New Bern Amateur Radio Club

Volume 25, Issue 2 February, 2002

W4EWN/R

146.610/ 146.010 PL 100 Hz.
444.900 / 449.900 PL 100 Hz.

Website: www2.cconnect.net/newbernarc
View the Newsletter there in color

February Meeting -- Thursday, Feb. 8, 2002

6:30 PM at The Berne Restaurant

Program speaker for Feb. is **Bruce Arnold, N8UTY**. Bruce will speak on "cross-band operation" and it's use in emergency communications.
Door prize: a rain gauge with large easy to read numbers that can be read from a distance. The gauge has various mounting options including ground level. An ideal item for Eastern North Carolina.
Something new: Ten minute question & answer session will be included in our monthly meetings regarding Amateur Radio.

Some of us are also members of **CCARS** , Carteret County Amateur Radio Society, and have seen their January Newsletter. If not, take a look at http://home.ec.rr.com/w4ymi/Homex.html They have spotlighted our president, **Mac, WA0ZGL**, as **HAM OF THE MONTH**. A very nice write-up, with pictures.

President's Corner

The holiday season is behind us and post season depressions are still lingering. Sounds like its time to break out the soldering irons. We have two or three months before lawn cutting begins. Plenty of time to renovate the shack and revamp our antenna systems.

At this QTH, I am faced with a real dilemma. Before Christmas I was very happy with my HF, VHF, and UHF equipment. I could work most frequencies and modes. My antenna system wasn't one to brag about, but it worked. My rigs are a mixture of solid state and a few tubes. As they were set up prior to the holidays, my Yaesu, Icom, Collins, and other accessories took up perhaps eight feet of counter space. If put on a scale, they would weigh perhaps two hundred pounds.

Santa Claus was very good to me this year, as I'm sure he was to many of you. However, the nice little

said, "now that you don't need all that big stuff you don't need all that room." Tell me, how can one do away with good stuff? Mind you, I'm not complaining, just whining. It may be that I'm bragging just a tad too. You see this new little rig has 50 % more capability than all that other equipment put together.

Isn't modern technology marvelous? The new rig and its power supply take up about one square foot of counter space. The rig weighs about five pounds, as does the power supply. The rig covers 100Khz to 900+ MHz all modes. No longer does one need more than one rig. Ah, but wait, if this rig dies and it's the only one I have, then I'm dead-in-the-water.

gift he left created a problem. My XYL has

Justification! All I need to do is slide everything a little closer together and fit this new little jewel in place. I really don't need to change much at all. I do have one slight problem. Before all this hoopla began, I didn't have 6-meter capability. Of course this new rig has 6 meters. I really need to put up just one more antenna. Did I mention the marvels of modern technology? I especially like the miniaturization.

Looking forward to seeing all of you at our February meeting.

HAVE FUN- wa0zgl

The ARES Angle

As I write this, it has been a raw, rainy January day. Well, we needed the rain. But spring will be here soon, and with it the spring Severe

Weather season. The reason why we so often see storms with hail or high winds in the spring is because of temperature differentials ahead of and behind a front coming through. Especially when a cold front comes in, overlaying warmer, moister air, the cold air tries to sink, the warm air tries to rise, and the resulting turbulence can get -- very interesting.

If you haven't taken the Skywarn class in a couple of years, now would be a good time. It is continually upgraded and Jeff Orrock does a good job on the presentation. I believe he may be on the schedule of guest speakers sometime soon, but nothing replaces taking the course every so often.

Naturally, it is time to think about emergency equipment. Are your HT's in good condition? What about those batteries -- they don't last forever, and if they've been sitting all winter they need a good work-out to make sure they are charged, and will still hold a charge.

And then thinking about your base station, how have your coax and your antennas held up in the winter weather? Moisture and freezing temperatures can be as hard on cable and aluminum as it is on the potholes in the roads. A visual inspection and a check with the SWR meter are minimum requirements.

Let's not forget safety. Lightning is a prominent feature of our spring storms, even when they don't get to the severe stage. Are you still properly grounded? Are you SURE your copper braid is still connected to your ground rod? Are you ready to disconnect antennas at a moment's notice, and do you have a way to prevent arcing from the antenna wire into your rig (or the computer sitting next to it?)

I read the same stuff you do about how emergency agencies don't need hams as much because of other communications channels that didn't exist before -- somehow the people who write those articles aren't talking to the same emergency personnel that I am. They love us at the Weather Service and Craven County Emergency Services. They want our help, and will go out of their way to make the interaction effective and efficient. Let's not let them down -- like the Boy Scouts (Be Prepared) and the Coast Guard (Semper Paratus -- Always Ready) let's make sure our operating skills, our observing skills, and our equipment are up to the job.

And for now, that's the ARES Angle.
Bruce, **N8UTY**
Craven County EC

THE HF MOBILE ANTENNA - PART IV
THE LOADING COIL

Andy Griffith, W4ULD

The loading coil or "resonator" is usually located at the bottom of the antenna mast or at the top of the mast near the center of the antenna (See Figure 1). The purpose of the loading coil is to bring the antenna to resonance at the operating frequency by canceling the capacitive reactance of the short antenna. The loading coil is the most important part of the antenna because it contributes the greatest losses to the system especially on 75 and 40 meters.

Most modern antennas locate the loading coil near or just above the center of the antenna. Near center mounting is approximately 30% more efficient than base mounting as described by some excellent graphs on page 16-9 of *The ARRL Antenna Book, 17th Edition.* Actually higher efficiency could be achieved by loading closer to the top of the antenna if the ohmic resistance of the coil could be reduced. However, the required coil inductance increases as its position is raised and the coil loss increases faster than the benefit.

The inductance required in the loading coil depends upon the mast diameter and length, the whip diameter and length, the position of the coil, and the physical size and shape of the coil. Pages 16-5 through 16-8 of the above publication describe how to approximate the inductance. More accurate calculations can be made by the method described in my article "Capacity Hats for HF Mobile Antennas", *QEX magazine, August 1996.* This reference covers design with and without capacitance hats which I will discuss shortly.

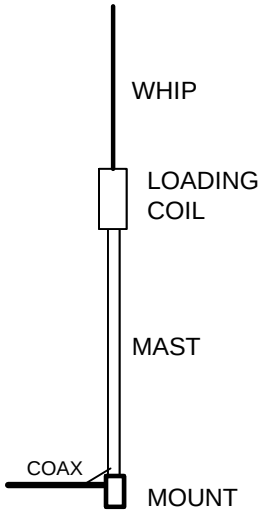

Figure 1

The most important coil parameter is Q or quality factor which is related to the resistance of the coil. As the Q goes down the resistance goes up and vice versa. The power consumed in the coil resistance goes only into heat as discussed in Part I. I have measured the Q of coils for 75 meters as low as 50 and as high as about 350. The effect of Q is shown in Table I. Thus, a high Q loading coil is a must, but many commercial coils do not get a passing grade. Only the large open coils such as that of the Texas Bugcatcher exceed a Q of 300. The coil for my home brew screwdriver antenna is wound with #14 wire on 1-1/4" PVC pipe and is about 18" long. Its Q is fair at about 225. A commercial coil whose fiberglass case is 1-5/8" diameter by 8-1/2" long has a Q of 108. A 1" D by 5" long coil wound with #22 wire has a Q of 98. This latter coil is larger and probably of higher Q than some of the commercial "slim-line" coils designed to keep the wind resistance down.

A popular "stick" antenna wraps the coil over the entire length of the fiberglass mast. I have no actual measurements on such an antenna but did make an on-the-air evaluation of one for 75 meters on a bumper mount. The signal reports were not as good as with my commercial antenna using the 108 Q coil. At 20 through 10 meters I feel sure the "stick" will perform fairly well.

The efficiency of the 75 meter mobile antenna can be improved significantly by placing a capacity hat above the coil. This is known as capacitive loading and reduces the inductance required in the loading coil. Thus the resistance of the loading coil will be reduced. To reduce wind resistance hats are usually constructed from aluminum sheet as a four or six spoke wheel. For example, the efficiency of the second antenna in Table 1 can be raised to about 5.3% with a 10" diameter wheel on top of the loading coil. It is common practice when operating 75 meter mobile while stationary to use a 40 meter resonator with a large hat and an extended whip for a total antenna height of 15 to 20 feet. A 15 ft. antenna with an 18" diameter hat will have a respectable 33% efficiency assuming 1 ohm ground resistance

Table I

Coil Q vs. Antenna Efficiency on 75 Meters

Q of Coil	Input Impedance Ohms	SWR	Antenna Efficiency %
100	45.0	1.11	2.1
200	23.0	2.17	4.1
300	15.7	3.19	5.8

8 Ft. antenna with coil in center
Radiation resistance = .97 ohm
Ground resistance = 1 ohm
Calculated using *ELNEC* from Roy Lewallen, W7EL

Next month we will talk about matching the transceiver to the mobile antenna. *73 and see you next month, Andy*

FINANCIAL REPORT

Jan . 1, 2002 -- Jan. 31, 2002

CHECKING

Balance @ Dec. 31, 2001	$ **1,485.12**
Expenses	
01/07 C P & L	$ 23.51
01/19 Sprint	36.86
Total	$ 60.37
SUBTOTAL	**$ 1,424.75**
Deposits	
01/17	$ 60.00
Total	$ 60.00
Balance @ Feb. 01, 2002	**$1,484.75**

SAVINGS

Balance	**$ 1,134.39**
GRAND TOTAL	**$2,619.14**

Cruising Report 12 & 13 from Rick & Tammy

Nassau 21 Jan 02

Gremlins are back!!!

After a very smooth crossing, (fast also) the injector pump problem has come back. We re installed the injector pump and motored for two hours and did not see any problem. Went to a area called "No name harbor" and dropped hook. Early the next morning we headed out, 10th of Jan. Good weather forecast and smooth seas made for a un-eventful crossing. We went from Miami to Mackie shoals in 14 hours. While on the banks we developed a minor fuel leak on one of the return lines at the first injector, this is a short piece of ¼ inch hose and has two simple clamps, shut the engine down and change it out is only a few minutes. But while doing this I decided to check the lubrication oil and dammit if we did not have too much again. Quickly drained all the oil and filled to the proper level and we took off again.

Went to Andros Island and had a great time, checking in with customs and immigration was the easiest ever....The following Tuesday we departed for Nassau, when we arrived I checked the oil, and again we had too much almost 7 ½ qt. when we only should have five!!

I called the place that rebuilt the pump and he called the injector shop that actually did the work, and they claimed that it was tested and it was fine. Regardless of this the damned thing is not fine I told the owner of "Anchor Marine" in Miami it is leaking diesel in to the crankcase at about 7-9 oz. of diesel an hour. He claimed that the injector shop tested it out and it was fine.

At this time I felt that I was beating a dead horse with this guy, and called my Kubota dealer in NC and had a discussion with the injector shop. I had to order a new factory pump from them and have it flown here.... oh joy!!!! After some more trouble shooting, it was felt that the pump has a heat related problem and could be just shot,,, I did connect the fuel line to it while it was out of the engine and did see "air bubbles" where I should not if the pump was tight. And these air bubbles were next to the second plunger/pump element on the injector pump. This is on the crankcase side of the pump, and if diesel is there it means it leaks into the crankcase and that is bad..

Right now we are waiting for the new pump and doing the tourist thing

Rick and Tammy

SV/Pelago Nassau--

GEORGETOWN, EXUMA ISLAND

29 JAN 2002

The new injector pump arrived in Nassau and after paying the 7% tax on it, it was put on the engine and started up, runs perfect, full horsepower, full rpm, no black smoke, no white smoke, nor any blue smoke. And best of all, no additional fluid in the crankcase!! We are probably going to have to take "Anchor Marine" to small claims court to recover any money, but that is going to have to wait awhile. Who knows, we might get lucky and get a refund without any hassle.

We departed on the 25th of Jan, but had to abort the trip to Shroud due to the winds (something new) right on the nose and blowing 20 knots....

26th of January we did depart Nassau and headed to Shroud still had headwinds, but they abated quite a bit and lifted to more easterly, this enabled us to motor sail to Shroud Cay, From Shroud Cay we sailed to Galliot Cut, about 50 miles down the Exuma chain and picked out a anchorage right next to the inlet. The plan was to head out early and beat the predicted increase in winds. The weather guys were claiming that we were on the edge on predicted 30 knot starting on Tues., and did not relish having to wait for this to pass prior to leaving for Georgetown. Between the park and Black point there were about 100 boats waiting to leave for Georgetown.

I woke up at 3 AM with a full moon and damn near woke Tammy and said lets go, we can be there in five hours with the easterly winds (our course to Georgetown is 132 magnetic and a North East wind could give a beam reach at eight to nine knots all day long.) The moon was so full it looked like a fifties movie when they shoot day for night. It was sure pretty.... But I figured why rush it, and even though I feel good, it might not be a good idea to push the surgical site, so went back to bed.

We headed out the cut at 0600, and four miles out at sea we went on course to Conch cut, At 1100 we had one dolphin in the boat, hooked a twenty pounder and landed him in about 20 minutes. and at 1400 (2 PM) we went through Conch Cut into Elizabeth harbor and dropped hook at 1500.

While we were at sea, I received the strangest radio call, someone that I had not seen in thirty years called me on the radio and it was Erick Leadbeater from New Hampshire. He was down here visiting and heard my name and the boats name mentioned on the VHF nets and wondered if it was the same person the he raced with years and years ago.... Sure enough was!!! we had a good, but brief visit on the beach in as much as he had to fly out the next day.

Sure hope it will not be thirty more years.....

Log of Pelago

29Jan2002

WHAT WORKED AND WHAT DOES NOT

It is hard to believe that this is the fifth one of these that I have written. But, some of the people that read these things actually enjoy doing so.... Go Figure!!

Any how, sitting down here in the Exumas, you find other things to do; other than watching television..... So, I think that I will start off with Electrical - Electronics stuff. In 1999 we were pretty much wiped out by a lightning strike, and had to replace much of the electronics.

SITEX NAV ADD 6000 CHART PLOTTER

This is the replacement for the nav add 5000 that was hurt bad by the lightening strike, what can I say about this device. IT WORKS!!!!, but do not misunderstand one thing--it does not replace paper charts, nor does it replace calculating distance and bearings and doing a running plot!!!! We have not fallen in to the complacent chart plotter trap. This device is used as a tool to aid in navigation, but not is the sole source for navigation.

But I gotta tell ya, that doing a plot manually and then looking at the chart plotter and your DR plot matches the chart plotter sure is a comfort. The NT chips are a little pricey but the charts are excellent. When this chart plotter is married to the JRC radar, and the Furuno gp30 it makes quite a compact versatile package. Coming in to some of the hard inlets and cuts in the Bahamas can get kinda dicey, but with the radar and the plotter and all matching the charts is pretty damned comforting

JRC 1000 RADAR

Can I launch a cruise missile with this, can I plot a aircraft strike with it, hell no, but can I track a freighter in a norther in the gulf stream in fifteen foot seas during a "non changing bearing and decreasing range situation" and at 0400 (that is darker than the inside of a cats ass in a coalmine time) YOU BETCHA I CAN. it gives you information that you just do not have, especially at night. Happiness is a blank radar screen!!!!

RAYTHEON/AUTOHELM ST 4000 +

Got to admit am a little pissed off on this one, it went belly up, and steers like it has a full load of jack daniels on!! will not track on gps co-ordinate, will not steer on auto pilot, and generally is pretty much lost. One of the faults in this unit is that there is not a single user trouble shooting guide available, nor is there a single self generating startup check system. So what is the problem, compass, control head, motor, who in the hell knows and I will probably have to UN INSTALL THE WHOLE FREAKIN THING and send it all in to have it checked out.... seems to my feeble mind that for a thousand bucks there ought to be a better way!!!!!

SOUTHWEST WIND POWER 400 WATT WIND GEN/SIEMENS 75 WATT PANELS.

Now we only have one panel installed and it is only 75 watts, but the two together really compliment one another, it gives a good average power to the charge system on the boat. It seems as if the sum of the two is greater than the two individual outputs. I know that that does not make sense but it is true. So far knock on wood, the only engine time has been make water, and make hot water at the same time. This is Thursday and the motor is on, but has not been on since Monday!!! Watermaker is on and making 8 gallons of water an hour!!! temp in the water tank is 160 degrees. Many times this week the battery check system (simple digital voltmeter across the house bank only) has read 13.1 volts, and we get up with system at 12.8,,,,,sure can not complain about those numbers.

PRO SINE 1000 W. INVERTER (STATPOWER)

Yup it does all that it advertises, clean simple efficient, and makes zero noise for sideband, keeps all batteries nice and happy, and runs everything that we need to run.

ICOM 706 MKII G WITH ICOM AT 130 TUNER

Works and keeps on working, talk to east coast USA daily, does e-mail every day (free ham e-mail, not the expensive sail mail stuff)

TV/VCP/ANTENNA

Still working fine

REST OF THE STUFF--

DELTA ANCHORS

This still seems to piss people off, Bruce anchors suck, they drag!! danforth is good, but will not reset. Delta anchors hold, and you can trust em!! and there are some new monster anchors out there and people that know better buy em, but then they drag and call us and ask "why did you hold?" we answer with one word "Delta."

SK WATERMAKER

We have the 200 gallon a day unit that runs off 12 volts, makes water as advertised, and is not a toy like the PUR watermaker. You would think that the word is out on the PUR piece of crap, however the talk on the radio is "my PUR 40-e quit!!" what can I say...

DIESEL

Now that the injector pump is fixed it seems to be quite happy, full rpm and all that good stuff.....

more later

Rick, WB6LNH, aboard s/v Pelago, 31 Jan 2002

(if you want to get in touch with them while they're away, email to **wb6lnh**@winlink.org , but keep it in text only, as they get their mail via ham radio and long msgs or attachments take forever to download.)

Upcoming Hamfests

2 Feb. 2002, Charleston, SC ARS
http://www.qsl.net/wa4usn/index.html
Jenny Myers, WA4NGV
brycemyers@aol.com

Feb. 10, Virginia State Convention,
http://www.frostfest.com
Contact: Pat Wilson, W4PW, w4pw@arrl.net

coming soon;
9-10 Mar Charlotte, NC
24 Mar Kinston
Details next month

See the latest QST or http://www.arrl.org

Upcoming Operating Events

Feb. 2-3 Ten-Ten International Winter Phone QSO Party 10 meters only. Exchange call/name/state and 10-10 number (if a member).

Feb. 10 Classic Exchange--CW/Phone Use, &/or contact vintage equipment. 3PM-midnite
Allan Stephens, N5AIT al.stephens@.eku.edu

Feb. 16-17 ARRL International DX Contest, CW
See Dec. QST for info.
Upcoming Operating Events - cont.

Feb. 23-25 North Carolina QSO Party--
CW/Phone http://www.mtechnologies.com/cqc/

For further info on all above items, see the latest QST magazine or ARRL website:
http://www.arrl.org

A neat thing to take a look at__

The Quarter Century Wireless Association, (QCWA), Smoky Mountain Chapter 145 in Asheville, NC, has a new museum & website for their Southern Appalachian Radio Museum. Museum exhibits range from Atwater Kent to Hammarlund, Harvey Wells, old test instruments, keys, ancient QSL cards and more!

http://www.saradiomuseum.org/

SWAP SHOP

FOR SALE: Johnson UHF/2F/PL 4 watt Talkie, remote mike, hvy duty chgr, 25 extra xtals. $125 or best offer. Steve, W9MMD, fone 637-7330

WANTED 2 Motorola Startac cell phones - buy outright, no service, or trade + $ for talkies. Steve, W9MMD, fone 637-7330

WANTED: High impedance mobile mike, i.e. Shure 440, Astatic 531. In working condition.

Telegraph keys, bugs, paddles & keyers. Contact, **Dave K2CQV**, 636-1548, email k2cqv-di@coastalnet.com

WANTED: Will Buy -- Old tube-type ham equipment or test gear -- working or even preferably not working. Will buy tubes & parts for use in getting & keeping things going. Will help anyone who wants to get tube type equipment working and on the air (I work free, or for junk).
Al, W8UT anchor@ec.rr.com or 636-0837

Cast of Characters:

President: Mac Eutsler, WA0ZGL
Vice President: Pete Koonce, KA4SXX
Secretary: Ray Hemphill, W7OPH
Treasurer: Charlie Gould, K4VC
Communications: Dick Hallberg, K0UXZ
Trustee: Tommie Phelps, WA4EME
Assistant Secretary: Doug Whitford, KF4YHG
.Assistant Treasurer: Ralph Bitely, N3XID
Program Chairman: David Sousa, K2CQV
Public Service/Photog: Bob Chamberlain, W2HVX
Emergency Communications: Bruce Arnold, N8UTY
Assistant E. Comm.: Dave Warwick, KB4EBT

VE TEST SESSIONS

Morehead City, NC -- third Saturday of odd months. Contact, Mac, **WA0ZGL**, at 252-447-8338, or wa0zgl@coastalnet.com.

New Bern, NC -- third Saturday of even months, except December. Contact Charlie, **K4VC,** at 252-633-3178, or k4vc@arrl.net.

Jacksonville, NC -- all eve. sessions, last Tuesday of each month with the exceptions of June, July and August. Contact Tom Hill, **KJ4IV**, at 910-326-4536, or tomhill@gibralter.net.

New Kid on the Block

I had just become accustomed to the term PSK31 and here comes another one. What in the world is IRLP? I understand it has something to do with an Internet Radio Linking Project. It sounds interesting and I hear there are some who don't think it is real amateur radio. The Kinston group is holding a meeting on February 12 in the Kinston Library. Their program is on this new mode. I understand it is possible to communicate world wide using this system and your HT. Pretty slick. A few of the NBARC members plan to attend this meeting and will bring back all the hot scoop. Stay tuned.

Mac, **WA0ZGL**

The Newsletter Team:
Al Parker, W8UT, Editor
Charlie Gould, K4VC, Data Base/Labels/P.O.mail

The NBARC Newsletter is the newsletter of the New Bern Amateur Radio Club, Inc., PO Box 12483 New Bern, NC 28561. NBARC is an affiliated club with the ARRL and ARES
Any inquiries, comments, items for Swap Shop, suggestions, contributions, and letters for inclusion should be sent to the editor, W8UT, at e-mail: anchor@ec.rr.com

Selected Local Nets

Club Net Manager: Billie Morton, **KE4YMA**
Craven County ARES: 146.61 MHz, 2000 before threatening wx; monitor during ARES activations
Waterway Radio Cruising Club: 7268 kHz, 0745 daily
NC Morning Net: 3927 kHz, 0745 daily
Carolina Slow Net (CW): 3685kHz, 2000 (5-7 wpm) daily
Coastal Carolina Emergency Net: 3907 kHz, 1900 daily
Carolinas Net (CW): 3573 kHz, 1900 (25 WPM), 2200 (12-15) WPM) daily
Carteret County ARS/ARES: 145.45 mHZ, 1930 Tues./ Emerg Traffic handling 1st Tues. after 4th Sat., monthly
NBARC Traffic: 146.61 mHz, 2000 Tuesdays (suspended)
Skywarn: 145.21 mHz, 2100 Tuesdays
ENC Emergency: 146.685 mHz, 2100 Thursdays
ENC Traffic: 146.685 mHz, 2030 daily
NBARC Ragchew: 146.61 mHz, daily, after ENC Traffic closes

New Bern Amateur Radio Club

W4EWN/R

146.610/ 146.010 PL 100 Hz. 444.900 / 449.900 PL 100 Hz.

Website: www2.cconnect.net/newbernarc

View the Newsletter there in color

February Meeting -- Thursday, Feb. 8, 2002

6:30 PM at The Berne Restaurant

New Bern Amateur Radio Club, Inc.,
PO Box 12483
New Bern, NC 28561