnia and Herzegovina

Bosnia and Herzegovina is a 51,129 square-kilometer (about the same size as West Virginia) European country located on the Balkan Peninsula in the southeastern part of the continent. The estimated population in 1999 was 3.5 million, including about 3,000 licensed Amateur Radio operators. Actually, there are many more hams in the country, but some of them have refused to recognize the T9 prefix issued by the ITU and use pirate calls such as YU4 or 9A11. I hope this problem will be solved soon, as there are many good operators who are currently QRT and waiting for a resolution that will make everyone happy.

Bosnia and Herzegovina was one of the six federal republics of Yugoslavia until April 1992 when, following the results of a referendum, it declared its independence. Bosnia and Herzegovina has been a United Nations member country since June 1992. It counts as a DXCC country since the 15th of October 1991.

The Amateur Radio Association of Bosnia and Herzegovina (*ARABiH*)—formerly Savez Radioamatera Bosne i Hercegovine—was founded in 1947, but the first QSOs were made in 1950. This year's ARABiH golden anniversary will be celebrated with different activities all over the country. Ham radio operators who collect stamps might be interested in a special commemorative stamp. If you would like additional information, please send an e-mail to me or the ARABiH (**arabih@bih.net.ba**).

The Bosnia and Herzegovina Call Sign System

Since there seems to be a great deal of confusion caused by the variety of our call signs, I would like to inform *NCJ* readers that the DXCC will upgrade their Bosnia and Herzegovina record with YU4/YT4/YZ4/4N4/4O4 QSOs *only* if the contacts were made before the 12th of May 1993. After that date, the only valid

Upcoming International Contests

All Asian DX Contest	02-Sep-00
LZ Bulgarian DX Contest	02-Sep-00
Panama Anniversary Contest	03-Sep-00
WAEDC European DX Contest Phone	09-Sep-00
Scandinavian Activity Contest CW	16-Sep-00
Scandinavian Activity Contest Phone	23-Sep-00
Panama Radio Club Contest	23-Sep-00
RSGB 21/28 MHz Contest, SSB	1-Oct-00
VK/ZL/Oceania Contest, Phone	7-Oct-00
EU Autumn Sprint, SSB	7-Oct-00
Iberoamericano Contest	7-Oct-00
VK/ZL/Oceania Contest, CW	14-Oct-00
EU Autumn Sprint, CW	14-Oct-00
Asia-Pacific Sprint, CW	15-Oct-00
RSGB 21/28 MHz Contest, CW	15-Oct-00
JARTS WW RTTY Contest	21-Oct-00
Worked All Germany Contest	21-Oct-00
Ukrainian DX Contest	4-Nov-00
Japan Int. DX Contest, Phone	10-Nov-00
OK/OM DX Contest, CW	11-Nov-00
LZ DX Contest, CW	18-Nov-00
IARU 160m Contest, CW	18-Nov-00
RSGB 1.8 MHz Contest, CW	18-Nov-00

Note: With few exceptions logs and summary sheets must be postmarked within 30 days of the contest

Several T9 operators at A61AJ in 1999—(l to r) (A61AJ's brother) Abubakr, Boris, T93Y; Danny, T93M; Ali, A61AJ; Edin, T97M; Sem, PA4AO/T94S; and Sejo, T97C.

Edin, T97M, and Boris, T93Y, in the shack of well-known contester Ivo, 5B4ADA/C4A.

The T9DX team operating VHF/UHF—Edin, T97M, and Neri, T97Y.

prefix for Bosnia and Herzegovina is T9.

Amateur Radio operators in Bosnia and Herzegovina can hold one of four license classes. The license class of the operator can be determined from the call sign.

"A" Class operators are issued T91-T99 call signs with a one-letter suffix. They can operate on all bands and all frequencies with a maximum power of 1.5 kW. "B" Class operators can be recognized by a T94 prefix followed by a two-letter suffix. Operators in this class are allowed a maximum power of 300 W. The only band restriction they have applies to the 30-meter band.

"C" Class operators can be identified by their T95 prefix followed by a three-letter suffix beginning with a D, an L or an M. This is a beginner's HF class—they are allowed to use a maximum of 150 W on portions of 80, 40, 15 and 10 meters. "D" class is a VHF-and-above no-code class. These operators are issued a T92 prefix followed by a three-letter suffix beginning with a P or an S.

Club stations are identified by T91 call signs with three-letter suffixes. Special stations are issued call signs from the T99AA-ZZ block. ARABiH special stations have the T90 prefix, which is issued for special occasions and for a limited time.

Bosnia and Herzegovina is a member of the CEPT (*Conference of European Postal and Telecommunications Administrations*). Ham operators from other member countries do not need written permission to operate from Bosnian territory. As soon as they enter Bosnia and Herzegovina they can operate as T9/homecall. Hams from non-CEPT countries can easily obtain a license after sending a written request, including a copy of their home license and passport, to the ARABiH. The T9/homecall call sign can also be changed into a T98 call with a three-letter suffix or special call from the T99AA-ZZ block. Those who need more information on this should write to the ARABiH at PO Box 61, Sarajevo BA-71000, Bosnia and Herzegovina or send an e-mail to **arabih@bih.net.ba**

Contesting from Bosnia and Herzegovina

Contesting in Bosnia and Herzegovina has a long history that started immediately after Amateur Radio activity began in 1950. At that time there were just a few personal licenses and most activity was organized by clubs. Even today, clubs are the only way for young operators to get on the air.

Most of the clubs that organized teams back then were active over many years. Here are some club calls that should be familiar to old-timers: YU4AAW, YU4EBL (also YT4I and 4N4I), YU4EZC (also 4N4C), YU4EJC (4N4C), YU4FDE (YT4D), YU4AVW, YU4EXA (YZ4Z) to name a few. There were many others...

Let me try to provide a summary of Amateur Radio contesting activity here since Bosnia and Herzegovina was recognized as an independent country.

The war period from 1992-1995 was the hardest part of our lives. During those difficult conditions, however, hams were nevertheless able to achieve some very good contest scores. For most of the operators, ham radio served as a means of escape from the terrible realities of war. We dedicated all of our time and resources to DXing or participating in contests.

We used wire antennas during most of our wartime contesting activities. There are two reasons for that. First, wire antennas are very hard to spot, and second, most of the bigger antennas were destroyed. It was very dangerous to have conspicuous antennas on the roof.

The first notable scores generated with T9 call signs are T99C's 1st Place World Wide on 160 meters in the 1993 CQ WPX CW Contest, and T91ENS's 2nd Place World Wide for 40 meters/LP in the same contest. These were followed by T93M's 2nd Place World Wide on 10 meters/LP in the 1993 CQWW SSB Contest (battery powered) and T94NE's (now T97Y) 2nd Place World Wide on 80 meters/LP in the 1994 CQWW SSB Contest. There were also several world class scores generated by T91ENS and T99W.

A special memory for us in the 1992-1995 period is our multi-single activity as T9A in 1994. We entered the WPX CW Contest and the IARU HF Championship and finished 6th Place World Wide in both. Our scores are even more impressive if you consider that we were using a TH7DXX for 10, 15 and 20 meters and wire antennas for the low bands. I guess our call sign added 10 dB to our actual signal strength!

We wanted to have operators from all parts of Bosnia and Herzegovina on the T9A team and officially formed the "Bosnia and Herzegovina Contest Club," but since Sarajevo was under siege, it was impossible. Instead, we founded the "Sarajevo Contest Group" which is still active. Our scores can be found in the "Clubs" category.

During 1992-1995 we did our best to cover all six bands in all major contests. Since our activity was highly dependent

1999 Croatian CW Contest

	Call	*QSOs*	*Mults*	*Score*
SO/AB High Power				
6	VE3QAA	404	136	225352
14	K2SX	237	91	81081
20	K4BAI	62	37	7992
22	N6ZZ	46	26	4160
25	VE4IM	22	14	784
SO/AB Low Power				
30	K1RO	136	56	25312
31	VE2AWR	104	46	22402
39	W1END	82	41	15252
49	VE4MF	25		2850
53	WA2VQV	27	15	1485
61	N4RP	5	5	70
62	KF6YUD	8	4	52

on the availability of electricity (which was very unreliable), I think we did a very good job putting the T9 multiplier into your logs.

After the Dayton Peace Agreement was signed in November 1995, long-awaited peace was brought to the country. It is much easier to participate in contests now—T9 stations are not as rare as they used to be. In the past few years, some very good scores have been achieved. Samir, T94ON (now T99S), was World Champion on 160 meters in the 1996 CQ WPX SSB Contest. His score set a new world record at that time. T93M, T91ENS, T99W, T95A, T97M, T94YT, T94DO and others posted other good top scores...

After the T9A multi-single activity in 1994, we tried multi-single operation again in 1996 and 1997. The call sign was T9DX, and we participated in the 1996 CQWW SSB and CW Contests, the 1997 ARRL CW and SSB Contests and the 1997 WPX SSB Contest. Once again we competed with better-equipped stations and reached European Top-Six in the 1996 CQWW CW Contest and the 1997 CQ WPX SSB Contest—again using a TH7DXX for the high bands and wire antennas for the low bands. I am QSL manager for T9DX and those who still need a QSL can get it via the bureau or our callbook address.

On the Other Side of the Pileup

I think the dream of every DX or contest operator is to experience how the pileup sounds from the other side. The first Bosnian operator to operate a contest from a remote location was Edin, T97M. He was a guest of Abdullah, 9K2GS (**http://www.qsl.net/9k2gs**), in Kuwait. The contest was the 1997 CQWW CW Contest. Edin earned 5th Place World Wide on 20 meters and set a new Asian record. On his trips to and from Kuwait, Edin stopped on Cyprus and operated as 5B4/T97M from the station of the famous contester, and our very good friend, Ivo, 5B4ADA/C4A.

Thanks to our host Ivo, who arranged the details with local operators, Edin, T97M, and I participated in the 1998 WPX CW Contest from Cyprus. Edin operated SO AB LP from the QTH of Paris, 5B4XF, and topped the SO AB LP Tribander-Single category. He even won a special plaque for "Best Contest DXpedition" (but he's still waiting to re-

JIDX 1999 Phone Contest

US

Call	*Class*	*QSOs*	*Points*	*Mults*	*Score*
Zone 3					
W6KP	AB	1338	1954	177	345858
K6HNZ	AB	1330	1834	186	341124
KC7V	AB	892	1269	147	186543
W7OM	AB	731	963	138	132894
K6XX	AB	306	575	70	40250
W7GG	AB	210	327	70	22890
WB6NFO	AB	107	163	61	9943
N6ER	AB	100	126	47	5922
WE6G	AB	25	47	19	893
KI6PG	ABL	62	98	45	4410
KF6PKG	ABL	58	95	43	4085
K7ZO	ABL	58	113	30	3390
KC7WDL	ABL	51	85	33	2805
KA7FEF	ABL	30	54	24	1296
W6AFA	28L	624	1248	47	58656
KA6PUW	28L	313	626	46	28796
KE6RD	21	1332	1332	48	63936
K7EM	21	1237	1218	48	58464
KD6IH	21	931	931	48	44688
KI7M	21	332	332	45	14940
WA6FGV	21	266	266	44	11704
K7LED	21L	33	33	20	660
WA7QQI	14	18	17	13	221
Zone 4					
N7DR	AB	214	243	62	15066
K0DAT	AB	26	30	22	660
K5HUT	ABL	58	84	40	3360
KC8LTL	28L	2	4	2	8
K0BCN	21L	117	117	36	4212
Zone 5					
K3ZO	AB	351	437	115	50255
4U1WB (AJ3M)	AB	41	50	31	1550
K4BAI	AB	33	45	28	1260
N4MM	AB	6	8	5	40
WB0IWG	28L	2	4	4	16
Alaska					
KL7FAP	ABL	206	305	78	23790
Canada					
VE7XO	AB	113	174	65	11310
VE6JY	AB	82	126	58	7308
VE4IM	AB	59	87	43	3741
VE6JO	28L	347	694	48	33312
Mexico					
XE2DV	28L	439	874	46	40204

1999 Worked All Germany (WAG)

SO Mixed

Call	*Score*	*QSOs*	*Points*	*Mults*
VE2AWR	7353	57	171	43
N4MM	612	19	51	12
SO CW				
K3ZO	121482	407	1191	102
N4AF	86142	318	879	98

1999 SP DX CONTEST

US

	Class	*Score*	*QSOs*	*Points*	*Mults*
K3WW	SOMB-MIX	28800	194	576	50
NO9E	SOMB-MIX	6624	69	207	32
NJ6P	SOMB-MIX	810	18	54	15
W4MOT	SOMB-CW	28764	204	612	47
AB2E	SOMB-CW	27048	184	552	49
KM5G	SOMB-CW	4452	53	159	28
W8RSW	SOMB-CW	3150	70	210	15
W2EZ	SOMB-CW	252	12	36	7
AB5KP	SOMB-SSB	975	25	75	13
N2LLM	SO-14-MIX	3408	71	213	16
W9ZEN	SO-14-MIX	1260	30	90	14
K1QM	SO-14-MIX	126	7	21	6
W1END	SO-14-CW	1440	32	96	15
KE1DZ	SO-14-SSB	7968	166	498	16
N4MM	SO-14-SSB	168	8	24	7
K1CC	SO-21-MIX	11040	230	690	16
K2YJL	SO-21-CW	1287	33	99	13
N6KUZ	SO-21-SSB	144	8	24	6
Canada					
VE3PND	SOMB-MIX	5265	65	195	27
VE3QAA	SOMB-CW	30600	204	612	50
VE3KZ	SOMB-CW	18630	136	405	46
VE3UOL	SOMB-CW	5304	68	204	26
VE3ZT	SOMB-CW	855	15	45	19
VA3KA	SOMB-SSB	2016	42	126	16
VA3ECH	SO-14-SSB	216	9	27	8
Australia					
VK2EBP	SOMB-CW	312	11	39	8
VK3UX	SO-14-SSB	168	8	24	7
VK4TT	SO-21-CW	630	21	63	10
VA3UZ	42813	206	603	71	
W3BYX	9384	79	204	46	
W2EZ	1224	29	72	17	
N4RP	27	3	9	3	

1999 VK/ZL/Oceania Contest

CW		PHONE	
US		**US**	
K3ZO	2889	K3ZO	4530
K4IU	1400	N6ZZ	960
W7HS	1386	N4MM	224
N6ZZ	1056		
N7DR	897	**Canada**	
K5AM	576	VE3BUC	9
W8IQ	108		
W7DRA	9		
Canada			
VE4MF	138		

ceive that decoration for his wall).

I operated 20 meters LP from 5B4NC's QTH in the old part of Nicosia—and won that category. We both used our CEPT call signs: 5B4/T97M and 5B4/T93Y. Our scores would have been even better with special calls—easily obtained in the past, but not anymore… The new policies began a few days before our arrival.

Contesting from Cyprus was a new experience for me. I enjoyed every moment of both the WPX CW Contest and the nice European and Japanese pileups that I experienced from Ivo's QTH while operating before the beginning of the contest.

The end of 1998 brought the biggest surprise in my contesting career. Edin, T97M, and I received an invitation from Ali, A61AJ, to be part of a multi-multi team for the CQWW CW Contest. The third Bosnian team member was Sem, PA4AO/T94S. Sem is one of the best CW operators I have ever seen. He earned a 4th place at the World QRQ Championship in Italy last year.

Together with world-famous operators Bernie, W3UR, and Rich, KE3Q, we had four stations on the air and reached 5th place in the world, setting a new Asian multi-multi record with 28M points.

This was my first experience as a member of a multi-multi team. I learned more during that weekend than I did in several years of contesting from home. Ali, A61AJ, was a wonderful host and we had a great time in Dubai. More information about Ali and his beautiful contest QTH can be found at **http://www.a61aj.com**.

A61AJ had 10 operators in the 1999 CQWW CW Contest. Besides the above mentioned five operators, Jeff, K1ZM; Rol, K3RA; Phil N6ZZ; Danny, T93M; and John, W0UN, joined the team. This time we had enough operators to operate all six stations around the clock. More than 16,000 QSOs, almost 1,000 multipliers and 42 million points were enough for a 4th place in the world. Needless to say, that score is a new Asian multi-multi record and sets a very high target for future multi-multi operations from Asia. Once again, Ali A61AJ, his brother Abubakr and Chris (the team's Technical Adviser) were wonderful hosts and did their best to make all of us feel at home.

Closing

Contesting is not very popular over here, but a small group of active operators will do their best to increase its popularity among Bosnia and Herzegovina operators. There were several articles in *Radio T9* (our national Amateur Radio magazine) which should help attract younger operators to the sporting side of our hobby. I hope the call sign problems will be solved soon and there will be more stations participating in contests.

73, Boris, T93Y ■

Guyed vs Self-Supporting Towers

Tom Russell, N4KG
n4kg@juno.com

Several people have identified the space limitations experienced with small (narrow) lots as their reason for using self-supporting or crank-up towers instead of guyed towers.

All of the Rohn catalogs recommend guy anchor spacings of 80% for their guyed towers—but this is not the only option.

One of the major limitations in guyed tower loading is the downward load on the bottom section. At the maximum rated height, guy wire tension is a major consideration.

At heights below 100 feet, it is feasible to trade off maximum antenna load for guy anchor spacing. Look at the recommended spacings for the Rohn tilt over towers that are limited to 48, 58 or 68 feet. Less than 50%!

I know of a pair of 130-foot Rohn 25 towers in Michigan that has been supporting a large Lazy H wire array for decades with the guy anchors at 60 feet.

When deviating from the Rohn recommendations, it would be wise to do the calculations on the downward forces under maximum wind and load conditions. Until Rohn offers us more options, we are on our own to either perform the calculations or hire a Professional Engineer to do them for us.

For large antenna loads, you may want to increase the tower size (R45 vs R25 or R55 vs R45) and use heavier guy cable ($^1/_4$-inch vs $^3/_{16}$-inch) at least for the top set of guys. Anchor size and strength must also be considered. A steep guy is better than *NO* guy!

Be sure to calculate the maximum vertical load for your proposed installation and choose a tower type/guy wire that is rated for that load.

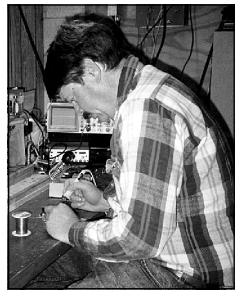
Remember, taller towers are NOT always better, especially on the higher bands. With the increasing sunspots, antennas at 40 to 60 feet are usually better than higher antennas for 10 through 20 meters. On 40 meters, 60 to 80 feet works well. These heights are manageable on small city lots with properly guyed towers. ■

Contest Tips, Tricks & Techniques

Gary Sutcliffe, W9XT
w9xt@qth.com

State QSO Parties—Part 2

In this installment of CTT&T we'll continue our look at state QSO parties. Last time we discussed general operating practices. This time we continue our discussion of state QSO parties with an emphasis on mobile stations.



W9XT

Working Mobiles

Mobiles play a major part in state QSO parties. In an effort to activate as many counties as possible, contest sponsors often have special categories for mobile stations. The mobiles may have special incentives to activate as many counties as possible. With a limited amount of time, they may not spend much time in a given county. If they are the only station to activate a rare county, you don't want to miss an opportunity to work them.

W5ASP suggests getting a detailed map as an aid for tracking them. Whenever you work one, Joe suggests you ask them what direction they are headed in and when they expect to cross into the next county. Some mobile stations publicize their itinerary, helping you make sure you get them in all the counties they are visiting.

N6MU also stresses the importance of keeping track of the mobiles. John notes that it can be quite a task if there are a number of them, on both SSB and CW. W1NN and N6MU suggest moving mobile stations to other bands to increase the number of contacts. N6MU mentioned working WA4IMC *73 times* as he moved into new counties in the last Florida QSO Party.

In the Wisconsin QSO Party the mobiles tend to be on either 40- or 75-meter phone. Because of that, I try to spend a large part of my time on those bands. I need to go to 20 or 10 for part of the contest in order to work some of the more distant states and Canadian provinces that also count as multipliers. I normally don't spend more than 15 or 20 minutes at a time away from the "mobile bands" though. I don't want to miss a mobile that may be quickly passing through a needed county.

Another thing to remember is that mobile stations answering your CQs may be very weak. Pay special attention to weak stations giving you a call. They may be in that rare county that you need.

Operating Mobile

Operating mobile from the target state can be a whole new contesting experience. Some contesters really put a lot of effort into their mobile systems. We have even had a couple of multi-multi mobiles in the Wisconsin QSO Party, some running kW amplifiers powered by generators on trailers!

W1NN finds mobile contesting to be the ham radio activity that he enjoys the most. Hal likes the challenge of putting together the best strategy. He gets detailed maps and plans his route to find the right balance of driving time and counties covered. He operates the Pennsylvania contest mobile every year and has also operated mobile from Washington, California, Illinois and Texas in their QSO parties. Hal has even operated them from rental cars while on business trips!

Another reason he likes operating mobile is that it levels the playing field—mobile operating largely eliminates the equipment differences between stations. Any differences in performance can be attributed almost entirely to skill and experience. Pulling off a successful mobile contest operation requires a lot of planning. You need to plan everything carefully to maximize your score.

Many of the serious mobile operations employ a dedicated driver, allowing the operator to concentrate on operating. If you are on your own, W5ASP suggests pulling over when you enter a new county. Work down the pileup before you continue. Work the strays and spend time CQing.

If you want to try something a bit different, but operating mobile is not your thing, try a portable operation. W5ASP suggests throwing up a wire someplace. Joe notes that a 12 V marine battery will last quite a while running 60 W or so. N0AX is contemplating a camping trip to a county line between two rare counties for the Salmon Run.

Which QSO Parties are Most Popular?

The ones with the most activity naturally, say K9ZM, K3WW and others.

The California QSO Party was mentioned the most often. It certainly has a number of things going for it—including excellent organization, large in-state participation and prizes. Its early fall date makes it a good opportunity for a shakedown test for the fall contest season.

The next most often mentioned was the Pennsylvania QSO Party. This event also has great organization and lots of participation. Other state QSO parties mentioned as having good activity by two or more respondents include Wisconsin, Michigan, Florida, Washington, Ohio, Texas and Virginia.

Wherever you live, K1KY stresses the importance of supporting your own state QSO party. Promote the contest, and get on and operate it. If you really want to be popular, go mobile and activate a few of the rarer counties.

This wraps up this installment of CTT&T. Thanks to everyone who responded to the call for comments on operating state QSO parties including AD6E, K1KY, K3ANS, K3WW, K4BAI, K5RT, K7SV, K9ZM, N6MU, W1NN, WA3SES, W4AU, WU4G and W5ASP.

Topic for November-December 2000 (Deadline September 5, 2000)

Tips for younger contesters.

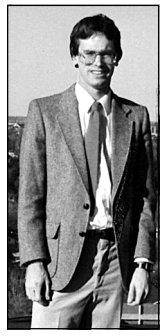
Surveys show that the average age of contesters and hams in general is increasing. What tips do you have for younger contesters? How can we make contests and contesting more interesting? Younger contesters, what got you interested and keeps you interested in contesting?

Send in your ideas on these subjects or suggestions for future topics. You can use the following routes: Mail—3310 Bonnie Lane, Slinger, WI 53086. Internet—w9xt@qth.com. Be sure to get them to me by the deadline. ■

VHF-UHF Contesting!

Jon K. Jones, N0JK
n0jk@hotmail.com

Lots of 6-Meter DX to work in the June 2000 VHF QSO Party



N0JK

Some of the best E_s in years appeared in this year's June VHF QSO Party. The southern and eastern states seemed to be favored but contest ops all over found plenty of stations to work. A number of operators reported that their grid totals were way up this year.

Numerous DX stations joined the fray and added to the excitement. GW3NJY ran New England ops on 50.093 CW around 1730Z on June 11th. Other DX stations reported on 6 meters in the contest include CO2OJ, XE2HWB, XE2EED, XE2BHU, XE2DN, TI5KD, TI5BX, HP2CWB, WP4O, LU6DRV, V31PC, TG9NX, KB6SL/KP4, KP4UK, KP3AR, KP2BH, WP4MSL, YS1AG, VP9ID, TI2NA, PZ5RA, K9KNW/C6A, VO1TJM, KL0RG, EH8BPX, W1LP/MM and many Canadians.

The East Coast seemed to enjoy the best conditions to both Europe and Central America. The 1s, 2s and 3s worked double hop E_s to Central America Sunday afternoon. Griff, NE3I, " …did work some interesting grids in Central America (including Nicaragua, which is tough to work on the low bands) and the Caribbean. Thought I had an EA8 or EH8 on 6 just before lightning hit, but I couldn't snag him for sure."

As predicted in the July/Aug *NCJ*—E_s to F_2 propagation did appear during a VHF contest this year—but in June! (F_2 propagation is very rare in June.) KA5DWI in EM12 worked LU6DRV in GF05 at 2121Z Sunday afternoon.

Some very unusual 6-meter propagation on northerly paths occurred early Sunday morning. W7XU/0 in South Dakota heard Alaskan 6-meter beacons around 1000Z and managed to make a couple of KL7 QSOs.

I operated QRP portable from EM08 Sunday afternoon and made around 100 QSOs on 6 meters from a wheat field east of Lyons, KS. Had to work all day Saturday and Sunday morning. The band was wide open to Canada at 2200Z when I got the antenna up and worked some rare grids like DN79, 89, and WB0OAJ DN86 in North Dakota. Clint Walker, W1LP/MM, was very loud Sunday evening into central Kansas from all-water grids EL45 and 46. I heard him running 8s and 9s. WB2WIH in EL96 in Florida was loud and busy, too—working single hop into the Midwest and double-hop out to the West Coast. As the sun set, 6 meters opened up to the Pacific Northwest. K7RAT (operated by Tree, N6TR) in CN85 called in at 0033Z. The band shifted and the Gulf Coast and California boomed in up until the end of the contest. XE2EED was the only "DX station" worked. You don't have to be a "Big Gun" or work the whole contest to have fun. I had a great time handing out a rare grid running 10 W Sunday evening.

HSMS in the June Contest

A number of stations used HSMS (*high-speed meteor scatter*) to work new grids on 2 meters. W3CCX, the club station of the Pack Rats Mount Airy VHF Radio Club ran HSMS from their contest site on Camelback Mountain in FN21. For 2-meter HSMS they had two 13-element Yagis and 300 W. They ran six skeds and completed with W5SNX, WB5APD, N0UK and W8WN. The extra grids helped the club score, and Joe, K1JT, notes " …certainly made some additional believers (and potential converts) to the HSMS mode."

W3CCX ran their HSMS skeds from 0600 to 0930Z. The skeds were 30 minutes each. This is a great way of increasing the grid count during slack periods in the contest. Russ, K2TXB, observes HSMS is effective for low power stations that may have trouble working the DX contacts via non-meteor scatter means. Of course it is useful for us QRO types, too; but the percentage increase of score will be much greater for the low power stations. A Web site with lots of info on how to get started on HSMS can be found at **http://www.qsl.net/w8wn/**.

50 MHz Spring Sprint from the University of Texas Amateur Radio Club

by Kenneth E. Harker, KM5FA "Vox Clamantis in Deserto"

I operated in the 50 MHz Spring Sprint this year, and made 117 QSOs in 36 different grid squares from South Texas (EM10dg) using the station and call sign N5XU. This is my personal best QSO total for this contest, but shy of my personal best multiplier total (47 in 1998). It was a very fun evening.

I've been disappointed with activity on the other bands in the Spring Sprints. In the 144 MHz Sprint, we even had a tropo opening to Florida, and I was still unable to break the 20 QSO barrier. I made just five QSOs in the 222 MHz Sprint, despite running 400 W, constantly CQing and working an all-time new grid square! But the 432 MHz Sprint was the worst. After a single contact in the first minute of the contest, I could not find one other station on the band to work!

So, you can imagine my dismay starting the 50 MHz Sprint and not even hearing another station on the band for thirty minutes, and working just one contact in the entire first hour! It is at times like these that I have to focus hard on advice given to me by my VHF contesting Elmer, George, K5TR: "Never leave the chair. You never know when a band opening will happen, or how long it will last." For a four-hour Sprint, this is certainly possible. As it happens, there was a good E_s band opening for about 2½ hours. I worked Iowa, Michigan, Wisconsin, Illinois, Indiana, Ohio, Ontario, New York, Kentucky, Tennessee, North Carolina, Alabama and Mississippi.

Looking at the "worked grids" map, it seems to me like there were probably two E_s clouds, an early cloud that permitted long distance single skip to W0/2/3/8/9 and VE3, and a later one that was permitting shorter single skip to W4/5. There's kind of a gap between them across Kentucky. Both clouds seemed to disappear about the same time. There were no openings to the west or south—I only worked eight stations in Texas, all of them in my own grid square.

I find that VHF contests—particularly 6-meter contests—are great for newer operators who are not yet active on HF. Working 6-meter E_s openings and then talking about it with other members of the University of Texas Amateur Radio Club is what got me interested in DXing and contesting.

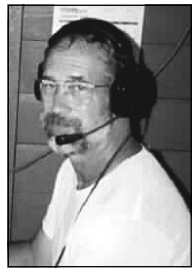
Check out our Web sites at **http://n5xu.ae.utexas.edu/vhf/** and **http://n5xu.ae.utexas.edu/n5xu/**.

73, Ken
kharker@cs.utexas.edu ■

Contest DX-Ventures

The Contest Traveler

Joe Pontek, V31JP/K8JP
v31jp@logical123.net



V31JP/K8JP

Bev and I have returned from our winter's stay in Belize. It was a very good trip with many new experiences. This may read like a travelogue, but I hope you'll find it entertaining. The one most valuable experience or lesson learned this time was "what worked the last time may not work the next time." Be prepared for unexpected changes.

Heading South

After a couple of weeks of preparing and packing we were finally ready to hit the road. It was not an early morning start as we had hoped, but we were on the road, nonetheless.

We decided that no matter how long we delayed, we would inevitably find one or two (or more) things that just had to be done first or added to the pile of stuff that we were bringing along. It was time to go.

We made a few local stops, dropped off this and that, and were finally sailing down I-70 west out of Indy. We made a short stop for a bite to eat around 8:30 PM and then got back on the road again, expecting to rack up some miles on our first day/night on the road.

I often monitor CB channel 19 for road information. We overheard a trucker making a comment about a vehicle with a bunch of ladders on top with its taillights out. It sounded like us. I got on the air and described our vehicle and asked him if it was our truck. He confirmed that it was.

I pulled over and checked the stop lights, turn signals and emergency flashers. They were okay—we just didn't have tail or license plate lights. I turned on the emergency flashers and we began looking for a motel to stay in for the night.

After we got a room, I checked the fuses—they were okay. Everything was working fine before we left home!

In the morning, I dug out the tools and eventually located a bad splice in the wiring harness. I had splice connectors with me, but they were packed away in truck—deep in the pile! I ran over to a Wal-Mart right across the road from the motel and picked up the needed repair items. We were back on the road by about 9:00 AM.

On the Road Again

With the truck as loaded down as it was, we didn't rush. Our cargo this time included 80 feet of Rohn 45G (the ladders the trucker was describing), guy wire, hard-line, a Telrex rotator, radio gear, tools and much, much more.

We stopped in Arkansas on our second night. Our next stop would be at our oldest daughter's place in Silby, Texas.

We spent the weekend with her and caught up on each other's lives. Monday morning, we were on the road again.

We stopped in Robstown, Texas at a little hotel next to Joe Cotton's Bar-B-Q. (We try and make this a stop on our south *and* north journeys.) It is less than half a day's travel from Robstown to McAllen, Texas.

McAllen is where we pick up our Mexican auto insurance and exchange enough US dollars for pesos to cover our travel through Mexico. After three trips, Bev has a pretty good idea of what the total of our expenses will be.

Having taken a little longer than expected to get to the Mexican border, we needed to get another veterinarian exam for our dog, Desi. We had her medical certificate from Indiana laminated and fastened to her pet carrier, but it was more than 72-hours old. That done, it was early to bed for an early rise. We wanted to arrive at the border crossing around 6:00 AM.

A Day at the Crossing

Unexpectedly, the most attention Desi (short for Desdemona) received from the Mexico officials was "What is her name?" But, what normally is a quick crossing—a check of our paperwork and, maybe, payment of a tax on my tower stuff—turned into a much longer delay.

We were told that we would have to wait until 9:00 AM for a customs broker to open on the Mexican side. If we preferred, we could go back to the US side and work with a broker there. We decided to wait.

After they finally opened up, there was an extended discussion between the night shift and the day shift Mexican customs officials. They finally decided that we needed to go back to the US and go through a customs broker there. This led to another trip back into McAllen and a visit to the Mexican consul for our visas. (We normally get these *after* we go over the border.)

We also needed a complete inventory of our truck's contents, including the model and serial numbers of everything that was electrical or electronic.

Once the inventory was completed, computer printouts generated, and a $150 payment was made to the broker, we were finally headed back to the border as "transmigrates."

At the new Pharr Bridge border crossing, we met with the broker's agent and a Mexican Customs official. After about a 30-minute wait (when we believe they

Contest DXpedition List

Compiled by Dennis Motschenbacher, K7BV

This is a listing of Contest DX-Ventures scheduled for the upcoming contests. Visit the *NCJ* Web site **http://www.ncjweb.com** to view the most current update of this list. Please send corrections and additions to Dennis Motschenbacher, K7BV, via e-mail **k7bv@aol.com**.

Contest	Category	QTH/Call	Operator(s)	Status
2000				
CQWW SSB	M/S?	FS/K7ZUM	K7ZUM family	Firm
CQWW SSB	SOABHP	OH0Z	OH1EH	Firm
CQWW SSB	SOAB?	P40W	W2GD	Firm
CQWW SSB	SOABLP	P4	KK9A	Firm
CQWW SSB	SB/160	PJ8/N7KG	N7KG	Firm
CQWW SSB	SB/10	ZF2RV	WJ7R	Firm
CQWW SSB	SB/75	ZF2MC	N7MQ	Firm
CQWW SSB	SOABHP	WP2Z	K6RO	Firm
CQWW SSB	M/S	8P	K4FJ, K3KG	Firm
CQWW SSB	M/M	GZ7V-Shetld Is.	North of Scotland.CG	Firm
CQWW SSB	M/M	IH9P	IT9BLB + Intl team	Firm
CQWW SSB	M/M	PJ9B	N3ED +	Firm
CQWW SSB	M/M	VP5T	FRC DXp'tn	Firm
CQWW CW	SOABHP	8P9Z	K4BAI	Firm
CQWW CW	SOABHP	OH0Z	OH1JT	Firm
CQWW CW	SOABHP	TI5N	K9NW	Firm
CQWW CW	SOABHP	WP2Z	WD5N	Firm
CQWW CW	SO	C6AKP	N4RP	Firm
CQWW CW	M/M	PJ9B	N3ED +	Firm
CQWW CW	M/S	6Y7A	KN5H, KB3EHU	Firm
ARRL 10-M	SO	C9	LW9EUJ	Plan
ARRL 10-M	M	8P9Z	K4FJ, K3KG	Firm

Thanks to ARRL DX Bulletin, Ohio/Penn DX Bulletin, 425DXN, Bill Feidt/NG3K, DXNL

are really just watching you and your actions or reactions to the delay) we were cleared to go across.

The next stop was immigration. They tossed away the visas we received at the consul and issued replacements that were good for 180 days. We also needed a "tourist vehicle permit."

By this point it was 6:00 PM. At last we were finally leaving the border in search of our next road.

The Path Less Traveled

We accidentally made a turn too early. We missed the route we usually take and ended up on a road that we hadn't traveled before. Near Rio Bravo, we decided to try heading south to pick up Highway 101. It was a good road—no traffic—but up 'til that point, no motels either.

We have a rule about driving after dark in Mexico. No, this is not because of banditos, but the wild life, live stock and pedestrian traffic along the roads after dark makes it dangerous to travel at night.

We finally came upon a Pemex (a Mexican government-owned gas station), loaded up on fuel, and inquired about nearby motels. We found out that there was lodging just ahead in Valle Hermosa. Once there we found a nice motel and settled in for the night.

The town of Valle Hermosa closes up fairly early, so we had some cheese, crackers, snacks and a couple of cervasas for dinner.

The next morning we became a bit worried, as we had not yet passed through the next checkpoint typically located about 20 miles from the border. (Remember that we were on a different road than we normally take.)

Another gringo staying at the hotel told us that there was one just down the road. Cool! We headed out and 10 minutes later arrived at a checkpoint. The only problem was that the official at that checkpoint could not stamp transmigrate paper work.

He directed us to a proper checkpoint that was not far out of our way. There we paid 25 cents to have our paperwork stamped and were again on our way.

A Rain Delay

The rest of the way through Mexico went reasonably well. A fair amount of rain caught us in Minititalan, so we ended up holing up there for an extra day.

The roads between Poza Rico and Nautala were in pretty bad shape in a few spots due to the late September rains, which caused mud slides in the mountains and washed away 100 to 200 meters of roadway due to flood waters at the coast. When we got back out on the roads, most were passable—though some had detours.

When we finally reached the Mexico/Belize border, the Mexican customs people directed us into a compound area. We expected that they might make us unload everything and account for each item on our inventory. After we paid our $50 processing fee and waited about 30 minutes, though, they let us cross the border to Belize.

At the Belize side of the border, all went well until they spotted Desi.

While we were still planning our trip, we had tried to determine what we would need for documentation to get our dog into Belize, but we couldn't find any information that covered bringing in pets. As it turned out, we were supposed to have faxed down Desi's health and shot records. In turn, a permit would be faxed back to us. With this paperwork in hand at the border, we would have been issued a landing permit for Desi.

Luckily, Bev was able to talk our way through. Now we know the procedure (until it changes). All-in-all things went fairly well—we only spent an hour at the border and only paid $50 duty to Belizean customs.

The Home Stretch

We traveled about halfway down-country and stopped at JB's Watering Hole around 6 PM. As we were enjoying a drink and arranging for a room for the night, we were chatting with the owner and another patron. All of a sudden, this other patron said, "I've been looking for you!" Uh oh.

As it turned out, he had noticed my K8JP baseball cap. The guy was Steve, the new V31BB. We had a short, but nice, chat. (We ended up hooking up on 20 SSB some weeks later.)

The next morning, we hit the road early and arrived at our home-away-from-home by 11:30 AM. This gave us the afternoon to clean up our house. By sunset, we had already settled in.

I will have more on our recent adventures in Belize in upcoming columns. I hope that you also have some travel experiences that you can share with us. Please pass along your tales and travel advice.

73, Joe V31JP/K8JP ■

DXpedition Destinations

Sean Kutzko, KX9X
kx9x@uiuc.edu

This time around we've got a neat story submitted by Steve Herman, K7USJ/7J1AIL. Steve is a veteran broadcaster who's based in Asia and working for the Discovery Channel and the AP Radio Network.

KX9X

A DXpedition to Paradise—with Room Service

Steve Herman, K7USJ/7J1AIL
k7usj@arrl.net

Imagine you are taking a vacation to an exotic island paradise. You check into a five-star resort and have room service deliver a top-of-the-line transceiver with a linear to boot. You then simply connect the rig to coax lines that feed an existing antenna farm that includes a tri-band Yagi located high on a hill overlooking the ocean. You make a few more connections, flip some switches and you're instantly QRV with a vanity call from a top 100 most-wanted DXCC country.

This scene is no fantasy—*I got to live it recently*—and so can any ham who is willing to do a bit of traveling, but is short of the funding or stamina necessary to organize a full-fledged all-out DXpedition.

Operating from Palau

I've traveled to 40 countries in connection with my broadcasting work, but despite being licensed since the age of 13, I've only operated from a half-dozen or so nations. Most of the time licensing procedures, lack of baggage space for gear and antennas and little free time have made hamming difficult.

A while back I was contemplating a business trip combined with a family vacation to the Republic of Palau. I was combing through the pages of Japan's *CQ Ham Radio* magazine and found a small ad offering a "rental shack" in a hotel in Palau.

In a mutual effort to promote tourism and showcase new equipment, a Tokyo tour operator, with support from several equipment makers—including Yaesu and Force 12—has put together a tour package targeted for visiting hams from Japan.

For the 800,000 hams in Japan, where an urban living environment and low power operation on HF are the norm, the Palau DXpedition package has great appeal. The package even includes handling of the licensing arrangements (something I did on my own).

Anyone contemplating Amateur Radio operation from Palau, whether from this rental shack or elsewhere in the country, is advised to apply for a license many months in advance. Palau's bureaucracy is typical of that of tropical nations and there are no automatic reciprocal privileges for foreign hams in Palau, which only has a population of 15,000 (that's total population, not ham population!).

Licensing is handled by the country's Ministry of Commerce, using an appli cation form left over from the KC6-prefix days of the US Trust Territory Administration. (My application was a copy of a previously completed form on which the data entered had been covered with whiteout.)

In most cases, foreign hams with proof of current licensing will usually be granted a one-year license and a vanity call with their initials, if available. (I got T88SH.) In reality, Palau, independent only since 1994, which foreigners primarily visit for its world-renown scuba diving, has virtually no Amateur Radio regulations.

Hams who operate there are on the honor system. The government's sole radio communication technician is a Japanese Peace Corps-type volunteer with no radio to monitor the HF spectrum. He is, however, a ham (JR7XDO) who is eager to help Palau codify its regulations. I told Shiroto Yasutaka, whom I met in the Ministry's communications department as I picked up my license, that I would send him a copy of the FCC's US Amateur Radio regulations. I also plan to donate an HF receiver to the Ministry so that Shiroto-san can become the Riley Hollingsworth of the South Pacific.

One of the attractions of Palau for Japanese hams is that most hold a fourth-class license limiting them to 20 W on HF, but Palau has yet to codify restricting such visiting hams to that near-QRP status.

"We're a bit worried about a wave of Japanese coming here who will be operating a linear amplifier for the first time. Some have limited HF experience of any kind and some do not speak English," said one official.

Steve and his son Ian Benjamin operating multi-multi from the well-equipped shack in Room 214 of the Palau Pacific Resort. The gear, delivered by room service, included a Yaesu FT-1000MP, an FT-920 and a VL-1000 amplifier.

The resort's permanent antenna farm includes an 8-element 6-meter Yagi, a Force 12 C3 and several wire antennas.

Making Landfall and Station Assembly

When I arrived at the Palau Pacific Resort on Arakebesang Island—a leisurely 30-minute drive (everyone drives slowly in Palau) from the airport—I couldn't wait to get my hands on the rental shack's Yaesu VL-1000 amplifier.

Much to my surprise, when I checked into Room 214 (the designated shack), I didn't see a trace of anything ham-like. It took a call to the front desk to get the equipment delivered (there had been a mix-up on my arrival date). They instructed me to look carefully in the closet—where I found the feed lines hidden beneath a panel in the floor.

About an hour later, I had the two sparkling new HF rigs (an FT-1000MP and an FT-920) hooked up, the VL-1000 plugged into the 200 V ac feed, the antenna rotator control box wired and two of the four incoming coax feedlines connected—the HF Yagi and the multi-band dipole. (I left the WARC-band dipole and the 6-meter beam disconnected.)

The rental shack also comes equipped with two stuffed toolboxes, extra coax and connectors, a soldering iron, maps and instruction books. The only thing you'll need to bring from home is your straight key or bug and logbooks (bring lots of logbooks, I ran out much quicker than I expected).

The Family that Plays Together...

I knew I would be shuffling my DXing amid business appointments, playing with my son at the pool and on the beach and sightseeing with my non-ham XYL.

In retrospect, it probably would have been better to lodge them in an adjacent room. The perturbed XYL and fascinated son did not find the key clicks, the panel lights and the humming of the VL-1000's fan particularly conducive to dozing off. With room rates north of $200 a night, however, that was not an economical option.

Nothing in Palau is cheap. South of Guam and east of the Philippines, just about everything in Palau is imported from afar and the tourist culture, dominated by Japanese and Taiwanese tour packages, features Tokyo-level prices.

The only tourism bargain I found was the moonshine available in a local shop. The sign at the counter actually read "Moonshine," and it came in a tall beer bottle with no label and sold for $1.50. It's actually fermented tapioca. Downing a bottle will leave you in no condition for hi-speed CW.

T88SH is QRV

I wisely eschewed the local brew and spent much of my spare time pumping a kW to the Force-12 C3 Yagi. The antenna is mounted at 45 feet in a location that overlooks the Pacific. When it was pointed just off due north to Tokyo, I could usually generate a JA pileup within minutes on 10, 15 or 20 meters—regardless of the time of day.

Disaster struck on the third day, when following a long evening working both CW and SSB, I awoke the next morning to find my voice gone and my fist worn out. Not being an active contester, I realized that I had put my body through the equivalent of a half-marathon without the benefit of proper training. In reality I had allowed myself to dehydrate and had caught a cold. The symptoms included laryngitis and exhaustion.

Phone operation was out of the question, so I switched back to CW. I found that my fist was as shaky as a just-licensed Novice. My new call, T88SH, has a lot of dits on the end and—even after slowing down—I just couldn't get it out smoothly. I admitted defeat and decided to spend the remainder of the day at the beach.

A monsoon-like afternoon downpour tempted me back to the shack. Although my voice was still mostly gone I couldn't resist one of my true ham radio passions—10-meter FM DXing.

I spend much of my driving time in Tokyo (where I have a home) sitting in traffic with my 10-W rig amid canyons of skyscrapers, thrilled just to be able to have QSOs with the Japanese hams in the next prefecture.

Tuning up to 29 MHz, at first I was disappointed to get an earful of what is usually heard on the band from Tokyo—the voices of unlicensed Chinese yelling on just about every frequency. Finally, I found a quiet spot at 29.26, trimmed the amp back to 500 W, and handed JF3XDX in Kyoto his first T8. DS5ICY in South Korea soon followed.

Unfortunately, despite listening at various times of the day and night, I never heard any North Americans on 10-meter FM. Some days later I came across Chris, ZS6EZ, in Pretoria on 10-meter SSB. He requested we try a QSO on 12 meters. After that I lured him to 29.01 and bagged South Africa on FM. Running 640 W at that point and beaming to the southeast, he gave me a solid 59. This was the highlight of my room service DXpedition.

When I had scheduled my Palau trip, I had not realized I would be there during the weekend of the CQ WPX CW Contest. About an hour after the 'test began I realized what was going on. Despite a busy weekend of appointments I managed to spend just enough time in the contest to hopefully qualify for a top country score certificate.

There apparently is only one other active resident ham in Palau and I had no indication he was participating in the contest. Ironically one of the very few resident hams is the Japanese chief engineer at the Palau Pacific Resort—Sone-san, T88SS—but he told me his job keeps him too busy to operate.

T88SH is QRT—For Now...

When it was time to go QRT, I had racked up over five leisurely days of operating with some 604 QSOs and 49 countries. My secret goal, I'm ashamed to admit now, had been 1000 QSOs and 100 countries, which I belatedly realized might have been possible had I not had a family in tow and had been willing to go without a couple nights of sleep.

Nonetheless, I intend to go back soon and get those 400 additional QSOs and the 51 remaining countries soon. I also deliberately left 6-meter operation until next time. The hilltop tower is crowned with an 8-element 6-meter Yagi, which I'm sure will thrill pileups of JAs when T88SH returns to the air.

Thanks, Steve! That's it for this issue. Keep those suggestions and information on other QTHs coming in! Be sure to visit the QTH Rental Page for listings of many rentals available all around the world. You can find it on the Web at **http://hobbes.ncsa.uiuc.edu/sean/qthlist.html**.

Until next time, see you on the Other Side. ■

Contesting for Fun

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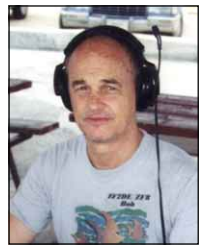
N4BP

When I was very young, MANY years ago, I hadn't yet grasped the concept of the internal combustion engine and a self-propelled vehicle. I imagined cars strung together with an invisible cable (I didn't consider the fact that some cars could remain parked while others were moving quite fast). Later, I was fascinated by the idea that a vehicle's motion could be controlled completely independent of the outside world. That fascination still remains, as I suspect does with many if not most drivers. The desire of people to control their own vehicles basically accounts for the high cost of fuel and increased air pollution, but that's another story.

A fascination with being able to communicate with other hams while being independent of the outside world I suspect is shared by all mobile ham operators. Imagine being able to drive through uncivilized areas that have no electrical service, and to communicate by radio waves with other hams perhaps thousands of miles away! No wonder mobile operation has become so popular.

Combine having these communication capabilities with being the center of attention in pileup after pileup and you have a state QSO Party. The idea for this column came quite naturally following my own participation in the Florida QSO Party (*FQP*).

We'll start off with some experiences that K4PG and I had while driving through some Florida counties. Other contributors were fellow FQP mobile participants as well as some from the state QSO parties in CA, GA, IL, MI, MN, TX, WA and WI, and the MARAC County Hunters Contest.

The Florida QSO Party—N4BP and K4PG

Kevin, K4PG, and I ended up driving a total of 725 miles. We filled the gas tank once in Ocala. Our station and route were identical to last year's effort, but this time we experienced several differences—all positive.

The most noticeable difference was the much improved band conditions. While last year we only made a handful of QSOs on 15 meters (mostly with N6MU), this year we logged 341 Qs on that band and even managed to make a few on 10 meters.

This time we did NOT get lost looking for our hotel and did NOT get lost in downtown Naples. Perhaps I should mention that this year I made a wrong turn at the start of our adventure and we began by accidentally heading east toward Fort Lauderdale Beach on I-595!

We had one close call on the final leg of the trip, narrowly missing an alligator on the Tamiami Trail. He scurried back into the roadside canal just in time.

Our transceiver was the ICOM IC-706MkII. The antenna was a Hustler system mag-mounted on the trunk with resonators for 40, 20 and 15 arranged on a tri-band adapter plate. We used an LDG Electronics ATU and found that we could hear and be heard quite well on 10 meters without changing resonators.

Although conditions were poor when we started operating on Sunday, I did see the *NA* rate meter pass 200 Qs per hour at one point. There always seems to be an initial rush of about 30 Qs as we entered a new county, but this was usually followed by a long slump.

We had a couple of minor station problems. The computer screen was difficult to see when the sun was on it, and the '706's display went almost completely dark as the sun heated it up. Next year I'll devise hoods to shield them. When operating 40 meters, we occasionally got RF burns from metal parts of the computer. Apparently plenty of RF was also getting to the antenna though, as we seemed to do well on that band.

All in all, we had a very enjoyable trip with no real problems. Kevin is an incredible operator! He had not been on CW in several months and his only contesting in recent years has been with me for Field Day and the FQP—yet his performance would rival that of any seasoned contester. We're both looking forward to the 2001 Florida QSO Party!

Florida QSO Party—N4TO and K1TO (a Halftime Report...)

N4TO/M, operated by Vic, N4TO, and me, far exceeded our first-day expectations. We hit 12 counties today and have far more QSOs than we thought we might by now. Being nice guys, we spent a ton of time working guys on SSB to make sure that each county was available on phone.

In general, we feel that conditions are better than last year and activity seems to be up, too. Hopefully, our big efforts at publicizing this year's running had some positive impact.

We followed our plan fairly closely, although we fell behind when we developed a frustrating case of RFI "in the shack" and could not send CW to save our lives! We caught up by staying on the move through several counties that we had planned to stop in. One mapping inaccuracy led to some unexpected time spent in Bradford County this evening.

As I write this, we are holed up in a hotel outside Jacksonville and are planning to spend a little time at the start tomorrow in Duval County, since we only worked a small number of guys there and there seemed to be more demand. Otherwise, we will stick pretty much to our plan (unless we hear of a county that is badly needed...).

73, Dan, K1TO

Florida QSO Party—W7QF and K4LDR

Tom, W7QF, and I (Pete, K4LDR) went on a FQP2000 mobile adventure. Boy, was it fun!

We are a couple of old guys, oops—make that "senior guys"—with 90+ years of hamming between us. We decided to practice some ARES-type communications and do some modest mobile HF contesting.

Tom has a Ford Bronco equipped with a rather nifty HF mobile radio setup based on a Yaesu FT-100. He even has a 400 Hz CW filter installed. The radio is connected to an SGC auto-tuner that seems capable of loading nearly anything from a bobby pin to a 5-mile long barbed wire fence.

Our main objective was to activate Levy, Gilchrist and Dixie Counties—which are pretty much hinterlands—during the 2000 Florida QSO Party. Levy and Dixie face the Gulf of Mexico while Gilchrist is a bit inland. These aren't densely populated areas and there's not a whole bunch of hams operating HF from these counties.

We set out on Saturday the 29th of April at 10 AM local time from Tom's home in the direction of the Levy/Gilchrist County boundary line. Our first order of business was to stop at a country diner in greater Chiefland and feed on some grits. We were disappointed when we found out that they were out of pork brains. Maybe next time.

We intended to set up dead-on the 3 corners of Levy, Gilchrist and Dixie Counties—but we would have been wet, and maybe gator bit, as that location is *in* the Suwannee River.

Instead, we sought permission to operate on the county line in Fanning Springs State Park—a very pretty place. The gatekeeper referred us to a ranger,

who—with squinty, dubious and suspicious eyes—referred us to the supervising ranger, who was even more suspicious. He seemed to reach some comfort level when we mentioned the names of a few people he recognized that are involved with the Florida Department of Emergency Management (*DEM*) state Emergency Operations Center in Tallahassee. The supervisor acquiesced but DID come and check us out after we got situated.

We tossed a 25-foot wire over a zillion-year-old oak tree limb and hooked up two counterpoise radials. It loaded and worked gooood. I strapped W7QF's custom airborne/land mobile keyer paddles to my right thigh, fired up *NA* on the notebook computer and cranked up. After awhile it was Tom's turn to make some SSB QSOs.

After a spell of operating on the Levy/Gilchrist county line, we reeled in the wire antenna, coiled up the radials, and drove the 200 meters across a bridge over the Suwannee River in search of an easy access location to set up again. We found a place almost right on the river near the bridge at an abandoned campground office building.

We hadn't been there long when two disguised Florida Fish and Game officers in an unmarked car pulled up and began grilling us about what we were up to. It turns out that one of the officers is a ham and was pulling our leg(s) to have some fun. He said "have fun, make lots of contacts" and they drove off looking for more devilment, no doubt.

It was soon time to head home. Tom was piloting the Bronco, I was doing the Levy County mobile morse operations from the crowded front passenger seat. It was difficult to see the notebook LCD screen in the dark. We bounced along on a different remote country route. Man, was it dark.

Tom was driving with caution, but he didn't see a stop sign due to the brush along the roadside. We almost drove across a "T" intersection into the swamp. Crap! Luckily, the Bronco's brakes worked well.

Later, when we finally pulled into Tom's driveway, we took a deep breath and began unloading his rolling communications center. We were both beat, but we had lots of fun. Wait 'til next year...

A Variety of Mobile Contests—W1NN

I've operated the Pennsylvania QSO Party in the mobile category every year for the past 10 or 11 years. I've also participated as a mobile in the Illinois Party, the California Party, the Washington State party and the Texas Party, so I'm something of a veteran of mobile contesting.

Another favorite contest of mine is the annual MARAC County Hunter's CW contest, which is the only contest that allows mobiles from all over the country to participate and compete against each other. It's perhaps the most interesting contest format of all, but since the subject of your column this time around is state QSO parties, I won't get into that.

The basic reason why I like mobiling in state QSO parties is, of course, that it's fun. Why is it fun? Because it is challenging and competitive.

It is challenging because, to a great extent, the playing field is level—everyone is competing with similar equipment. Everything depends on the operator. Of course, it might not always be that way. I've heard stories about guys in the California QSO Party towing generators around to power amplifiers. I suppose there are other ways that guys could get an equipment edge on the competition.

It is my belief that mobile state QSO party contesting is perhaps the best basic test of wit and skill in contesting today.

Route planning is a very important consideration in this form of contesting, giving it an additional dimension that is absent from fixed-station contesting. This is the aspect that I really find challenging in the Pennsylvania QSO Party. Each year I spend hours pouring over maps refining my route.

A final facet that adds to the enjoyment is being outdoors. I really love the feeling of being out in the middle of the countryside while working a contest. Whether you're parked beside a beautiful autumn scene in Pennsylvania, driving down one of those perfectly straight roads with no cars in sight in Texas, or sitting in a cornfield at night in the middle of Illinois, it's a tremendous feeling to be in such surroundings while operating a contest.

Unfortunately, there is not enough competition in mobile contesting, although recently there seems to be increasing activity. I have won Pennsylvania every year except for the first year I entered, primarily because there's not much competition. I hope someday that people discover how much fun this is and that there will be 15-20 mobile stations putting in serious efforts. That would be lots of fun, not just for the mobiles but for the home stations as well.

Wisconsin QSO Party—W9MSE

There are a variety of ways to operate mobile in contests. This can range from one person doing everything (operating, logging, driving, map reading), a single operator can do all the ham work, but a designated driver takes care of the travel concerns, to the ultimate operation using multiple operators running at the same time on multiple transmitters with a separate driver. All my operation has been single operator, either by myself or with a non-ham driver. It is much more relaxing having a driver.

Contests range from the nice short ones to the 48-hour marathons. There was the Wisconsin QSO Party of 7 hours; in the 2000 contest I made 558 QSOs while having my son as driver, and the Minnesota QSO Party of 10 hours in which I made about 545 QSOs, but that was all by myself with no driver. The other extreme is the 48-hour contest such as the MARAC County Hunters CW Contest in which the past two years I have had about 1,200 to 1,300 QSOs each year using a driver (Here mobiles from all over the country are in competition, and not just those in one state. The country-wide competition makes it more of a challenge as not everyone has similar propagation, as is the case when all are in the same state.) In all the cases, a really enjoyable part is being the sought-after multiplier and contact. Usually the fixed stations have been worked by most out-of-state stations after the first few hours, and it is then the mobiles that everyone is waiting for and jumping on as they enter a new county. It's like being on a DXpedition.

Georgia and Pennsylvania QSO Parties—W3DYA

It's funny, but when you're driving and operating in a state QSO party, nothing much ever happens that's funny.

"Funny" things happen, but it's not really "funny" when you miss a turn and spend an extra hour in a county (like I did in Laurens, Georgia last year—but I-16 was really nice, both ways…). Late Saturday night I missed another turn and found myself way east of where I was supposed to turn north, so I drove and ran counties out of sequence until I located a motel back where I should have been a couple of hours earlier!

Or when I decided to detour to Pierce county from Ware county and couldn't find my turn in Waycross and spent a looooong time in Ware county getting back on my route.

Other not-so-funny things happen: like when I got up early the second day and my ICOM IC-706 was shutting down. I switched to my IC-735 and operated for several hours. Then I decided I must be crazy, so I switched back to the IC-706 and rearranged the cables and it behaved perfectly!

Or when I was in a roadside park in Bradford County, Pennsylvania and operated for a few minutes with the engine off. Soon my dahs wouldn't work, just the dits. My QSO with a W4 station was interrupted and he says "I hate it when that happens," since he knew it was my battery. Luckily a Pennsylvania State

Trooper was eating lunch across the little park and called for road service; I only lost an hour!

Or when I stopped on a road in the woods in northwestern Pennsylvania to install my 80-meter Hustler resonator in place of the 10-meter in my four-resonator assembly and a car pulls up behind me and a woman gets out. She doesn't know me except I'm a ham—as is her husband, and it turns out I've known him for several years. I suggested she shouldn't be stopping in the woods to meet other hams, but she said she knew it wouldn't be a problem 'cause hams are friendly people!

Or when I drove through a fast-food drive-in and my antenna banging on the building overhang woke me up! Same with motels and my garage door when I got home!

My wife used to drive for me and I remember one funny thing that happened. I was urging her to drive faster to the next county line when she was stopped by a state trooper who gave her a warning. Now I thought that was really funny! I never complain about her speed anymore, though!

I wish I could tell you why I do it, really! I don't operate mobile to win or get awards—got too many plaques on the wall and certificates in the file to mean much.

Obviously I enjoy CW! And I enjoy hearing calls that I've known for a long time, some from the late '60s. Basically, I guess it's CW, old acquaintances showing up unexpectedly, and an opportunity to meet some friends in person.

I started mobile operation in '67 as a favor to give out counties to a group of county hunters on 40-meter CW. From there, it just seemed natural to run counties in state contests—they always attract county hunters and they really appreciate it!

Michigan QSO Party—K8CC

In the past thirteen months, I've participated as a mobile entry in three state QSO parties. I usually team up with Ken, W8MJ. We take turns driving and operating.

Mobile contesting is a lot of fun if you're operating from the target state. It is also a great equalizer—hams who cannot set up a competitive contest station at home due to antenna restrictions or TVI/RFI can be a "mobile big gun" from the car.

It is not difficult to put together a good mobile contest station. In our case, we don't have a permanent mobile installation, so we assemble a temporary mobile contest station in the back seat of my Jeep. We use an ICOM IC-756, a laptop logging computer with a paddle and keying interface, and a Heil headset and foot switch. Antennas are fastened to the roof of the vehicle with a multi-magnet mount. The entire setup can be installed or removed in a couple of hours.

Mobile operating in state QSO parties—particularly from rare or uncommon counties in the target state—can make you a pretty popular station. Other participants will follow you from county to county or between CW and SSB, often generating instant pileups. In the three state QSO parties I've participated in so far, we've totaled almost 1,800 QSOs in 36 hours of operating for an average rate of 50 per hour.

The key is to think like a big gun and operate aggressively. Call CQ as often as you can, and switch bands or modes to keep the rate up or to work multipliers. In short, operate pretty much like you would at home.

To sum up, mobile contesting is fun because it's different and good rates are possible. It's also a great way to get to know your home state. So far, we've activated 52 of the 83 Michigan counties, and have a goal to operate from them all. Only 31 more to go!

Georgia QSO Party—K4BAI and K2UFT

The biggest lesson I learned in the Georgia QSO Party last year with Dick, K2UFT, was to put a lip or edge on the operating table or bench. Twice when Dick braked suddenly (such as when a county line suddenly came into sight and was about to interrupt a good run) the Bencher paddle tumbled off onto the floor of the truck. The second time it happened I couldn't repair it. I was afraid we were going to be stuck using the keyboard function of *NA* (which is difficult for me, but not impossible) or limited to SSB operation when Dick reached into his bag and produced another paddle.

I think it is much safer to have a driver. I had asked my son (a non-ham) to drive for me—thinking it might help us "bond" a bit—but, as you can imagine, as the weekend approached, he found he had a conflict. Fortunately, Dick offered to team up with me. We had a ball alternating driving and operating duties while running many small south Georgia counties.

I haven't had a HF mobile rig of my own for years, so I borrowed an old truck complete with a mobile rig and antennas from a local club member—Ted, W4DUF. Unfortunately, his IC-706 had no CW filter installed and no antenna tuner (his antennas were tuned for SSB). So, we wired up an inverter and used my IC-736 (with a CW filter and an ATU). Ted had equipped the truck with some extra batteries, but we still had to be going 50 MPH or so or the RF power dropped to about 40 W.

I haven't made definite plans for this year's party yet. My buddy WA4ILO has a mobile rig and others have mentioned the possibility of operating, but the event is shortly after my scheduled return from Slovenia and I will have a lot of catching up to do at the office and at home. ■

RTTY Contesting

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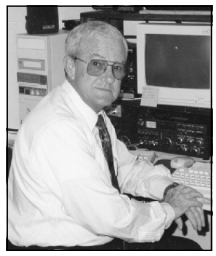


K7WM

Back in 1995 the various RTTY reflectors carried a great deal of discussion about the advantages/disadvantages of 2-radio operation vs 1-radio operation and of how the Internet could be used for contesting, etc. Of course, many of the comments were delivered tongue in cheek and civilized—one proposed an Internet RTTY Sprint.

The fallout from this thread was a full-blown Internet RTTY Sprint (by radio) that was the brainchild of Barry, W2UP. Barry patterned the Internet Sprint rules after the existing *NCJ* CW/SSB Sprints with some slight modifications, ie: 80- and 40-meter bands only, 2 hours duration, once a year, and multiple contacts on the same band. It was held five years in a row.

In 1999, Barry became tired of being chief cook and bottle washer, and wanted to pass the reins on to someone else. A discussion ensued about approaching the *NCJ* to see if they might be interested in incorporating the RTTY Sprint into their CW/SSB Sprint package. It was felt that most of the CW/SSB rules that existed could be used with just slight modifications for RTTY operations. This was done and the *NCJ* enthusiastically endorsed the idea.

As a result, the *NCJ* RTTY Sprint came into being…

The March 2000 *NCJ* RTTY Sprint

On March 12th, 2000, at 0000Z, (Saturday evening for North America), the first diddle-diddle-diddle of the inaugural *NCJ* RTTY Sprint was heard. Four hours of dial spinning, antenna twirling, switch flipping and band changing was underway. At the conclusion, you sat and looked at the log with blisters on your fingers wondering if everybody had as much fun as you did. Over 80 participants showed up. Even some surprising DX stations—CT1AOZ, S58T, OH2LU, RK6BZ—joined the fray to make the first event a great success.

It was evident at the start of the contest that some of the competitors were having problems with the unique QSY rule. One could tell they were diehard contesters because they weren't about to give up *their* run frequency. After about 30 minutes on the air and with some gentle reminders to QSY after CQing, everything was running smoothly. (*I personally had fun just searching out the Big Guns and answering their CQs—just to see them have to move.—K7WM*)

The QSY rule mentioned above can be described in a nutshell as follows:

If you solicit and receive a contact either by a CQ or QRZ, you must move (1) a minimum of 1 kHz before answering a CQ or (2) a minimum of 5 kHz before you call CQ (up, down, another band—it makes no difference, you must move).

Forget about coming back to the frequency you just left because you know someone there. Another rule unique to the RTTY Sprint is the *multiple contact privilege*. You are allowed to work the same station multiple times provided three contacts separate the contacts in both logs, regardless of band. Fortunately, two of the major software packages, *RTTY* by WF1B and *Writelog*, will tell you if three contacts separate QSO attempts. Unfortunately, the software can't tell you what is in the other station's log. This fact proved not to be a big problem. Only a small number of QSO deductions occurred during log checking.

The contest also scores band multipliers. That rule combined with the multiple contact capability, ensured that action was hot and furious on all three bands during all four hours. 20 meters never died out completely and plenty of ops were moving back and forth between the bands at an astonishing rate during the March running of this FB new contest. 40 meters got hot and heavy about two hours into the contest but 80 meters was tough—100 W is kind of puny for this band—but still the rate held up for many.

With a contest exchange that includes a serial number, one gains added incentive to go faster. When you find a competitor with a couple more contacts than you—who 15 minutes earlier was three contacts *behind*—you got a kick in the driveshaft real quick! Things were moving so fast that sometimes you would have to stop and think, "Did I CQ or did I *answer* a CQ?" What a ball! Like the ol' saying goes, "Try it, you'll like it."

The next *NCJ* RTTY Sprint is scheduled for October 15th, 2000, 0000Z to 0400Z. Get your fingers loosened up, develop a super fast winning stratagem, and come join the fun. Complete rules can be found at the *NCJ* Web site: **http://www.ncjweb.com** and at N1RCT's Web site: **http://www.megalink.net/~n1rct**.

March *NCJ* RTTY Sprint Comments

Very few "soapbox" comments were included with the logs submitted for the first running of the contest. Here's a sample of what was received.

Soapbox

Went head-to-head with AA5AU, one radio against two, and was doing pretty well in the first part of the event. Once 40 meters opened up for Don, he steadily pulled ahead for the rest of the contest. There is still not enough activity but under the *NCJ* format this event will get much larger and more fun. I'm looking forward to the October Sprint.—*Jay, WS7I.* The *NCJ* RTTY Sprint was a very fun contest for me. It is a very different format, but a lot of fun. Fast paced, it really keeps you

Results, March 2000 *NCJ* RTTY Sprint

Scores

Call	*QSOs*	*Points*	*Mults*	*Score*
AA5AU**	225	220	30	6600
WS7I*	178	177	35	6195
AE5P*	163	162	37	5994
W6/G0AZT*	139	139	36	5004
K7WM	137	136	37	4896
W7WW	144	137	30	4110
W4LC*	116	114	30	3420
CT1AOZ*	118	117	26	3042
S58T*	80	76	31	2356
W0ETC*	80	75	24	1800
N8YYS*	75	74	22	1628
WA0SXV	72	72	16	1152
W9ILY*	62	62	18	1116
W6IWO	60	57	18	1026
K9MRQ*	54	54	14	756
KS0M	23	23	14	322
WB6BIG	19	19	11	209
W4JLS	14	14	10	140
OH2LU*	11	11	6	66
RK6BZ*	6	6	5	30

** Denotes trophy winner
* Denotes certificate winner

on your toes. Very strange, though, working one of the "Big Gun" stations, and then legally "stealing" their frequency. Would be nice to have more stations to work. Give it a try, I really think you'll like it.—*Army, AE5P.*

Eddie, W6/G0AZT Says...

If anyone really wants to have some fun in a contest, may I suggest that they seriously contemplate entering the *NCJ* sponsored RTTY Sprints. They are held twice a year and unlike many RTTY contests, the Sprint—as its name suggests—is not a marathon but four hours of enjoyment and tactics on 20, 40 and 80 meters only.

There was even some DX participation and I believe that if the sponsors give this contest wider publicity, there will be more activity in future events of this nature. You do not have to be a dyed-in-the-wool teletype contester to participate but you must read the rules thoroughly and preferably have some contesting software that supports the unique Sprint format.

Up until this year, I have always steered clear of what was once called the "Internet Sprint" and run by Barry, W2UP. I found the rules rather confusing, but once they were properly digested and with the aid of specific software, I decided to have a go in the inaugural *NCJ*-sponsored version in March 2000.

The first thing that struck my weird sense of humor was the fact that you can work the same station on the same band, over and over again. (Check the rules.) Another interesting occurrence is that if you CQ and make a contact, after the required exchange, you must QSY immediately. To sit and watch the "vultures" grab "your" frequency and work the station you just worked is hilarious and totally alien to normal contesting. I think I spent far too long watching these tactics when I should have been trying to steal someone else's frequency and getting more points.

Output power is limited to low power, so even the little pistols can participate without fear of being blown off the bands by the California Kilowatters. Both *RTTY* by WF1B and *Writelog* for *Windows* software packages cover this contest and produce all the required files for submission to the Contest Manager, Wayne, K7WM.

Please come and join us in the next one.

73 de Eddie, W6/G0AZT (ZF1RY, P40RY, TY1RY, 8R1TT, 3V8BB '96, GU0AZT et al)

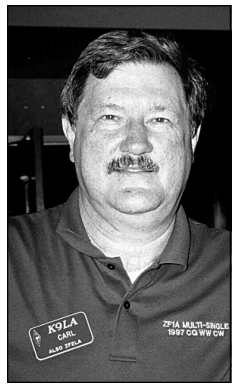
Good luck on the bands and see you in the 'tests too.

73, Wayne, K7WM ■

Propagation

Carl Luetzelschwab, K9LA
k9la@gte.net

The Importance of 40 Meters in DX Contests



K9LA

In November of 1994, I had the pleasure of joining Joe, W6VNR/ZF2AH; Bruce, W6OSP/ZF2QM; and Bob, K4UVT/ZF2RF, in a multi-single effort as ZF1A for the CQWW CW Contest. We ended up with a decent score—nothing spectacular, though. But that was okay, we went there mainly to have some fun. Our goal was to have a good time and hand out the ZF multiplier—not to win the World.

A couple years later I started thinking about what it would take to do significantly better in the multi-single category. One of my thoughts was "for a serious effort, what band should we start the contest on and remain on throughout the night?"

For our 1994 ZF1A effort, we started the run station on 20 meters and stayed there for about 6 hours, working US stations at a good clip. There were quite a few JA stations and a handful of EU stations in there, too, but the log data revealed that 72% of our Qs for the first 6 hours of the contest were with 2-point North American stations. Due to the QSO point structure for the CQWW contests from the Caribbean, that's okay for fun and the thrill of high rates, but this may not be a good strategy for a serious contest effort.

To maximize your score, you want to be on the band at the start of the contest and throughout both nighttime periods, 0000 to 1000Z, that offers the best chance of working *3-point* stations.

After looking over the breakdown sheets for the J6DX World multi-single winning efforts in the CQWW CW contests for 1993 and 1996, it wasn't hard to figure out that 20 meters *isn't* where we should have been operating during the nighttime hours. Thanks to Scott, N9AG (J6DX team member and snappy dresser), for sharing the J6DX data.

Table 1 shows the approximate number of hours spent on each of the bands by ZF1A in '94, J6DX in '93, and J6DX in '96 during the two 10-hour periods between 0000 and 1000Z—the dreaded, but extremely important, night shifts (20 hours total).

The numbers show that the winning efforts spend most of the night on 40 meters, with short excursions to 80 meters and even shorter excursions to 160 meters—mostly to pick up multipliers.

Next I used *MINIPROP PLUS 2.5* to try to understand why 40 meters is favored over 20 meters. **Figure 1** gives the results of that effort. This is a plot of the MUF (*maximum usable frequency*) from ZF to Europe and Japan (both 3 point QSOs) and to North America (2 point QSOs) for 0000 to 1000Z for an SSN (*smoothed sunspot number*) of 26 for November 1994.

Since our model of the ionosphere for propagation predictions is a correlation between the SSN and monthly median ionospheric parameters, the MUF from our propagation software is also a median value. This means that the actual MUF will be below the predicted MUF on half of the days of the month, and above the predicted MUF on the other half of the days of the month (remember last issue's column?). If we only knew which days were going to be above and which were going to be below… (More on this subject in another column.)

Figure 1 reveals the problem with 20 meters. Since the predicted MUFs are below 14 MHz except for the first hour to Japan, these openings on 20 meters will occur on significantly less than half of the days of the month. In other words, whether or not 20 meters opens is at the whim of the day-to-day variability of the ionosphere.

On the other hand, 40 meters is far enough below the predicted MUF to essentially be a sure thing to Europe and Japan. Applying sunrise and sunset times says 40 meters should be excellent to Europe from ZF sunset—around 2300Z, until European sunrise—around 0700Z, and it should be excellent to Japan from their sunset—around 0800Z, until ZF sunrise—around 1200Z.

Since all of the above operations were undertaken during periods of relatively low SSN (the smoothed sunspot number for the 1993 J6DX effort was the highest—41), a good question to ask is "what will be the effect of a higher SSN?"

Some more work with *MINIPROP PLUS 2.5* shows that, as expected, the MUF gets higher as the SSN increases. It very well could be that 20 meters could challenge 40 meters near solar maximum for "best nighttime band" honors.

I took a look at this using the 6Y2A log data from their November 1998 CQWW CW multi-multi effort, when Cycle 23 was at an SSN of 73. Thanks to Dean, N6BV (6Y2A team member and a *real* 6-lander again), for supplying that information.

Since 6Y2A was a multi-multi effort, they didn't have to make a decision between 20 meters and 40 meters—they were going hot and heavy on both bands simultaneously. This allows us to look at the contribution from each band by computing each band's individual score (QSO points times multipliers).

For the two contest periods of 0000 to 1000Z, 20 meters yielded 652 2-point-

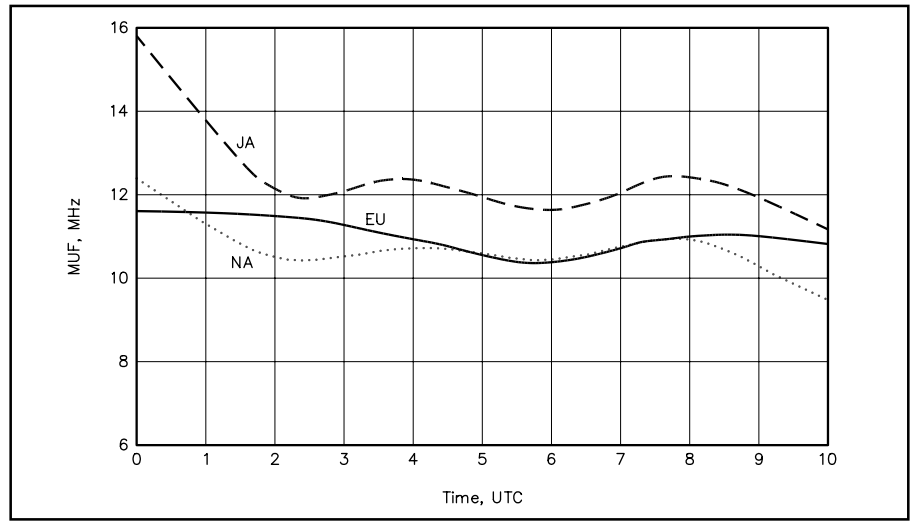


Figure 1—A plot, generated by *MINIPROP PLUS 2.5*, of the maximum usable frequency between 0000 and 1000Z from ZF to Europe, Japan and North America for November 1994 (smoothed sunspot number=26).

Table 1
The approximate total time spent on each band during the two "night shift" periods (0000 to 1000Z) by these contest operations.

	ZF1A '94	*J6DX '93*	*J6DX '96*
160 meters	5 hrs	1 hr	1 hr
80 meters	2 hrs	4 hrs	5 hrs
40 meters	7 hrs	13 hrs	14 hrs
20 meters	6 hrs	2 hrs	0 hrs

ers, 1,020 3-pointers and 132 multipliers for 576K. Forty meters contributed 1,186 2-pointers, 1566 3-pointers and 133 multipliers for 940K. Thus 40 meters was still the best band to be on at night. It's interesting to note that both bands had similar percentages of 3-pointers and multipliers—the volume of Qs on 40 meters made the difference.

For an even higher SSN, I looked at the 8P9Z CQWW CW multi-single results of November 1999 (the SSN was just above 100). They only spent about half of both nights on 40—that's less than the J6DX efforts and our ZF1A 1997 effort at low SSN, indicating that 20 meters may indeed be trying to muscle in on 40 meters during the night at high SSN. Thanks to Dan, K1TO (8P9Z team member and one of the two founding fathers of the Cayman Maiden Plum Society), for this data.

All this is fine and good if you're in the Caribbean, but what about stateside operations? Is 40 meters still the best band during the night? I again used *MINIPROP PLUS 2.5* to briefly look at propagation from W9 to Europe and Japan.

Sure enough, 40 meters is the place to be. This also seems to hold for other parts of the US and Canada, as well.

As a side note, a bunch of us did a multi-single effort as K9LA from K9UWA's QTH for CQWW CW last year. I volunteered for the night shift for both nights. Looking back at the breakdown sheet shows I spent too much time on 20 meters, and not enough on 40 meters. Hmmm, what my wife Vicky, KB5EAM, says about me may be true—you really can't teach an old dog new tricks.

In summary, if you're going to put in a serious DX contest effort, one of the critical items is to make sure you have a major presence on 40 meters during the nighttime hours. If you're going on a contest DXpedition, this could even mean doing what the C6AJX team (K7AR, N7NU, W7RR and WJ7R) did for their CQWW CW effort last year—they took a 2-element 40-meter beam with them. ■

Contest Calendar

Compiled by Bruce Horn, WA7BNM

Here's the list of major contests to help you plan your contesting activity through December 2000. The Web version of this calendar is updated more frequently and lists contests for the next 12 months. It can be found at: **http://www.hornucopia.com/contestcal/**.

For fans of digital mode contests, PSK31 contesting is heating up with several contests during September and October.

As usual, please notify me of any corrections or additions to this calendar. I can be contacted at my callbook address or via e-mail at: **bhorn@hornucopia.com**. Good luck and have fun!

September 2000

All Asian DX Contest, SSB	0000Z, Sep 2 to 2400Z, Sep 3
CCCC PSK31 Contest	0000Z-2359Z, Sep 2
IARU Region 1 Field Day, SSB	1300Z, Sep 2 to 1300Z, Sep 3
Panama Anniversary Contest	0001Z-2359Z, Sep 3
MI QRP Club Labor Day CW Sprint	2300Z, Sep 4 to 0300Z, Sep 5
WAE DX Contest, SSB	0000Z, Sep 9 to 2400Z, Sep 10
IRCC Bison Stampede (Indiana QP)	1800Z, Sep 9 to 0200Z, Sep 10
ARRL September VHF QSO Party	1800Z, Sep 9 to 0300Z, Sep 11
SOC Marathon Sprint, CW	1800Z-2400Z, Sep 9
North American Sprint, CW	0000Z-0400Z, Sep 10
QRP ARCI End of Summer PSK31 Sprint	2000Z-2400Z, Sep 10
YLRL Howdy Days	1400Z, Sep 15 to 0200Z, Sep 17
AGB NEMIGA Contest	2100Z-2300Z, Sep 15
Air Force Anniversary QSO Party	0001Z, Sep 16 to 2359Z, Sep 17
ARRL 10 GHz Cumulative Contest	0800-2000 local Sep 16 and 0800-2000 local Sep 17
Scandanavian Activity Contest, CW	1200Z, Sep 16 to 1200Z, Sep 17
Washington State Salmon Run	1600Z, Sep 16 to 0700Z, Sep 17 and 1600Z-2400Z, Sep 17
QCWA QSO Party	1800Z, Sep 16 to 1800Z, Sep 17
North American Sprint, SSB	0000Z-0400Z, Sep 17
CQ/RJ Worldwide DX Contest, RTTY	0000Z, Sep 23 to 2400Z, Sep 24
Scandanavian Activity Contest, SSB	1200Z, Sep 23 to 1200Z, Sep 24
Panama Radio Club Contest	1200Z-2359Z, Sep 23
2000 6-Meter Activity Contest	1800Z-2200Z, Sep 26
Louisiana QSO Party	0000Z-2400Z, Sep 30
Texas QSO Party	1400Z, Sep 30 to 0500Z, Oct 1 and 1400Z-2000Z, Oct 1

October 2000

RSGB 21/28 MHz Contest, SSB	0700Z-1900Z, Oct 1
TARA PSK31 Rumble	0000Z-2400Z, Oct 7
Oceania DX Contest, Phone	1000Z, Oct 7 to 1000Z, Oct 8
EU Autumn Sprint, SSB	1500Z-1859Z, Oct 7
California QSO Party	1600Z, Oct 7 to 2200Z, Oct 8
Iberoamericano Contest	2000Z, Oct 7 to 2000Z, Oct 8
10-10 Day Sprint	0001Z-2400Z, Oct 10
Oceania DX Contest, CW	1000Z, Oct 14 to 1000Z, Oct 15
YLRL Anniversary Party, CW	1400Z, Oct 14 to 0200Z, Oct 16
EU Autumn Sprint, CW	1500Z-1859Z, Oct 14
Pennsylvania QSO Party	1600Z, Oct 14 to 0500Z, Oct 15 and 1300Z-2200Z, Oct 15
FISTS Fall Sprint	1700Z-2100Z, Oct 14
Asia-Pacific Sprint, CW	0000Z-0200Z, Oct 15
North American Sprint, RTTY	0000Z-0400Z, Oct 15
RSGB 21/28 MHz Contest, CW	0700Z-1900Z, Oct 15
JARTS WW RTTY Contest	0000Z, Oct 21 to 2400Z, Oct 22
Rhode Island QSO Party	0000Z, Oct 21 to 2400Z, Oct 22
QRP ARCI Fall QSO Party	1200Z, Oct 21 to 2400Z, Oct 22
Worked All Germany Contest	1500Z, Oct 21 to 1500Z, Oct 22
2000 6-Meter Activity Contest	1800Z-2200Z, Oct 24
CQ Worldwide DX Contest, SSB	0000Z, Oct 28 to 2400Z, Oct 29
10-10 International Fall Contest, CW	0001Z, Oct 28 to 2400Z, Oct 29
YLRL Anniversary Party, SSB	1400Z, Oct 28 to 0200Z, Oct 30

November 2000

Ukrainian DX Contest	1200Z, Nov 4 to 1200Z, Nov 5
ARRL Sweepstakes Contest, CW	2100Z, Nov 4 to 0300Z, Nov 6
High Speed Club CW Contest	0900Z-1100Z, Nov 5 and 1500Z-1700Z, Nov 5
Japan International DX Contest, Phone	2300Z, Nov 10 to 2300Z, Nov 12
WAE DX Contest, RTTY	0000Z, Nov 11 to 2400Z, Nov 12
OK/OM DX Contest, CW	1200Z, Nov 11 to 1200Z, Nov 12
LZ DX Contest, CW	1200Z, Nov 18 to 1200Z, Nov 19
IARU Region 1 160-Meter Contest, CW	1400Z, Nov 18 to 0800Z, Nov 19
LI/NJ QRP Doghouse Operation Sprint	1700Z-2100Z, Nov 18
ARRL Sweepstakes Contest, SSB	2100Z, Nov 18 to 0300Z, Nov 20
RSGB 1.8 MHz Contest, CW	2100Z, Nov 18 to 0100Z, Nov 19
CQ Worldwide DX Contest, CW	0000Z, Nov 25 to 2400Z, Nov 26
2000 6-Meter Activity Contest	1800Z-2200Z, Nov 28

December 2000

ARRL 160-Meter Contest	2200Z, Dec 1 to 1600Z, Dec 3
TARA RTTY Sprint	1800Z, Dec 2 to 0200Z, Dec 3
QRP ARCI Holiday Spirits Sprint	2000Z-2400Z, Dec 3
ARRL 10-Meter Contest	0000Z, Dec 9 to 2400Z, Dec 10
AGB Party Contest	2100Z-2300Z, Dec 15
OK DX RTTY Contest	0000Z-2400Z, Dec 16
Croatian CW Contest	1400Z, Dec 16 to 1400Z, Dec 17
DARC Christmas Contest	0830Z-1059Z, Dec 26
2000 6-Meter Activity Contest	1800Z-2200Z, Dec 26
RAC Winter Contest	0000Z-2400Z, Dec 30
Stew Perry Topband Challenge	1500Z, Dec 30 to 1500Z, Dec 31

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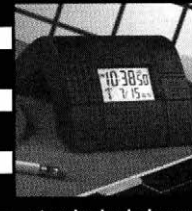

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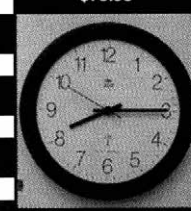

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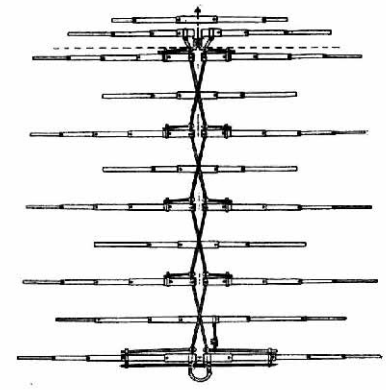

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CABLE X-PERTS, INC.

JAKE, barks SAVE...SAVE...SAVE with our Back to School September 2000 *"Web"* Special. www.cablexperts.com

Enjoy 5% off any web order when you buy $50 worth of material or greater.

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Disclaimer: The 5% off applies to orders entered at our web site only. This special offer cannot be used with I.C.E. products. CABLE X-PERTS reserves the right to refuse any discounted order which was received at our web site through fraudulent means. Shipping and handling applies to all destinations and products. Sorry, NO COD's. Illinois residents 8.25% sales tax applies. The September 2000 special offer ends at 12 midnight Chicago time: 9/30/00

COAX (50 OHM"LOW LOSS" GROUP)

	100FT/UP	500FT	1000FT
"FLEXIBLE" 9913 STRD BC CNTR FOIL + 95% BRAID 2.7dB@ 400MHz NC/DB/UV JKT	.58/FT	.56/FT	.54/FT
LMR 400 SOLID CCA CNTR FOIL + BRAID 2.7dB @ 450MHz WP/UV JKT	.59/FT	.57/FT	.55/FT
LMR 400 "ULTRA-FLEX" STRD BC CNTR FOIL + BRAID 3.1dB @ 450 MHz TPE JKT	.87/FT	.86/FT	.85/FT
LMR 600 (OD.590") SOLID CCA CNTR FOIL + BRAID 1.72dB @ 450 MHz WP/UV JKT	1.25/FT	1.22/FT	1.20/FT
LMR 600 "ULTRA-FLEX" STRD BC CNTR FOIL + BRAID 2.1dB @ 450MHz TPE JKT	1.95/FT	1.93/FT	1.90/FT

COAX (50 OHM "HF" GROUP)

	100FT/UP	500FT	1000FT
RG213/U STRD BC MIL-SPEC NC/DB/UV JACKET 1.2 dB/2500WATTS @ 30MHz	.40/FT	.38/FT	.36/FT
RG8/U STRD BC FOAM 95% BRAID UV RESISTANT JKT 0.9dB/1350WATTS @ 30MHz	.34/FT	.32/FT	.30/FT
RG8 MINI(X)95% BRAID UV RESISTANT JACKET 2.0dB/875 WATTS @ 30MHz	.15/FT	.13/FT	.12/FT
RG58/U 95% BRAID UV RESISTANT JACKET 2.5dB/400 WATTS@ 30MHz	.15/FT	.13/FT	.11/FT
RG58A/U STRD CENTER 95% TC BRD UV RESISTANT JKT 2.6dB/350 WATTS @ 30MHz	.17/FT	.15/FT	.13/FT
RG214/U STRD SC 2 95% BRD NC/DB/UV JKT 1.2dB/1800WATTS @ 30MHz	.25FT/UP	1.75/FT.	
RG142/U SOLID SCCS 2-95% SILVER BRAIDS *Teflon®* JKT 8.2dB/1100WATTS @ 400MHz	.25FT/UP	1.50/FT.	

COAX (75 OHM GROUP)

	100FT/UP	500FT	1000FT
RG11A/U STRD BC (VP-66%) 95% BRAID NC/DB/UV JKT 1.3dB/1000WATTS	.44/FT	.42/FT	.40/FT
RG6/U CATV FOAM 18GA CW FOIL + 60% ALUM BRAID	.20/FT	.13/FT	.11/FT
RG6/U CATV FOAM 18GA CW FOIL *QUAD SHIELD*	.25/FT	.18/FT	.16/FT

LADDER LINE GROUP

	100FT/UP	500FT	1000FT
"FLEXIBLE" 450 OHM 16GA COMPRESSED STRD CCS(PWR-FULL LEGAL LIMIT+)	.20/FT	.18/FT	.16/FT
"FLEXIBLE" 450 OHM 14GA COMPRESSED STRD CCS(PWR-FULL LEGAL LIMIT++)	.25/FT	.24/FT	.23/FT
300 OHM 20GA STRD (POWER: FULL LEGAL LIMIT)	.15/FT	.13/FT	.12/FT

ROTOR & CONTROL CABLES

	100FT/UP	500FT	1000FT
5971 8/COND (2/18 6/22) BLK UV RES JKT. Recommended up to 125ft	.20/FT	.18/FT	.16/FT
1618 8/COND (2/16 6/18) BLK UV RES JKT. Recommended up to 200ft	.35/FT	.34/FT	.32/FT
1418 8/COND (2/14 6/18) BLK UV RES JKT. Recommended up to 300ft	.47/FT	.45/FT	.43/FT
1216 8/COND (2/12 6/16) BLK UV RES JKT. Recommended up to 500ft	.78/FT	.74/FT	.70/FT
1806 18GA STRD 6/COND PVC JACKET Recommended for Yaesu Rotors	.23/FT	.21/FT	.19/FT

ANTENNA WIRE

	100FT/UP	300/FT	500FT	1000FT
14GA 168 STRD *"SUPERFLEX" (great for Quads & Portable set-ups etc.)*	.19/FT	.16/FT	.12/FT	.10/FT
14GA 7 STRD *"HARD DRAWN" (perfect for permanent Dipoles etc.)*	.15/FT	.12/FT	.08/FT	.06/FT
14GA SOLID *"COPPERWELD" (for long spans etc.)*	.15/FT	.12/FT	.08/FT	.06/FT
14GA SOLID *"SOFT DRAWN" (for ground radials etc.)*	.15/FT	.12/FT	.08/FT	.06/FT

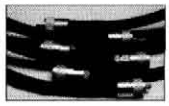
ANTENNA & TOWER SUPPORT ROPE

	100FT/UP	250/FT	500FT	1000FT
3/32" DOUBLE BRAID *"POLYESTER"* 260# TEST WEATHERPROOF	.075/FT	.06/FT	.045/FT	.04/FT
1/8" DOUBLE BRAID *"POLYESTER"* 420# TEST WEATHERPROOF	.10/FT	.08/FT	.07/FT	.057/FT
3/16" DOUBLE BRAID *"POLYESTER"* 770# TEST WEATHERPROOF	.15/FT	.12/FT	.09/FT	.08/FT
5/16" DOUBLE BRAID *"POLYESTER"* 1790# TEST WEATHERPROOF	.20/FT	.17/FT	.14/FT	.13/FT

FLEXIBLE 2/COND RED/BLK DC POWER "ZIP" CORD

8GA (rated:40 amps)	50FT $24.50	100FT $44.50	250FT $107.50
10GA (rated:30 amps)	50FT $15.50	100FT $28.00	250FT $65.00
12GA (rated:20 amps)	50FT $10.50	100FT $19.00	250FT $42.50
14GA (rated:15 amps)	50FT $8.50	100FT $15.00	250FT $32.50
16GA (rated:12 amps)	50FT $5.50	100FT $10.00	250FT $22.50
18GA (rated: 8 amps)	50FT $4.50	100FT $8.00	250FT $17.50

COAX CABLE ASSEMBLIES



with USA made Silver/Teflon® Gold Pin PL259 connectors.

FLEXIBLE 9913 strd BC cntr foil+95% braid 2.7dB 400MHz NC/DB/UV JKT.
200' $129.95 175' $114.95 150' $99.95 125' $84.95 100' $69.95 75' $54.95 50' $39.95
25' $24.95 15' $21.95 10' $18.95 6' $12.95 3' $11.95 1' $10.95

RG213/U strd BC Mil-Spec NC/BD/UV JKT. 1.2dB 2500 watts @ 30MHz.
200' $89.95 175' $79.95 150' $69.95 125' $59.95 100' $49.95 75' $39.95 60' $34.95
50' $29.95 25' $19.95 15' $17.95 10' $15.95 6' $11.95 3' $9.95 1' $8.95

RG8/U strd BC foam 95% braid UV resistant JKT. 0.9dB 1350 watts @ 30MHz.
175' $74.95 150' $64.95 125' $54.95 100' $44.95 75' $34.95 50' $24.95
25' $14.95 15' $15.95 10' $13.95 6' $11.95 3' $9.95 1' $8.95

RG8 MINI(X) strd BC foam 95% braid UV resistant JKT. 2.0dB/875watts@ 30 MHz
150' $34.95 125' $29.95 100' $24.95 75' $19.95 50' $15.95 25' $10.95
CLR JKT: 18' $10.95 6' $9.95 3' $8.95 18' PL259-Mini UHF Fem & PL259. $21.95/ea.

With USA made Silver/Teflon®/Gold Pin male "N" connectors.

FLEXIBLE 9913 strd BC cntr foil+95% braid 2.7dB 400MHz NC/DB/UV JKT.
150' $110.95 125' $95.95 100' $80.95 75' $67.95 50' $54.95
35' $45.95 25' $39.95 15' $32.95 10' $25.95 6' $16.95 3' $15.95 1' $14.95

With USA made Silver/Teflon®/Gold Pin PL259 to male "N"

FLEXIBLE 9913 strd BC cntr foil+95% braid 2.7dB 400MHz NC/DB/UV JKT.
200' $139.95 175' $123.95 150' $104.95 125' $89.95 100' $74.95 75' $59.95
50' $44.95 25' $29.95 15' $26.95 10' $23.95 6' $14.95 3' $13.95 1' $12.95

RG142/U 50 OHM COAX ASSEMBLIES

Double Silver Braid Shields, High Power Teflon® Dielectric & Jacket Assemblies are 3ft long (except were noted).
PL259 ea end $12.95ea • 6ft PL259 ea end $14.95ea • 18ft PL259 ea end $24.95ea • "N" male ea end $19.95 • R.A. BNC Male-"N" Male $19.95ea • R.A. BNC Male-"N" Female $19.95ea • SMA Male-BNC Female $19.95ea • SMA Female-"N" Female $19.95ea • R.A. SMA Male-"N" Female $19.95ea • SMA Female-"N" Male $19.95ea • SMA Male-"N" Male $19.95ea.

HT SOLUTION ASSEMBLIES

These jumpers will help improve the performance and life of your Hand Held Transceiver. RG58A/U Group: 1ft R.A. SMA Male-SO239 (UHF Female) $17.95ea • 1ft R.A. SMA Male-"N" Female $18.95ea • 1ft R.A. SMA Male-BNC Female $16.95/ea • 3ft R.A. SMA Male-PL259 $14.95ea. RG58/U Group: 3ft R.A. BNC Male-SO239 (UHF Female) $9.95ea 3ft R.A. BNC Male-PL259 $9.95ea. RG8X Mini Group: 6ft PL259-BNC Male $9.95ea.

Assemblies Discounted: visit our website www.cablexperts.com

All connector terminations are soldered, Hi-Pot® tested @ 5kv for one minute, continuity checked, ultra violet resistant heat shrink tubing, and red protective caps, which can also be used as a boot.

CONNECTORS

Both connectors fit 9913 types and LMR400 types MADE IN USA

PL 259 SILVER/*Teflon®* /GOLD TIP.....10PC $12.50.....25PC $27.50.....50PC $52.50....100PC $100.00
"N" (2PC) SILVER *Teflon®* /GOLD TIP...10PC $37.50.....25PC $87.50.....50PC $162.50..100PC $300.00
For our other connectors and adapters see http://www.cablexperts.com

TINNED COPPER "FLAT" GROUNDING BRAID

1 INCH WIDE (equivalent to 7ga).....25FT $24.00.....50FT $47.00.....100FT $94.00
1/2 INCH WIDE (equivalent to 10ga)..... 25FT $14.00.....50FT $27.00.....100FT $53.00
1/2 INCH x 6FT Copper Plated Ground Rod w/clamp.....$7.00 each

I.C.E. PRODUCTS

180A Beverage/Longwire matching unit	$39.00/ea
348 Rotor cable Line filter	$44.00/ea
303U Coax impulse suppressor 8 kW 1.5-200MHz	$44.00/ea
516R Remote RF power switch for up to 6 antennas	$184.00/ea
Individual Band Pass Filters	$35.00/ea
421 8kw <30 MHz Low Pass Filter	$58.00/ea
123B 1.8-2.0 MHz BANDPASS Preamplifier	$48.00/ea

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