

Why Contest?

This month's member- contribution offers us some insight into the psyche of a contester.

Alan Harp, K4PB

Amateur radio contests have existed longer than I have been licensed. Some of us love contests. Some of us hate them. I would like to say a few words to defend the motives of those of us who do work them.

I guess from the time I worked a ZS on 15 meter CW as a novice I was hooked on chasing DX. I was proud that I was able to make a contact with a station half way around the world on my modest equipment. The competitive spirit set in. I found out about DXCC and I was on the air trying to work as many countries as I could.

Then along came a DX contest. Boy what a way to get new countries. The contest was like a smorgasbord to someone who was starving. All these DX stations were on the air working people as fast as they could. I entered the contest. I worked more new countries in one day than I had in the previous time I had been licensed.

I didn't have very good equipment in those days. I was in college and didn't have a lot of money to spend on ham stuff. That first contest I didn't even make a hundred QSOs. Two things happened: I was hooked on DX contests and my CW speed increased.

Later I was invited to field day by the local radio club. Some of the equipment that was there was much better than mine. This was an opportunity to get my hands on some good stuff to see how it felt. Field day was a lot like working the DX contest only now we weren't just looking for DX stations we were working everybody. It was clear that you should sit down and work everybody you could.

One guy at field day had a thing he had built just for field day. It was a wooden wheel, that was actually a cam operating a switch that called CQ FD. He must have spent six months building this thing just so he could use it at field day.

So contests were a challenge. It didn't

matter if my equipment wasn't as good as others. I just did the best I could. Sometimes I would compete with others I knew who had similar stations and abilities. It was neat to come up with devices and techniques that were tools to assist the contester.

This interest in tools led me to build and market the CW SENDIN' MACHINE in the mid 1970s. Memory keyers are still used extensively by CW contesters.

When personal computers came along, it was a challenge to me to apply them to amateur radio contesting and logging. Working a lot of contacts creates a problem of keeping a dupe sheet for all the contacts. Working without a dupe sheet makes a big challenge after the contest of removing dupes from your log.

I started writing programs in basic language for logging and contesting. I have my own logs in ASCII files since 1983. I had some working contest programs. However when CT came along I soon found I couldn't compete with the features it had.

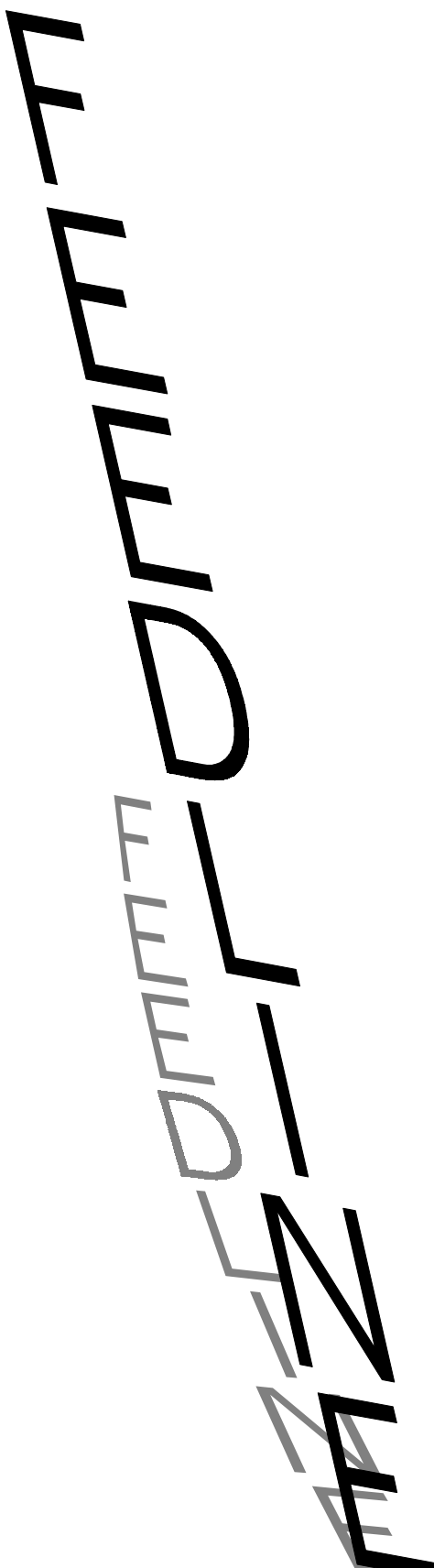
Today it is a challenge to me to make all the features of CT work. The dupe checking ability of CT is fast. Type just two characters of a call and every call you have worked with those two consecutive characters appears on your screen. CT can send CW for you as well. This replaces the need for a memory keyer. It is possible to work the entire contest without touching a key or paddle.

I have been hamming for over 35 years now. I still like contesting. I don't have the stamina to stay up all night any more. When I get tired I stop and sleep. I don't try to beat my previous years score anymore but I still like to get out and run with the big dogs. I really like using CT working a contest.

So you don't have to make maximum efforts to enjoy contesting. Suppose you had to go away for the week end and

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Contester...



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Free is a relative term...**

**History of Ham Radio
Solar Effects on propagation**

Feedline

Feedline is a member-supported publication of the Cary Amateur Radio Club and is published monthly. Deadline for submissions is the second Thursday of the month.

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Cary Amateur Radio Club

The Cary Amateur Radio Club meets on the fourth Thursday of the month, **7:00 p.m.** in the lower level of the Christian Life Center of White Plains United Methodist Church. The June, November, and December meetings are held off-site. Call for location of those meetings.

Next Meeting: April 25, 1996.

1996 Officers

KB9MS	Bob Lukaszewski	833-0199
	President	
N9CGD	Tom Doligalksi	481-1236
	Vice-President	
K4IWW	Will Harper	467-0224
	Treasurer	
N4UE	Herb Lacey	467-9608
	Secretary	

CARC Minutes, March, 28, 1996

Meeting called to order at 7:06 p.m., by Pres., Bob, KB9MS. Introductions.

Treasurer's Report - Will, K4IWW, reported: Sav.: \$2,903.09; Chg.: \$434.37; COH: \$232.00; Total: \$3,569.46. Dues still being received (\$9/yr.). CARC caps still available (\$4).

Secretary's Report - Herb, N4UE, reported that a letter had been received from the Town of Cary giving us permission to use Bond Park for Field Day! That site will be MUCH better for VHF/UHF operations. The letter culminated the work done by Bob, KB9MS, and Tom, N9CGD, in researching and finding a more suitable Field Day site. **MARK YOUR CALENDAR: JUNE 22-23, NOT 29-30!!!** Also, thanks to Jerry, KE4TTS, for making the masters for our SWAPFEST flyers, mailers, and tickets.

If you are interested in a group purchase for the new CMOS keyer kit (Cost is approximately \$60), contact. KM4LB at 469-5129.

Will, K4IWW, for the SWAPFEST, Saturday, July 20, we have the place, food, and VE testing lined up. **WE NEED A CZAR!** Any volunteers (before we railroad someone)?

Tom, KM4LB, our Feedline Editor, said the the Amateur Radio News Service (ARNS), which is a great source of good information and fill articles on Amateur Radio, deserves our support. The hat was

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The wandering sun

by Paul Wilkins, AB4CY

The sun strongly affects earthly radio propagation. High in the summer sky, its strong radiation ionizes a dense "D-layer" low in the ionosphere-which absorbs low-HF signals. In winter, when the sun is lower in the sky, weaker solar radiation produces lower ionization density in the ionosphere. But higher-altitude "F-layer" ionization fades to low levels during long winter nights, eliminating long-distance propagation on the high-HF bands. These parts typically reappear at sunrise.

The degree of ionization also depends on the sun's surface. Sunspots, which are giant magnetic storms in the sun's atmosphere, emit great outbursts of ultraviolet, X-ray, and particle radiation that strike the earth's ionosphere.

The ancients watched the daily movement of the sun closely. They've invented calendars to time planting of crops, spring floods, etc. During the spring the sun climbs higher in the sky each day until the summer solstice, the longest day of the year-June 21 in the northern hemisphere. Then it begins to sink again toward its lowest point at winter solstice, December 21.

Ancient festivals celebrated the "return" of the sun after winter solstice.

But it took them a few days to be sure the Sun was 'returning," so these winter festivals were typically between Christmas and New Years on our calendar.

Since sunrise and sunset vary with the seasons, so does the timing of band openings. Solar flares, jets of superhot gas that can shoot half a million miles above the sun's surface, sometimes wipe out HF-radio propagation. (Particles from flares, being charged, can "pull the earth's magnetic tail." The resulting magnetic disturbances occasionally render long-line telegraphy and telephony impossible. Solar flares have even been known to disrupt power grids.-AF6S)

Light takes eight minutes to make the sun-earth journey, but heavier particles the sun emits during flares, the ones that do the tail pulling, can take as long as 36 hours. Active regions on the sun tend to persist, often for several months. Since the sun rotates in about 28 days (relative to the earth's position in its solar orbit),

ionospheric disturbances tend to reappear at four-week intervals.

Radar developers during WW-II discovered that the sun also radiates radio energy. And tests showed that solar "noise" at 2800 MHz correlates with F-layer ionization. So, as an aid to shortwave radio users, governments have been measuring "2800 MHz solar flux," and publishing the data, for over 50 years.

National Institute of Science and nology (NIST) stations WWV, WWVB, and WWVH broadcast solar flux data at 18 minutes past every hour. The ARRL bases its propagation charts in QST and in bulletins on predicted solar activity. In the early days of radio you could "hear" the morning activation of the ionosphere on 80 meters. It sounds like a flock of birds chirping, so early hams christened it "the dawn chorus." Today man-made noise masks the dawn chorus, except in remote places.

DXers call the dawn or dusk day-night boundary "the grayline." At the grayline, the low D layer forms instantly at sunrise it disappears just as quickly at sunset. Radio waves that follow the grayline can travel long distances with little loss-over a wide range of HF frequencies-because a fairly high level of ionization can exist at high altitudes (F layer), without much low-attitude D-layer ionization to absorb signals passing trough.

The best chance to work far parts of the world is often where the grayline "connects" the ends of the path. But that may happen only twice a year, within a few days-and of course, only at sunrise or sunset. (It's one or the other on both ends of the path.) Today's DXers use computer programs to find grayline paths.

from the January '96 Foundation for Amateur Radio "Auto-Call" - John Queen, KA0SEY, Editor (with some editing and technical and DXing additions by AF6S) via the ARNS.

FD Site

Check out the new FD site ahead of time! After entering Bond Park, turn right on the first paved road. Continue on to where jogging path intercepts the road.

The QRP Explorer

Bryant Hazard, N9ZLJ

A recent World Radio article reviewed a single-band QRP transceiver kit made by Oak Hills Research. Called the "QRP Explorer," it puts out 3 watts, and is available in 20-, 30-, 40-, and 80-meter versions. The review was favorable, and the simplicity and low cost of \$119.95 put it beyond my ability to resist.

Building a kit can be an enjoyable learning experience, especially for the new ham. It reinforces the radio principles in the upgrade books, and you learn "hands on," by building it, getting it to work, and tuning it up.

Assembly: The last time I built a kit, I was in high school. Things have changed. The pico-farad capacitors have shrunk so much that I needed a magnifying glass to read the numbers on them. While building the kit, I could not find a particular capacitor, so I skipped to the next step. Sure enough, after I had installed the other parts, one capacitor remained. But it didn't resemble its description in the instructions. The factory person I reached apologized for the inconvenience, and explained that they had found it necessary to find a substitute component.

Tuning up: The instructions for tuning the radio call for a frequency counter and voltmeter. I also found my oscilloscope and RF watt-meter helpful. The first step, calibrating the VFO, was time consuming but not difficult. I just kept adjusting for the right counter reading at each end of the tuning dial until the tuning range was just right.

Trouble: Things got ugly when I tried to receive real signals. Per instructions, I connected the antenna, plugged in the headphones, and heard only noise. Probing around, I discovered I could get 60-Hz hum, which confirmed that the audio amplifier functioned. I also checked that the VFO output was getting to the mixer.

But when my scope showed no mixer output, I concluded the problem was in the front end. Using a long piece of wire as an antenna, I traced the receiver circuit by following the schematic, and touching the wire to various capacitors and inductors between the antenna connection and the mixer. I found a point where I could hear static. And when I rotated the tuning

knob, I heard CW! But it had the pitch of a dog whistle. I found the BFO on the schematic, and adjusted it to bring the pitch to normal.

But why wasn't the antenna signal getting to this point? Examining the underside of the PC board. I found an IF transformer lead I had neglected to solder. One touch of the iron fixed the receiver.

Transmitter: Testing: the transmitter, using a dummy load, I got no RF output. But this time the problem was just pots and trimmer caps that needed adjusting. In no time I was smiling at my wattmeter. It pointed to 3 watts!

Summary: I finished the kit in time for the NSRC October meeting, where I

demonstrated it. Its small size intrigued the members, who were surprised to learn that it was an inexpensive kit. The QRP Explorer ranks as one of the best kits I've ever assembled - good instructions and no missing parts. I plan to build the antenna tuner and keyer for it soon, and to make a travel box for my QRP station.

To order one, write Oak Hills Research, 20809 Madison St., Big Rapids, MI 49307 or call them at 616/796-0920.

from the August '95 Gwinnet ARS "The Gazette" Dean Matthews, AD40D. Editor, via the ARNS.

Those who ignore the past are destined to repeat it.

....you have been warned!

With the influx of new ops into our hobby, it is important that us "older" guys tell the history of Ham Radio so that it shall never be lost. Here are the highlights, as I remember them.

73, K4IWW

4 Billion BC - Earth is a swirling ball of flaming gasses. Propagation extremely poor.

1 Billion BC - First dry land appears. It is divided up into squares. County Hunters formed.

500 Million BC - Second patch of land appears. First expedition. Credit disallowed because of questionable licensing agreement.

400 Million BC - Flowering plants and gases evolve. Telrex invents first beam antenna, but sales are slow because of lack of suitable structures.

300 Million BC - First tree appears. It is immediately cut down, stripped of branches, placed into a concrete base and named a telephone pole. Telrex sells first beam.

200 Million BC - Second beam sold by Telrex. Installer falls from top of pole. First safety belt sold.

100 Million BC - First mountain appears. Repeater invented.

50 Million BC - It is decided by WARC that "Seek You" is too cumbersome to send by CW, so abbreviated "CQ" is adopted.

4 Million BC - Humans replace swine as the dominant species. The name "Ham Operator" hangs on, however.

3 Million BC - Dugout canoe invented. Maritime Mobile net formed. **2 Million BC** - Nothing much happens for a long time.

900 AD - Chinese invented gunpowder. BY1AA is the first "Big Gun" DXer.

1790 AD - Ben Franklin invents long wire receiving antenna. Ground switch invented.

1961 AD - Second repeater erected. First repeater group refuses to change frequency. First repeater coordinator appointed.

1996 AD - Amateur Radio humor sinks to a new low.

Author: Unknown
Source: HPARC Newsletter

The "free" tower

Should you look a gift tower in the guy wires?

Here's an eye-opener for the frugal-at-heart....

Dean Matthews, AD4OD

You could have knocked me over with a J-pole, when an old ham buddy called me out of the blue and said, "How would you like a tower, for free?" I was beside myself with glee. I always knew I would have a tower one day. Hams have towers. But the next few days were intolerable. I just knew he would have a change of heart. Somebody would offer him "good money" for it. Or a tornado would whoosh it away. But when I arrived, it was still there, in all its glory.

It's a war surplus tilt-up, originally 90 feet tall, but local ordinances meant I would settle for 50 feet. There were two top sections and a special tilt-up base that makes the unit self-erecting. Despite the rust, I happily hauled it off. The guy also gave me a 1960s-vintage Hornet HF tri-band beam.

I thought I was all set. But I had never accumulated things like rotors and cables at hamfests. They had seemed so far into the future that I hadn't even looked at their specs. When I learned how much a new rotor cost, I almost passed out. But I found a It good used and "rebuilt" one at a hamfest for \$150. I went to the Wireman for my wire, all the hardware for the my wire, and the rotor cable and connectors. The Wireman relieved me of \$200 and I spent \$20 on getting there and back.

The first trip to a hardware store yielded wire brushes for my drill, sand- paper, a gallon of Rustoleum, a foam roller and pan, and a chemical that promised to magically convert rust to primer. Another \$50 slipped through my fingers. The tower also needed some welding. My supply of rods was low, and I needed jigsaw blades and a small grinding stone. So I kissed \$30 bye-bye. A pile of snap rings and stainless cotter pins took \$10. Then it became obvious that they wouldn't work, and I needed to replace some large

bolts-for \$15 more.

The antenna needed new stainless - bolts, along with new stainless hose clamps - \$28. An ingenious thrust-bearing design required pipe and fittings, more stainless a screws and washers-\$22.

I had nothing to secure the guy wires to, so I went on a last-minute foray for screw anchors. The Wireman had warned me to avoid mobile home anchors, which are not load rated. Finally, in a little country hardware store, I found four-foot anchors that looked like they had been there since the dust bowl. It was the deal-of-the-day to escape the place for only \$50, but another tank of gas to get there and back took \$20 more for the cause.

Part of installing a new tower is moving the other antennas atop it. Scratch off \$120 for two runs of 9913, and \$70 for RG-213 for the HF beam. I also spent \$40 for RF connectors and bulkhead fittings. Then I learned I would need a heavy come-along to tilt it up, and \$25 worth of new cable for safety's sake

Finally the day came to erect the tower. A last-minute run to the hardware store yielded cable hardware and clamps: \$15.

I'm not complaining. I can transfer everything I bought to a new Rohn tower, if upgrading becomes necessary. I wrote this article to warn other neophytes of the way miscellaneous costs accumulate on such a project. If you poked the numbers into your calculator as you read this, you know that my "free" tower cost a total of \$865, despite my settling for a used rotor and no new antennas.

I always knew I would own a tower one day, and now I do. But maybe a new free-standing tower would have been cheaper. (More like a factor of ten higher.-ed.)

from the Aug. '95 Gwinnet ARS (Lilburn, Ga.) "The Gazette" Editor Peterson, W9YCV editor, via ARNS.

For Sale..... Start *your* tower collection now...

✓Yaesu FT902DM xcvr - hybrid - 100w - warc - dual vfo - b/i keyer - 6146 finals - dc operation - \$500 ✓~100 Feet RG213 MilSpec coax \$30 ✓TailTwister II Rotor/cont/cable \$100 ✓Heathkit Dummy Load \$15 ✓Bencher Paddle \$30 ✓24' 2" aluminum mast, .025 wall \$100 ✓Contact Alex, AG1Q at 919 881-9393

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passed and \$25 was collected.

Meeting

The patented, trade-marked, copyrighted, exclusive, and only greatest little AUC-TION was obseved, once again. Thanks for all who bought and brought .

Next Meeting: Thursday, Apr. 25. Program: **Contesting**

n4ue

Contester...

couldn't contest. You come home Sunday afternoon. The contest is nearly over. Everyone has already worked everybody. Why should you enter the contest now? Well you are fresh meat. You are a station that nobody has worked. Get in there and see if you can create a pile up.

If you are not a good CW operator don't be afraid to get in a contest. In this case don't work rate. That is don't sit on one frequency and call for stations to call you. Work search and pounce. That is you tune up and down the band looking for stations to work. They will be calling again and again. If you have to listen to his call one hundred times to get it right it doesn't matter. Remember he wants to work you. Once you have his call you can work him and log him because the routine is the same for every QSO. Even if your score is very low there will be a definite benefit. Your CW speed and skill will increase. You will have a lot more fun than just listening to tapes or computer programs.

So why work contests? Even though you have no hope of winning you usually sharpen your skills. You may want to work new countries or new states. Often stations are on the air from rare places during contests. These stations usually have good QSL manners. You will likely have better QSL luck with stations you work in a contest. And if your friend is going to work the contest too; get in there and blow him away.

73s and good luck in the contest.

DE K4PB SK