County Hunter News

April 1, 2006
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Welcome to the On-Line County Hunter News, a monthly publication for those interested in county hunting, with an orientation toward CW operation. Contributions of articles, stories, letters, and pictures to the editor are welcomed, and may be included in future issues at the editor's discretion.

The County Hunter News will attempt to provide you with interesting, thought provoking articles, articles of county hunting history, or about county hunters or events, or provide news of upcoming events.

We hope you will enjoy the new County Hunter News. Feel free to forward, or provide links. Permission is given for copying or quoting in part or all provided credit is given.

De N4CD (email: telegraphy@prodigy.net)

Notes from the Editor

Well, it's the annual April Issue. This month we have articles on the US Mint's plans to issue Commemorative County Pennies – the story first posted on the K3IMC web site back in January. Also some pics and an interesting article on high-tech nanotube antennas and technology. Phil, AB7RW, sent in some helpful hints for those struggling with maintaining order in the MRC files. Ed, K8ZZ, talks about how he became 'addicted' to County Hunting. A short article on 'broadband dipoles' is included. Lots of antenna articles are in this issue. Also there's a picture gallery as usual.

Update – spotting: A few issues ago the CHN news had a comparison between the W6RK and Superhosts on-line spotting site. One other point I missed in that comparison – when you spot on W6RK site, you see immediately how the spot appears – the page auto-refreshes. For the Superhosts site, you have to wait until the normal refresh interval –

which can be 20-30 seconds or more, to see if the spot came out right. If you want to see it sooner, you then have to click on refresh after you submit the spot.

Sometimes I type in the information, and realize when it appears I realize the freq is wrong (wrong band) or I made other mistake. With the 'delete spot' function of W6RK, it is easy to change, and you see the error quickly most of the time. Also easy to re-spot since you only have the change the incorrect field and hit enter again.

Update – travel: By December 31, 2006, you will need a passport for all **air and sea** travel **to** and from Canada, Mexico, Central America, south American, the Caribbean, and Bermuda. (Of course, you need one now for everything else). Starting December 31, 2007, you will need a passport for all land border crossings to all destinations. That means even to Mexico or Canada for part of a day.

Update – South Central Mini: The next SC Mini is tentatively scheduled for mid February in San Angelo, TX for 2007.

Update – K8CW Antennas: Alan, K8CW, announced that he is no longer in the antenna business. Due to the propensity of people to sue and for lawyers to go after everyone remotely involved in anything to do with someone's misfortunes, the cost of liability insurance for manufacturing anything 'mounted on a car' has gotten to the point of being unaffordable. Alan indicated it would cost him more in liability insurance premiums for one year than his total gross revenues for the entire time he has been making antennas. Until recently, he had other arrangements. So, sadly, he decided to exit the antenna business and eliminate that problem. So now, like lots of other manufactured items, they'll be made by foreign owned companies, with no facilities, company officers or executives or employees in the USA for lawyers to go after.

Update – Solar Activity: (from March 3, 2006 ARRL Newsletter) Solar sage Tad Cook, K7RA, Seattle, Washington, reports: Low activity continues with another string of zero-sunspot days. Average daily sunspot numbers for this week were down by 4 points from the prior week to 3.1. Average sunspot numbers plummeted in February--far below any other

month in the second half of Cycle 23. Sunspot numbers for February 23 through March 1 were 0, 0, 0, 0, 11, 11 and 0.

On the other hand, there is potential good news. From 3/10/06 ARRL Letter, coutesy of ARRL, Newington, CT:

"Sun Gazer Tad "I'll Follow the Sun" Cook, K7RA, Seattle, Washington, reports: BIG news! A new computer model of solar dynamics produced by scientists at the National Center for Atmospheric Research (NCAR) predicts the next solar cycle to begin a bit later than previously thought, but to be as much as 30 to 50 percent more intense than the current solar cycle just ending. The model claimed to "predict" cycles 16-23 with 97 percent accuracy using earlier data.

The NCAR news page has a report
http://www.ucar.edu/news/releases/2006/sunspot.shtml "

There has been lots of discussion on this. A contrary opinion was contained in the ARRL propagation report of 3/17/06, which reported:

"Jon Jones, N0JK sent in this article from a year ago (several readers mentioned this) which predicts a very small cycle 24, and also claims to use asuccessful prediction method. Read it and weep (or not) at http://www.spacew.com/news/05Mar2005/index.php "

So we will either a) have a big fantastic cycle 24, or b) a very poor one. Only time will tell. Both models claim to be accurate. One or both will be wrong.

Update: QSL Buros: N5DKW, operator of the CHARS QSL buro for county hunters, became a silent key in March, 2006. From a post on the K3IMC forum:

"Art, N5DKW, became a silent key on 3-9-06

Art was the manager of CHARS for several years. I was on the phone with Donna today and have agreed to take over CHARS from her. Any of you that were working with Art, please contact me as it will be a few days before she gets the records and stuff to me. Contact me by kn6zb@juno.com ,

MRCS, PO Box 1, Oak Run, CA 96069-0001, or (530) 472-3362. If you are returning any cards, mail them to me. Jim" (KN6ZB)

Diesel Cars? If you go to Europe, you will find that 46% of all passenger cars are now diesel powered. They get 20-25% better mileage. Toyota has announced a new line of super efficient diesels. Who knows, there may be a diesel (or diesel hybrid) in your future. A representative from Exxon Mobil says there is no need to build more gasoline refineries since the future will consist of a lot more diesels and less gasoline powered cars.

Note: The new EPA rules on gasoline mixes now prohibits the use of MTBE as an additive. In place, manufacturers will substitute a few percent ethanol. This is causing disruptions, and a high demand (and current difficulties in obtaining enough ethanol – and higher gas prices!). In addition, gasoline mixed with ethanol cannot travel through pipelines, so it has to be transported separately and combined before delivery to gas stations. Don't be surprised to see $3/gal gas this spring and summer, even if oil prices stay the same. Naturally, all the costs of the additional facilities, transportation of the ethanol, storage, etc, get passed right on to the consumer.

Al, KG5J has been driving a super efficient VW for many years and is quite happy with it. (Pic in previous issue of CHN). The new models are peppy and perform well, and don't belch black smoke as in the past. Jim, K0ARS drives a diesel pickup when you hear him out mobile, and Barry, W9UCW has a diesel that performs well.

Net Shenanigans: Well, the idiocy on 14.336 never ceases to amaze folks. On March 17, 2005, at 2348Z, W6TMD was running county line of Lake, OR and Modoc, CA. The " Atlantic Radio Club" station with club call K2JG, with KZ2P as the operator, was doing relays. He then asked WQ7A to help with doubles. ND9M asked for a double relay. When WQ7A told NC that "ND9M is coming", K2JG made a comment that "I didn't even know he owned a microphone". Jim did not relay him in as double at that point. First, he told WQ7A to ask ND9M 'Are you ever going to run on 20M SSB when mobile?". WQ7A was not assured that he would. When that info was relayed to NC, NC refused to relay him in. Well, I'll let you make up your own mind. Seems there are dozens out there who NEVER run mobile on the .336 net, just sit at home, never lend a hand, but if you run CW mobile, you are now 'banned' from getting a relay on SSB for one of

your last few to finish up? Is this the latest 'New Rule" that NC seems to come up with every 3 months to be more of a prick?

Over the past 5 years, it seems the "agenda" has been to 'run mobiles off' rather than run mobiles on the net frequency, and to come up with new 'rules' every few months to ban or bash a few more folks for new infractions that get dreamed up. On Saturday, March 18th, the average run on 20M SSB was about 2 minutes for mobiles in the central part of the USA – few could hear them or work them. After a while, many decided it wasn't worth the hassle to run there and spent most of the time on 40M SSB or on CW. Each month more and more spots appear on 40M and 3902/3898 and 3556.5 MHz.

And more amazingly, I'm surprised that anyone still volunteers to help with double relays when NC puts them in a position of saying "I can't relay you in" because of a "New Rule" that was created**. I can't imagine how uncomfortable it must be for assistants to be forced to carry out the K2JG agenda and compromise their own integrity in the process.**

More interesting, according to some who log into it (I never do myself), if you log into the 'chat room', you'll see James at the club station instructing potential assistant net controls who they can and who they can't add 'run' on the net when James is running the net. They need to write down a list of 'approved mobiles' that can run, and a separate list of who they can give relays to! Talk about 'kowtowing to net control'!!! **In order to help, you need to carry out the KZ2P agenda of helping him bash and denigrate and 'ban' mobiles and FIXED stations who violate one of the 'rules'.**

Seems that one of the folks that run the 40M net consistently is now back on the 'banned list' for helping out on the 20M net. I guess he ran to many mobiles on 40M, and didn't keep asking them over and over again to QSY to 20M since the 'club station' is lonely! Probably one of the few counties he needed to finish up umpteenth time got run on 40M, and the mobile wasn't interested in joining the 'private net' on .336 to run.

Update: 60M Spots: Looks like I missed one. KN4Y was also spotted on 60 meters one time. Not much activity so far. Meanwhile, the spots on 3556.5 continue to pile up. Lots of 80M activity in the state QSO parties as well.

THE JOURNEY

By Ed, K8ZZ

My interest in HAM radio started with chasing DX on SSB, CW and RTTY in 1992. Along the way, I did a lot of contesting on all three modes for many years. I still like a good contest for a change of pace. In 1994, I started giving out counties while mobile but was not serious about working them for myself. I was just having fun giving them out to pass the time while driving. Then I discovered that putting out a county while mobile is like a contest rush by providing a 10 minute pile-up in every new county.

Several years ago I remember getting all those cards and MRC's and could not figure out what all the concern was about. I remember many of the nice notes attached to the cards in appreciation for the counties. In 1995, I received some MARAC Last County Awards from KG7GV, WB3IET, WA6OCI and others. At the time it did not mean much to me. However, I was always amazed at how nice the County Hunters were.

Chasing DX in the pile ups can be brutal!! After being very active, I burned out in the hobby and put all of my gear in storage for about 5 years. Then, in 2001 my interest in radio returned stronger than ever. I am not exactly sure what brought me back to county hunting. But, I purchased a new ICOM 706 and started operating mobile and rediscovered the county hunter net. Boy did I get hooked!! My son Tim, W8JJ, also got hooked about the same time and the rest is history. We look forward to our annual Dayton trip so we can run counties together, shop the flea market, and meet other county hunters face-to-face during the forum and the dinner immediately following.

Originally, I was primarily an SSB only county hunter and limited my activities mostly to 20 meters. I had not operated CW for many years. And, I was not very good at it when I was active. While at Dayton in 2002, Bob, N4CD, suggested that I get a paddle in my vehicle because I was always going through good counties for the folks on CW. I told Bob I had not done CW in years and that operating mobile CW was out of the question. He kept insisting that I at least try it and if I didn't like it, I could always go back to SSB only operations. My son, W8JJ, also encouraged me to give it a try it and I'm glad that I did. To date, I have 685 counties to go to finish up the USA-CW award after a very slow start.

So, I installed paddles and got the set up for operating mobile CW and it was awful! If not for the patience of CW net control stations like N4CD, W0GXQ, W0QE, K8MFO, K8CW, and KN4Y, to name a few, I would have given up long ago. However, with practice, I've grown to enjoy CW even though it can still be a struggle at times. I've also learned that the quickest way to get my wife to drive is do CW on the fly! Of course, this is mainly due to safety issues from her point of view as riding with me while I try to drive, log, watch the GPS, and run CW pile-ups can be scary!

Speaking of my wife Gail, she is not a HAM but she does my logging when I run SSB on the fly. She's learned many of the calls and voices and does a great job logging. After some long CW runs on 3 bands, she often reminds me that I've not ran 40 meter phone yet! Gail claims to be as "addicted" as I am regarding county hunting.

My wife and I went to our first convention in Chattanooga, Tennessee last October and had a great time. I want to again thank John, W5UGD, and Jeff, AF3X for all the time and hard work that went into getting the new MINI up and running. It was a pleasure meeting these great County Hunters and to put faces with the call signs.

Gail and I have already made arrangements to attend the National Convention in Wisconsin this July.

I really enjoy putting out counties in our travels. So far, I have transmitted from 485 counties. I also want to thank all of the net controllers on SSB for their help over the years. A special thanks to Jim, K2JG, for all of his help under these poor bands conditions. Recently, I've had runs where Jim had more relays than I had contacts.

In closing, I'd like to say that it's been an enjoyable 12 year journey to USA-CA #1134. My very last county was Montmorency, Michigan, and my son Tim, W8JJ, gave it to me on 80 meter CW. A gathering of family and friends followed to celebrate the occasion with a seafood dinner. I had always hoped that my son Tim, could give me #3077 and he was willing to travel anywhere to do it. During the "ten to go" count down I'd call him regularly and say, "Well, you're not going to South Dakota or Nebraska as I'm down to 8." Ironically, the very last county happened to be within 100 miles of my home. It has been a long haul since 1994 and the paperwork is a lot of work but worth it. Now I guess I have to finish up Bingo and CW. I'd like to thank all the mobiles out there running counties. Without you, I could not have earned this award.

73 de Ed K8ZZ

P.S. – Trip report from K8ZZ: My last trip: 5 States - 82 Counties - 565 SSB contacts and 926 CW contacts with 30 meters being the "hot" band. Great band with the low sunspot numbers. 73, and again, thanks to all the Net Controllers for your help.. Ed K8ZZ

Awards Issued

USACA #1134, K8ZZ, Ed, 2/27/06
Transmitted All Counties #6, N7AKT, Scottie, 2/24/06
Second Time #359, N8KIE, Bob, 2/18/06
Bingo II #29, W5VD, Hank, 3/6/06
USA-PA "W", K5RPC #4, 2/21/06*
USA-CW #83, KR5C, George, 3/14/06*

* Not reported or posted anywhere by awards custodian (see March column Notes from the Editor)

Commemorative County Pennies

From the Onion, a consistent source of unusual news of interest to many, published on the web at:

http://www.theonion.com/content/node/31003

Of course, county hunters are always interesting in anything to promote interest in counties, so this will be an excellent teaching device and maybe get more interest in 'collecting' the counties as a hobby. Imagine the challenge of getting all the county pennies in your collection! This is truly a lifetime passion that you and your children and grandchildren can work on.

"U.S. Mint Gears Up To Issue Commemorative County Pennies"

Courtesy of the Onion - May 4, 2005 | Issue 41•18

WASHINGTON, DC—Following the success of its 50 State Quarters program—deemed one of the most popular commemorative-coin programs in American history—the U.S. Mint announced its next ambitious project: releasing a unique penny for every county in the nation. “

“Starting in 2006, the U.S. Mint will release five new pennies per year ….. While the process will be a long one, residents of the nation's 3,143 counties and county equivalents have already begun debating how their regions should be depicted. “

The first county to have its own penny issued is Kent, Delaware. It will be a while before they get to Texas and Alaska. The list includes all the independent cities, parishes in Louisiana, and census areas in the State of Alaska.

“The U.S. Mint has designed a folder for collecting and displaying the county pennies. The cardboard murals, measuring 8 feet by 35 feet, will be available at most Walgreen stores or directly from the Mint by mail for $4.95 plus $179 for postage and handling.”

Full details are in the article on the web. Pennies will be released by state, with the first states to join the union at the top of the list, and then alphabetically within the states.

Card Checking Those 3,077 Contacts
By AB7RW

If you have not made all the contacts for your first USA-CA award, I’d like to share a few thoughts that may make it easier to manage checking all those MRC/QSL cards. If you already have a USA-CA number, relax and enjoy another ham’s drama.

As I was adding to my list of county contacts I noticed the county number listings in CQ Magazine for hams who submitted 500 counties in a single batch, but I did not consider how much easier it is to check a group of only 500 counties rather than it is to check all 3077 counties at once. Now that I

have had to wait patiently for the checkers to complete the process, I recommend submitting the application for each 500 counties at a time. One of the checkers works full time so was only available to check cards on the weekends. It took time and planning for the two checkers to be available for the process.

Purchase a couple of copies of the USA-CA record book from the CQ-CA Awards Administrator Ted Melinosky, K1BV. His address is in the Callbook or QRZ.com. Update both record books as you make contacts. This will save hours of writing later. While you are looking up the price for the record book, print a copy of the rules and keep them with your cards as a reference not only for you, but to answer the card checkers' questions. You can also email Ted with your questions. He gives good answers. The web page is: http:// www.cq-amateur-radio.com/usacarul.html.

The card filing order is important. I kept my cards in state order where the card had all counties from a single state. The rest had several states listed on the same MRC card. In fact about 75 percent of them had multiple states on the cards. These slowed down the verifying process quite a bit because they had to keep flipping pages of the record book to get to the next state and county. If I had to do it again, I would have put counties from a single state on a card and not mix them up. This would have reduced the time by many hours, and due to scheduling difficulties saved a couple of weeks.

Insist that the card checkers do a commendable job. When you are done, the USA-CA Administrator will ask you to send him cards for five of your counties. I can't even imagine how embarrassing it would be if you never had a contact in one of those counties, but the county was signed off as being verified. My pile came up with five missing cards. Somehow they were put in the shoebox that was not part of my collection of counties. I had to go home, look up the contact in my W2JO software (my master log program), figure out what other counties were listed on the MRC card, and then go through the box to locate it. Since I had put all the cards in numerical order by callsign district this saved looking time. In three cases it was an oversight due to tired eyes, another reason to submit every 500 contacts as you make them.

I am extremely glad to have completed the USA-CA process. It is an experience that I will never forget. Thank you to every County Hunter that I

logged and especially to my dear wife AC7UH for putting up with all that RFI on 30 meters.

De AB7RW

Editorial de N4CD

Each year, MARAC gives out several major awards at the National Convention, including County Hunter of the Year for SSB and for CW, Net Controls of the Year for SSB and CW, and Best Mobiles of the Year for SSB and CW, and Best Team of the Year.

A recipient can only receive the County Hunter of the Year award once in their lifetime. This allows 'new blood' to have a chance against those who have high name/call recognition. Indeed, voting is somewhat of a popularity and name recognition contest. Some folks vote for best CW mobile even though they never operate CW, and vice versa, just upon reputation, or knowing 'they run cw'.

However, all of the other awards can be one by a single individual(team) year after year. Does someone who has won Net Control of the Year six or seven or eight times really need another plaque on the wall? Wouldn't it be nice to recognize those making significant effort to help out the county hunters as assistant NC, or as NC on 40M SSB, for example?

I am proposing that the county hunters consider the following:

Limiting the number of time anyone individual/team or club station can win Best NC, Best Mobile and Best Team to Five(5) times in a 20 year period.

Those mobiles who consistently run counties after a few years have been well recognized for their contributions, if they get Best Mobile of the Year, and likely will continue without added 'incentive' of potentially winning another award. Same for Net Control and Teams.

Frank, AA9JJ, commented last year that he sort of wished that someone else would receive the award one of these years (as other teams are out there running), and he and Kay, N9QPQ, have won in a bunch of times in the past few years. I know other mobiles who have won it year after year know that there are other good mobiles out there running lots of counties.

There are excellent net controls on 40M SSB, who likely won't receive recognition or have much of a chance of winning the NC of the year, yet they put in thousands of hours. Those who live on 'the coasts' might not operate much on 40M SSB, but in the central part of the country, it is the only band where you can actually work most mobiles. N5UZW and KA0SHC are among them. Yet, they put in time, do the relays (don't discriminate as to who can and can't run or get relays, too!). Yet are competing against "Guess Who"(James) on 20M for the award year after year.

There are other teams out there beside N9QPQ/AA9JJ that put out counties all over the place, make special trips. Maybe not as many counties, they put in a lot of effort.

There are other SSB NC out there, equally deserving.

If you think that his is a good idea, please contact your MARAC director. If you don't know who that is, look it up a marac.org on the web, or send me email and I will send you back your Director's name and email. If folks don't 'suggest' this to their Director, it will be 'business as usual' due to intertia.

County Hunter Operating Events in April

Information courtesy of ARRL QST listings for the Contest Corral. More details there.

Apr 1-2 **Missouri QSO party**, 1800Z Apr 1 to 0500Z Apr 2, and 1800-2400Z on April 2. Exchange RS(T) and Serial Number and State/Prov. More info at www.qsl.net/w0ma

Apr 8-9 **Montana QSO Party**, 2300Z Apr 8 through 2300Z Apr 9. Exchange: RST and State/Prov. More info at email to K7ncr@arrl.net

Apr 8-9 **Georgia QSO Party** -- from 1800Z Apr 8-0359Z Apr 9 and 1400Z-2359Z Apr 9. No county line QSOs. Exchange RST and GA county or S/P/C. For more information: **gqp.contesting.com**.

Apr 15-16 **Michigan QSO Party** -- from 1600Z Apr 15-0400Z Apr 16. Bands: 80-10 meters. Frequencies: CW -- 45 kHz from band edge, Exchange: serial number and MI county or S/P/C. For more information: **www.miqp.org**.

Maybe you can snag some counties in this one:

Apr 15-16 Lighthouse Spring Lites QSO Party -- all modes, sponsored by the Amateur Radio Lighthouse Society from 0001Z Apr 15-2359Z Apr 23. Frequencies (MHz): CW -- 1.830, 3.530, 7.030, 14.030, 21.030, 28.030 plus SSB. Exchange: ARLHS member/lighthouse number or serial number, name, and S/P/C. Score: 1 pt/QSO, plus 2 pts for ARLHS member, plus 3 pts for lighthouse. For more information: **arlhs.com/SL-2006-guidelines.html**.

Apr 22-23 **Florida QSO Party**, from 1600Z Apr 22-0159Z Apr 23 and 1200Z-2159Z Apr 23, 20 hours max.. Frequencies **(**MHz): CW -- 35 kHz from band edges, Phone -- 7.260, 14.260, 21.335, and 28.485, no 160 or 80 meters, VHF/UHF. Exchange: RST and FL county or S/P/C. For more information: **www.floridaqsoparty.org**..

Apr 22-23 **Nebraska QSO Party --** 1700Z Apr 22-1700Z Apr 23. Frequencies (MHz): 160-2 meters; CW -- 1.805 and 35 kHz above band edge, Novices/Technicians -- 10 kHz above band edge; County lines count as one QSO with each county. Exchange: RST and NE county or S/P/C. For additional information: **www.qsl.net/hdxa**.

Apr 29-30 **Alabama QSO Party** -- CW/Phone, from 1700Z Apr 29-0500Z Apr 30. Operate 10 hours max. Frequencies: 160-10 meters. Exchange: RST and AL county or state or S/P/C. For more information: **www.alabamaqsoparty.org**

Nanotube Antennas for Amateur Use

Amateur operators have made many variations of antennas from simple dipoles to tall arrays of multi-element yagis, verticals, Zepps, loops, Sterba Curtains, and a hundred other varieties. Times change, and now we can apply 21st century technology to solve old problems in making antennas. More people live in subdivisions with antenna restrictions. Now that we are at the bottom of the sunpot cycle, we need effective antennas that work on lower frequencies (from 30 meters down to 160M). Technology to the rescue!

Recently, amateurs are using the new technologies to do things that could not be done before! For example, guy wires on towers, once always made out of conducting steel wire, can now be made from non-conducting high-tech materials such as Kevlar. The diameter is smaller (lower visibility and complaints from neighbors), and there is no unwanted electrical interaction between the guys and the antenna systems, with no need for insulators to break up the guy wire into non-resonant lengths, and the possibility of failure of one of the insulators at a critical time. No rusty guy wires can create interference.

So where are we headed? Nano- technology! Nanotubes are small – 50 microns. However, Dr. Heisseluft has come up with a method to make long continuous strings of nanotubes, and to make conductive sheets and rods with excellent r.f. characteristics at HF. He's published many technical papers in QST(usually appearing yearly in the spring time issue each year after he's completed another's year research).

Amateurs are already aware that the speed of propagation varies depending upon the medium. For example, in coax cable, the 'velocity factor' is always less than 1, so a 'wavelength in coax' is often 62% of a wavelength in free space. If you attempt to build a balun, or need a quarter wave

matching section, you must first calculate the shorter length of material needed. Radio waves travel slower in coaxial cable than they do in freespace, or in normal antenna conductors! Even if you use a dipole, the length will be slightly less if you use insulated wire, since the insulation affects the speed of propagation by a small factor (about .975). It has to do with the dielectric constant of the material. Think about what would happen if we could somehow slow down the speed of propagation in an antenna!

With normal copper/aluminum conductors, the speed of radio waves is nearly 100% of the 'free space' velocity, ie, the velocity factor is 1. Thus, when you build a dipole, it must be a physical half wavelength, and a quarter wave vertical must be a quarter wavelength. If not, you must use some form of loading (to make it seem like the correct 'electrical' length) to get an easy match and some reasonable bandwidth. 'Shortened' dipoles, verticals, mobile antennas are all less efficient because only part of the antennas (that from the feedpoint to the loading coil) does most of the radiating. The current drops quickly in an inductor. The less conductor norrmally between the feedpoint and loading coil, the lower the efficiency.

Let us examine a typical situation. A quarter wave mobile whip for 20 meters would be about 16 feet high, which is impractical for use while driving down a highway. Normally, a loading coil (resonator) is placed a short distance above the feedpoint, giving anywhere from 25 to 50% efficiency at best, but an overall height usually not exceeding 8 feet.

Think back to that coaxial cable. If we had a way to slow down the speed of propagation in a conductor that radiates, and fool the radio wave into thinking it was traveling in a full size conductor that was actually shorter, then we would achieve excellent efficiency! Nothing existed that had that property until recently.

Alas, coax does not radiate, and cannot be used as an antenna element. But it demonstrates 'velocity factor'. And regular coax is made up of components, center conductor, and shield, that both conduct r.f. at the speed of light, but in certain combinations such as coax, only conduct at .62 the speed of light – thus giving you 'length shortening'. We also know that insulation 'slows down' the speed of propagation in a wire, but only slightly. Can we 'magnify' this slight variation into something useful?

It turns out that we can do that using nano-tubes. While each nanofiber conducts at nearly the speed of light, by using counter-rotating-twisting construction(CRCT), and multi-layer construction, you physically shorten the antenna with no other ill effects. In fact, all the effects are good! The magic is in providing an equivalent to dielectric coefficient in the construction. You will recall electrons travel slower in an insulated wire. So we have to make our 'conductor' look like it has a special type of insulation that slows it down even further. By bundling and uniquely constructing a nano-tube antenna, you get the same effect, but at over 100 times the effect per unit length.

The secret is to insure there are no losses. Coax has loss (but large coax has very little loss). The trick is to make the r.f. think is flowing through an infinitely large conductor that is also slowing it down – zero losses.

A new nano-tube CRCT material recently developed by Dr. Heisseluft in Germany has a 'velocity' factor of .33! The loss even at 100 Mhz is less than 0.1 dB for a 100 foot length. A specially formulated carbon-carbon-silver graphite composite provides very low resistance, light weight, excellent weather performance, and high structural strength. The main drawback at this time is cost, as the material is produced only in small batches in his lab. It was developed for its high strength, static protection, and applications for spacecraft use primarily, under a research grant.

The US Dept of Energy, in a bulletin in August 2005, said:

"One problem with nanotubes is the difficulty of assembling these sub-microscopic materials into a usable product, a barrier that researchers at the University of Texas at Dallas (UTD) claim to have overcome. In research published in the August 19th issue of Science, the UTD researchers claim to be able to fabricate sheets of nanotubes at a rate of seven meters per minute. The resulting sheets have a number of amazing properties: they are transparent, extremely lightweight, highly conductive, and stronger than steel." These sheets can be formed into various shapes (tubes, channels, etc).

The electrons are 'fooled' into believing a 5 ½ foot long antenna is a quarter wavelength long on 20 meters! However, the electrons think they are in a 'normal' conductor. The field around the nano-tube CRCT conductor is

uniform, and there is no 'loading coil' effect. Yet, the antenna is about 1/3rd as long as a conventional conductor. One prototype has a 5:1 ratio!

Imagine a 40 meter mobile antenna, normally about 33 feet high! Only one or two daring amateurs have actually ever tried using something like this. If you took a nano-tube conductor with a 5:1 shortening ratio, then your 40M whip could be about 6.5 feet long and have high efficiency.

You get a nice match, same as a quarter wavelength would be (about a 35 ohm feed impedance, or well under 2:1). With most mobile mounts, you likely will see a near a 1:1 SWR at the rig! For home 'stealth' operations, you could build a small 20M ground plane, with both short vertical elements and radials above ground that would be hard to see, yet effective. Or put up a equivalent 'full size' 80M vertical that is 13 feet high.

The material is still extremely limited in availability, in tube form. A few of the DX clubs in the USA are anxious to bring large quantities to the US, and some are excited about what you can do with 160m type antennas, and maybe beams on 80 meters about the size of a tribander! Imagine how prices would plummet if some manufacturer ramps up production quickly!

Now, unless you are very wealthy, you likely can't afford this nano-tube material as it is more expensive than gold. Of course, the first transistors were hundreds apiece, and the first ICs were also thousands of dollars each. Now, you buy an IC for $10 that has a million transistors in it! At over $10,000 per ounce now, a ham antenna is going to be VERY expensive unless you can manage to get some 'left over' scrap material perhaps from the aerospace or defense contractors, or until commercial production ramps up. Maybe some will show up on Ebay? It would take several ounces worth of ½ inch tube to build a short 40m mobile antenna. It might be a few years before mass production drives the cost down to affordable levels for the average ham. Meanwhile, keep your eyes open for further coming advances.

With some of the leading edge research being done locally, I was able to borrow a prototype nanotube antenna for a very short time. (2 hours) I installed it on the back of my car on a 3 magnet mount, just to take the picture and use the MFJ antenna analyzer to see how well it matched. Unfortunately, it was not designed for ham frequencies – The folks at the labs were not hams. It was 34 inches long, and resonated at, gulp, 27.5 Mhz

with the .33 factor of 'shortening'. My radios don't transmit on the frequency, so I could only listen, but using the MFJ analyzer it measured a 1.247:1 SWR. Here's a picture of the antenna. As they say in CB, the 'Signals were wall to wall, and tree-top tall'.

Prototype Nanotube Antenna, 34 inch long ¼ wave 27 Mhz antenna

Keep your ears open for more news soon on this new development. Getting good connections to the nanotube at the bottom end is somewhat difficult, and may be the most challenging for manufacturers to make mobile antennas. Obviously, manufacturers are keeping this very secret as it will give some of them tremendous advantage and sales will rocket once this

material becomes readily available. You read it first in the County Hunter News.

Rules for MARAC CW Contest – May 2006

There are new rules for the MARAC CW contest this year. A new category, MIXED, has been introduced. Here are the new rules from AA8R.

"**RULES**

1) Mobiles must clearly identify themselves as being mobile by signing **/M** several times in each county.

2) Multipliers: Each category, Mobile and Fixed, will have a separate set of Multipliers. The Mobile category will have a set of 3077 multipliers and the Fixed category will have a set of 3077 multipliers. A Multiplier can only be counted once in each category during the contest, regardless of band.

3) Mobile on a county line can be counted for each county as a new potential multiplier BUT as only one contact – 15 points. Three and four county lines are not allowed.

4) Single operator stations only. Drivers are OK.

5) Contest contacts between operators in the same vehicle or in shadowing vehicles are invalid. There are no restrictions against spotting mobiles. To be considered as "Mobile" you must put out at least two counties.

6) Net contacts are invalid and are discouraged

7) For a valid contact one station must be in a U.S. county.

8) Official list of County Codes (Multipliers) can be downloaded at:

WWW.BNK.COM/W0QE/COUNTYABBREV-V3-4COL.PDF
or .DOC

9) Additional rules for the NEW MIXED category:

9.1 While in the Mobile category you cannot run the county that you declare as the county that you are in while operating in the FIXED category.

9.2 You must remain in a category for at least one hour. You may switch several times during the contest.

9.3 You must have at least 50 contacts from the FIXED category.

9.4 You must submit a MOBILE log and a summary sheet.

9.5 You must submit a FIXED log and a summary sheet.

9.6 You have two sets of 3077 multipliers: one for Mobile and one for Fixed.

Ex: If you work KENT, MI for the first time in the Mobile category and again for the first time in the Fixed category. Both contacts are new multipliers. One for each category.

EXCHANGE

U.S. station: Signal report, State Code and County Abbreviation.
Ex: 599 MI JKSN
All others: Signal report, "DX" (Including Mexico and Canada).
Ex. 599 DX

SCORING

FIXED stations - 1 point. **DX** stations - 5 points. **MOBILE** stations - 15 points.

MOBILES:

1) **C**alculate a STATE score for each state that you put out a county in by:

a. Add up the Total # of QSO points worked while in that state.

b. Add up the total # of unique multipliers worked while in that state.

c. Total State score = (Total # QSO pts.) **x** (Total # Multipliers)

2) Scores CAN NOT count a multiplier more than once regardless of the State, County or band that you are operating in.

3) Final score = (Total QSO points from all states) **x** (Total Multipliers from all states)

4) You must submit log and summary sheet for each state.

5) Submit a Summary sheet for Total Mobile Category Score.

FIXED:

1) Scores CAN NOT count a multiplier more than once regardless of band.

2) Final score = (Total QSO points) **x** (Total multipliers)

3) You must submit a log and a summary sheet.

MIXED:

1) Determine your total Mobile QSO points following the MOBILE scoring rules.

2) Determine your total Fixed QSO points following the FIXED operations.

3) Determine total number of multipliers worked from your MOBILE operations.

4) Determine total number of multiplies worked from your FIXED operations.

5) Final score = **(**Total QSO points from both the Mobile and Fixed categories**)**

x (Total Multipliers from both the Mobile and Fixed categories**)**

6) You must submit a log and summary following Mobiles rules and Fixed rules.

FREQUENCIES

3.550, 7.050, 14.050, 21.050, 28050. Fixed stations should operate above the suggested frequencies and mobiles below.

Send all logs and summary sheets to:

1st choice: AA8R@AOL.COM

2nd choice: Randy Hatt - AA8R
7878 W. County Line Rd.
Howard City, Mich. 49329

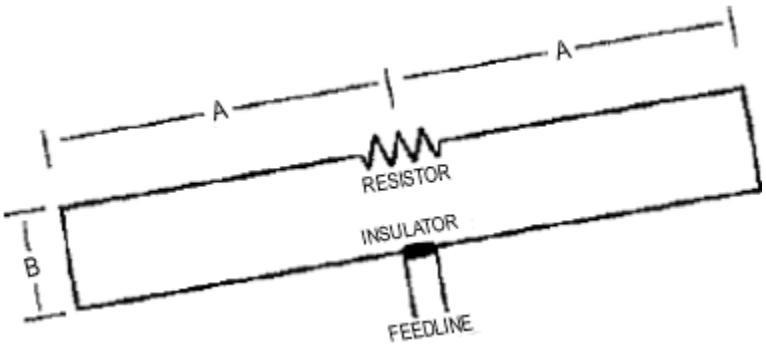
The T2FD Antenna

There's been some discussion about 'broadband folded dipoles' on the K3IMC forum. Here's some information for those wishing further information on this specific type of antenna (and references)

From http://www.hard-core-dx.com/nordicdx/antenna/wire/t2fd.html

And

http://www.johncon.com/john/T2fd/



"An early discussion of the T2FD appeared in the June 1949 issue of QST, a popular magazine for radio amateurs. A more recent article on the T2FD

appeared in the May 1984 73 Magazine." W3HH was the first to describe this antenna.

B&W sells this antenna for $200 now.

"**Some have called** the T2FD a "squashed rhombic" antenna. It does bear some design similarities to the non-resonant rhombic, but theoretically it is admittedly inferior. However, the T2FD performs well in a modest amount of space, while a rhombic antenna can be immense virtually impractical at all but the highest bands.

The T2FD is essentially a closed loop design with the element ends folded back and joined by a non-inductive resistor." "The T2FD has a characteristic 5 or 6 to l frequency ratio, which means that it works effectively from its low end design frequency up to 5 or 6 times that frequency." The formula is the lowest frequency in MHz divided by 100. The distance between the two parallel wires is 3 divided by the frequency in MHz. It will work somewhat below the lowest frequency with degraded performance.

"The angle at which the antenna slopes should be about 30 degrees. Slight variation (between 20 and 40 degrees) are allowed but not outside these limits. In theory the antenna reception pattern consists of various sidelobes without a main direction. You can therefore regard it as omnidirectional. Although a tuned dipole should give better gain than a T2FD, our experience indicates there is not much difference. Remember though that the T2FD outperforms the dipole when the receiver is tuned outside the limited frequency range of the tuned dipole."

The resistor value should be higher than the transmission line impedance, ie, 390 ohms for a 300 ohm feedline, or a 75 ohm feedline with a 4:1 balun at the antenna. For 600 ohm feedline, use a 690 ohm resistor. If you feed it with coax, a 10:1 balun and 500 ohm resistor are recommended.

The power rating for the resistor? From site:
http://www.radiohc.org/Distributions/Dxers/ttfd2.html

(Which has a very good description of how to build it, and recommends that you only install it in a sloping configuration (not as an inverted vee!)

The resistor should be able to dissipate 33% of the power applied. For a 100 watt transmitter, the rating of the resistor should be at least 33 watts, preferably 50w. At some frequencies, less power is absorbed. The site suggests you use 20 2 ohm resistors in series/parallel.

"One final comment... a TTFD supported from a tall mast and sloping at 30 to 45 degrees, is practically omni-directional, that is it will receive and transmit equally well in all directions.

The antenna's polarization is a mix of both horizontal and vertical, something that may actually prove to be a bonus, as it seems to provide some sort of anti-fading properties."

One of these was in use by a government station on Cocos Island in 2000. They had a multi-channel SSB radio on HF frequencies, and used a single antenna to cover a 4:1 frequency spread to allow for communications at different times of the day with the mainland. They are frequently used by government agencies around the world.

De N4CD

Peak Oil News Update – Deffeyes

One of the most ardent speakers on peak oil, and the author of two books, The Hubbert Peak, and Beyond the Hubbert Peak, noted that we reached peak conventional oil production on December 16, 2005 – just 3 weeks after his long standing prediction of Thanksgiving 2005.

See http://www.princeton.edu/hubbert/current-events.html.

1. "The underlying methodology is Hubbert's postulate that the rate of new oil discoveries depends on the fraction of the oil that has not yet been discovered. Similarly, the rate of oil production depends on the fraction of oil that has not yet been produced. A test of Hubbert's hypothesis, using the long history of US oil production, is on pages 35—42 of my book Beyond Oil. An algebraic result from the

Hubbert theory says that the production rate peaks when half of the oil has been produced.

2. The most accurate measure of the eventual total oil comes from the "hits" graph on page 48 of Beyond Oil. The input data for that graph are the dates of the first well in each oilfield. An update of the calculation reported on page 49 of Beyond Oil gives an unchanged estimate: 2.013 trillion barrels.
3. The world peak would then happen when 1.0065 trillion barrels have been produced (half of 2.013). Following Hubbert, I used the Oil & Gas Journal end-of-year production numbers…The cumulative world production at the end of 2004 was 0.9812 trillion barrels and at the end of 2005 it was 1.00748 trillion. During the year, we passed the halfway point. "

See the web site for the graphs and more detail, and additional reading.

His final comment his posting: "That's it. I can now refer to the world oil peak in the past tense. My career as a prophet is over. I'm now an historian."

Picture Gallery for April

Scottie, N7AKT, transmitted from county #3077 at the SC Mini held in Weslaco, TX. Here's a picture of him in the last county by his current mobile set up.

Scottie, N7AKT, #6 to transmit from all 3077 Counties

He announced when and where he would transmit from the last county. Joyce, WB9NUL got the first contact, followed by a dozen or more YLs, then the rest of the folks calling. If you worked him, he is offering a special certificate – send him the QSO specifics (date, time, report). (I'd include an SASE to help out).

Scottie just under went heart surgery (unexpected) and is recovering quickly. If you were at the SC mini, you heard the first public performance of the "County Hunter Song" by Scottie. (The others who have transmitted from all counties are KB7QO, W1TEE, WA0SBR, N4CD, and K0GO)

Also at the mini (and what may be a first for mini's), Joyce, WB9NUL, arranged for a license upgrade session where all could try to upgrade for licenses. The exams were coordinated through a local VEC who gives exams locally. A special session was set up just for the county hunters. It takes a minimum of 3 VEs(volunteer examiners) to hold an examination session. Present at the exam were ARRL VEs (from left to right), Don Hollingworth, Russell, Bob, N4CD and Larry, NA7W.

Perhaps if folks are interested, similar could be arranged, or perhaps nearby exams are scheduled and folks can include it in their National plans.

For those attending hamfests, the folks who put on the hamfests also go to extra effort to try to make exams available to those interested.

The VEs in Weslaco, TX for the Exam Session

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Gary, W4GNS, in the ‘Big Rig’ (Collin TX)

Gary was stopped overnight about 25 miles from the N4CD QTH and called to see if we could get together for an eyeball. I met him at a truck stop just north of McKinney, TX in Collin county. He runs all over the country, and operates both SSB and CW, although it is easier for him to copy signals in the vehicle on cw (narrower filter/bandwidth). You’ll hear him on the cw bands 80 through 20M. He’s put out over 400 counties on cw, and 350 on SSB, and over 650 total transmitted mixed. (info courtesy W6RK)

W0RRY, Charlie, Mason County TX

Sometimes you give, sometimes you get. Charlie volunteered for a road trip to give N4CD the last WBOW for 6th time/2nd CW. Here we are at the Mason county line after making a CW contact on 30M with the MFJ Cub QRP radio. (he gave me the last 3 on that trip – all in TX)

Sometimes you give, sometimes you get.

Here's a picture of the Lafourche Parish line in Louisiana, the last WBOW for N9STL, Joyce for 5 star. Picture was taken on bridge on a rainy day. N4CD went to Florida via southern Louisiana back in December (see Jan CHNews for trip report) to get it for her.

Sometimes you give, sometimes you get – It was nice of KA5AGM to mention who he got his next to last for WBOW in his article in CQ Magazine. All too often, it's only 'the last WBOW' that gets a nod. Not long ago, he finished up all 3077, and received USACA #1130. It's not only the last, but next to last, and the other 'tough ones' that people give you along the way, sometimes making special trips, or going 10 or 100 miles out of the way to help out. That's the county hunter tradition. Eldon, N8STF might hold the record for most detours along the way to get needed counties.

Here's a picture of the operating position of W0GXQ, who often is one of the net control stations and helps run mobiles on 20/30 and 40 cw.

Contribution from Mitch, W4RKV

If you read the K3IMC Forum, Pat, K7VAY posed some questions ala the "Cashless Cab" (a take-off from the TV show the Cash Cab on Cable/Satellite TV). Mitch, W4RKV sent in the following contribution, reminiscing about 'way back when'.

“Recent Forum postings by Pat K7VAY and others re old DX callsigns rekindled some long-ago memories here, events that might be of interest to some of our old-timers.

When first licensed in 1950 I was a young Navy enlisted man trying to raise a family on a very(!) limited income. Unable to afford any commercial ham gear, I was finally able to get on the air by horse trading around and coming up with a war-surplus BC-348 receiver and an ARC-5 transmitter. The ARC-5 ran a big 50 (probably chirpy) watts on 40 CW to a random-length insulated wire hanging out the window of my second-floor apartment. (Lots of RF floating around the shack….) The wire was only used at night, and reeled back in before bedtime. Thankfully, no neighbor ever managed to grab the end of it while I was transmitting.

Some of the rarest DX in the world back then was Tibet, with an AC4 prefix. A famous callsign of that era was AC4YN, operated by Evan Nepean (SK) and later by Reg Fox. Of course, with my measly setup, I never came close to working AC4YN or any other Tibetan station.

Years later, after a hiatus for career, college, and other endeavors, I got active again with now-affordable Collins gear. Unknown to me, a major restructuring of callsign prefixes worldwide had taken place during my absence. One of my first 20M CQs was answered by a strong AC4 callsign and I was elated – wow, a Tibet contact! Alas, turned out to be a station in Georgia USA. What changes time had wrought.

Another DX spot mentioned on the Forum was Johnston Island. In the early 50s I was stationed at Barbers Point, Hawaii and flying as a radioman in PBYs and other assorted craft. In February 1953, enroute to Palmyra Island in an R4D-8 with a load of Navy brass, we landed at Johnston and refueled there, going and coming back. As I recall, the facilities were operated by the Air Force at that time. I never got to meet any of the resident hams during our short refueling stops, but years later I worked Duncan KJ6CF one night on 20M from my Memphis QTH.

73 – Mitch W4RKV

Fini- That's it for the April issue. Next month we'll begin to focus on upcoming elections for MARAC. See you next month.