



WASHRAG

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TM  Volume 2 Issue 2
February 2000

WA3SH
N3SH W2K

Wireless Association of South Hills

WASHFest 2000: Crunch Time!

This is the time of year that W3SRL starts getting butterflies in his stomach and has trouble sleeping at nights. We're about three weeks away from WASHfest 2000, and this is the time of year that Steve alternates between selling lots of tables, and worrying about selling lots of tables!

So, what can you do to help out between now and February 20th? Invite your friends to the hamfest. Talk it up on the repeaters. Make an announcement on the nets you check into, and the Internet groups you frequent. Go to some of our neighboring clubs and make an announcement — and bring flyers with you to hand out. Better yet, get some advance tickets from Steve and sell them at those meetings.

Know someone with a rig to sell? Ask them to buy a table. Two or three friends who don't have enough stuff for a table each? Ask them to split one. Know a club that wants to promote themselves for the upcoming year? Get them a club table. Hear of someone on the look for gear? Ask them to come! Talk to someone with a strong opinion (either way) on restructuring and how to deal with it? Tell them that we're expecting key ARRL Atlantic Division & WPA Section staff to be on hand to talk with them! It doesn't sound like much, but all those little things add up to a big difference between having an "ok" hamfest and a "fantastic! one."

The morning of the 20th, we're assembling in the CSVFD parking lot about 5 AM to get in and set up tables. Talk-in will be on the air as quickly as possible. I know we'll be able to count on everyone who can make it to come down and pitch in, as always. Still, if you haven't already done so, get in touch with W3SRL or W3VWH so that they have a good idea of how to handle the logistics.

I think we're going to have a great hamfest this year! We've got EQF Software coming for the first time. We've got the W2K Special Event Station. And restructuring is bringing a lot of inactive hams out of the woodwork, so we can expect to see some new faces, or some old ones we haven't seen for awhile.

But please, someone remember to bring Steve some antacids...

*73, Ron Notarius WN3VAW, President
Wireless Association of South Hills N3SH/WA3SH*

Next Meeting: February 10th, 2000

The next monthly meeting of the Wireless Association of South Hills, Inc. will be Thursday, February 10th, at the John McMillan Presbyterian Church, 875 Clifton Road in Bethel Park, starting at 7:00. Talk-in on the 146.955 N3RN/R Repeater.

Last minute hamfest plans and details will be discussed and resolved, and we'll be doing some more Q&A for those planning to upgrade due to restructuring!

All radio amateurs & interested guests are, of course, invited! See you there!

W2K Update

In three short weeks, the W2K All-Digital Special Event team will be activated on HF and VHF frequencies. Let me clarify that "All-Digital" does not mean that W2K will use ALL of the digital modes, but instead, all modes used will be keyboard-related.

We will have an HF station dedicated to PSK-31 on 40 Meters (7.085). Another HF station will be dedicated to RTTY mode on 30 Meters (10.140). The VHF station will toggle between packet on 145.01 and an APRS display on 144.39.

We will be using something old (RTTY), some new (PSK31), something borrowed (the equipment) and something blew? (a fuse maybe?) OK, so it was a stretch.

Each operating station will have a laptop computer with a 2nd monitor for the viewing audience. One of the goals of the W2K event is to introduce these digital modes to passer-byers. So if you have heard the terms "Ritty", PSK-31, PACTOR, AMTOR or Packet and always wanted to see them in action, stop by and give it a try!

Frank, N3XI/IT3 will be attempting to contact us during the special event from outside Rome, Italy. (Boy Frank, you really go out of your way to make a DX contact with your own club! Good Luck!)

Anyone contacting W2K who desires a QSL card should send a S.A.S.E to:

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Schedule of Events

February 2000

- N3SH/WA3SH WASH Club Net, 9:00 PM ET Sunday Nights on the 146.955 & 443.650 Repeaters

NCS Schedule:

- ⇒ February 6th: N3SBF
- ⇒ February 13th: WN3VAW
- ⇒ February 20th: TBA
- ⇒ February 27th: W3SRL

LOOKING AHEAD:

- **ARRL DX Contest SSB**, March 3 & 4 — Help Operate N3SH in the Contest!
- **CQ WW Prefix Contest SSB**, March 25-26
- **Two Rivers ARC Hamfest**, April 9
- **Dayton**
- **Breezeshooters**

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1 Butler County ARA Meeting Carnegie Tech RC Meeting SH Brasspounder & Modulators Skyview Radio Society Meeting SATERN Net North Hills ARC Net	2 Groundhog Day Allegheny Co ARES Net Allegheny Co SkyWarn Westmoreland Co ARES Steel City ARC Social Night Uniontown ARC Meeting 2 Rivers ARC Classes Start	3 WACOM Meeting RA Erie Meeting	4 Elco RS Meeting	5 Chinese New Year RA Erie Monthly VE Test North Hills ARC Elmer Net NA Sprint SSB Minnesota QSO Party Delaware QSO Party Vermont QSO Party
6 Ellwood City ARA Meeting NA Sprint SSB Minnesota QSO Party Delaware QSO Party Vermont QSO Party New Hampshire QSO Party Spring Classic Radio Exchange	7 Breezeshooters Net Bum of the Month Lunch Greater Pgh VHF Society Mtng 2 Rivers ARC Net Triple 'A' ARC Net Beaver Co Public Service Net	8 Foothills ARC Meetgln Nittany ARC Meeting Ft. Venango Mike & Key Club Punxsatawney Area ARC Mtng SATERN Net North Hills ARC Net	9 North Hills ARC Meeting Allegheny Co ARES Net Allegheny Co SkyWarn Westmoreland Co ARES Steel City ARC Social Night	10 WASH Meeting Horseshoe ARC Meeting Beaver Valley ARA Meeting Triple 'A' ARA VE Test	11	12 Lincoln's Birthday 2 Rivers ARC HamEggs Brkfs North Hills ARC Elmer Net Tri-County CW ARC VE Test Butler Co ARA VE Test NA Sprint CW YL-OM Contest FI STS Novice Roundup
13 NA Sprint CW YL-OM Contest FI STS Novice Roundup Winter Fireside SSB Sprint CQ WW WPX RTTY Contest PACC Contest School Club Roundup	14 Breezeshooters Net AR League of Lawrence Co Mtg 2 Rivers ARC Net Triple 'A' ARC Net Beaver Co Public Service Net School Club Roundup	15 Steel City ARC Meeting Skyview Radio Society Meeting McKean Co ARC Meeting Pymatuning ARC Meeting Junata Valley ARC Meeting SATERN Net North Hills ARC Net	16 Allegheny Co ARES Net Allegheny Co SkyWarn Westmoreland Co ARES Southern PA ARC Meeting Huntington Co ARC Meeting School Club Roundup	17 Triple 'A' ARA Meeting Somerset Co ARC Meeting Breezeshooters Dinner School Club Roundup	18 2 Rivers ARC Meeting School Club Roundup	19 North Hills ARC Elmer Net 2 Rivers ARC VE Test Breezeshooters Groundwave ARRL DX Contest CW Harrisburg ARC Hamfest ARA of Southern Tier Hamfests School Club Roundup
20 WASHfest 2000 W2K Special Event Station Elk County ARC Meeting ARRL DX Contest CW Uniontown ARC VE Test	21 President's Day Breezeshooters Net 2 Rivers ARC Net Triple 'A' ARC Net Beaver Co Public Service Net	22 Washington's Birthday Mercer County ARC Meeting Triangle ARC Meeting SATERN Net North Hills ARC Net	23 North Hills ARC Activity Night Allegheny Co ARES Net Allegheny Co SkyWarn Westmoreland Co ARES Steel City ARC Social Night	24 WASH Q&A Session WACOM Board of Directors South Hills ARC Inc. Meeting	25 Was this date intentionally left blank?	26 North Hills ARC Elmer Net North Hills ARC VE Test Foothills ARC VE Test CQ WW 160 Meter SSB Contest UBA Contest CW YL International QSO Party
27 CQ WW 160 Meter SSB Contest REF French Contest UBA Contest CW YL International QSO Party North Carolina QSO Party COC Winter QRP QSO Party	28 Breezeshooters Net 2 Rivers ARC Net Triple 'A' ARC Net Beaver Co Public Service Net	29 SATERN Net North Hills ARC Net	3/1 Allegheny Co ARES Net Allegheny Co SkyWarn Westmoreland Co ARES Steel City ARC Social Night Uniontown ARC Meeting	3/2 WACOM Meeting RA Erie Meeting	3/3 Elco RS Meeting	3/4 RA Erie Monthly VE Test North Hills ARC Elmer Net ARRL DX Contest SSB N3SH Operation

WASH 2000 OFFICERS

Executive Committee:			
President	Ron Notarius WN3VAW		
VP/Secretary	Steve Lane W3SRL		
VP/Treasurer	Mark Stabryla N3RDV		
And We Couldn't Do It Without:			
N3SH / WA3SH / W2K Trustee	Steve Lane W3SRL		
VE Team Liaison	Bob Sanford AA3FI		
Club Communications	Bob Sanford AA3FI		
Club Quartermaster	Harold Rosenberger KB3CPI		
Club Librarian	Paul Lusardi NOVLR		
N3SH/WA3SH WASH Net Managers			
2 Meter FM	Greg Babin KQ3DX		
10 Meter Digital	John Benitez KE3XB		
South Hills Hamfest Co-Chairman	Steve Lane W3SRL		
(WASHfest 2000)	Bill Hill W3VWH		
Field Day 2000 Chairman	Greg Babin KQ3DX		
PA QSO Party Coordinator	(open)		
Club-Affiliated Repeaters:			
Mt. Lebanon N3RNX/R	146.955 -	PL 131.8	
Mt. Lebanon W3SRL/R	442.550 +	PL 131.8	
Canonsburg N3FFP/R	443.650 +	PL 131.8	
N3SH/WA3SH WASHNet, the weekly on-air net of WASH, meets every Sunday Night, 9:00 PM ET, on the 146.955 repeater, usually followed by the 10 Meter SSB Informal Net on 28.469 MHz. The 10 Meter Digital N3SH/WA3SH WASHNet meets on 28.105 MHz at 9:30 PM ET, starting with RTTY. (Frequencies are +/- QRM). All radio amateurs, WASH members or not, are welcome to join in!			

THE LEGAL STUFF

"The WASHRag™" (formerly **"The Mariner™"**) is the Official Newsletter of the **Wireless Association of South Hills, Inc. (WASH)**

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Comments, articles, and requests for copies of or information about **"The WASHRag™"** should be mailed to the editor:
 Ron Notarius WN3VAW,
 3505 Rosalia Avenue, Castle Shannon, PA 15234-2317.
 Email: wn3vaw@fyi.net, wn3vaw@qsl.net or wn3vaw@arrl.net

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The **Wireless Association of South Hills, Inc.** was founded in 1993 as the original South Hills Amateur Radio Club, and operated under that name through 1998. WASH was also known briefly in late 1998 as the **N3SH Amateur Radio Club**. It is not in any way affiliated with the "South Hills Amateur Radio Club, Inc." and is not responsible for that group, it's members, or it's actions in any way shape or form.

As always, special thanks to the owners of both the N3RNX/R Repeater System and the N3FFP/R Repeater System for permitting the **Wireless Association of South Hills, Inc.** and it's members to use their repeaters for club purposes.

WASH Amateur Radio Club News Briefs

Next WASH VE Tests April 6th & 20th!

Our Next VE exam sessions will be **Thursday, April 6th & April 20th, 2000**, at **7:00 PM**, at the *John McMillan Presbyterian Church*, 875 Clifton Road, Bethel Park, PA. Talk-in on 146.955 MHz. All examiners are ARRL affiliated. Morse code exams are multiple-choice. Walk-ins are welcome, but if you plan on attending the test session, please contact VE Team Liason Bob Sanford AA3FI, telephone (724)-356-4020 or E-Mail: sanfordb@access.hky.com

Please bring the following to your test session:
 Picture ID or other suitable identification (2 forms of ID required)
 Pen / Pencil / Calculator
 Original FCC license plus a copy of license (if upgrading)
 Original CSCE plus a copy of CSCE (if upgrading)
 Check or Cash in the amount of \$6.65 (payable to: ARRL VEC)

Remember: Novice written (element 2) and 5 wpm (element 1A) code exams are still **free**.

More on the April 2000 WASH VE Exams

WASH & the WASH VE Team set the Year 2000 VE schedule months before the FCC announced restructuring. We have modified the schedule to take the restructuring changes into account.

First, an "early" April exam will take place on April 6th, the Thursday night before the club meeting. This date was chosen with the simple

goal in mind of making sure everyone who wanted to take their tests under the current system got one more chance to do so prior to the April 15th rules implementations.

Second, since our April 20th exam is one of the first ARRL VEC test sessions after implementation, we're expecting a lot of people will be coming to file their paperwork for their license upgrades under the new rules (remember, it's not automatic!) So we are going to run two sessions that night. The regular test session, as noted above, will go on as planned, and anyone who will be taking exam elements that night is more than welcome to it. In addition, though, we will run a "paperwork only" VE session in another room starting at about 6 PM. This will let anyone who only needs to have the paperwork examined & processed for an upgrade get in & out with a minimum of fuss, while maintaining the "regular" test session too.

There have been some requests for additional test sessions prior to April. Most of the February dates are out for WASH with the hamfest coming up. If there is sufficient interest in a March exam, the VE team will consider holding another test session. Contact AA3FI if you're interested in a March test.

Congratulations to new ARRL Honorary VP Hugh Turnbull W3ABC, new ARRL Vice President Kay Craigie WT3P, and new ARRL Atlantic Division Director Bernie Fuller N3EFN!

These changes took place at the ARRL Board meeting on January 21st.

(Continued from page 1)

Paul Lusardi - NOVLR, PO Box 79211, Pittsburgh, PA 15216.

See you on the bands! — Paul Lusardi NOVLR

www.washarc.org: If you've gotten frustrated where to find that tilde (~) on your keyboard, fear not, as we've finally gotten our own domain name! It turned out that **wireless.org** was taken by someone else, and **wash.org** belongs to the Washington (DC) Area Secular Humanists. Obviously, our domain name is for the Wireless Association of South Hills (Inc.) Amateur Radio Club. Has a certain ring to it... WASH-ARC... hmmm... brings to mind an infamous sharp-toothed predator of the open seas... nah

N3SH Update: As of January 27th, the FCC's ULS system has yet to reflect the return of N3SH to WASH. Word from the FCC is to be patient. The call is ours again, but wait until ULS is updated before resuming use of the call sign to avoid unneeded harassment.

wa3sh@egroups.com: As of this issue, we're starting to roll-out the distribution of the WASHRag via email. We're taking advantage of a free service from egroups.com to set up and manage the newsletter mailing list (since it includes more than just club members) for technical reasons. The wa3sh list is a closed list managed by WN3VAW, who is the only person allowed to post to it (no spam!) If you'd like to be added to the list, contact WN3VAW or send an email to wa3sh-subscribe@egroups.com

Once we have everything straightened out with any inevitable problems, you will have the choice to receive the WASHRag only electronically. More on that in coming months.

Q&A Session: Our first Q&A test preparation session was held on Thursday, January 27th. Due to the cold weather, the turnout was small but enthusiastic! We plan to hold additional Q&A sessions on February 24th and March 25th, 7 PM at the church. If you come up with anything during your studying that isn't clear, come prepared to ask and we'll do our best to answer!

And remember, these are open to everyone, amateur or potential amateur, WASH member or not — so if you know of someone who needs a hand, ask them to stop by!

Musical Chairs: On January 27th, just before we went to print, the ARRL has announced that WPA Section Manager Bill Edgar N3LLR will be the new Vice Director for the ARRL Atlantic Division taking



the spot vacated by new Atlantic Division Director Bernie Fuller N3EFN. Replacing Bill as WPA Section Manager will be John Rodgers N3MSE, who was Bill's Assistant SM. **Congratulations** to Bill & John on their new appointments! But be forewarned — we still expect to see both of you at WASHfest! (And that goes for you too, Bernie!)

It's That Time of Year Again — WASH 2000 Dues Now Due

Minutes, January 13th 1999 Meeting

Steve Lane W3SRL Vice President/Secretary WASH

Meeting was called to order at 19:18 hours by President Ron Notarius, WN3VAW. There were 17 members present, and 2 guests.

A moment of silence was observed for <SK> & other deserving persons.

Introductions were then made all around, as is our custom.

Minutes of the November were read, and motion to accept by W3WH/W3RJM and carried. (December meeting was the holiday gathering)

Treasurer: Report read and approved.

Secretary: Pending FCC complaint.

VE: Session next Thursday, please be there. Some discussion of having additional VE exams prior to April.

Repeater: N3RNX New isolator on 2m installed, and all the pre-selector coils were located and installed. No intermod anymore, and PL rarely needed. Preamp is also back on. 440 machine playing right along. Battery backup now on the 2m machine. Some discussion about the possibility of linking 443.65 with our 2m machine full-time.

EM Net – WN3VAW for KQ3DX - New Net Controls needed.

Digital Net: KE3XB Net has been very sporadic, interest is still there.

Contests: WN3VAW – Breezeshooters 10m Groundwave Contest the night before the hamfest. Ed, N3UE has packets for the contest. They are giving away an ICOM 706 MkIIIG to one entry picked at random. ARRL CW contest will be the same weekend as our hamfest. WN3VAW offered his shack for a major contest. FD is coming up in June, and NØVLR has offered his QTH for FD, if we want it.

Newsletter: WN3VAW – In the mail. Discussion on the electronic version, and how to distribute it. A sign-up list was passed around for distribution of the electronic form.

President's Report: On December 15th, Ron spoke at length with Riley Hollingsworth and N3SH is now ours again. The FCC database has not been updated as of yet, but it is coming. The FCC's letter to N3WX appears on several Internet sites. It is very direct and clear. N3UE stated that he had contacted N3WX & stated his point of view to Lentz. N3WX replied to N3UE that the FCC had erred, that he had already petitioned for a reversal, & that is why the database was not updated.

Hamfest: We'll need some help tonight stuffing envelopes with flyers. Also we'll be needing help for the event itself, including the special event station, W2K. We'll also be offering a test-bench and free SWR checks for mobiles.

Old Business: Wireless.org domain name is in process, thanks to AA3FI.

New Business: FCC Amateur restructuring is final. 5 WPM is the only code requirement, and 3 license classes. Technician, General, Extra classes only. Certain cases may apply for upgrades after April 15th for elements earned prior to then. These CSCEs cannot be processed for upgrade until after April 15th. unless current criteria are met.

Discussion on whether to swap the April meeting or to have a second VE session. Motion was made to have an extra VE session. W3WH and N3SBF motioned that we have a VE exam on April 6th and 20th, with the regular meeting on April 13th. Carried.

Lengthy discussions. N3DOK & N3BPB will be contacted for help with publicity, as well as contacting the cable TV stations.

W3SRL brought up purchasing a small HF beam. During the discussion, WN3VAW donated to us his 'slightly used' Butternut HF-4B beam.

Dayton plans? W3RJM proposed a bus trip, W3SRL proposed renting a Class-C motorhome. WN3VAW proposed University of Dayton's new dorm facilities. Any interest, let an officer know.

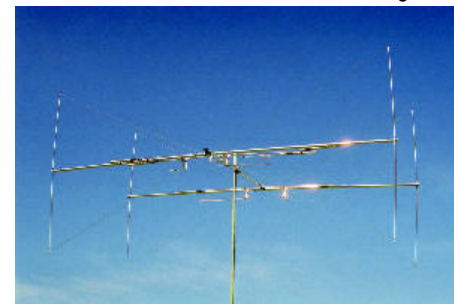
Good of the order: N2QIV – Daughter will be selling Girl-Scout cookies. NP2JF displayed his new vanity license plate for the US Virgin Islands. W3SRL has forms for the PA versions.

Motion to adjourn: N3RDV and N3XFE and carried.

Meeting adjourned at 20:35 hours.

HF4B "New" Antenna for Club Inventory

At the January 13th WASH meeting, Ron WN3VAW donated his Butternut HF4B Butterfly Beam to the group. The antenna was originally given to him by Don Newcomb WØDN, then the owner, antenna designer, and chief cook & bottle washer for Butternut Electronics, in April 1986. A left coast ham had returned the antenna to Butternut as "defective."



The beam had seen extensive use since then, operated at several of WN3VAW's Field Day & PA QSO Party operations in Greene County, & at his one-time QTH's in Crafton & Crescent Township. It went into storage after his 1990 divorce & seen limited use since.

Prior to the 1999 PA QSO Party, Paul NØVLR was searching for an antenna for WASH to use on the WACOM trailer (which was, ironically, designed to carry a Butterfly). WN3VAW loaned him the HF4B, to try and rehab it for use in time. Weather and time had been unkind to the antenna's U-bolts (*never let an airline mechanic sandblast U-bolts*), which Paul has since replaced with stainless steel ones. Paul has also donated to the club his time, and the cost of the U-bolts and other minor repairs.

The Butterfly is a lightweight, small profile beam covering 20, 15, 12 and 10 meters. It is light enough to easily be turned by a TV rotor. (Today's HF5B model, pictured above*, includes 17 meters).

Expect to see the WASH's "new" HF4B Butterfly Beam on top of the WACOM trailer outside WASHfest 2000, part of the W2K special event station. It joins a Butternut HF6VX vertical as part of the club antenna inventory.

* HF5B photo courtesy of the Bencher web site, © 2000 Bencher Inc.

N3SH M/S in ARRL SSB DX Contest

Also at the January 13th meeting, WN3VAW announced that he was putting together a small team of operators to activate one of the club stations in the ARRL DX Contest on the SSB weekend of March 4th & 5th, 2000. (The CW part of the contest is not an option this year because of WASHFest 2000). We're looking for enough people, experienced or not (how else do you learn?), members or not, to staff a modest multi-op single-transmitter effort for the entire weekend. If interested, please contact WN3VAW on the .955 repeater, or email him at wn3vaw@fyi.net

"The United States Coast Guard would like to thank the Amateur Radio Community for their willingness to assist the National Response Center (NRC) by being prepared to relay NRC reports during the Y2K event. Your preparedness and willingness to assist are heartily commended. We thank you!"

v/r LT Charles Pugh, USCG Office of Communication Systems (G-SCT) Policy Division (G-SCT-1B) cpugh@comdt.uscg.mil

During the Y2K Net in Allegheny County, Janet N3OVL was operating from the US Coast Guard station in Sewickley, PA .

— Bob Ferrey N3DOK

Skyhooks: HF Antennas on a Shoestring [Or, The Animated Ramblings of a Cheapskate Ham]

Part IV of ? Many More...

Steve Lane W3SRL

The 160-meter INDOOR Rotatable Dipole

Yes, you read the headline correctly. An INDOOR 160 meter rotatable dipole.

HA! maybe if you live in a blimp-hanger you say but there is NO WAY I can fit a 160-meter antenna in my house, let alone rotate it. Would you care to bet me lunch on that? There is indeed such an antenna, and it is only about sixteen feet long. It is the Hamstick dipole.

I'll settle for Armstrong's Restaurant. You pick the day and time. I recommend the stuffed pepper special.

But back to the antenna. I just doesn't get much simpler than this folks. Lakeview, Transel, Premier and others have been selling the familiar Hamstick-style monoband HF whip antennas for years. They are essentially a 1/4-wave HF vertical whip, made up of a 4-foot spiral-wound mast and a 4-foot stainless steel 'Stinger' element that is held inside the mast with a set screw. The usual use is to incorporate some sort of 3/8x24 threaded mount on your car in order to vertically mount the antenna on your vehicle's bumper, trailer hitch, etc. They sell for about \$15-\$20 retail each (\$24.95 list), and they work surprisingly well. In fact, I worked 37 states with one on 80m phone in about two weeks' time back in 1998.

The rotateable dipole simply incorporates a second Hamstick-style whip, and turns both elements horizontal. The antenna manufacturers all sell a dipole mount for their antennas, for about \$15. But you can make your own with some scrap aluminum or steel angle stock and a Radio-Shack U-bolt. The 3/8x24 threaded mounts for the antennas themselves can be made with hardware-store parts, but remember to insulate the mounts from the bracket with nylon washers, etc. BOTH elements have to be isolated from the bracket. Just drill the bracket so that the two elements are as close to each other as possible, but facing the opposite direction as the other. Leave the elements hand-tight at this point, as you will need to attach the feedline in a minute.

Remember, this is a BALANCED antenna like most other dipoles, and you are feeding it with an UNBALANCED coax cable. So you will need to incorporate some type of BALUN into the feedline in order to not become the neighborhood "Channelmaster" and to keep the stray RF at bay.

The simplest (and cheapest) Way to do this is to wrap 10 turns of RG-8x into a coil about 6 inches in diameter and leave yourself about a

foot of cable for the attachment point on the end. Use 3-4 wire ties to keep the coil in shape, and then prep the end of the coax for a pair of large ring-type crimp connectors. I recommend the ones for #10 -guage wire, they normally have a yellow insulator on them. These ones are usually a bit heavier than the others and are readily available in a ring size large enough to fit the 3/8" stud mount on the antenna base. Solder each connector after crimping, and then seal with silicon, coax-seal or the like before attaching the leads to the antenna elements. I like to add 3-4 ferrite beads to the line right before the antenna as well for added insurance. Use another wire-tie or two to attach the balun's coil to the mast and you are in business. A PL-259 connector and a barrel-splice make you ready to attach the feedline from your shack.

Voila! You now have an indoor/outdoor rotateable dipole that is only 16-feet long!

So, you ask what is the useable bandwidth of such an antenna? Well, it depends. On some bands, such as 12m, 17m or 30m it is the whole band. On 6m it is 2 Mhz wide, 10m it is 1 Mhz wide. On 80m it drops to 10Khz. On 160m it may be as little as 3-5 Khz. But that is without a tuner. A manual tuner and many automatic ones as well should be able to give you a useable, if not excellent SWR anywhere on the band. One of the major manufacturers actually advertises that you can use for example a 20m whip and tune 15m and 40m as well. This manufacturer defines a 'useable SWR' as being under 2 to 1. Of course, your actual mileage will vary.

OK, so what is the bottom line? If you went out and bought everything new, it will set you back about 50 bucks, plus the coax and beads. This is for the 6m-80m version. On these bands the whips run about 18 bucks each. If you just have to have 160m though, the whips are almost 75 bucks each, due no doubt to the cost of the huge amount of winding that goes into incorporating the loading coil into the fiberglass mast. Needless to say, it is a bit thicker in the middle!

So there you have it. A super-compact HF dipole that almost anyone can fit into an attic space or on the chimney along with a TV antenna. If you build one, please let me know how it works for you, and we can compare notes.

WASH New & Returning Members Through January 25th

KA3JZR	N3OBD	N3XFE	WB3BPH
KB3CPI	N3QMV	N3YQY	WN3BOJ
KB3DCO	N3RDV	N3ZEG	WN3VAW
KB3DSD	N3RNX	N3ZEH	Dan Mohr
N0VLR	N3TBK	N3ZEL	
N2QIV	N3UE	N4MIS	
N3BSQ	N3UIW	NP2JF	
N3KEH	N3VVL	W3SRL	List Compiled by
N3KFD	N3VWF	W3VFA	Mark Stabryla N3RDV
N3MJQ	N3WPT	W3WH	WASH VP/Treasurer



FYI Networks, an internet provider in the Pittsburgh and surrounding areas since 1995, is offering all members of WASH their Basic Internet account, normally \$20/month, for only \$15/month. This includes one e-mail box, 3 MB of disk space, web page hosting, Telnet & FTP access. Call FYI toll-free at 1-877-FYI-4NET, or e-mail them at sales@fyi.net, for more details or to sign up. **You must mention that you are a member of the Wireless Association of South Hills to get the discount rate.** Many thanks to FYI Networks for making this special offer available to us for the past year!

On The Future of the Amateur Service

Bill Edgar N3LLR, Vice Director, ARRL Atlantic Division



Written while Bill was Section Manager of the Western Pennsylvania Section of the ARRL.

I am certain most hams have by now heard that the FCC has announced the long awaited amateur license restructuring.

The FCC's announcement was kept very close to their vest. About the only thing we were certain of, was that the announcement would be made by the end of 1999...and it was close. The announcement came December 30th, 1999.

It is important to note that this announcement was strictly the FCC's. The ARRL had some idea that the FCC was looking to modify amateur licensing. The ARRL had made a proposal that its Board of Directors felt would serve the hobby best. During the comment period, a little over 2,000 people made their opinions known to the FCC.

Regardless how we feel about the license class restructuring, it is here and now. I have received several nasty and rude messages from disgruntled hams. Some of them have demanded that I lobby the FCC to have it switched back the way it was. I don't have any more influence with the FCC in this matter than Joe or Sally HamRadio operator. I can tell you that I have received more messages in support of the announcement and in the scale of 10 to 1.

We know that on or after this April 15th, that more people will be licensed to operator on HF bands. Knowing this, I am asking those operators with higher class licenses to inspire, train and demonstrate good operating procedures on the HF bands. Perhaps even having a club meeting night in which the proper operation of HF is presented to club members. Right now with a two to three month period before April 15th, this is an excellent time to do this training.

I heard an Official Observer mention that we need to gear up to monitor more interference on the HF bands. Nothing guarantees us the use of amateur bands without any

interference. If we are following the guidelines for proper operation, we can reduce the amount of interference.

Oh, and by the way, the Official Observers in Western Pennsylvania have been charged with inspiring, training and demonstrating the proper operation of amateur radio. We do not tolerate "band cops" in WPA, and I can guarantee you that they don't know what interference is unless I hear that we have a "band cop". Several years ago, an OO appointment was terminated in WPA precisely because of that reason. Recently, another Official Observer appointment in WPA was canceled because of actions that were not consistent that of an Official Observer appointee.

We've all heard of "road rage", radio rage is malicious interference of another person's transmissions. We all lose with radio rage.

We need to focus on the positive things in our hobby, and keep an eye on the future. This past year, we saw less hams getting involved in our hobby than before. We need to turn this around. I believe that if we present this in a positive light and with everyone working together, we will see more people getting their ham licenses.

If you are working on your upgrades, you have my best wishes. If you have your General Class, Advanced Class or Extra Class license, you have my admiration for hard work in studying your code.

I, along with a number of the WPA Section Staff members, am working on my upgrade as well.

Let's please respect each other and work together to keep this hobby moving forward well into the 21st

I have received more messages in support of the license class restructuring than against it, on a scale of 10:1. Knowing this, I am asking those hams with higher class licenses to inspire & demonstrate good operating procedures on the HF bands

Allegheny County SkyWarn News

Don Volland N3KEH

Allegheny County SkyWarn Coordinator

The Allegheny County SkyWarn Net is active on the 1st & 3rd Wednesday of each month, 8:30 PM on W3EXW/R, 147.09+ (PL 88.5).

The Spring Severe Weather Season will be on us before we know it so now is the time to train for it and to get to know each other. We will keep you informed of the latest weather incidents from the National Weather Service 162.550 MHz and other sources. Allegheny County is unique as it is a large County with many hills & valleys with visibility limited from your position. This makes it necessary to have a large force of observers to cover the County border to border. Please join us on the 1st and 3rd Wednesday of the month, as well as during any severe weather event. We will to keep you advised of how and what to report, who to report to, when the National Weather Service will have training sessions in your vicinity, and other weather related topics.



January VE Test Session Results

Dr. John Benitez KE3XB, WASH VE Team Assistant Coordinator

The January VE session was held at the John McMillan Presbyterian Church on January 20th, 2000. We had a record turnout for the session with a total of 19 people taking a total of 29 exam elements. The room was packed and extra tables were set up. Congratulations to all who came, especially to the people who upgraded to new licenses: Robert Stoner (KB3DSD) to Tech Plus and Simeon Grouev (KB3DJF) to General.

There were many people who took elements that should prepare them for the new licensing structure, which should get them ready for a license upgrade after April 15th, 2000. We wish them luck if they need any additional elements before then. Also a reminder of our double VE sessions in April: both on Thursdays, the 6th and the 20th.

Our thanks to all the VE's that participated and helped in making this a successful VE session as usual: KE3XB, W3VFA, KC3HW, N3XI, W3WH, WN3VAW. Thanks also to N3ZNI, who also helped out at the session.

Reflections on Low Band DX'ing

Rich Finkel W1TSP

Have had a passion for DX since I was a teenager running 40 watts to a dipole. Knowing that it's going to be a long time before I will have a chance to work BS7 and P5, I've been amusing myself by trying to work new countries and new zones on 40 meters.

Realizing that the XZOA operation offered a chance at a difficult zone for me I've been patiently looking for an opening, which finally occurred yesterday (January 21, 2000) after Myanmar's sunrise. After 5 minutes XZOA acknowledged my call, sent a report, but when I sent him a report and checked for confirmation I heard an S9 carrier on his frequency.

At this point I considered my options:

1. Add my carrier to the frequency. (Decided against this; the signal I put out with my Carolina Windom wouldn't cause enough chaos.)
2. Send "UP, UP....." For the next 5 minutes
3. Send the most provocative curse words I could think of on the XZ's frequency
4. Rotate between options 1., 2., and 3
5. Turn off the rig and find something more relaxing to do
6. Try again.

I didn't choose any variation of options 1 through 4, but I tried again, and as the XZ began to fade I worked him 20 minutes later.

What I would suggest is that if any of you get frustrated or angry to the point that you are operating in ways that you are not proud of, you should really take a break and calm yourself. As an MD I can tell you that there is ample evidence that frustration, anger, and hostility are very noxious to our health, so in many frustrating situations, in order to reduce the chances that I might develop hypertension or a myocardial infarction, I do turn off the rig and turn on some relaxing music until I have calmed down.

In contrast to the above experience, I recently entered a contest sponsored by the Antique Wireless Association. I ran 7 watts with a 1929 Hartley and made 33 QSOs on 80 meters. I'm quite impressed with the camaraderie and mutual support that I saw in members of this organization. Hadn't had so much fun in years digging out the weak and wobbly signals, so I will be entering the next one. (see www.antiquewireless.org) There was no intentional QRM, and no obscenities were heard. It reminds me of the kind of ham radio community that I fondly recall when I first got my ticket over 40 years ago.

So what's the point? I would humbly suggest that if your DX'ing is causing frustration and anger, it's time to reevaluate the situation and have in place a strategy to reduce the aggravation level. If it's no longer enjoyable it's not worth doing.

73 to all fellow DX'ers. May you work all entities on all bands, in all modes in 2000, but don't do it unless you are having fun.

John On Books

Dr. John Benitez KE3XB

The Victorian Internet, Tom Standage, Walker, NY 1998
\$ 22.00 (hardback) available in paperback

The Victorian Internet is a book of technology development from before the nineteenth century, through the nineteenth century, and into the early twentieth century. In his book, Tom Standage, describes the development of the telegraph, pre-wireless and wired electrical systems. The "first telegraph" used clock mechanisms, telescopes, and black/white panels, and a code book to be able to transmit messages. This was developed in France in 1791 and although originally called a 'tachygraphe' (fast writer) it was renamed the 'telegraphe' (far writer). Over the next few years it was further developed into a network. Napoleon Bonaparte became a firm believer in the telegraph and helped its further development. Eventually England got telegraph fever and as the English developed their empire, the telegraph system was further developed. Eventually the whole world was "wired."

I learned that Samuel Morse was not the first person to develop telegraphy! I didn't know this amongst many other details this book goes over. Mr. Morse wasn't even recognized for his contributions till late in his life. The development of the submarine cables, "messenger boys" and the pneumatic tube system were developments that occurred later to help with the congestion of the Victorian Internet. Who controlled the telegraph system became an important international geopolitical concept. It still does to this day!

The book is organized superbly, & is easy to read. It's like reading a novel about telegraphy. It was one of the high technology devices of its day, with its own hackers and everything! The chapters include:

- The Mother of All Networks
- Strange, Fierce Fire
- Electric Skeptics
- The Thrill Electric
- Wiring the World
- Steam-Powered Messages
- Codes, Hackers, and Cheats
- Love over the Wires
- War and Peace in the Global Village
- Information Overload
- Decline and Fall
- The Legacy of the Telegraph



In addition, the book has an excellent section on sources of information for the writing of this book. I actually started reading this book for work, while working on a project on the controversies of public health policy regarding telemedicine. This served to remind me and others of the issues of technology development that keep repeating themselves over time as new technologies are developed. In this day and age, we are currently continuing the revolution in communication technologies and how to understand them, use them and regulate them.

I hope this small column interests many of you; hopefully some will go out and read this book. More importantly, I hope others will read books of interest to them and hopefully will submit a small review for the enjoyment of all in the club. If you have suggestions for specific books that should be reviewed, please let us know.

Maurice Gibson W3LBE, 15 December 1999
Joe Ferenc W3TVB, 19 December 1999
Art Lieberman K3LPI, 13 January 2000
Actress Hedy Lamar (co-inventor of Spread Spectrum), 19 January 2000
Shel Davis W3FVU, 23 January 2000



Silent
Keys

Internet Reflector News Bites

N7CQQ Amateur Radio Club, Inc. sponsor of the **Clipperton 2000** expedition is very happy to announce that ICOM America is sponsoring the DXpedition to Clipperton Island. ICOM America will provide the new IC-756PRO for the Clipperton team members to use while on the expedition. Our thanks goes out to Mr. Ray Novak, National Sales Manager for ICOM America.



Clipperton 2000 is scheduled to depart San Diego, California USA on 23 February 2000. The team should be ready to operate on 1 March 2000 from Clipperton Island. We plan to have four HF stations, one 6 Meter station and one satellite station. We also plan to operate RTTY and the WARC bands from Clipperton. The DXpedition will shutdown late on 8 March 2000 and depart Clipperton 9 March.

Additional information on the expedition can be found at <http://www.qsl.net/clipperton2000>. — John Kennon N7CQQ

The Southwest Ohio DX Association is pleased to announce the **Fifteenth Annual DX Dinner** to be held on Friday, May 19th, 2000 at the Crowne Plaza Hotel, Dayton OH. There will be a cash bar at 6:30 PM and dinner at 7:15 PM. Tickets are \$31.00 and must be purchased in advance. Groups wishing to sit together must order as a group. A table seats eight. Please make your check or money order payable to SWODXA and send an SASE for ticket return.



Seats will be assigned in the order that requests are received. Seating is limited & will be assigned on 12 March 2000. Please order tickets from Steve Bolia, N8BJQ, 7354 Thackery Rd, Springfield OH 45502.

On January 15th, 2000, W9WZE, the original call sign of the late William Halligan Sr., W9AC, (the founder of the Hallicrafters Co.) has been assigned to the Hallicrafters Collectors Association. Duane Fisher W8DBF is the trustee of W9WZE. It will be used for all events related to Hallicrafters, particularly, but not necessarily exclusively, for HCA functions.



Bill Halligan was W9WZE before and during WWII when he was CEO of Hallicrafters. He relinquished W9WZE sometime after the war applying for, and receiving W9AC, which he held until shortly before his death. -- Duane Fisher W8DBF, Stu Morrison K4BOV

Ham Radio Outlet's Anaheim, California, store was destroyed by fire early Sunday, January 23, 2000. The store and its contents were a total loss. The fire was termed "suspicious" and was believed to have started in a dental office that was part of the same strip mall. A car parked nearby also exploded at the same time the fire is believed to have started; the explosion was not caused by the fire. The store (and the adjoining stores) was a total loss. Only a decoy owl, nick-named "Smokey," survived. (Smokey is now the store mascot.)

Ham Radio Outlet operates a dozen stores across the US, including five stores in California. — N3DOK, ARRL Web Extra, ARRL Letter

Breezeshooters 10 Meter Groundwave Contest

Saturday, February 19th, 8 PM to 12 Noon

You can find complete rules & more information on the web site, www.breezeshooters.net or email wolfie@breezeshooters.net.

DX News Briefs

NZ7Q/KH4 will be QRV for "two more months." QSL to N6ZVA — ARRL DX Bulletin



GACW still has open logs for all previous Grupo Argentino de CW operations, including **LU7X** (1979), **L8DX**, (1982), **LU3ZI** (1983), **LU6UO/Z** (1985 & 1987), **LU5EVB/Z** (1986), **LU2ZC** (1989), **LU6Z** (1995/96), and **LU1ZC**, (1997/98), **AY1CJY**, **AY1DZ**, **AY1ICX**, **AY2YA**, **AY2YE**, **AY4FC**, **AY5BB**, **AY5EIE**, **AY6EF**, **AY6UO** and **AY9HGW**. "We had been having lots of trouble with the postal service, and they know us, so please try to disguise your envelopes, don't put call signs on them, etc. Also remember that postage in Argentina costs 1,25 dollars for America and 1,5 dollars for EU/AS/AF/OC." QSL to Raul Marcelo Diaz, PO Box 9, 1875 Wilde, Argentina — LU6EF

R1FJV is on 40 – 10 daily & will be in Franz Josef Land until 31 December 2001. QSL via UA3AGS. — ARRL DX Bulletin

RW1AI is active as **R1ANP** from Progress Base (Antarctica) until the end of March. QSL via NT2X. — ARRL DX Bulletin

DK7YY and DL2OBF are trying to obtain the logs of the late **D44BC** from Julio's family. They operated from his QTH in the CQWWDX contests in 1996 and 1998. Hold cards and patience, please, until further notice! — DL9WVM

G3SWH still has the logs and cards for the SSB only operation on 14 & 21 MHz by **L4D** from Blanca Island (IOTA SA-065) on 21 November 1993. This was one of the operations where the original operators failed to send out QSL cards and the IOTA Committee obtained copies of the logs, funded the cost of the QSL cards and appointed him as QSL manager.. QSL direct with SAE & "adequate return postage," or via the RSGB bureau. He can not help with any other L4D operation — G3SWH

ANARC has announced an expedition to the Chesterfield Islands, **TX0DX**, which may be a new DXCC entity. See the press release on Page 9 for more information. — N4GN via the Daily DX

AXØLD was the Australia Day call for VKØLD/VKØMM. Alan is seeking a QSL manager for this special one-day call — VKØMM

QSL Routes:

5U7X via DJ6SI, and **5U7Z** via DJ9ZB — K14RU

SU9ZZ via OM3TZZ — K4KKL

EP4GM is a pirate, save your SASE — K14RU

6K2K via HLØHQ — ARRL DX Bulletin

W3WH has been told by HI3CCP that "the law in the Dominion Republic has been changed so that no formal permit is needed to operate there for up to one year. All you need to do is sign /HI3. I hope Carlos is correct and I don't lose my equipment or get thrown in jail!" Look for **W3WH/HI3** during the week of 30 January through 5 February, primarily on CW, but also on 14.270 around 2200 Z Bill hopes to work lots of friends! QSL via W3WH. — W3WH

The January edition of the **OK1RR QSL Manager database** contains 133843 Managers & 14777 addresses. Download is available at www.qsl.net/ok1rr — OK1RR

Thanks to the KH2D DX Reflector, 425 DX News, OPDX News, & ARRL DX Bulletins for our DX News Information. Thanks also to W3UR/The Daily DX for confirmations & additional information.

Chesterfields: A New DXCC Entity?

Tim Toten N4GN n4gn@n4gn.com

Association des Radio Amateurs de Nouvelle Calédonie (ARANC), the amateur radio society of New Caledonia, is pleased to report that the Chesterfield Islands DXpedition remains on target for the window of 15 March through 01 April, 2000. A more detailed schedule will be announced in the future.

The New Caledonian telecommunication authorities have issued the distinctive call sign **TXODX** for this multi-national expedition.

The TXODX team will operate from two sites, far enough apart to allow simultaneous CW and SSB operation on the same band. Four HF stations, each equipped with Yaesu FT1000MP transceivers, will provide for plenty of activity on all bands, as well as RTTY operation. A separate station, equipped with a Yaesu FT655, will be dedicated to six meters. Thanks to JA2JPA at Suzuki, TXODX will have a total of 16 kW of AC power available.

The TXODX web site can be found at <http://www.n4gn.com/tx0dx/>. Additional information regarding the TXODX DXpedition will be added during the coming days and weeks.

Because the Coral Sea typhoon season is still very active during March, weather may play a major role in this expedition. Several special arrangements have been made in this regard. You can follow the weather in the Chesterfield area by using the links from the TXODX web site. QSL TXODX on 6M QSO's to JA1BK, and all HF QSO's to OH2BN.

The Conrad Project of National Museum of Broadcasting is trying to raise \$320,000 to acquire the home & garage of Frank Conrad 8XK, whose experimental station evolved into KDKA Radio, holder of the world's first commercial broadcast license.

While many others worldwide were involved in the evolution of radio communications, Conrad's work advanced transmitter technology to reach a wide audience & added the concepts of regular, scheduled programs, commercial sponsors, & a company to manufacture radios for sale to the general public. "We feel the Conrad Garage is to broadcasting what Henry Ford's workshop is to the automotive industry or the Wright Brother's workshop is to the airline industry."

More information on the Conrad project can be found at <http://trfn.clpgh.org/nmb>.

— Rick Harris, Chairman, Conrad Project, email: nmb@trfn.clpgh.org or phone: 412-241-4508 (Information courtesy of Bob Ferrey N3DOK)



The Pittsburgh Vintage Grand Prix Association is looking for volunteers to staff the PVGP booth at the Pittsburgh 2000 Auto Show, being held at the David L. Lawrence Convention Center from February 12th through 20th. The booth will be located on the 3rd floor of the Convention Center. If interested, please call Donna Kessler at 412-767-4937, or email kessler@icubed.com.

FCC Enforcement News

ARRLWeb Extra courtesy American Radio Relay League

CLEMSON, SC: The FCC wrote Volunteer Examiner William J. Browning, AB4BB (ex-AF4PJ), of Pendleton, South Carolina, on January 13, 2000, as part of a continuing audit of a July 14, 1999, W5YI-VEC Amateur Radio examination session in Clemson. Browning was listed as the manager of the session.



The FCC said the *Manifest of Applicants* Browning submitted was signed by Eugene D. Watring, AF4DB, and Maurice D. "Dale" Martin, KT4NY. Watring and Martin have told the FCC that they were not present at the session and did not sign the manifest. Seven FCC Forms 610 Browning submitted also bore the signatures of Watring and Martin, but both have told the FCC they did not sign them. In its letter to Browning, the FCC enclosed copies of the *Manifest* and Forms 610 and asked him to explain the apparent discrepancies "in detail" within 20 days.

FCC Special Counsel for Amateur Radio Enforcement Riley Hollingsworth also said the FCC was aware of allegations that Browning had "physically threatened one or more of the Volunteer Examiners" listed on the July 14 session documents. Hollingsworth warned Browning that if the allegations are true, the information would be turned over to law enforcement authorities. The FCC also wrote Watring on January 13 regarding a second VE session July 14, 1999, in Clemson at which Watring participated as session manager. The FCC said the *Manifest of Applicants* Watring submitted was signed by Grady P. Robinson, AK4N, and Mikel T. Blackwell, N4OPD. The FCC said Robinson's and Blackwell's signatures also appear on four Forms 610 Watring submitted.

Hollingsworth said that while the FCC has not yet heard from Blackwell, Robinson told the FCC he was not present at the session and did not sign any documents relating to it. The FCC enclosed copies of the *Manifest* and Forms 610s and asked Watring to explain the apparent discrepancies "in detail" within 20 days.

The W5YI-VEC has been cooperating with the FCC in its investigation in South Carolina.



You never know what you might find sitting for sale on a table at WASHfest 2000...

Join us on February 20th and find out!

Version 3.00 of my WinTelnetX program is now available for free at: <http://www.berkshire.net/~robbins/software.html#wintelnetx>

It rearranges the windows and makes setting up connections to telnet clusters even easier. It includes info on use with the latest CT built in ethernet. It also includes bug fixes, filtering of dupe dx spots, an automatic startup switch for shortcuts, the capability of logging everything to a file, and several other new features.

— David Robbins K1TTT (ex KY1H)
k1ttt@berkshire.net or robbins@berkshire.net
<http://www.berkshire.net/~robbins/k1ttt.html>

Now in our Fifth BIG year!!

WASHfest 2000

The South Hills Hamfest



An Amateur Radio and Computer Show Sponsored by the Wireless Association of South Hills, Inc.



Where: **Castle Shannon VFD Memorial Hall**
Rt. 88 (Library Road at Grove Road) in Castle Shannon, PA
Just 10 minutes from Downtown Pittsburgh

When: **Sunday, February 20, 2000 (3rd Sunday in February)**
Rain Snow Sleet or Shine!
Doors open at 6:00 AM for vendor set-up ONLY
Open to the General Public 8:00 AM until 3:00 PM

Talk-In: **146.955 (-) N3RNX Repeater starting at 5:00 AM**
Hamfest Communications from Special Event Station W2K

Main Prizes: 1st Prize: Yaesu VX-5R Triband HT 2nd Prize: Icom IC-2100 Mobile
3rd Prize: MFJ 9420X 20m QRP Outfit 4th Prize: MAHA Universal Battery Charger

Acres of FREE parking, and everything is on one handicapped-accessible level.

General Admission is still only a \$4.00 donation per person.

Harmonics under 10 are admitted FREE with adult admission. Tables are \$15.00 each with electricity (limited number) and \$10.00 without power. Main Prize tickets are \$2 each, 3 for \$5
All display areas are located INSIDE CSVFD's spacious banquet facility.

For further information and/or reservations:

Steve Lane W3SRL, Hamfest Co-Chairman w3srl@adelphia.net 412-341-1043

Bill Hill W3WH, Hamfest Co-Chairman billhill@nb.net 724-746-5944 (day) 724-746-1776 (night)

WASHfest 2000, P.O. Box 79211 Pittsburgh, PA 15216

Also, check out the WASH Club website: <http://www.hky.com/~sanfordb/index.htm>

WASHfest 2000/South Hills Hamfest Reservation Form – PLEASE PRINT OR TYPE LEGIBLY!

_____ Tables WITH Electricity @ \$15.00 ea. = \$_____ Name: _____

_____ Tables W/O Electricity @ \$10.00 ea. = \$_____ Address: _____

_____ Prize Tickets at \$2.00 ea. Or 3/ 5.00 = \$_____ City: _____ State: _____ Zip: _____

_____ Total Amount Enclosed = \$_____ Phone: (_____) _____ - _____

Email: _____

Please return completed reservation form to Wireless Association of South Hills, Inc., Hamfest Headquarters, P.O. Box 79211 Pittsburgh, PA 15216

Make all checks payable to WIRELESS ASSOCIATION OF SOUTH HILLS, INC.

Absolutely NO REFUNDS!

Wireless Association of South Hills, Inc.
www.washarc.org



The WASHRag
Ron Notarius WN3VAW, Editor
3505 Rosalia Avenue
Castle Shannon, PA 15234-2317



JPG image file from Toy Story 2
© 1999, 2000 Disney & Pixar

What some will go through to get to WASHfest 2000!. Join us on February 20, 2000, at the Castle Shannon VFD Memorial Hall, Route 88 (Library Road), 8 AM to 3 PM & see if they made it!

Was Pixar inspired by PennDOT road construction?

Inside This Issue:

- Well, it will be the last time we ask you to come to WASHfest 2000...
- Amateur Radio restructuring? How about ARRL Leadership Restructuring?
- The Return of Antennas on a Shoestring! And that's just for starters ... naturally!



I think we can safely assume that NØVLR has plenty of experience working a pileup with heavy QRM!

NØVLPV Photo courtesy NØVLR
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