

Opportunities*

As the January Contest chairman beat the bushes for entries this year, we managed to get over the 50 mark and continue to be able to enter the Unlimited class. Each year for the past three years, there has been a plea for all club members to operate and turn in a score, and we have just made the number each time. And for each of the past years we have made a call for all members to join in on the mountain in June, or to work the club effort from the home QTH. Many of the same folks have shouldered the same responsibilities from year. Has there been a teaching and learning chain handed down from the more to the less experienced contesters? Has there been an assigned “big brother” for our newcomers? Have the January Team captains rallied their teams to assure that their gear is in working order and to mentor them in the best contesting techniques? Have members debriefed the Sprint activities to discuss best practices and station quality improvement? Have we been able to get together the myriad of new microwave gear to make sure that it is on frequency and fully functional, with a testing session between those with the ultimate in bench technology? For many of the club members, technologic needs go wanting...for others, there is a surplus of gear and talent. Have you made a call to someone who needs a nudge to become more active in these central club functions?

The Packrats do not have a membership chairperson. There are no magical bullets for attracting new members or increasing activity level and general participation. Club meetings could be richer with more attendees. There are several potential members out there waiting to be found and stimulated for VHF-UHF and microwave contesting and operation. We recognize that everyone is busy with other activities and responsibilities. Few can devote much of their time to amateur radio and contesting, although it may seem that way to our friends and families. As always, first experiences leave lasting impressions, and as a group, we will have to be willing to have outreach and engagement of newcomers. Many lament the issue that amateur radio is dying with the advent of the internet and cellular phones. They are but one means of communication and information exploration. Amateur radio offers us a great resource, but it needs to be personalized and made accessible by some one-on-one activity.

We are all proud of our club and its record of activity and achievement over the years, but no-one started out being world-class. Each of started out with the first QSO, the first station, the first antenna. For me it was a homebrew pair of 957 acorn tubes for a modulated oscillator and a regen receiver with an audio amp, and a 19” whip from the roof of my apartment building. It graduated to a Heathkit “Twoer” and a homebrew groundplane built around an SO-239. Big hurdles became smaller obstacles as we progressed in skill and equipment. Reach out to a new potential club member and bring them along. Invite them to take a ride up to Camelback to help or observe...and maybe even to bring a rig or walkie and make contact with the gang. The lower bands are a haven for many, but find those who want to broaden their horizons, take on new challenges, skills and knowledge. Let’s continue to encourage our existing members to participate, while at the same time improve our techniques for growth and development of our membership.

(*adopted in part from the Frankford Radio Club Newsletter Membership Chairman, Bill, K3ANS, April 2001 issue)

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222.98/224.58 MHz, Churchville, PA

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HAMARAMA: W3KJ 215-256-1464

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PACKRAT BEACONS - W3CCX/B

FM29jw Philadelphia, PA

50.080 144.284 222.065 432.295 903.071 1296.251 MHz
2304.037 3456.220 5763.190 10,368.140 MHz (as of 3/1/01)

MONDAY NIGHT NETS

<u>TIME</u>	<u>FREQUENCY</u>	<u>NET CONTROL</u>
7:30 PM	50.150 MHz	WA3EHD/K3EOD
8:00 PM	144.150 MHz	N3ITT
8:30 PM	222.125 MHz	W2SJ/N3EXA
8:30 PM	224.58R MHz	W3GXB
9:00 PM	432.110 MHz	W3RJW
9:30 PM	1296.100 MHz	WA3NUF
10:00 PM	903.100 MHz	N3AOG
10:30 PM	2304.100 MHz	W3KJ

Editor's Column

As many have been able to see, some of the formatting changes were started with the last edition, and are continuing here. Many of the other radio clubs are trying new formats, and with the wealth of publishing software available, there is a lot of experimentation to be done on these monthly missives. Several of you have taken the time to drop me an e-mail of encouragement, and others have made it a point to pen a contribution. As always, this will reflect the nature of the club, and the club is a reflection of its members. Do not be dismayed if you sent in something which does not appear immediately. Space constraints and timeliness of certain critical information takes precedence, and good material is always "banked" on the hard-drive for future use. This month, as you read "The Red Glow" pause to think about your early days in radio, and if you still can't get a good mental picture with Griff's contribution, go out and rent the video, "Frequency." That should put a little Heathkit retro in your mind. Of course, I'll bet that there are many in the club that never really learned the adage, "real radios glow in the dark"...one that was very popular at the Providence Radio Association (PRA), my club in RI, prior to my move to PA.

I have recently learned that the PRA took up a collection and purchased a new Yaesu Mark V rig for contesting. After many long years of battling over brands, features, and costs, the gang came to some decision and acted on it. It was a series of loaners that filled the void while the shack was upgraded with clean walls and ceilings and a new exterior paint job. The erection of the 60' mast and the colossal Collins log-periodic antenna, the installation of the rotor was completed, and then assembly of the patch panel for antenna switching was designed and executed. The linear amplifiers were refurbished, along with the wiring of the shack to handle the new gear. In the years that I was an active member there, we added a few VHF beams, a packet set-up, new repeaters, and were able to operate a few VHF contests from the club site.

As you can probably tell, the PRA is a vintage club, one that was established in the late teens, and has the distinction of being the oldest continuously affiliated ARRL club in the country, celebrating the 75th year of that affiliation in 1996. In contrast, the character of the Packrats is built on VHF-UHF-SHF construction, operating and contesting. Although there is a great difference between the activities of the two clubs, one thing is clear: the character of the members in their desire to contribute to the common cause is great, and the lengths that each of the members go to for each other is limitless, and well appreciated in the ham radio community.

I am disappointing myself by not being able to operate the microwave sprint on Saturday, May 5th, due to an out-of-town commitment. I was going to be ready to show off my new capabilities on 2304, 3456, 5760 and 10G, in addition to the improved power on 903. Perhaps there will be a June contest tune-up day when we can get another chance. I haven't planned the June rover route, nor assured myself that Leon will be available, but I am thinking about sunshine and temperate conditions, in contrast to the ice storm of the January weekend.

Mark your calendar now to assure your availability for the June activities. Take some notes on your sprint experiences, June preparations, and any other radio operating and construction that you're up to and email them to me at: rick1ds@hotmail.com

73, Rick K1DS

Millenium Participation Award

Presented to:



WA3NUF

VHF SS January 2001

Ed Finn, WA3DRC, President, Mt. Airy VHF Society Feb 15, 2001

Did you participate in the VHF SS and submit a club participation score? If so, you received one of these neat certificates!

By all accounts, the Greater Baltimore Hamboree and ARRL Maryland State Convention March 30-April 1 in Timonium was an outstanding success. Despite occasional rain, the flea market was crowded with both vendors and buyers. Unofficial attendance estimates range from 7000 to 10,000. (ARRL Letter 20:14)

Sprints Submission of Logs:
 E-mail logs to : vhfdx@etdxa.org
 Paper Logs to : ETDXA / NJ4I
 1620 Hidden Hills Drive
 Clinton, TN 37716
 Certificates to top three entries in each band/class

Radio Activity for May 2001

SUN	MON	TUE	WED	THU	FRI	SAT
	Mondays are Net nights-please check in	1	2	3	4	5 903 & up Sprint 6A-1P
6	7 Nets start @7:30p 50.15	8	9	10 Board of Dir. at QTH of WA3EHD		12 6m Sprint 2300Z-0300Z
13	14 and move up a band every	15	16	17 Monthly Meeting Hear about and see the pictures of the EME expedition to HK1 land		19
20	21 half hour Through 10:30p	22	23			26
27	28 on 2304.1 See p2 for detail	29	30	31	Remember-June Contest-Set-up Fri Jun 8, operate Sat-Sun Jun 9-10-11 Take down and return Mon Jun 11	

The Red Glow

There is probably at least one thing about Ham Radio that keeps each of us coming back. For me, it is what I call, "the Red Glow." My recent introduction to VHF/UHF activity with the Pack Rats refreshed my recollection of the allure of the Red Glow. Experienced VHF/UHF operators will recognize the characteristics of the Red Glow. I guess you could say that it has to do with the atmosphere, but more than atmospheric, circumstance, but not common chance. The Red Glow is a phenomenon, i.e. something actually perceived and experienced, although not necessarily appreciated and understood at the time. That's the funny thing about phenomena. They are present when they are perceived, but often only appreciated after they are no longer exist. I guess I need to give you a little background so that you can make sense of this story.

When I was first licensed in 1966 as WN3FPM, novices were "rock bound," i.e. crystal controlled on transmit. You would call CQ on your crystal's frequency and then tune around listening for someone sending your call. That was real operating. A separate transmitter and receiver was the norm. My first rig consisted of an SX 110 general coverage receiver and a Johnson Adventurer I picked up used at Ham Bergers in Jenkintown. (There were still a few real radio stores around.) I bought the Adventurer for \$29.95 and traded it back, 32 states and 4 countries worked later for \$25. (Don't be too impressed, in my first weeks on 80 cw I worked a multitude of FCC monitoring stations and Official Observers with a second harmonic on the 40 Meter band. A low pass filter and proper forty meter dipole solved that notoriety.) After passing my General, I up graded to a used Johnson Valiant and Heathkit Mohawk. I set them up on a table next to a window in a corner of my bedroom. At our house at Christmas time, we put a single red candle in each window. At night, I could operate by the illumination of the backlit dials and the Red Glow. It reminded me of the scene in that old submarine movie where they turned the red lights on "because it really helps with your night vision topside." Perhaps, like the Hardy Boys in the Short Wave Mystery, I would hear a mysterious call "help Hudson" or a signal from some remote place. It was a long shot on Fifteen Meters with a 40 Meter dipole 20 feet off the ground, but even if no one answered, it was neat to listen to your own cw CQ under these conditions. I was having fun, but had not learned yet to listen, listen, listen. Anyway, the Valiant offered additional advantages besides its 275 watts of power. It had two mercury vapor rectifiers (811s I think), and when you flipped the high voltage switch, there was a definite "Thuunngg" and a blue glow emerged through the chassis. It provided a suitable replacement atmosphere for the red glow in non yuletide months of the year. That was real radio. Anyway, one night I am listening to myself send CQ on 15 Meters (you old timers will recall that a 40 Meter dipole would load up pretty well on 15 Meters on those old rigs). It's after dark, band's dead, when I hear my call. The station calling is a VE, a 2 or a 3, "Bruce." Signal's not very strong, QSB, hard to copy and has a kind of a raspy DC ripple. A VE, geez, last time I looked, Canada was part of the free world. You would think that Bruce could get a decent rig. Somewhat put out with the bother, (it's only some Sporadic E from Ontario or Quebec), I send a uncomplimentary RST and the most important part, my name and address...several times. I can't tell from the replies if Bruce got my information or not. He just keeps sending his call repeatedly and his location I guess, Mount somewhere. Some-

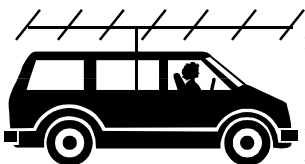
times I used to actually write out the dots and dashes to try to make sense of what was coming through when copy was rough. I did that on the blotter with Bruce. Two dots and three dashes, two dots and three dashes, two dots. Over to me, I send sri, old man, QSB, signal down, 73, cul, etc., etc., sign my call and K. I begin to fill in the log, not really listening, there he goes again, repeating his call, then, fading out he sends 73 Bob, hope to see you againwa3fpm de ve---ym. I dutifully finished my log entry. However, something was untidy about the way he signed off. I checked the blotter and then the log, blotter, log, all the while, that last end of transmission replaying in my mind. I stared at the two dots three dashes two dots again. That wasn't a 2, Bruce was a VE8? I had never worked a VE8! Had I heard him sign off VE8 or was I right the first time? I frantically called and listened for 10 minutes, but he was gone, lost in the white noise.

Months later, I get home from school and Mom says "You got some cards in the mail." I went up stairs to the shack, dumped my books and sat down at the operating table. I started to go through the QSLs and turned the old rigs on. First I noticed the Canadian stamp on the back of one of the postcard QSLs. There was also a short note on the back. "Sri we lost each other, Bob, also regret delay with QSL, 73, Bruce." The front of the card was simple black printing on plain manila bond. It had the face of a husky top center, VE8YM printed in large letters and "Bruce" Bowers in smaller text. Then there were two printed blank lines and a hand written address. Bruce had penned in his location, "R. C.M.P. Rankin Inlet, N.W.T." Maybe the sun went behind a big cloud and sent my room into a burnt orange shadow or was it the white noise of the old receiver playing on my memory of that raspy signal from the north and my first experience of the Red Glow. ...I still have the card.Griff NE3I

2M SPRINT BITS: Well, once again "old-timers" disease struck and I forgot about the Sprint until about 7:30 when I went down to the shack to get ready for the Packrats' 2M net. Then I heard the contest. Had some fun, worked a few including Bill AA2UK who was super loud from his mountaintop location. The lightning static was incredibly strong. Two meters sounded like 160 in July. If a station wasn't at least S9+10, it was impossible to hear him. So, I shut down around 9:00 or so and called it a night. Hope things are a bit calmer for the rest of the Sprints. Look for you all in the QRM/QRN. **Joe-W3KJ ***** What a wild time on the SNJ mountain, hardly Apple Pie hill in Chatsworth, It felt good to be heard, many stations thought I was back at my old qth! Worked 53 Q's and 21 grids, EN83 was the farthest. We could only operate about 2 hours of the contest the from 7:30 to about 8:30 then the storm came, F0-12 at 53' and 50 mph gusts with all the rain static you could handle not to mention many near lightning strikes, and then the last 45 minutes when all calmed down. We got to call in a forest fire on the ride up the hill, yes it had crossed the road and we went through it, and then the state police and forest rangers wanting to come visit us, 2 state police patrol cars and two state ranger vehicles, we will call that the welcoming committee! They couldn't figure us out and finally left shaking their heads. I went up with WB2EYF Monte and we had a great time. I will see you all in the 222 sprint from the same spot next week. **73 Bill AA2UK ***** I was extremely disappointed with the 2 meter Sprint this year. Although I only had some light rain and no lightning or thunder boomers, the static from the thunderstorm in the headset all but wiped out any chances of having any fun. My SWR which is normally very low was extremely high and the amplifier kept kicking out, so I was forced to call it a washout. Only made 6 QSO's with 3 grids. Extremely poor activity on the band. I did hear a few stations and called them including K1TEO but no one came back, hence the extremely low score. Hope the 222 Sprint next week is better. **73 AI K3EOD ***** It was fun, but very disappointing condx, not to mention the biggest electrical storm I've seen in a while...terrible lightning static the whole time...hi Only worked about 60 guys...no decent dx to speak of. **73 Bill W3IY** (portable FM08)

Rover Tips from a Grid Pirate

I've been fortunately through activity days and ing in con- would be ap- some lessons learned... hope this helps someone...



nate to learn a lot some microwave ac- several years of rov- tests...though it appropriate to share

1) I carry a weak signal source and a "relative power out indicator" for every band, so that I can verify myself that I can hear and that I'm putting power out. A weak signal source is just a 96.000xxx crystal oscillator (or others) and a diode multiplier. I use 96.0000833, because it nicely multiplies to 2304.020, 3456.030, 5760.050 and 10368.090 MHz...very repeatably. On tx, I use directional couplers, crystal detectors and a milliammeter, with some clever plumbing. It's so sad to hear "I don't know if I'm getting out or not" after trying to complete for 10 or 15 minutes, so I try to avoid doing that by knowing that I can hear my own portable beacon and I can see an indication of power out to the antenna!

2) W2FU/r (ex-W2HPF) taught me the value of keeping at least one coordination band open. 432MHz is a good one. The purpose is to: coordinate timing (who transmits when), coordinate frequency, share results (I hear you!--send the exchange!), and most importantly to allow each station to replay the received signal back to the transmitting station to allow "self-peaking". If you have never done this, it REALLY WORKS! I transmit to K1RZ, who barely hears me. He plays the signal back to me in real time on 432. I adjust my antenna to maximize signal strength in K1RZ's receiver! If needed, (it usually isn't), then we do the reverse...takes only a few seconds, and virtually guarantees completion, if one person can even barely hear the other... good stuff!

3) Frequency. Some guys use rubidium standards and claim to know their frequency to a gnat's eyelash--especially home stations. Here's my experience: 2 aspects--precision (my definition-- knowing your frequency to lots of digits) and accuracy (my definition--repeatability). I go for accuracy because the guys who claim precision are often several KC apart at the sites I go to. In a rover, each site has different temperature, humidity, barometric pressure, and we drove our gear over a rough road to get there--I just can't calibrate to that. But I know if I set my 10G receiver to 433.0875, that K8GP will be there--every time--and he will say that he's on 10368.1000000000000000000000 (or so) exactly! So I keep a log of offsets--the last actual readout where I worked someone, and I retune there, first. For that first contact, I often have to tune +/- 10X (in KHz) times frequency in GHz--yes, +/- 100KHz at 10G...but once we've connected, I'll return to the same freq with some confidence that we will be right on--especially with home stations at the other end! In September I made long distance 10G contacts from .062 to 105 on my dial--and everyone would claim they were on .100 (which is around .88 on my dial if my weak signal source is not too inaccurate!)

4) Pointing/azimuth/directions. Amazingly, I no longer carry a GPS. For me, it's a time-consuming annoyance. Why: because the coordinates for any site that I go to are the same, every time I visit there! Also, I've found that people take way too much comfort in using the bearings they get from their computer (I'm guilty of his). For a rover, my antennas are not perfectly aligned, my dish is dinged up, etc., and in every case, the best bearing is the

direction in which THE SIGNAL is the LOUDEST. It's not always (or even often!) what the computer says! Example: when I had 10G on my tower at home, surrounded by trees, and tucked on the downside of a hill blocked to the west) I could work many stations who had no direct path to me. For K1RZ, who is only 15 miles away, but due west thru the hill, we almost couldn't complete direct path. But when I turn my antenna SE, towards a big microwave tower about 1 km away, he is 5x6 or 5x7...THIS IS A CRUCIAL ASPECT OF POINTING! Get a friend to work you from your favorite site, and rotate your antennas 360 degrees--you will see peaks and valleys due to scatter, multi-path, side-lobes, etc. that may be surprising! I do wish someone would paint grid lines on major roads so we could know in real time what grid we are in (hi hi).

5) Timing--in order to complete a QSO, you have to know frequency, bearing, AND timing--too many times do I listen to two guys trying to work each other that are transmitting at the same time and listening at the same time. Spending an extra moment coordinating is crucial to get the timing right.

6) Bottom Lines: Know your stuff is working, coordinate well, be creative, focus on repeatability vice precision, know your sites and gear, and you will have more fun and a better completion rate.

Finally, a famous football coach at my Alma Mater suggested "practice doesn't make perfect-- PERFECT practice makes perfect"...well, we haven't even approached perfection yet, but I have learned that is not of value to practice poor techniques... hopefully we're working on the good ones !!!

73, **brian the rover** nd3f@aol.com (from the internet)

New 1296 Beacon in FM19sa

Thanks to Bruce Strackbein (KE3PT) for alerting us to his new 1296 beacon: Arnold, Maryland FM19sa 1296.275 MHz CW 10 WPM +20 dBm (200mw) to "Mini Big Wheel" omni, horiz pol. ID: VVV DE KE3PT/BCN FM19SA QSL VIA KE3PT AT AOL.COM

A Tip of the Hat to our Former Editor, Harry Brown, W3IIT

As editor of the club newspaper, "Cheese Bits" for many years, Harry has served us well: always prompt, technically excellent, never controversial. He included the news of upcoming activities, a call to action, and the results. Always a gentleman, the paper reflected his well spoken style. The paper was always orderly arranged and the technical articles were well selected and added decided interest. They say that a club paper is the glue that keeps a club alive and well, and this was confirmed through Harry's efforts. Thank you Harry. Good luck and good health to you and Rose. Thanks for the many years of service.

Ernie, W3KKN

In Memoriam

The Board of Directors and the Packrats note the passing this spring of Mrs. Sylvia Stein, widow of the late Harry Stein, W3CL. Harry was a founder of the Mt. Airy VHF Club, Inc., and helped many hams with their VHF equipment and activities. We extend condolences to the family and friends.

Waterproofing Your Feedline Connectors

An email Compendium from K1JT

A hearty THANKS to all who responded to my posting last weekend, asking for advice on protecting coax lines and antenna parts against the effects of water and ice. A large number of thoughtful comments were received, and I thought that a summary digest of them might be worthwhile. Here it is, with some minor editing and, I hope, accurate attribution of all suggestions.

My original questions were the following:

1. What seems to work best toward waterproofing a type-N male connector joined to the type-N females on power dividers or yagi driven elements?

2. Can anything be done to improve the bad-weather performance of yagi and loop-yagi driven elements? I'm thinking of the water (or worse yet, ice) that can build up right around the points of connection to your feedline or balun.

3. Are mast-mounted preamps such as the ones sold by SSB electronics reasonably weatherproof when mounted in the proper orientation with all cables plugged into the bottom? Should one put a shrink-wrap "boot", or at least use tape, over the coax connections, or do they do OK without any special treatment?

From Bob Dodson, WB5APD:

I wrap all my connectors with electrical tape, then cover the tape with coax seal. I use the electrical tape because removing the coax seal is a mess unless you have the electrical tape under it. I wrap and cover 100% of the connectors and all the way over the feed line about 1". If you have lots of ice forget using the antenna. The swr will go up and the driven element is not the only thing that will cause it. If you get ice on all the elements, it's best not to try to use the antenna. SSB preamps are fine as is, but you need to do same thing to their feed line connectors as to all the other connectors on power divider and antenna itself. I have had lots of ice here at times, and tons of rain and high humidity. Zero troubles except I gave up trying to use iced up antennas. If you get that much ice you can expect to see your SWR go up, and also the rotor will ice up. Could damage the rotor when it is all iced up trying to turn it.

PS: I forgot to mention... All Heliac connectors come with a special rubber sleeve. It is not just heat shrink. I has special goo in it that melts when you heat to install. Trouble is, it does not completely cover the connector. I always cover all connectors 100% with the tape and coax seal, even Heliac connectors which Andrew says are already water proof. My advice is to seal the heck out of everything!

From Shelby Ennis, W8WN:

The ONLY thing I've found to work - most of the time - is silicon rubber. I know, others swear by other things, most of which I've tried. And dumped. And they talk about the damage the acetic acid is supposed to cause. And a properly-installed N connector is itself waterproof. Again, however - the ONLY thing I've found to work - most of the time - is silicon rubber. I've never used an SSB preamp, or the like. But if I did, I'd put it under a protective cover, at least. (My non-waterproof Dow-Key relays and the preamp are in an electrical box which is made to mount outside. All cables come through the knock-outs in the bottom, which are then plugged with plastic bags to keep out the insects. A couple more plastic sacks are put upside down over the relay & preamp. Has worked great for 10 years down here; a similar arrangement worked for nearly 20 years in Michigan.

From Jim Shaffer, WB9UWA:

Use a layer of rubber tape sold at Menards. Follow this with a good layer of vinyl tape. It is clean and easy to remove. Rubber tape degrades in sunlight, so the vinyl tape is a must have. Vinyl tape will not keep out water. Yagis should be designed slightly high in frequency so some water will tune it into resonance. An antenna that is on the mark (director tuning) will degrade more severely due to high pass filter characteristics. Find a second hobby to pursue when your antenna is ice covered! I put the outdoor electronics for my EME array in a box. A hole is always

provided at the bottom to let water out. Water will get in even with a perfect seal, so it must be let out. When the connections are inside the box, the connections do not need any attention.

From Jerry Johnson, K0CQ:

M2 claims to create a matching connection that hides your feedline from water and ice. K1FO worked a lot on making his designs handle water, but they never could handle ice. The dielectric constant of ice gets too high to keep things matched. My M2 2M5WL quit working on a long packet path last month while covered with ice, but it was also tilted down to point at the ground (vertically polarized, so the clamps slipped on the horizontal mast). Shrink tubing with the inside that melts should waterproof most any connector. A combination of Scotchkote and #33 (or #88 for cold weather application) tape (don't accept substitutes, they are NOT the same!) in several layers is effective at waterproofing all kinds of electrical connections, even those being buried underground. I have connections outside, sometimes buried in snow that have been working fine for decades, bare brass connectors on aluminum CATV coax with just Scotch #88 for protection. Scotchkote is becoming hard to buy. Coax-seal as sold at RS is not useful for anything in the sun but making a mess. It does not maintain a closed cover. It dries up and cracks.

From Carl Huether, KM1H:

I've tried everything from military "monkeysh.t" (that's the only name I knew it by) to CATV sealants/shrinks. Most of them work fine but it's darn near impossible to get things apart if needed. A double layer of Scotch 88 or its related (and some improved) cousins works fine for me up in New Hampshire. I've had cables that I put up 1989-90, during my contest mania days, that I stripped last fall that still look like new after removing the tape. I'm talking about REAL Scotch Brand, not flea market or discount store import junk! Ice, snow and water will detune all elements, and the amount depends upon the antenna design. For UHF the K1FO designs are quite forgiving. During severe icing the usual solution is to wait for the sun. It sometimes helps to have an amplifier that can tune into a moderately high VSWR as long as its not enough to puncture the coax or connector.....been there, done that during a contest. Still have the evidence to show visitors! If you are designing your own antennas it helps to put dry-weather resonance and best F/R a bit higher than the operating frequency. Moderate rain, snow, etc will then move everything a bit below the operating freq but still keep the rig happy. At least that works for me where it usually seems to be doing some form of precipitation whenever I want to work something exciting. Haven't a clue about the SSB's, I don't use commercial preamps. I don't like boots on connectors, they collect water unless you fill them with some goo, and I don't like using goo. Your mileage may vary.

PS: Almost forgot... When applying tape don't be cheap --overlap at least 60% -- and the outside wrap should be oriented so that water runs off rather than sitting on the joint. If possible the tape should go 2 inches either side of the connector. I buy Scotch 88 by the case at flea markets, and it's worth every penny. Don't waste your money on Coax Seal. Its adhesion is marginal even when it is warm. I used to sell that stuff, until I became a customer!

From Stan Laine, WA1ECF:

I use SCOTCH #88 black electrical tape and the SCOTCH putty tape. After the connectors are mechanically mated and snugged up, wrap the putty tape, stretched thin, over the metal connectors and at least 1" above and below the connectors. The putty tape is used to fill in voids and to make the joint smoother. Wrap the #88 tape around the joint starting in the middle, wrap to one side with a 1/2 overlap, then wrap to the other side, then back to the middle. Cut with a knife or scissors, with 2" remaining. Do not stretch out the last 2", just wrap it up. Cover the critical joint on your driven element or balun with a cover such as a bucket, milk container, etc., to prevent downward falling rain and snow from landing on that area. The SSB mast mounted preamplifiers are reasonably weatherproofed when properly oriented. However, the I/O connectors are too close together to effectively weather proof them with tape...

From Ian White, G3SEK:

I don't use the putty tape to fill in voids in in-line connectors, but do sometimes use the glue-lined heat-shrink sleeving to cover the joint

between the connector and the cable. Sometimes I wrap it as well, sometimes not. Where I do use putty tape is before wrapping over a connector that goes straight into a box-mounted socket. There is a small gap between the flange and the end of the connector ring, which prevents the tape from tightening down, so there is always a leakage path there. If you make a small "O-ring" of putty to fill in that gap, and then screw the connector ring down on to it, it gives the tape something solid to bear on, and makes a totally watertight seal. But normally I don't use flange sockets in exposed positions at all, because it is never an easy shape to wrap effectively. It's far better to bring a short cable out of the box using a proper waterproof cable gland (which has rubber O-rings for both the cable and the box) and then put a line jack on the free end of the cable. The plug-to-jack connection is a much easier shape to wrap. Whatever, I never rely only on the waterproofing of the connector itself - not even for a single weekend. From a rainy England...

From Adam Epstein, N2DHH:

I like a layer of 3M #23 (rubber splicing tape), followed by a layer of Skotchkote (electrical sealer), followed by another layer of #23. Give the Skotchkote 10 minutes or so to dry before you tape over it. The outer layer of tape protects the Skotchkote from being degraded by ultraviolet. Don't get the Skotchkote on yourself or your clothes. Don't substitute no-name brand tape. (I've seen it dry out and disintegrate). If your installation is on a tower, do as much as waterproofing (pigtailed, etc) as you can on the ground.

From Brad Pioveson, W9FX:

Joe, please allow me to share some professional experience with you in regard to waterproofing connections that are to be exposed to a harsh environment. My working career was spent as an underground bituminous coal mine maintenance manager. For 17 of my 20 years, all of the equipment was powered electrically, either by trailing cables or batteries. Our insulating materials of choice for cable jacket repairs included Scotch 130C self vulcanizing tape and Scotch 33+. The 130C, if properly applied, will form a barrier impenetrable by water. By itself, however, it won't stand up to much abuse. Therefore, the outer jacket of the repair is made by applying the plastic 33+ material as an abrasion resistant material. The method we used to insulate cables involved an initial double layer wrap of 33+ over the exposed connection. This prevents the 130C from becoming impossible to remove, should the need ever arise. Follow the initial layer with a double wrap layer of 130C making certain that, a) the 'sticky' side is up when you apply it and, b) stretching the tape at least 33% when applying it (it'll tolerate up to 50% of stretch). Finally, the outer coating is another double wrap layer, also applied under tension, of 33+. Splices and cable repairs made in this manner rarely yielded to the harsh underground environment. To easily form a double wrap of any tape, start the tape in the middle of the area to be covered. Work toward one end. When you reach the end, simply continue taping in the other direction until you reach the far end. Then, reverse directions again and continue applying tape until you, again, reach the middle. This method provides only one exposed tape end for Murphy - and, the weather - to work on. Federally approved underground electrical cable splice kits were mandated for use by all mines in the last several years of my career. Each product, while using less expensive materials than the two I mention, provided similar materials, i.e., self vulcanizing filler/insulating tape with an abrasion resistant outer jacket, and were applied using identical techniques. The puncture voltage of the 130C tape is, I believe, 10K volts. I have tested it with a 7K volt DC power supply. It held up to the pressure just fine. I cannot say the same for 33+. It tends to break down at some point between 1,000 and 1,500 volts. As for your other queries, having never had one of the devices, I cannot comment on the weather resistant characteristics of commercial mast mount preamps. I would be concerned, in any event, about diurnal pumping and the inevitable collection of moisture from condensation in a sealed box. Most of the technical journals I've read in this regard suggest that some form of venting to the atmosphere be provided for (a drain/weep hole drilled in the lower portion of the housing). My experience with explosion proof enclosures used in the mine tells me that even in an enclosure where tolerances were held to less than .004 inch for all paths to the atmosphere, moisture will build up in the enclosure.

From Rick Abbott, KB0LGB

I use the brush-on liquid electrical tape made by star brite, a tip from my Elmer. I have never had a water problem in my coax or connections. When I disassemble a connection it is always as shiny and new looking as when it was joined, no corrosion or moisture to be found. It comes off pretty easily too with little fuss. It comes in a small enough can to take up the tower in a tool pouch. Two coats with 30 minutes between applications will do it. I have also used just one coat because I wanted to get down from the tower in a hurry -- it still worked fine. I think it is marketed toward marine applications, so seems like a natural fit for the elements :-) a little pun...I use a putty-like coax seal only on cable entry holes into and out of the house.

From Owen Wormser, K6LEW:

Joe, many have tackled this subject in many ways. In my personal opinion there is NO right way, here's why -- you will never keep all moisture out of your coax / coax connectors. The only way to do so is an expensive solution: pressurized line and connectors with a drying agent. I know almost all of the techniques: Andrew sells a "goo" that makes connectors and joints almost water tight, Radio Shack sells a type of putty tape that is supposed to do the same and then there is everything in between. Here's what I do, its called preventative maintenance. I use simple 3M quality electrical tape. I use two layers with a fold back tab at the end so I can get it off easily. Then, depending on the weather, I strip all my connectors at least once a quarter and inspect thoroughly, making sure the locking nut (Type N or Type SC, which is what I use Mil C 7-16) is secure and the cable is secure inside the body of the connector. I inspect the center pin looking for any signs of moisture intrusion (a graying of a gold pin is a sure sign, tarnish on a silver pin). Then, if all is well, I apply two new layers of tape. This is the only sure way (even with PL 259s / UHF connectors). The atmospheric changes / barometric pressure will insure you will have moisture intrusion into your feedlines, and there is NO way around this. You can only keep out "major water intrusion" using all the various goo's, putty tapes, sealants, etc., and even then you will still get moisture into your feedlines if they are outdoors. People just don't get this for the most part. There is no substitute for periodic, preventative maintenance for your feedlines. The other thing to watch out for is coax contamination over time. The only way to find this is to open up your connectors up on the tower, vertical, whatever and inspect the actual coax center conductor and braid as well as the dielectric. Any discoloration is a sure sign of water / moisture contamination. Short of pressurizing your lines there is no way to become water tight Joe. Hope this helps and helps you save a bunch of money.

From Jay Kesterson, K0GU:

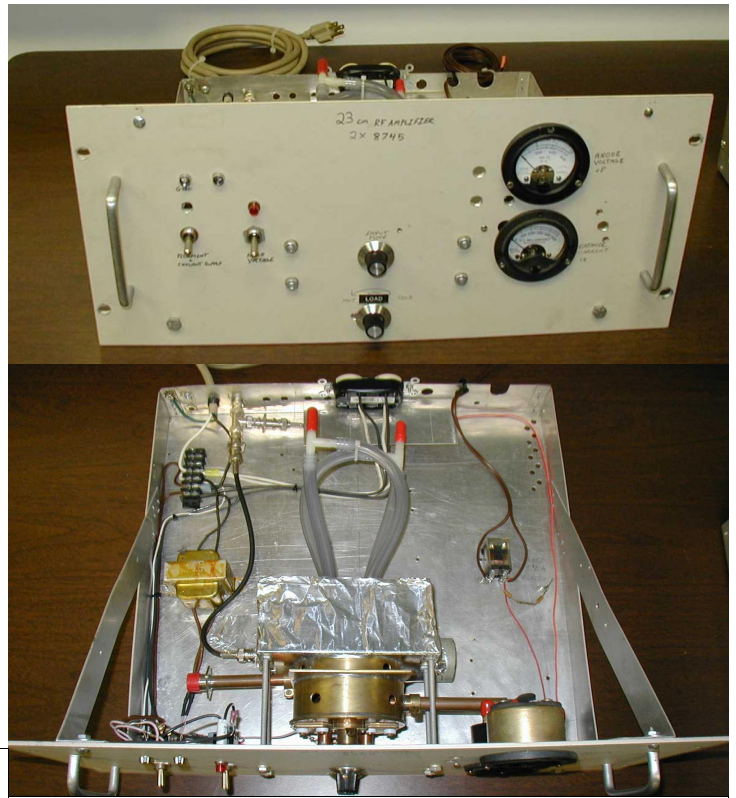
Everyone seems to have their own plan. I wrap the connection in Scotch 33, spray Krylon clear coat over the tape and onto adjacent surfaces, let dry, add another layer of 33 and Krylon, let dry, then finish with another layer of tape. On a hot day I also include one beer each time the Krylon is drying :-). As for your other queries, having never had one of the devices, I cannot comment on the weather resistant characteristics of commercial mast mount preamps. I would be concerned, in any event, about diurnal pumping and the inevitable collection of moisture from condensation in a sealed box. Most of the technical journals I've read in this regard suggest that some form of venting to the atmosphere be provided for (a drain/weep hole drilled in the lower portion of the housing).

From Chris Patterson, W3CMP:

I use Scotch #33 tape and then put clear silicone aquarium seal ("silastic") over the tape, and overlap the coax. I've never seen water get into one of these-it's easy to remove the silastic and tape if you have to: cut through it carefully with a razor blade.

From Fred Stefanik, N1DPM:

I've often wondered if the antennas were black anodized (all but the driven element, as anodize is an insulator and connections would not work), then the black hard coating would weather well and "absorb" the sun's heat melting the ice sooner than usual. I know anodizing isn't cheap, but I bet you could do a lot of 3/16 aluminum rod for a \$100 lot plating cost. So, once again, many thanks to all who replied! I shall file all this away and reread it when antenna season arrives here in New Jersey. It can't be too long now... I look forward to working each of you again, or soon, using well-protected feedlines here. — 73, Joe, K1JT



More projects from Homebrew Night: On top, the LASER rig and keyer from **Walt, N3EUV**, and beneath a beautiful bowl of spaghetti—the control switching arrangement for the home station of **Paul, WA3GFZ**. Apologies to **Chuck, WA2ONK**, whose magnificent 10GHz rig was inadvertently mislabeled as WA2OMY's in last month's issue.

Above ^ front and top views of a pair of water-cooled 8745's for 23cm, from the February "mystery station" of **Len, N3NGE**

Club Awards 2001

This year the format for Awards Night was moved from the usual May event dinner to coincide with ARRL Night. President Ed Finn, WA3DRC and Awards Chairman, Dick Comly, N3AOG, had the fine task of recognizing those who attained high January VHF SS scores toward the club aggregate, winners of the Homebrew Night categories, and those special club members who have given of themselves for the greater welfare of the Packrats. The following awards were given:

*****PACKRAT OF THE YEAR 2001*****

Joe Keer, W3KJ

*****MARIO FONTANA AWARD 2001*****

John Sortor, KB3XG

2001 VHF SS Single Operator First Place 156,520 pts:

Ron Whitsel, W3RJW

2001 VHF SS Single Operator Second Place 141,882 points:

Phil Miguelez, WA3NUF

2001 VHF SS Single Operator Third Place 109,020 points:

Brian Taylor, N3EXA

2001 VHF SS Multi-Operator First Place 323,070 points:

**Bill Murphy, W0RSJ with W3KJ, W3IIT, WA3HMU,
N2CEI, N2EOC, N2IX, WB2ONA, NE3I**

2001 VHF SS Multi-Operator Second Place 289,651 points

Mark Adams, W2UR with W2PED

2001 VHF SS Multi-Operator Third Place 53,940 points

Gary Hitchner, WA2OMY with WA2YUE

****2001 Homebrew Award – Best Construction****

Chuck Grabowski, WA2ONK

2001 Homebrew Award – Most Ambitious

Gary Hitchner, WA2OMY

2001 Homebrew Award—Most Unique Approach

Walt Rauscher, N3EVV

2001 Homebrew Award—Best Use of Hand (& Foot) Tools

Ed Finn, WA3DRC

**2001 Homebrew Award—Rat's Nest Doc Cutler, K3GAS,
Memorial Award**

Paul Sokoloff, WA3GFZ

Congratulations to all the awardees and all others who contributed their time and effort during this past year toward making the club events so successful. We also appreciate the efforts of N3AOG in the design and procurement of this year's award plaques. Start planning your activities for the 2002 Awards night and be a recipient!

Pictured above: January Contest Chairman, **Joe-AA3GN** at his station. Middle: President **Ed-WA3DRC** and Award Chairman **Dick-N3AOG** present the top single-op plaque to **Ron-W3RJW**. Bottom: Second place single op winner **Phil-WA3NUF** accepting his award.

Packrats Host ARRL Night

Seven Packrats gathered at Pippo's Fantastico Restaurant to host our guests for dinner prior to our Annual ARRL Night meeting. We enjoyed a delightful dinner and conversation about personal, radio and league issues. Eric Olena, WB3FPL, as our new SCM introduced himself and his long history of service to amateur radio and the region through the various positions he has held over the past several years. His background and experience as a communications expert for emergency services well supports his current duties. Kay Craig, WT3P, The Director of the Atlantic Division of ARRL spoke about her efforts to support school educational projects involving amateur radio. As the future of amateur radio depends upon interesting newcomers to the hobby, this is a very worthwhile activity. It also enable better future community understanding of the needs of radio operators for appropriate antennas and supports, and communications capabilities. She got a chuckle from the audience as she referred to amateurs as "the poster children for QRM" when introducing Brennan Price, N4QX, who is the newly appointed ARRL Field and Regulatory Correspondent. Brennan's background is in journalism and broadcasting, a likely source of preparation for his current role at the league at Headquarters, having moved their recently from Atlanta. His talk about Part 15 and Part 18 devices helped clarify the difference between these two types of devices. He explained how they are labeled, and what they should or should not be doing, and how to attempt to manage complaints about RFI. Supported with several slides and a handout of his presentation, he explained the exclusive and shared frequencies, and what the suspected culprits for interference might be. His points were well illustrated with the examples he used about remote temperature sensors and reporting "RF bursts." Thanks to Jim, WA3EHD for making the arrangements and continuing service as our program manager.

Movin' Your Cheese (buy-sell)

Rohn Tower HDBX48 like new \$500; 50 mc 4 element Down East New \$100; 28 mc 3 element Cushcraft One season \$75 50 mc Preamp. Brand new Down East 6MLNA \$50

Herb K2LNS 570 472-2230

Bird Peak Reading Conversion Kit (4300-400) for Bird 43 wattmeter. New in box. \$85 6 meter 4 element 50 mhz Rutland Array beam model RA4-50. \$70 903 mhz amp - DownEast Microwave 3318PAS R, 1 w in 18 out. Wired for SSB Rover board. (Can be converted to 1296) \$150 144/222/440 Triband FM rig - Kenwood TM-742A. 50w/25w/35w Comet Triplexer, Diamond mobile antenna and Comet CX-333 base antenna included. Like new. \$600 Heil BM-10 headset and boom microphone - \$45

John B. N8UM n8um@home.com

Brand new Yaesu FT-847 (purchased 4-18-01) for sale. Needless to say it is mint \$1250. Yaesu FT-726R with the 2 meter module only. The radio is in excellent condition physically and electrically. I just purchased a new rig and no now this radio is not needed. Comes with all original accessories. \$325 plus shipping.

Chuck WA2ONK C310508@aol.com

Diamond MX-3000 144/430/1200MHz Triplexer, \$40 New In Box N-conn @Sum Port, N-conn @850 to 1300MHz port, rest PL259 12-inch cables for 3 radio connections. AES selling price \$80

Dave W3KM 215-795-2648 dmascaro@bellatlantic.net

MMT28-432 Microwave Module for sale for \$145.00+shpg. Unit incl. manual and mating 5pin din power/control plug.

Norm WA6ZFK wa6zfk@cwnet.com

Down East transverter 28 - 50 mc. \$300; A-1050 brick \$200 Swan Mark 6 Amp. Pair 3-500 New power transformer. Has external relay \$750; Cushcraft Boomer 34 foot boom \$200; Down East 4 element Brand New \$100

Herb Station op for WA2FGK wa2fgk@epix.net

Anybody want some Andrew EW52 elliptical waveguide? Have several hundred feet to give away. It's in excellent condition and is perfect for 5.7 Ghz. I'm conducting my annual spring clean-out of cable and hardware and this stuff will become scrap copper if there's no takers. Contact me if you want it...pick-up from my QTH. 73, Rick/WC2K

Packrats and ARRL guests enjoy a delightful dinner and conversation at Pippo's Fantastico prior to the May meeting. Left to right: Jim- WA3EHD, Eric- WB3FPL, Harry- W3IIT, Joe Keer- W3KJ, Joe Taylor-K1JT, Ed-WA3EHD, Phil-WA3NUF, Rick-K1DS, Brennan-N4QX and Kay-WT3P