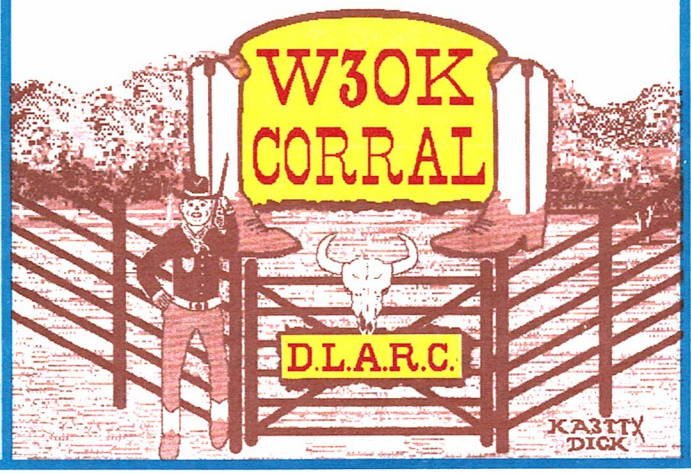
DELAWARE-LEHIGH AMATEUR RADIO CLUB, INC. W3OK

January 1991



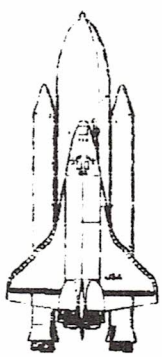
SPECIAL SERVICE CLUB
ARRL Affiliated Club

SAREX-CLASSROOM PROGRAM BIG SUCCESS

SAREX-Schnecksville

by Bob, W2CCE

By some quirk of fate I was detoured from going to the DLARC meeting last month and rerouted to the SAREX excercise at the Schnecksville Elementary School. It was a real experience - - far more than a plain old "ham radio" event. The impressive part was the people. First of all there were lots of them there. The gymnasium/auditorium was packed out with standing room only. There were students, mothers, fathers, teachers, and well wishers not to mention about half a dozen hams. There was an aire of guarded expectancy due to this being one of those events delayed for many months, attempted before, and seemingly never to happen. But all were assembled to give it one more shot. Preliminary information from the shuttle over the TV, 75 meter communication rebroadcast, and early parts of the NASA telephone bridge, seemed to confirm that, as before, the spacecraft attitude was incorrect. Then, the first station in Australia was on the line but alas no contact with the shuttle. Then finally a few words from Ron Parise broke through and our mission was "GO".



The first school tried but with little intelligence passed...and the second...and then it was our turn. Tom Daniels, N3CXP, our tireless leader in the project began his brief but effective "master of ceremonies" introduction and our student representatives were on the air. They spoke clearly and were easy to understand on the 2 meter link, far better that others. So was Ron Parise who answered their questions directly and with a great deal of depth in his statements. It was a success!!... The Satellite Amateur Radio EXperiment had allowed these fine young people, representatives of their school, to talk to the satellite over amateur radio facilities and achieve an identity with space exploration which even surpassed their long interest in the space which had been long developed by Bob Boehmer their teacher. Bob had, in fact, called NASA that day and requested an improved spacecraft attitude for the experiment on the basis of the "public interest" rather than the then overriding "scientific cause". Apparently his call had achieved its goal.

CONTINUED ON PAGE 6 (SAREX)

SEE THE MEEETING NOTICE ON PAGE 9

GENERAL CLASSES TO START JANUARY 7th

Yielding to requests, the Educational Committee, consisting of WA3T, NU3L and K3EX will begin classes for upgrading to General, on **JANUARY SEVENTH**. The classes will be held at the Northampton County EMA center in Nazareth. Will be using ARRL study guides. they will be available at the class.

It will help if you will register, call the DLARC Information phone line, wait till the messages are finished and leave your name, call and telephone number on the tape. The information line number is **820-9110**. This will allow us to order study guides.

If time permits, theory for upgrading to Advanced Class will be held as well.

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GET YOUR RAFFLE MATERIAL TO BROWNIE, W3CJI AS SOON AS POSSIBLE..PLEASE DO NOT WAIT UNTIL THE LAST MINUTE.

DIGITAL COMMUNICATIONS

by

Joel, K9TBD

This is a new year. Things have changed - others have not! Whether things change, there are question each year. Robin, WA3T, at the Quarter Century Wireless Assoc. (QCWA) meeting last month posed a question for which I had no immediate answer:

The question was: "What is the difference between speech compression at the AF and the RF frequencies?" We talked about that question for a while with no immediate resolve. I wrote a Fast Fourier Transform program (FFT) which I called "Half-Fast Fourier Transform" program. Don't say that tooooo fast or it will come out wrong. The following is a discussion on the results of analysis using the "Half-Fast Fourier Transform Program". It is in BASIC and will even run on my 'junque' PC which has no complex numbers!

Here are the results: Comparison of speech compression at the Audio frequencies as compared with compression at the RF frequencies favors compression at the Audio level! Recall my article appearing in the DLARC (W3OK) newsletter regarding multi-band antenna designs. This will influence your interpretation of the following discussion:

In order to compare both the time and frequency domain representations of the compression techniques - a Normalization (NORM) routine was written. This provided a 'power-equalization' for comparison reasons. The original analysis was done without this normalization and was difficult to determine the displayed differences.

Sample 'Time-Domain' signals were used. They were a single sinusoidal modulating signal on a carrier. To keep the Fourier spectra lines separated, I selected the number of samples for a repeating sinusoidal modulating signal to be divided (one wave) into 128 (2**7) parts and selected the 'carrier' frequency at 16 x (2**4) the sinusoidal modulating frequency.

With these preliminaries: <75% Clipping-Level AF or RF>

1) There were obvious differences in the time domain!

'clipping in the frequency domain was harsh'

(i.e. more cross band over-tones)

2) Clipping in the 'RF' region - yielded the 'RF' region 'AF' over tones (as expected) but also yielded odd 'RF' harmonic overtones! These were at the 'odd' harmonics relative to the carrier frequency.

3) Differences: Between spectra components shows:

- o) Audio compression clipping does not cause:
  - .odd harmonic overtones - up from carrier
  - .spread beyond that of baseband signal
- o) RF compression clipping
  - .causes odd harmonic overtones
  - .will create interference on the next odd band up
- o) The difference between AF-RF compression show:
  - .Audio compression does not cause odd harmonic overtones whereas RF 'spurs' on odd multiples of your transmit frequency.
- o) RF compression clipping causes - odd harmonic overtones

Summary: If you use 'Speech Compression': Do not clip <sounds mushy> regardless of which method your transceiver uses. Buy a rig which compresses at the audio level: since this will cause the least QRM on overtones frequencies: i.e. your 80 meter rig will overtone to 17 meters (5th overtone) with heavy com pression.

Use another radio to listen to your signal. This way you will be able to set your compression level correctly and can be done by ear. If your local signal sounds bad - don't transmit - set your levels different!

I hope that this illuminated some of he concerns regarding "Speech Compression" at the 'AF and RF' frequencies.

If you do not have to compress - DON'T ! You will only 'mush' your signal which becomes less competitive in a 'pile-up'.

73 Joel, K9TBD

ps: For details regarding this article or analysis programs and their development, please send an SASE floppy (5-1/4) to me. No formatting is required.

HOW AN OSCILLOSCOPE WORKS
By Van, K3CP

Elmer felt that Ima Lidd was ready to learn how an oscilloscope works. So he said to Ima, "I feel that it's very important that you learn to use an oscilloscope as it is one of the most useful pieces of test equipment available to hams."

"Well, alright Elmer, but I was always afraid that they were too difficult for me to understand."

"Get that idea out of your head", replied Elmer. "They are fairly simple to use, but first we will discuss how they work.

"The heart of the instrument is the Cathode Ray Tube (CRT). The CRT was invented by either Bell Labs or by Allen Dumont depending on who is telling the story. The CRT consists of an electron gun, focusing plates, deflection plates and an anode that really is a screen with a special coating. The electron gun consists of a filament (heater), a cathode and beam forming plates. The deflection plates are two pairs of plates. One pair controls the up and down deflection of the electron beam and the other controls the left and right deflection. The anode is the front of the tube. The inside is coated with a phosphorus type of material that emits light when struck by electrons."

Elmer continues, "When the power is turned on, electrons are emitted from the electron gun. The beam forming plates focus the electrons into a beam much like a magnifying glass focuses sunlight to a small dot. A high voltage (several thousand volts) on the anode (screen) causes them to flow towards it at a high velocity. When the electron beam hits the screen it produces a dot of light. The beam will continue to flow in a straight line until something is done to change its course. Here is where the deflection plates are used. If a battery of sufficient voltage is connected to the horizontal plates, the beam will be deflected. Do you know whether the beam will move right or left, Ima?"

Ima thought for a while and then said, "I guess the direction the beam is bent would depend on the polarity on the plates. Since electrons have a negative charge they would move towards the positive plate and be repelled away from the negative plate, because opposites attract and like charges repel."

"That's right, Ima," said Elmer. "If we set the polarity so as to put the positive voltage on the left plate then the beam will be bent toward the left plate. Now if we reverse the polarity, the beam will be deflected to the right plate. Looking at the face of the CRT, we will see a dot on the left side of the screen and then when we reverse the polarity, the dot will appear on the right. Now, if we switch polarity very quickly, the dots will move from left to right so rapidly that a line will appear. However, there is really no line there. When they are moving fast enough they merge together and the human eye perceives them as a solid line. If we replace the battery with an AC source the dot will move from left to right when the AC cycle is on the positive half of the cycle and then it quickly goes back to the left on the negative portion. The higher the frequency of the AC voltage, the faster this occurs. The return trace is called the retrace and most 'scopes blank out (turn off) the electron beam on its return to the starting position.

Ima interrupted, "You're saying that if I put an AC voltage on the horizontal plates of the CRT, we would see a straight line on its face."

"Yes," replied Elmer, "and since there is no potential (voltage) on the vertical pair of plates, the line would be in the center of the CRT. If we remove the voltage from the horizontal plates and put it on the vertical plates, the same thing would happen except for one important difference. Can you tell me what that difference would be?"

"Yes, I can. The line would be vertical now instead of horizontal," said, Ima.

"That's right, Ima, now listen carefully. Suppose we put the same voltage on each set of plates. What kind of pattern would we see? Think about it until our next session. I think this is a good place to stop for now. When we get together again we will talk about some of the circuitry that is used in conjunction with the CRT to make it more flexible and useful as a test instrument. Then later on we will discuss some really useful things that 'scopes can do around the ham shack."

Ima Lidd said, "Boy, that surely sounds interesting, Elmer. I am looking forward to it and I will think about your question.

Thanks again, Elmer."

**** CONTEST CALENDAR ****
by Barry, KU3X

Jan. 5-6	ARRL RTTY Roundup
Jan. 9	W1AW Qualifying Run, 35-10 WPM
Jan. 12	Midwinter Contest, CW
Jan. 12-13	Hunting Lions in the Air (PHONE)
	N.A. QSO CW Party
Jan. 13	Midwinter Contest, Phone
Jan. 19-20	N.A. QSO SSB Party
	Mich. QRP Club CW Contest
Jan. 19-21	ARRL VHF Sweepstakes
Jan. 24	W1AW Qualifying Run, 10-35 WPM
Jan. 25-27	CQ WW 160 Meter CW Contest
Jan. 26-27	YL-ISSB YL/OM CW Contest
Jan. 26-Feb. 3	ARRL Novice Roundup

There are a lot of contest for the month of January. My favorite being the CQ 160 meter CW Contest. Alaska and the Hawaiian Islands were heard in the CQ WW CW Contest last November. I heard them both and they were nice and strong. If you put a few hours a night into this one, you will probably be able to go after your W.A.S. Award on 160 meters. If you don't have an antenna up for this band, try a loaded quarter wave sloper. Information for this antenna is available on request.

How's your code speed ? A little rusty ? Try listening to one of the W1AW Qualifying runs.

If you have an IBM compatible computer and want to do your logging that way, which is really the only way to fly, there are some great programs available. We all know the great job that Van and Robin did on the PAQSO Party Logging Program. K1EA and K8CC have two terrific programs for most of the major contests. If you use any of these programs, you will never use a pencil and paper again. You don't have to be a computer expert to run these programs. They are very easy and straight forward to use.

de Barry, KU3X

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LETTER TO THE EDITOR
A SINCERE THANKS

I recently contacted a W3OK Corral Staff member with the hope that he could solve a problem for me. I was having trouble getting a particular Amateur address. I had tried various avenues but to no avail. It then dawned on me to try and contact the man responsible for the mailing list of the Delaware-Lehigh Amateur Radio Club.

I called Bob Mulrooney, KB3RI and asked him for the address, but he could not give it to me immediately. He took my phone number and said he would call back when he had the address.

I thought I would be in for a long wait, seeing how much difficulty I was having in getting this address.

Not only did KB3RI call back, he did so in 10 minutes. His efficiency saved me a enormous amount of time,. I want to thank him and the DLARC for operating your staff in such a manner that is conducive to promoting he well being and harmony among Hams everywhere.

Again, Thank you, 73

Terry Bogert, N3HET

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DUES ARE DUE
Mail them now!



Roy Buss, KA3MNY Treasurer
220 E. Chestnut Street
Nazareth, PA 18064

REPEATER ETIQUETTE 101

As bad weather approaches, repeater users should remember to leave nice long pauses, during drive-time ragchews, others can call for help, if necessary.

Transmissions should be kept short.

Never ignore a breaking station while you finish your oration on non resonant rhombics; it could be an emergency call!

Don't be a repeater dominator(one who, after safely arriving home through ice and snow, then proceeds to tie-up the repeater while others are still trying to achieve the same success.)

Those who totally ignore the "courtesy tone" before transmitting, should try, to be more courteous to those who are trying to break in. Perhaps the following rule says it all: ***If you don't hear the courtesy tone, either the repeater needs repair, or your operating procedure does..thnx BLURB.***

NEW MEETING LOCATION

Northampton County
Community College
KIVA HALL
3835 Green Pond Road
Bethlehem, PA

7:30PM

Talk in on 146.70

REPORT OF DECEMBER VE SESSION
by John, K3GQJ

Results of the December tests shows that the VE sessions of the Delaware-Lehigh Amateur Radio Club are paying off.

There were 19 candidates who took a total of 27 elements. There were 12 up-grades. These are as follows:

1. Vic Celani, Technician
2. Robert Green, KA3YAT, Technician
3. James P Monteleon, Technician
4. Adrienne Donatelli, Technician
5. David Keller, KA3TLS, Technician
6. Morgan Besson, Technician
7. Anne French, KA3YAY, Technician
8. Harlan French, KA3YAX, Technician
9. Norman E Pengelly, KA3YBE, Technician
10. David Koehler, KA3YCC, Technician
11. Jason Young, KA3WAY, Advanced
12. Bob Steinberg, N2LAT, Advanced

The VE'S for the session were:

Ed Giglotti, W3APE; Robin Moseley, WA3T; Bob Dickinson, W2CCE; Henry Smith, NX3R; Alex Ostapenkop, WG3C and John Greenage, K3GQJ.

Team 1 will attend the January 4th session.

73 de John, K3GQJ

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FOR SALE

ICOM R71A General Coverage Receiver. 100Khz to 30Mhz. Excellent condition. Asking $550. Call Bob, KA3YAT at 432-4286. Great receiver for working split operation in contests if your transceiver does not have the potential.

FCC MAKES AMATEUR SERVICE MORE ACCESSIBLE TO HANDICAPPED OPERATORS (PR DOCKET 90-356)

The Commission has amended its rules to make the amateur service more accessible to amateur operator licensees who, because of severe handicaps, are incapable of passing the higher speed Morse code telegraph examinations. However, the FCC declined to provide a list of disabilities. Instead, the judgment of a physician will be relied on to establish that a person is severely handicapped and cannot pass a telegraphy examination.

On August 1, 1990, the FCC proposed exempting from the 13 and 20 words per minute telegraphy examinations amateur operator licensees who are incapable of passing those examinations due to severe handicaps. Because of international requirements, however, no exemptions would be granted from the 5 wpm telegraphy examinations.

The rules adopted require a physician's certification and a release permitting disclosure to the FCC of medical information pertaining to the handicap. The Commission said that the term "physician" would be limited to practitioners with full medical privileges, that is, doctors of osteopathy or doctors of medicine.

With respect to whether administering volunteer examiners should administer examinations that they had not passed, the Commission said that any VE who is not competent to perform the VE functions should not administer examinations.

from ARRL Field Services BBS

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ARRL VEC TARGETS NOVICES

A new pamphlet describing the ARRL volunteer examiner coordinator program is being mailed to all new novice class licensees. New Novices have not necess arily had any exposure to either the League or the VEC program. The pamphlet describes the licensing upgrading process, how volunteer examinations are conducted, and notes the many services available from the ARRL.

Since July 21, 1984, the ARRL VEC has accredited more than 13,000 examiners, who have conducted more than 11,500 test sessions for some 140,000 people. As a result, 77,500 upgrades have been submitted to FCC.

On a related note, the FCC has announced that the maximum allowable reimbu rsement fee for a volunteer examination will be $5.27, starting Jan. 1, 1991. The ARRL VEC maximum will be set at that time at $5.25. There is no fee for the Novice examination.

432-8286

NOVICE CLASS NOTES
by Chris, NU3L

The Fall session of novice classes has ended with 9 graduates:
Harlan French (KA3YAY), Anne French (KA3YAX), Andy Gilicinski, Bob Green (KA3YAT), Beorn Sunflower, Adrian Donatelli, Mike Steinberg, Ken Gruver, and Victor Celani. Several have already made technician.

As usual CW proved to be the difficult part for most. However, Beorn is planning to buy an HF rig (not VHF) maybe without a mike until he upgrades to general! The French family will shortly be on their way to 4 land with 2 meter mobile and plan to be ready to pass general when they return at the end of winter. Mike Steinberg has a tough act to follow but he definitely has ready access to Elmers. His father is N3LAT and his brother is N3LAU.

Congratulations to all; it is a lot of work but definitely worth it. Maybe we will see some of these new licensees in the upcoming general class.

SAREX (CONTINUED FROM PAGE 1)
by Bob W2CCE

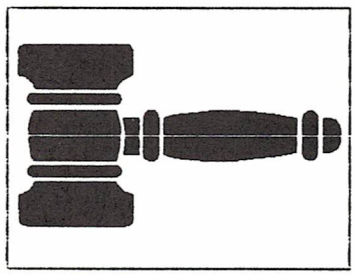
Many smiles and later cheers of congratulation were heard as our turn was completed and the program wound down. It then became evident that not only were the attendees, students, and instructors very excited and pleased but there was a special feeling of elation and satisfaction for the amateurs who had put it all together. Tom Daniels had, with the help of Clarence and others, spent so much effort on this project that he had gotten the DLARC/Schnecksville team to the head of the list in the entire country. He had experienced great discouragement with delays, cancellations, and problems. But finally his dedication had paid off and the experiment was a whopping success. Congratulations Tom and the rest of Delaware-Lehigh Amateur Radio Club for a job well done!!

We cannot forget the work of AE3T and that of our technical committee, W3LR, K3LPR and of course, W3TDF who manned the repeater, while all events were under way.

Editor's note> Bob, W2CCE who wrote this article in his normal manner, did not tell you that 90 minutes before the contact, the power supply at the school went up in smoke..Bob came to the rescue with a power supply, instead of going to the club meeting..de Clarence W3PYF

THE GAVEL SPEAKS
by Ray, W3TDF President

Although we have a new meeting place, all is not rosy. DLARC is first on the outside groups list, but, college requirements come first. In addition, reservations are only made by the semester, (3 or 4 months periods). There are other meeting/classrooms, which may be assigned alternately. In fact it appears that we will not be in KIVA hall for the next semester, (Feb., Mar., Apr. & May). It looks like we may be in the Northampton Theatre, which seats 300+ I believe. More on this at our next meeting and in your 'OK Corral, prior to the February meeting. Will also be announcing same on the nets, and general announcements.



No word from Nittany yet, but I suspect I will be hearing from them to return the Trophy shortly. In the meantime look for me in the N.H.-QSO Party, the first weekend of Feb. I'm still thinking about next OCT., but no real plans yet. 73

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FOR SALE

IBM XT Clone Computer. 640k memory, **math coprocessor**, CGA with monochrome display, parallel & serial ports, some software. Call Archie Lamb, KX5X at 588-9490. $550.00

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VERN, N5IEP, CALLED TO ACTIVE DUTY

Vern Burden, N5IEP, has been called to active duty with the Marine Corps unit to whichhe has been attached. Vern was ARRL District Emergency Coordinator and Public Information officer for the club. His address will appear in a later newsletter.

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NEW MEMBERS

Walter Tietz; Victor Celan; Ron Kapo, K3JSQ; Beorn Sunflower; Jeff Finkel, KC1UW; William Page, KA7YJX; Roy Brown, WA2TWS; Juan Bouza, WP4HHZ; Andrew Gilieinski; Mike Steinberg; and Andrienne Dontelli were elected to membership during the December meeting.

FCC CREATES CODELESS CLASS OF AMATEUR RADIO LICENSE

For the first time ever, starting in February it will be possible to obtain an Amateur Radio license in the United States without passing a Morse code test. The Federal Communications Commission (FCC) has eliminated the need for new Technician class Amateur Radio license applicants to demonstrate proficiency in Morse code in order to have all amateur privileges above 30 MHz, The implementation date may be as early as February 1991. Technicians who obtain their licenses prior to that date will be grandfathered, meaning their existing HF privileges will continue.

The codeless Technician written examination will have 55 questions. New Technicians wishing to gain access to the HF privileges below 30 MHz now enjoyed by Novices and Technicians will be required to pass a 5 WPM Morse code test before three Volunteer Examiners accredited by Volunteer Examiner Coordinators, and will be given a Certificate of Successful Completion of Examination (CSCE) to serve as evidence of their qualifications. There will be no call sign designator to indicate Technicians who have or have not passed a code test.

The FCC took this action in response to numerous petitions and public comments. By offering a codeless class of license with privileges exclusively above 30 MHz, an entry level license will become available to those who find the Morse code a barrier to becoming an amateur radio licensee. The FCC decided to retain the current Novice Class operator license as an alternate entry level license for those persons able to pass the 5 WPM Morse code test instead of the more comprehensive written exam required for the Technician Class license. No changes in Novice examinations or privileges were announced.

At a press briefing held just after the Commission's meeting, FCC Private Radio Bureau Chief Ralph Hallar said, **"The Amateur Service is not growing as it should relative to what it has to offer."** He said that the Amateur Service is where our nation's technical expertise comes from--that the changes should attract people who are interested in computers and digital communications, and should help the U.S. to be more competitive.

February 1991 QST will carry more details.

ARRL APPLAUDS FCC RETENTION OF NOVICE LICENSE SEEKS INPUT ON PRIVILEGES FOR CODELESS TECHNICIANS

Responding to the Federal Communications Commission action in PR Docket 90-55 creating a codeless class of Amateur Radio license, the President of the American Radio Relay League, Larry Price, W4RA, noted with pleasure that the Commission had decided to retain the Novice license as a means of entry into Amateur Radio and to adopt a codeless license with a meaningful written examination requirement. Our members were very strong on both of these points, because they Couldn't imagine how we could maintain the character of the Amateur Radio Service without them." Mr. Price said.

However, President Price sounded a note of caution with regard to the privileges the Commission plans to grant to Codeless licensees, "The formula developed by the ARRL Board, which called for privileges above 220 MHz, was based on extensive membership input. It was carefully balanced to offer attractive privileges while protecting existing patterns of amateur activity." While it will take sometime to gauge the reaction to the Commission's action. Mr. Price observed that the FCC formula is likely to be less acceptable to many amateurs than the League's. He asked that League members share their views with their elected Directors, who collectively determine League policy.

"Before we can decide whether to request that the Commission partially reconsider its action, we'll have to see the Report and Order," said Mr. Price. Usually it takes the FCC from several days to several weeks after a Commission action to release an item after editorial review. There is a 30-day window of opportunity following release in which petitions for reconsideration can be filed. Mr. Price noted that the ARRL Board was holding its regular meeting on January 18-19, 1991. "The timing looks good for a careful review of the Commission's action at that meeting." he said.

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THE JANUARY 3rd MEETING AT THE COMMUNITY COLLEGE WILL FEATURE A TALK ON THE CIVIL AIR PATROL BY MAJOR BRINKER OF THAT ORGANIZATION.

yANKEE DOODLING

"This month YANKEE DOODLING has a slightly different format with a guest columnist. Thanks, JP, we appreciate your taking the time to write up your recent antenna experiences. -K3YD

Quarter-wave vertical with sloping radials by N3GWR

I've been looking for a good DX antenna for 75 and 80 meters.. So, I read a lot of books (i.e. ARRL Antenna Book; Low Band DX-ing, etc.), and talked to some of the local "Big Guns" including K3OO, KU3X, K3NZ, K3ANS, & NU3L. If you do the same you'll learn, as I did, that DX signals usually come in at a low angle relative to the horizon. The signal will have a mixture of horizontally and vertically polarized waves. One source (National Contest Journal) said that DX signals on the lowest 3 amateur bands (40, 80, and 160) often have more signal in the vertical plane after the signal travels through the ionosphere. A vertical antenna, for these bands seems to be the best way to radiate vertically polarized waves. Hmmm, maybe that explains why all the tri-banders I see are horizontally polarized and WAEB-AM still has its big towers. (*Not quite. Hams, typically, are looking for good low-angle sky-wave radiation for DX. WAEB is looking for local Ground Wave coverage. Both can be accomplished with a vertical* -Ed.)

I also learned that a ground mounted vertical needs many (say 36 to 120) radials but that if the same antenna is elevated, even a few feet, far fewer radials are necessary. If the base and feedpoint can be elevated 6 to 10 feet, just 3 or 4 resonant 1/4 wave radials will provide a good counterpoise. (If the base of a 1/4 wave vertical could be elevated to 1/4 wavelength above ground, only a single radial would be needed. That antenna is a vertical half-wave dipole.) Lessee now, 2-quarter waves is a half wave and that's 468/f. For 3.7 MHz that's...126.5 feet! Anybody have any fast growing Sequoia Seeds? Seriously, a full sized dipole isn't practical for most of us, at least on the "low" HF bands.

The characteristic impedance of a half wave dipole is about 70 Ω. For a quarter wave monopole over a good ground, it's about 35 Ω. If the upper half of a dipole is vertical and the lower half is sloped at an angle between 0^0 and 90^0, the impedance will vary between 35Ω and 70Ω, tending toward 50 Ω and a good match for our typical coax cable. At a 45^0 angle, the impedance should be just about 50Ω at the resonant frequency of the antenna.

If you consider these few simple principles, you can quickly build a DX-optimized low-angle radiator which provides a good match to your coax and transmitter. I first built one of these for portable use on 10 meters and it worked quite well.

THE 75 METER CANNON

Enough of this dry theory--let's talk antennas and DX. I'm lucky enough to have several 80'-90' tall hardwood trees on my lot. Using a bow, I shot an arrow with an attached fishing line over the crotch of an oak tree. The arrow fell on the far side of the tree where I attached some mason's twine and then reeled the arrow (and twine) up to the crotch and back to my side of the tree After that, a heavier line was the next step.

I attached a 63.5' length of wire to the line and hauled it up into the tree. Then I attached the center conductor of some coax to the bottom of the wire and the coax braid to 3-63.5' radial wires. [Thanks, KU3X for yoursuggestions on mechanical construction.] The radials were fanned-out about 120^0 apart. Finally, the antenna was lifted till the feed point was about 20' off the ground.

Does it work? IT WORKS!

No antenna article is complete without the results, so here they are. In the first three weeks on the air, using a barefoot Kenwood TS-430, the 75 meter DX worked here includes FR5DX on Reunion Island (east of Africa), South Africa, South America, Australia, and many Europeans. . I've heard but haven't worked Japan--yet. SWR is under 1.8:1 from 3.5 to 4.0 MHz. My favorite experience was one evening when I heard an English (G4) station calling CQ DX on 75. Every time he called, I answered but he would answer someone else, usually a W8 or W9. After about 5 tries I added, "Doesn't this thing work?" The G4 responded "Oh, yes, N3GWR, you're quite loud, but I wanted to talk to someone further away." He was quite impressed to learn that I was "barefoot."

If you don't have an 80' tree, you can scale this antenna to a higher frequency--say, 40' for 40 meters, 25' or so for 20 meters. The key to it's performance is getting the feedpoint elevated above ground and using resonant radials. As always, with antennas, higher is better! **SK de N3GWR**

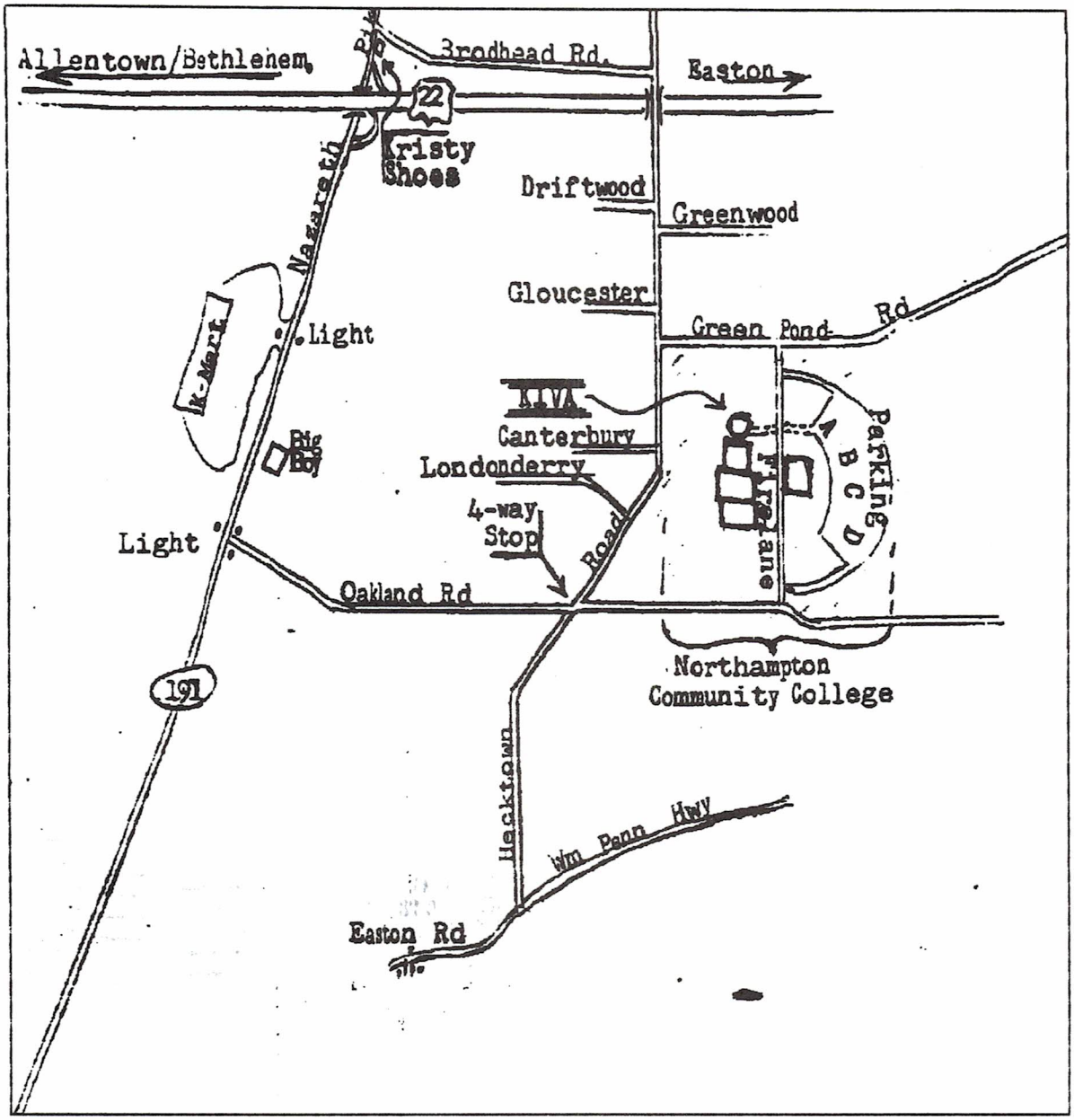
RANDOM DOODLINGS-Repeaters

The 148.82 repeater on Harmony Mt. near Washington, NJ, now requires a 82.5 Hz sub-audible (PL™) tone. If you have a "modern" radio, program that tone into memory. The '82 machine provides real good coverage in western NJ and eastern PA. It's especially good along route 611 at the base of the cliffs where '.70 is shadowed. A severe co-channel interference problem with a metro-area machine necessitated the change.

The local 145.39 repeater owned by KU3K needs a 151.4Hz tone, or 4 sec. of DTMF™ *[5], for activation.

Have you tried the 145.23 MHz repeater? It's near Long Pond & has very wide area coverage of the Poconos & Lehigh Valley.

01.91 **73 de k3yd**

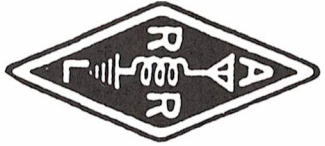


NEW MEETING PLACE BEGINNING JANUARY

Beginning in January, 1991, the Delaware-Lehigh Amateur Radio Club meetings will be held in Northampton County Community College, **KIVA HALL.** When you enter Firelane Drive, through the campus, take the first entrance (to the east) to the parking lot area. Park in Lot 'A', then follow the macadam (black-top) walkway back across Firelane to Kiva Hall. Kiva is the only part of the entire complex that is stone faced. It is also the only Round Wing, or addition.

It is best to enter Firelane from Green Pond, otherwise you have about six stop signs (at all crosswalks), and campus security people are very strict about obeying them!

ANY PROBLEMS CALL ON 146.70..SOMEONE WILL HELP!





THE DELAWARE-LEHIGH AMATEUR RADIO CLUB, INC.

The
W3OK CORRAL

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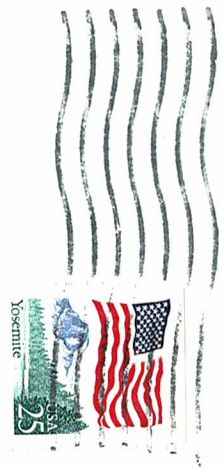
GREYSTONE BUILDING
NAZARETH, PA
18064

Robert A. Green
246 Crest Drive
Whitehall

KA3YAT

Pa. 18052







All Amateur Radio Operators are invited to participate in the DLARC, RACES & ARES nets on 146.70 W3OK/rpt.
The Nets are held on Sundays at 9:30 AM and on Wednesdays at 7:00 PM.
The alternate repeater for these Nets is 145.11 W3PYF/rpt.

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1991

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All regular meetings of the D.L.A.R.C. are held on the first Thursday of each month at 7:30 PM in the Greystone Building at Nazareth
Phone....759-2600

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Any comments or articles contributed to this newsletter should be addressed to
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