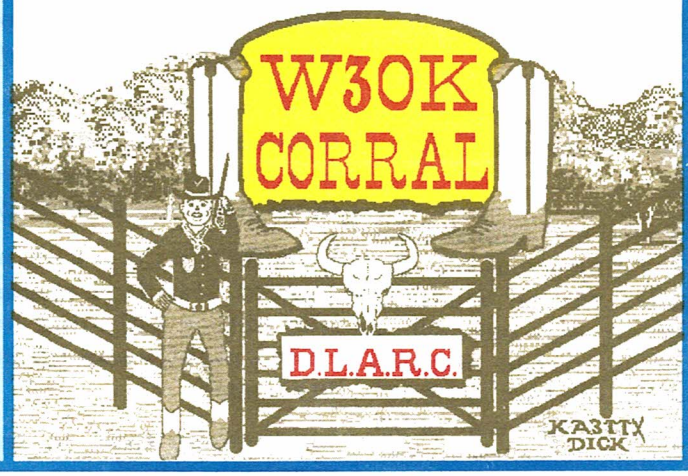
DELAWARE-LEHIGH AMATEUR RADIO CLUB, INC. W3OK

November 1994



SPECIAL SERVICE CLUB
ARRL

ARRL Affiliated Club

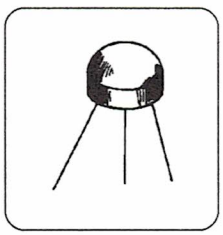
We have to make these things smaller

Van, K3CP to speak on transistors

by Greg, KB2ANG, Program chairman

November's program will feature everybody's favorite Elmer, Van K3CP and his memoirs of the birth of the Transistor.

Meeting will be held in Kiva Hall at Northampton Community College at 7:30 on November 3rd.



Van was one of the supervisors on the first production line at Western Electric in Allentown when they first started to tool up and manufacture the transistor in the late 1940's and early 1950's.

Come and hear about the roots of the component that gave us the pocket calculator, pocket radio and lots of other electronic gadgets that fit in our pocket along with our HT's.

That's November's meeting in Kiva Hall, Northampton County College and Ima Lidd's mentor, Van and the Transistor.

de Greg, KB2ANG

DELAWARE-LEHIGH AMATEUR RADIO CLUB MEETING

November 3rd.. Kiva Hall

Northampton County College7:30pm

Talk in on 146.70 if needed

1994 QSO Party comments

by Ray, W3TDF, DLARC chairman

DELAWARE-LEHIGH PA QSO PARTY Amateur Radio Club Inc

As this is written Friday Oct.14, I have received many phone calls and .70 QSO's thanking me, and giving me credit for the outstanding turnout and aggregate score that the DLARC achieved. Please, let me set the record straight. I didn't do it! You, the members, did it. And,it wasn't for me; it was for the club. I like to think that I did my part in inspiring you folks to make it happen. Therefore, I wish to thank all who participated, on behalf of the DLARC. You did us proud.....

As of this moment, the most recent updated tally shows 60 members, (out of possibly 70)contributing to the club aggregate, to the tune of 2,350,+++ points. The club record for the state stands at 2.6+ million, set by our own DLARC in 1990. In fact we are the only club to break the 2 million mark, ever.

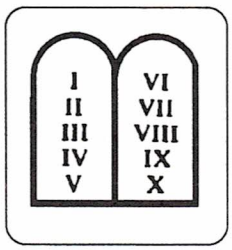
I see by the advance reports that a considerable number of you have topped your own goals, and I am sure there are a lot of congratulations in order, but, for fear of letting someone out, I will not mention anyone in particular. You know who you are. WE (the DLARC), thank you. *de Ray, W3TDF*

Where else can you get a bargain like membership in DLARC? Autopatch, Newsletter and much more for only $12.00 per year. January is coming fast, why not send your dues to Treasurer Dick Dech, KA3MOU

Ten Commandments of electronics

reprinted from Proceedings of the Radio Club of America 1984

It is traditional that all trades and callings have their Ten commandments -- the Fighting Services, the printing trade, medical students, the Civil Service; they have all at some time, produced some wag who circulated, under the very noses of his masters, some ironic code of behavior. Telecommunications technicians and engineers are no exception and we imagine that as soon as the wonders of telegraph, telephone and radio were launched upon the world and the new breed of commandments appeared. Variations have continued to appear from time to time; and those quoted below appeared, from a source unknown, upon our desk. It seems only right and proper that they should be seen in our pages. After, all we are trying to fit pieces of history of our art together and such commandments are surely a part of that history and should be recorded for history.



1. Beware of lightning that lurketh in an undischarged capacitor, lest it cause thee to be bounced upon thy buttocks in a most ungentlemanly manner.

2. Cause thou the switch that supplieth large quantities of juice to be opened and thusly tagged, so thy days may be long in this earthly vale of tears.

3. Prove to thyself that all circuits that radiate and upon which thou workest are grounded, lest they raise thee up to high-frequency potential and cause thee to radiate also.

4. Take care that thou use the proper method when thou takest the measure of high-voltage circuits so that thou dost not incinerate both thyself and the meter; for verily, though thou has no account number and can be easily replaced the meter hath one and, as a consequence bringeth much woe into the Supply Department.

5. Tarry thou not amongst those who do deal in intentional shocks, for they are surely unbelievers and are not long for this world.

6. Take care that thou tamperest not with interlocks and safety devices, for this will incur the wrath of thy seniors and bringeth the fury of the safety officer down upon thy head and shoulders.

7. Work thou not upon energized equipment, for, if thou dost, thy buddies will surely be buying beers for thy widow and consoling her in other ways not generally acceptable to thee.

8. Verily, verily, I say unto you, never service high-voltage equipment alone for electric cooking is a slothful process and thou mightst sizzled in other ways not generally acceptable to thee.

9. Trifle thou not with radioactive tubes and substances, lest thou commence to glow in the dark like unto a lightning bug, and thy wife be frustrated nightly and no further use for thee except thy wage.

10. Commit thou to memory the works of the prophets, which are written in the books of instruction, which give the straight dope and which console thee, and thou canst not make mistakes.

[From a publication of the British Directorate of Telecommunications.]

Editorial

Very Interesting!!



by Clarence, W3PYF, Editor

In my mail on September 22nd I received from ARRL, an notification that my Amateur license was about to expire on January 25, 1995. With this letter was a 610 form and a preadressed envelope to the FCC in Gettysburg. One more service of membership in the ARRL.

In the same mail was a letter with big black letters on the envelope was the wording:
URGENT ALERT! Your Amateur Radio License is about to EXPIRE! Enclosed was a 610 form.

The letter urged me to send $5.00 to W5YI, and for that they would file it for me.

There is no charge for renewing your license, a 610 is available to DLARC members from either the FCC or from Dick Dech, KA3MOU, if you are not a member of ARRL Our club data base will tell us when you are ready for renewal and you will receive from either Dick or me a notification of the date 3 months before it has to be done.

It is amazing to me what some such as W5YI, will do to make money from the Amateur community.

de Clarence, W3PYF, Editor

DLARC meeting 3rd Kiva Hall, Northampton Community College... 7:30 PM.. Be There!!

Talk in on 146.70 if necessary

Just the minutes

October 6, 1994

by Bob, N3OLH, Secretary

The October meeting of the Delaware-Lehigh Amateur Radio Club was called to order at 7:33 P.M. in the all purpose room of the Bethlehem Area Vocational Technical High School on Thursday October 6, 1994 by Bob Green, KE3AW, the Club President. Approximately 75 members and guests were present.

Amy, KD3TI, made a motion to approve the minutes of the September General Meeting as printed in the October issue of the W3OK Corral. The motion was seconded by Clarence, W3PYF, and was approved by the membership.

The Treasurers report was presented by the club Treasurer Dick, KA3MOU. The report showed a cash balance of $6,695.42 as of September 30. He also reported that the current club membership was 456. Clarence, W3PYF, made a motion to accept the Report and the motion was seconded by Rich, N3NXF. The report was accepted as read.

The president informed the membership that all members should think about the pros and cons of having a Club Hamfest in 1995. (Note: The 1994 Hamfest generated about $3,000 profit to the club.) At the November meeting there will be a vote as to whether to have the Hamfest in 1995 of if the Club should try to raise funds in a different manner. If The Club decides to continue with the Hamfest we will need a Chairman so the President asked the members to think about volunteering for this important job.

The President read a letter of thanks from the Hope United Church of Christ in Wind Gap for the Clubs donation in memory of Aaron Stackhouse, father of Neil Stackhouse N2QEK.

Membership applications were received from

David Banks, KA3UJC
Randolph Haus, KB2PLW
Raymond Viohl;N3RFJ
John Whitney, N3OGY.

A motion by Ray, W3TDF, and second by Ed, W3APE, was received to accept these applicants into membership. The membership voted to accept these members. The club welcomed the new members into the club. In addition, the President recognized all of the guests who were in attendance.

Since the last club meeting, some of our members participated in the following Club endorsed events: The Century Run, sponsored by the Lehigh Wheelmen; The Habitat for Humanity Bike-A-Thon; The simulated chlorine spill emergency drill at the Palmer Park Pool and the Bushkill Township Elementary School Science Fair. A special thanks was given to all members who participated.

Van, K3CP, chairman of the nominating committee asked that, in accordance with the by-laws, the Secretary cast a vote for the following slate of Club officers who were unopposed:

President - Bob Green, KE3AW
Vice-President - Tom Frobase,N3LLL
Secretary - Bob Gerst, N3OLH
Treasurer - Dick Dech, KA3MOU.

The Secretary cast the required vote.

The membership then cast ballots and elected as Executive Committee members:

Ray Bilger, W3TDF
Don Curtis, W3LR
Bob Dickenson, W2CCE
Chris Hornaman NU3L
Bob Kratz, KU3K

Robin Moseley, WA3T as immediate past president remains on the executive committee.

Ray, W3TDF, showed the members pressure sensitive club emblems that will be available for sale at the next meeting.

The President introduced the program speaker, Dr. Dennis Silage who would speak on digital communications in the 10 GHZ range. Future programs include Van, K3CP, who will discuss the development of transistors in November and the Red Cross will discuss their emergency communications at the December meeting.

This evening's "Spotlight" was presented by Rich, N3NXF who talked about a computer interface to provide communications for persons who are deaf, blind, mute and quadriplegic. He also spoke about his recent visit to the French Wire Museum in the Cape Cod area where he saw how early trans-Atlantic code was sent using a galvanometer plotter.

The membership was reminded that contacts made during the PA QSO Party count toward the DLARC 50 Award. All PA QSO logs must be submitted before November 3. to Ray, W3TDF. Don't forget to include at least $1.25 with your submission.

Tom, N3LLL said that the 440 repeater upgrade is in the final stages and should be up an running in about 4 to 6 weeks. The complicated linkage system will follow.

Rich, N3NXF, asked for a list of repeater functions that can be brought up through a request to a control operator. This will be referred to the Executive Committee .

The meeting was adjourned at 8:20 PM.

de Bob, N3OLH Secretary

IMA LIDD

Repairing Ham gear

Part 2

by Van - K3CP



Elmer and Ima Lidd are discussing test equipment. In this session they are going to talk about current measurements.

"You will remember that in our last get together", Elmer said to Ima, "we mentioned analog and digital systems. Before we go any further let me caution you about a common mistake that some people make regarding the accuracy of analog versus digital types of instruments. Everything else being equal there is no difference in the accuracy of the two methods, although it is easier to read the digital system. A receiver that has digital frequency readout is generally more accurate, but that is due to better design than the older analog receivers. They have higher stability due to solid state devices (less heat) and better linearity in the tuning method. Let me give you another example. If we had a digital and an analog voltmeter, the one with the better multiplier resistors would be the more accurate. If the digital one had 5 percent resistors and the analog one had 1 percent, the latter would be better from an accuracy standpoint. Digital readout on a receiver does not make it a frequency standard."

"Let me give you an example of digital and analog methods to see if I understand", said Ima. "A mercury column thermometer is analog because you can theoretically read any temperature while a digital type could only be read in steps. Is that right, Elmer?"

"Yes, that's a good example", said Elmer. "Other examples are sine wave and square wave, watches with hands and ones with changing numbers, and speedometers and odometers. But let's get on with current measurements. Ohm's law states that the current, in amperes, is equal to the voltage divided by the resistance. The formula looks like this, I = E/R. I is current, E is voltage and R is resistance. If we had 12 volts applied to a 10 ohm resistor, the current flow would be 1.2 amps. We would need a voltmeter and an ohmmeter to measure current this way. The accuracy of our reading would depend on the accuracy of the two meters. You can calculate any one of these, if you can measure the other two.

"Another, and a more direct way to measure current, is with a current meter. With a 1 ampere meter, we can measure currents from zero to one amp. We need a meter shunt to increase the range above 1 amp, however. We can use a resistor in parallel (shunt) with the meter. By choosing a resistor so that 9 amps flows through the resistor and 1 amp flows through the meter we know that there is a total of ten amperes flowing in the circuit."

Ima Lidd interrupted, "In our last session, you used resistors to increase the range of a voltmeter."

"That's right", replied Elmer, "in the case of the voltmeter the resistors are in series with the meter and are called multipliers and in the case of the current meter they are in parallel and are called shunts.

"You know, Elmer," said Ima, "I have heard people talking about voltage "standing" across a resistor or something. What do they mean by that? I get lost when I read about a circuit having a power supply of 12 volts and then only 1 volt standing across a resistor. Where do the other 11 volts go?"

"The other 11 volts are standing somewhere else in the circuit," replied Elmer. We will discuss Ohm's law at length in a future talk, but for now just remember that the terms - standing across or voltage drop across - mean the same thing.

"Another measurement we frequently make is that of ohms. For this we use an ohmmeter. This is similar to an ammeter or voltmeter, but we use an internal battery to cause a current to flow in the resistor to be measured. It's common practice to combine a voltmeter, an ammeter and an ohmmeter into one test instrument. Then by using a switch to change multiplier or shunt resistors we can change the range of the voltage and current to be measured. By using another switch, we can change the internal circuitry of our meter to measure ohms. This instrument is called a multimeter.

"We will continue to discuss test equipment and eventually get into trouble shooting of some of the rigs that we use."

"That sounds like the information I need", said Ima. "Will you tell me how an oscilloscope works and how to use it?"

"Sure thing", replied Elmer. "It's not as difficult as you may think. It really is a very useful piece of test gear. But, let's save that for another time."

de Van K3CP

Argument

A husband and wife were having an argument about who was the most extravagant.

"You accuse me of reckless extravagance," he said. "When did I ever make a useless expenditure?"

She replied, "Well, that fire extinguisher you bought several months ago...we never used it, not even once!"

Pirate QRT

from the Westlink Report

Yet another pirate mini broadcaster has been put off the air, and this time it was a ham who made the enforcement action possible. It happened in Dallas, Texas, after the FCC's regional office received a complaint from an amateur radio operator complaining of an unlicensed AM radio station in the area identifying itself as "Hard Rock 1620."



FCC investigators traced the illegal broadcasts more than ten miles. They finally arrived at the residence of the operator in Rowlette, Texas. They say that the pirate disk jockey was using a transmitter that was approved for Part 73, but that he held no station license. He also was using the power lines as his antenna system to help conceal his operation.

Further investigation revealed that the operator was the same person that they had closed down in 1991 for similar pirate radio operation. The operator still owes $600 on his $1,200 fine from 1991.

Guess what? He is going to owe a lot more in a few weeks after his next fine arrives in the mail.

de Chris, KD3OA, ARRL EPA Bulletin Manager

QUARTER CENTURY WIRELESS ASSOCIATION, INC.

Why not join the QCWA?

If you were first licensed at least 25 years ago, why not contact Ray, W3TDF, secretary and let him know.

The Local Allentown-Bethlehem-Easton Chapter of the QCWA meets regularly on the 3rd Saturday of each month for breakfast and fun.. Contact Ray, on 70 or at his home as listed in the directory for more information .

Join the ARRL, it is not just a magazine subscription.. Contact Dick, KA3MOU, club treasurer. The club benefits from this.

No more morse

The July 1994 issue of "Ocean Voice", the journal of the INMARSAT organization reports that the U.S. Coast Guard will discontinue all weather and other broadcasts via Morse code as of July 1. 1995. Last year, the U.S. Coast Guard closed down their 500 kHz CW distress frequency watch they had monitored for 70 years!

Changing face of Ham radio

Amateur Radio Growth, Last 10 years:

CLASS:	1984	1994	INCREASE
Novice	80461	93797	+ 16.6 %
Technician	79950	235484	+ 194.5 %
General	116804	124589	+ 6.7 %
Advanced	97084	111587	+ 14.9 %
Extra	35624	65942	+ 85.1 %
Total	409923	631399	+ 54.0 %

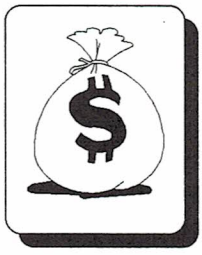
[Ten years ago, most amateurs held General and higher class tickets. The majority of amateurs today hold Novice and Technician ham radio licenses.]

The preceding from The W5YI Report.
de Chris KD3OA ARRL EPA Bulletin Manager

Now is the time!!!!!

by Dick Dech, Treasurer

January is approaching and dues will be due. Don't wait until the last minute.. Send in your dues **now** and make it a lot easier at the end of the year. Make checks out to **DLARC**.



Send it to me at my home address:

Dick Dech KA3MOU
120 McIlhaney Ave
Bath, PA 18014-1612

Dues still the same, **$12.00** per year for renewals, and **$3.00** for each additional family member.

HPM/125 celebration a rousing success

From The ARRL Letter

The 10-day Hiram Percy Maxim 125th Birthday Memorial Celebration appears to have been an overwhelming success. It has just ended as this is written, but many participants are reporting contact totals in the thousands, despite incredibly rotten HF propagation. Both 10 and 15 meters were practically useless, there was very little activity on the "new" bands, and the lower frequencies suffered outrageous storm static over much of the US.

Despite this, pileups on "/125" stations were deep, on both voice modes and on CW. Perhaps most surprising (at least to this writer) was that few people asked what "/125" meant, at least on the CW bands.

The "contest community" is abuzz over this event and is wondering how all those casual operators who showed up can be encouraged to participate in the November Sweepstakes and other regular contests. Some believe the length (10 days) encouraged more and more "casuals" to operate as time went on; some think the two-page QST announcement written in "plain English" helped; others believe the basic certificate for working just 25 of the /125 stations helped. Time will tell.

The highest contact total we have heard so far is 5125! That by Dave Hachadorian, K6LL/7, an Official Relay Station in Arizona, who reports 3802 QSOs on SSB and 1323 on CW, including 470 with /125 stations. Way to go, Dave!

During a special operation the first weekend of the activity, a number of HQ staff members and visitors cranked out about 3,000 contacts from W1AW/125.

The Membership Services Department is going to be very busy issuing the handsome certificates for this operating event.

The preceding from The ARRL Letter.

de Chris KD3OA , ARRL EPA Bulletin Manager

Dues will be do on December 30th. Why not get your dues to Dick Dech, Treasurer before that. Still $12.00 per year, with $3.00 for additional family members.

Habitat for Humanity Bike Race

by Clarence, W3PYF

With over 135 bikers out on the back roads of Northampton county, our ARES group again did what we do best. Act as the safety watch, 14 members did their best to keep track of the riders and their problems on September 25th.

Beginning in Dimmick Park in Hellertown, with **Dick, KA3MOU** and **Bill, W3FYK** as net controls the riders were split into three groups. 10 milers, 25 milers and 50 milers and our group was riding in Sag Wagons and in their cars a careful eye on any problems.

Participating in addition to Dick and Bill, were:

Bob, N3OLH; David, N3SQE; Jeff, N3QZT; Joe, W3JD; Vic, N3IQD; Ray, W3TDF; Jeff, N3RVH; Brad, KA1RAH; Bob, KE3AW; Bruce, KA3ONZ; Clarence, W3PYF; and Chris, N3SIG.

DLARC at Bushkill Twp School Science Fest 1994

On Sunday, October 2, the Bushkill Elementary School in Nazareth held their annual science fest. On hand this year was DLARC with VHF packet, VHF voice, HF voice and CW, and satellite tracking demonstrations.

Over 1000 people came to this year's science fest, and many of them showed a strong interest in our demonstration station.

DLARC members on hand during the demo included **Ken, N3IYX** and his HF rig; **Jeff, N3RVH** with his packet station; **Tom, N3LLL** and satellite tracking demo; **Dick, KA3MOU**; **Bill, W3FYK; Scott, N3SQF; Dick, KC3CR** and **Bob, KE3AW**. Thanks to all who helped.

Thanks go out to **Harlan, N3IUW,** too, for the response on short notice in lending us his Cushcraft R7 and cable which we mounted on the school roof.

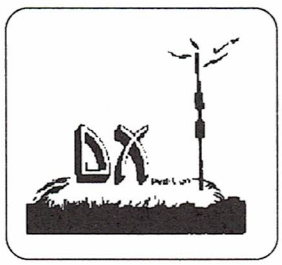
Again, DLARC was there, talking and showing some of the interesting aspects of amateur radio.

de Bob, KE3AW

Devil's DX Dictionary

by Gary Shapiro, NI6T

Ambrose Bierce, a misanthropic 19th-century writer who disappeared in Mexico in 1913, is remembered for stories of the dark side of human experience. His Devil's Dictionary contained bitingly satiric definitions. In that vein:



DXers *n.* A group of like-minded optimists separated from their senses and by great distances, who employ hoary technology to exchange superficial pleasantries more efficiently accomplished by other means.

Flea market n. An event for the ritualistic transfer of electronic junk between participants' garages.

DX net *n.* An on-the-air seance in which DX stations are reputedly contacted through a conductor or medium called a "net control." Only the medium can certify the contact, since the two stations cannot hear each other.

PacketCluster *n.* An electronic means of contacting DX stations without ever having to actually tune for them, (often using software to eliminate all need for operating skills).

SysOp *n.* 1. Person who controls a PacketCluster node. 2. An individual chosen by God to rule a kingdom accessed via a 2-meter frequency. A SysOp may solicit dialogue from his wretched subjects regarding PacketCluster innovations or procedures, but tends to reject and punish criticism.

QRM *n.* All stations in a pileup other than the successful candidate; i.e.., what you were in pileup before the DX station came back to you.

Hamvention *n.* a large tribal gathering of Radio Amateurs, identifiable by such artifacts as rubber antennae attached to funny hats. Participants often communicate via small radios, even when in close proximity, while engaging in such rituals as exchanging junk. (See "Flea market.")

160 meters *n.* A special region wherein gather two or more hopeful fools for the purpose of listening to static crashes.

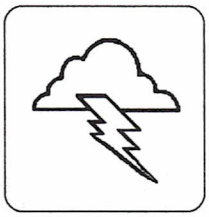
6 meters *n.* A spectral region wherein gather two or more hopeful fools for the purpose of listening to white noise.

ARNS October 1994, from the June'94 Northern California DX Club "DXer"-- Gary Shapiro, NI6T, Editor

The Lightning Society

by Van, K3CP

What is the Lightning Society or the L. S. for short? The L. S. is a society comprised of licensed radio amateur operators. It is so named because its members have the ability to drive all other hams off the air about as quick as a thunderstorm does. It is very difficult to become a member. It is open only to hams who use the local repeaters. In addition the member must display most of the following characteristics:-



Be belligerent at all times

Be a repeater hog

Call it "My repeater"

Use the phone patch when not mobile

Say things like "3's," "Fire in the wire", "What's your 20?"

Never attend the sponsoring club's meetings.

Never participate in its activities

Don't believe the old adage - "When in Rome do as the Romans"

You will not become a member if you only do the above acts once in a while. To become a member you must really work at it and be as much of a pain to the local ham community as possible. Use whatever talent and imagination that you may possess to annoy as many people as you can.

As I said it is difficult to become a member, but if you practice the above deeds long enough and often enough, you will surely become a member. There are only a few members in the Lehigh Valley and they may not know who they are. However, the rest of us know.

PS: Dropouts are welcome ***de Van, K3CP***

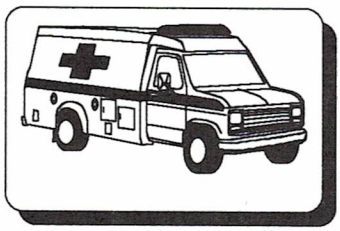
For Sale

2 meter Packet station: Tandy 1000ex w/640k update. Microline printer, PacCom Tiny 2 tnc & Kenwood TR7400 2 meter Transceiver. All mounted in a small roller cabinet.. $495.00 Call Chick W3BPZ @610 437-1608

One for the books

by Bob, WA6ZLO

This is about "the fellow that could not give a convincing explanation about how he broke his arm. He kept muttering something about trying to stick his arm through a car window that he thought was down. That was the public story.



In private he confessed that it happened at home when his wife brought some potted plants inside that had been out on the patio all day.. A garter snake had hidden in one of the pots and later slithered out across the floor where the wife spotted it.

'I was in the bathtub when I heard her scream' he related. 'I thought she was being murdered, so I jumped out to go help her--I didn't even grab a towel!

When I ran into the living room she yelled that the snake was under the couch. I got down on my hands and knees to look for it when my dog came up behind me and "cold nosed" me. I thought it was the snake and fainted. My wife thought I had a heart attack and called for an ambulance.

I was still groggy when it arrived. The medics lifted me onto a stretcher and as they were carrying me out, the snake came out from under the couch and frightened one of the medics. He dropped his end of the stretcher and that's how I broke my arm"

taken from "Editors notes" by Bob Pinheiro, Editor of "The Readout" Stanislaus County ARC.

Time marches on.....

and on and on...

by Mark Nelson, AA6DX

Everything is farther away than it used to be

It's twice as far to the corner, and they've added a hill.

I've given up running for the bus, it leaves faster than it used to.

It seems to me they're making the stairs steeper than in the old days.

And have you noticed the small print they now use in the newspapers?

There is no sense in asking anyone to read aloud anymore. Everyone speaks in such a low voice, I can't hear!

Even people are changing; they are so much younger than they used to be, when I was their age.

On the other hand, people my age are so much older than I am.

You know, I ran into an old classmate of mine the other day, and he didn't recognize me.

I got to thinking about that poor man while I was combing my hair this morning and in so doing I glanced at my own reflection! Confound it! They don't make mirrors like they used to, either!

from World Radio October 1994, who credits Mohawk, ARC News, MA.

September 2nd, 1994 VE session

by Robin, WA3T

At this session, eleven candidates took a total of sixteen elements. There were five upgrades, and four new licenses.

Anthony S. Emery, N3PYU to General
Irvin W. Ball, Sr. KB2PUQ to Tech Plus
Christopher A. Busch, KB3BEJ to Tech Plus
Raymond S. Dennison, N3RBK to Tech Plus
James R. Woodhead, KA2ZQI to Tech Plus
Brad S. Finberg new Technician
Michael S. Hood new Technician
David J. Ostile new Technician
Joseph C. Palma new Technician

The VE's at this session were John, WX3C; Ann, KO3M; Bob, KE3AW; and Robin, WA3T.

The next test session will be on October 7th; team 2 will be in attendance.

73 de Robin, WA3T, Team Liason Alternate

Something to think about

The great thing in this world is not so much where we stand as in what direction we are moving.

(Oliver Wendell Holmes sr)

A new FCC service

The FCC has instituted a toll-free phone line at its Gettysburg, Pennsylvania Licensing Division for customer service inquiries.

Amateurs may call **800-322-1117** weekdays between 8 am and 4:30 pm eastern time to access an automated information system with recorded messages on interference complaints, form request s, records, and amateur radio call sign assignments.

Other messages regard fee information and processing times. A touch-tone telephone is required.

The FCC said the new service was part of its response to a presidential order that the federal government be "customer driven." The FCC said it used a series of focus groups with external customers to identify the desire for an 800 number at its Licensing Division.

"Within the next 18 months," the FCC said, "customer service standards will be developed for other areas of commission operations to ensure that FCC customers receive the highest quality of service possible. As these new standards become available, the FCC will inform its customers."

from ARRL Bulletin 74

Morse Exemption Denied

The FCC has denied a petition that proposed exemptions from Morse code exams for people age 65 and older. Guy A. Matzinger, KB7PNQ, argued in his petition that old age results in diminished faculties, and equated those people 65 and older with the severely disabled in terms of passing a CW exam. He proposed the exemption for speeds above 5 wpm. The FCC said that similar petitions had been denied in the past because the current amateur radio license structure was based on "the desires of the amateur service community," based on thousands of comments on previous petitions. The Commission also noted that its rules already provide for Morse code exemptions for certain recognized disabilities.

Matzinger introduced the results of a survey he conducted that said 63 percent of those he surveyed supported such an exemption. The survey, the FCC said, provided an age profile of those surveyed but did not say how many people were surveyed.

Although the petition got the usual public notice, the FCC said it received no comments on it.

Matzinger is a 67-year-old technician class licensee who lives in Cheney, Washington.

from ARRL Bulletin 77

October 7th, 1994 VE session

by John WX3C

At the VE testing session at Gracedale on October 7, ten candidates took a total of 17 elements. There were 3 upgrades and one new technician. Those who upgraded were:

Thomas G Shanahan, N2TTQ Extra
Carlos R Velazquex, N3TAD,general
Vincent A Prete, N3RVG, General.
Ann M Day, new Technician

The VE's at this session were Robin Moseley, WA3T; Chris Hornaman, NU3L; Bob Green, KE3AW; Don Holmes, KC3II and John Greenage, WX3C Team Liason.

The next session at Gracedale will be held on November 4 at 7:00 pm local time. Team 3 will be in attendance.

de John, WX3C

Don't act up!!!

My sister's boys were being a little mischievous one Friday afternoon while I was visiting. She told them that if they didn't behave themselves, pizza wouldn't be ordered for dinner. Wondering what the consequences would be, I asked her, "What happens if the kids don.t start behaving?"

"Then I cook," she replied. *author unknown*

Revival Tent

There was a large revival meeting on the outskirts of town, and at the appropriate corner there was a large sign proclaiming: "If you're weary of sin and want to be saved, turn here, go 100 yards, and come into the revival tent."
Below the sign someone had hung another smaller one: **"If NOT weary, call 876-3550."**

Contest calendar

by Barry, KU3X, Contest Editor

Nov 5-7 ARRL CW Sweepstakes

International Police Assn

Radio Club Contest

Ukrainian DX Contest

Nov 12-13 OK/OM DX Contest

European DX Contest, RTTY

Nov 15 W1AW Qualifying Run, 10-40 WPM

Nov 19-21 ARRL SSB Sweepstakes

Nov 23 W1AW Qualifying Run, 10-35 WPM

Nov 26-27 CQ WW DX CW Contest

ARRL International EME Competition

Dec 2-4 CQ WW DX CW Contest

Exchanges:

International Police Assn = RS(T) + serial number

Ukrainian DX Contest = RS(T) + serial number

OK/OM DX Contest = RS(T) + serial number

CQ WW DX Contest = RS(T) + zone

de Barry, KU3X

RACES drill a success

by Clarence W3PYF

On Saturday, October 1st a full fledged alert was issued by Northampton County EMA Director, Nick Tylenda asking us to participate in a test of communications for a simulated Chlorine spill at the Palmer Park Pool.

With W3FYK and W3PYF at county headquarters and KA3MOB and KA3MOU in the county van on site, and N3OLH at the ambulance dispatch area, patients going to Easton hospital were met by KB3RI N3RVH and N3QZT.

In addition to those participating, 18 other stations called in while we were activated.

The Prez Sez

de Bob, KE3AW

Important Decisions

We need to make a decision about the 1995 DLARC Hamfest. Are we willing to support it? Bob, WF3H, was the first chairman, then Bill, K3ANS, chaired it for the past two years.



Financially we have done very well with hamfests(better than having raffles), and the word has been spreading, as we predicted. We are developing a following of vendors and hams who look forward to the DLARC hamfest as a regular event for them. This is the pattern we expected to see.

Bob and Bill have served their time well with the hamfest. We wonder, at this time, however, if we have majority club support for the 1995 DLARC Hamfest, and someone who is willing to be chairman.

We will make a decision at the November general meeting, most likely with a written ballot. If we want to have an established DLARC Hamfest "in our own backyard" on August 13, 1995, an event we can take pride in, as a high profile public relations effort of DLARC, and net a healthy profit, we need to have majority of the club supporting it.

The hamfest has been our single most productive annual fund-raiser of the club to date. It has also been rewarding to develop it from plans into a reality where over a thousand persons attend. If we want a hamfest, we need a hamfest chairman and willingness of committee workers for that a hamfest requires.

On the other hand, if we want to sell raffles, as we did in the past, maybe that is the direction of the members.

Another option may be to increase the dues of the club. They have been able to be kept at the same rate for over ten years.

What do we need the money for? Well, we are a large club of over 450 members and there are always bills of a club this size; maintenance and upgrading the repeater system (2 meter and 440) and of our club radio station, including increasing our emergency equipment; monthly phone bills; our club information line, our autopatch/autodial line for two meters, and the expansion to the 440 line), our newsletter costs of printing and postage, our field day expenses, our club picnic, etc. If you have been attending the club meetings you have heard the treasurer's report. The expenditures are many, but justified.

Please think seriously of what YOU want DLARC's direction to be, and register that thought at the November 3, meeting.

Will it be support for the hamfest, selling raffle tickets, or increased dues? We'll have some discussion, but then we need to make an important decision about the hamfest.

de Bob, KE3AW, president



William 'Bill' Newman

W3RYE

Bill Newman, W3RYE, 83, became a Silent Key on Saturday October 8th.

Bill, who worked DX with probably the worst antenna set-up in DLARC was most proud of his DX100 award from ARRL. While a resident of Gracedale, he proudly wore his Call Letter hat with the ARRL DX100 pin on it.

He and his wife have resided in Gracedale for the past year and formerly worked for the Easton Car and Construction Company in Easton and then was a crossing guard for many years.

He and his wife, Elmina observed their 59th wedding anniversary on May 25 at Gracedale.

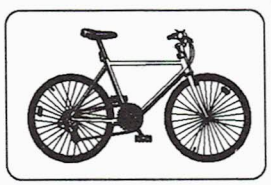
Surviving in addition to his wife is a daughter, a brother, a sister and two grandchildren.

73 Bill, Rest in Peace

MS Biketoberfest

by Bob, WF3H

On October 9, a group of DLARC volunteers helped the MS Society in its "berfest" bike tour. The tour was to raise money for the fight against Multiple Sclerosis. This follows the excellent support we'd given them earlier this year in the MS150.



Participants included Jeff, **N3QZT**; Ed, **N3QIH**; Jeff, **N3RVH;** Paul, **KA3MTY**; Missy (a new Ham--WELCOME!!), **N3TFG;** Amy, **KD3TI**; Don, **N3FEA**; Joe, **W3JD**; Carl, **N3NGL**; and, of course, yours truly.

Our duties were to provide staff communications support, ambulance communications, and communications with sag wagons and other vehicles. We also watched dangerous intersections and, along with the Gold Wings Motorcycle club, and Lehigh Valley REACT, ensured the safety of the 85 riders.

Fortunately, all went well. There were no mishaps, and participants were treated to pizza and soda after the event.

The MS Society, like a growing number of service organizations, is coming to realize what a valuable resource ham radio is. A hearty thanks to all for a job well done!

de Bob, WF3H

New media systems

FCC Humor

By Joe Chuk, W3JD

For a temporary departure from my customary news about the ever- evolving world of electronic media, here's some insight into the federal agency that we've come to know and love--and one commissioner's thoughts on the anniversary of its creation:

In a Federal CommunicationsCommission meeting room on October 6th, Chairman Reed Hundt and Commissioners Quello, Barrett, Ness and Chong cut a huge chocolate birthday cake to celebrate the FCC's 60th Birthday.

As part of the festivities, Commissioner Rachelle Chong read the following poem:

A Poem to the Communications Act

By Henry Gibson (actually Jane Mago, Senior Poem Advisor)

How old is the Communications Act?
60 years, to be exact.
It has provisions old and new,
2(b), 4(i) to name but two
Now OGC, they love 4(i)
For it grants discretion on the fly.
The Act has served these many years
to fill some dreams and strike some fears.
It's been amended quite a lot
To fix some jiggles and some jots.
In Title II, it deals with phones
it strives for service to every home.
In Title III, on radios,
it tells you where your station goes.
In Title IV, the Admin. Part
has many rules to take to heart.
From Title V -- on penalties
we get the power to make you freeze.
In Title VI, we deal with cable.
Congress asked us to keep rates stable.
With Susan, Jim, Andy and Reed
We fill your every lobbying need.
No, my job is to read the Act,
apply the law based on the facts.
So, I promise I will do my best
to serve the public interest.

From the FCC via Joe, W3JD

Executive committee members

by Bob,KE3AW

We welcome two new committee members, Don, W3LR, and Bob, W2CCE to the Executive Committee. They were voted onto the Executive Committee at the October 6 meeting, along with the reelection of the 1993-1994 officers and remainder of the committee.

Leaving the board at the end of their term are Clarence, W3PYF, and Bill, K3ANS. On behalf of the DLARC membership I commend and thank Clarence and Bill for all the efforts and energy in their work on the committee. We hope to see them remain very active in DLARC activities, although they will have the last evening of each month (committee meeting date) free. Thanks Clarence and Bill for your service to DLARC on the Committee!

de Bob, KE3AW

Video Award for CQ

from ARRL bulletin

"Getting Started in VHF," a video introduction to operating on the amateur radio VHF frequency bands and produced by CQ Communications, has won a Silver Hugo Award from "Intercom '94," the International Communication Film and Video Festival.

The video was honored in the competition's "Educational - Adult Audience" category, CQ said in a press release.

Festival director Michael J. Kutza said that "There was a substantial increase in the number of entries this year and competition was more intense than ever." This was Intercom's 30th annual film and video competition.

"Getting Started in VHF" is intended both for new hams and for more experienced amateurs who are trying VHF operating for the first time, CQ said. The program was written, produced and directed by Richard S. Moseson, NW2L, Executive Producer of the CQ Video Library, and ARRL Northern New Jersey Section Manager.

"Setting Started in VHF" is the second CQ video to win an award.Earlier this year, "Ham Radio Horizons," an introduction to amateur radio, received a Bronze Cindy Award from the Association of Visual Communicators, and it was a finalist in the International Television Association's (ITVA) New Jersey Awards Competition.

thanks to Chris, KD3OA, EPA Bullein manager

Mad Scientist Qualifying Exam:

Exam Questions #4

submitted by Rich, N3NXF

Here are some True, False teasers. This month I will start putting the answers in the same OK Corral as the questions (but in a different spot), so you don't have to wait so long to see if you are right!

31. An electrician should not connect all outlets in a house in series.

32. In order to keep the contents of a can cool, the can should be black rather than white on its exterior surface.

33. A pair of pliers is an example of a tool which makes use of the principles of levers.

34. Use of an inclined plane reduces the amount of work required to lift an object.

35. The central element in all known living matter is carbon.

36. Air is a poor conductor of electricity.

37. Common baking soda is acidic.

38. The largest planet in the solar system is Neptune

39. Climate is the average weather over a long period of time.

40. The helium atom is the lightest and simplest of all atoms.

Answers to Last Month's Questions:

21. b **22.** d **23.** b **24.** d **25.** c **26.** b **27.** d **28.** a **29.** c **30.** a

The answers to This Month's Questions can be found elsewhere in this issue

de Rich, N3NXF

Editor's Ramblings:

If you checked the packet BBS's you will find that our own **N3IGA** had a confirmed packet contact with **Sarex STS-64.** <> Another congratulations go to Charlie Adams, **K3HKZ** on his election to the **Radio Club of America.** The club that started with Marconi and includes people such as Armstrong, and Link.

Congratulations to **Mike N3OUC** and his **XYL** on the birth of a new son Collin, 7#13oz... Didn't see any cigars, did you?

Digital Communication

by Joel, K9TBD

G-TOR

Communication over noisy channels such as the amateur HF bands has been a challenge for years. **Kantronics** has developed another digital mode called G-TOR which incorporates most of modern communication techniques. It is very similar to **AMTOR** (AM)ateur (T)eletype (O)ver (R)adio and **PACTOR** (PACK)etized TOR. This article is a discussion of some of these techniques.



The following is taken from the introductory remarks to "A Theoretical Evaluation of the **G-TOR** Hybrid **ARQ** Protocol" by Glenn Prescott, WB0SKX and Phil Anderson, W0XI which was presented at the 13th **ARRL Digital Communications Conference** in August of 1994 in Bloomington, MN.

"**G-TOR** (Golay-TOR) was recently introduced by Kantronics as an improved protocol for the structured interchange of digital data between stations operating the HF Amateur bands. Simplicity was one of the design goals of this protocol - **G-TOR** was also developed to operate with currently-existing multi-mode TNCs. The system was designed to incorporate many modern digital data processing techniques. For example, Huffman data compression and run length encoding are used together to reduce data redundancy in each transmission. Also, fault tolerant **ACK**s and **NACK**s are employed to help prevent needless re-transmissions. The protocol is adaptive in that it allows the TNC to select a data rate based on link quality - 100, 200 or [300 ed.] baud - depending upon the number of retries attempted. However, the most significant feature designed into **G-TOR** is the use of a hybrid **ARQ** protocol. The hybrid **ARQ** protocol employs forward error correction on demand. When channel conditions are good **G-TOR** is simply a conventional stop-and-wait (S&W) **ARQ** system. However, when the channel deteriorates, the Golay forward error correction code is used in such a way that two transmissions of a frame provides enough information for the receiver to have three opportunities to reconstruct an error-free frame. . . . "

What does this introduction mean? Originally when two stations wished to communicate by digital techniques in (H)igh (F)requency amateur bands, they used **RTTY** or **(R)**adio **(T)**ele(**TY**)pe using (Baud)ot 5 level coding [oct85.nsl "Catch a **Baud** - Baud vs Bit Rate"]. One station would transmit a number of characters and in the text say "back to you". There was no encoding and if the receiving station got some hits, in his response text would say "I missed a few words after ...". Now the protocol is taken over by the box as an **ARQ** or **(A)**utomatic **(R)**e**(Q)**uest for fill when a hit is detected.

To minimize the need for "fill" stations would send only short transmissions, then turn it over - this is what all modern protocols do - send a FRAME (a bunch of data and/or additional control information) and expect a very short response from the receiving station which gives a positive **(ACK)**nowlegement or a **(N)**egative **(ACK)**owlegement. These **ACK**s and **NACK**s are now automatically done by the box.

But how does the receiving station know that an error occurred? A simple expedient is to add a "checksum" (the sum of all the letters of the message - thought of as numbers) and include it as part of the text. These numbers are in (BI)nary digi(T)s instead of decimal. The other end adds up every letter received and compares his addition to the sent "checksum".

A better solution is more than one checksum. Both the transmitting and receiving stations agree on a coding scheme such as a **(Golay)** <a man's name> code. Thus a **(F)**orward **(E)**rror **(C)**orecction as opposed to a request for retransmission is possible. This frame of is now a (**PACKET**) of information and checks.

Now we have added additional data to our message. How can we send more information in the same amount of time? Some sort of compression is needed such as a **(Huffman)** <man's name> technique. Huffman thought, why not find out how often in "English" the letter "a", "e", etc. occur and encode most often used letters with the shortest code - something like is done in Morse code (i.e. "e = .", "a = .-). Also, why not send faster if there is no interference - so the variable rate 100,200, 300 baud was adopted.

Now suppose we sent some text and underlined a sentence. Instead of sending all the dashes for the underline, why not have a special sequence which takes this **(R)**un of **(L)**ength, say 30, dashes and **(E)**ncode it as "^30-". The "^" says the next three characters are not text but an **RLE** representation that 30 "-" are to be replaced with this sequence [oct93.nsl "Data Compression"]. With these explanations, go back and re-read the "**G-TOR**" introduction and see if it makes more sense. *73 Joel*

Vocabulary: ***ACK, AM,G-,& PAC TOR, ARQ, Baud, Bit, Golay, Huffman, NAK, RLE.***

Answers to This Month's MSQE questions:
by Rich, N3NXF

31. T **32.** F **33.** T **34.** F **35.** T **36.** T **37.** F **38.** F **39.** T **40.** F

Comments of a personal nature

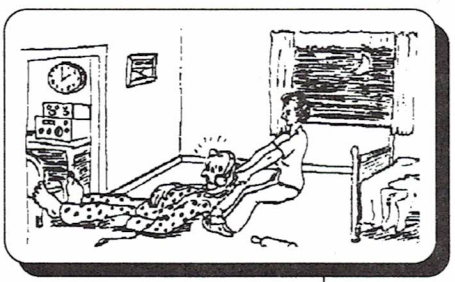
Gender Specific

Those Xceptional Young Ladies

by George, N3OWG

I am sure that what I am about to say, is so completely politically incorrect that it will draw almost instant criticism form several nationally based women's groups not the least of which the YLRL but here goes:

Most Hams are men.



I am not exactly sure of why this is a fact but it is. I think that it is because a Yeasu looks ridiculous with a lace dust ruffle around it, or perhaps because AES doesn't have February white sales. Regardless of all that most hams are men. But that doesn't mean that the girls aren't involved in this hobby. Far from the case.

Your wife, girlfriend, mom are one of the most important opperating accessories in your shack. Firstly I never knew a Ham that was not by nature a mess cat and a pack rat. (an interesting conglomeration of species!) And were it not for those special ever patient ladies you would be most certainlydrowned in a sea of wire scraps and old electronic parts. They have a way of tolerating to a point or eccentricities without allowing us to go over the line into self destruction.

It takes a special breed to cohabitate with an amateur radio operator. And most just don't cut the salami. They are constantly being awakened at 3 am to go to Hamfests or being beleaguered with your less than exciting tales of how you just worked Lower Slobovia on 160 meters into a loaded bed spring.

And woe be it to her who is married to an HF contester! Just what most women are looking forward to a house full of unshaven screaming maniacs that SHE is supposed to cook for.

The point of all this is that our girls are blessed with a level of tolerance and patience that rivals that of Mother Theresa. In fact I think we probably could wig her out given enough time. See I just don't see old M.T. out in the yard helping with that latest antenna project, holding onto a nylon guy rope with the instructions "If it starts to fall that way let it go and if it should fall your way run like hell!". I have however seen my wife do that, I just kind of wish that she would have ran a little quicker, maybe she wouldn't have gotten hit with the darn thing.

Which brings me to the charming N3SWA and all of the other duly licensed Yls on the air. What charm grace and poise they bring to our other wise technoid locker room. In any given pileup you know that they will be picked out first. If only to bring a few moments of silky grace to our ears.

Team N3OWG put Bonnie in charge of the VHF station during the PA QSO party and know what? She generated nearly 12,000 points on her own! Check the scores fellows did you do as well? Guess it shows we are not the sole owners of tenacity and drive after all. Actually having your girl get her license is a double edged sword. On the good side they gain an understanding of that undecipherable gibberish you speak and can now nod there head knowingly as you bore them.

On the downside you will not be able to fool them into believing that you bought that 2 year old TS950 for $75. At the very least if they say that they believe you expect to be hit with the line "great then you can afford to get me than cute little HT I've been wanting" (these girls are NOT stupid!) And there is that little matter of the congestion in front of the rig in the evening, which is a double whammy if you have only one bathroom also. (this is something to which I am an acknowledged expert since the male to female ratio in my house is 1.3:6 and we HAVE only one bathroom)

All in all I would have to say a hearty hats off to the girls of Amateur radio! We couldn't do it with out your love, support and above all patience. For this we give your our sincere respect and in some cases condolences. You are a special bread of lady and yours is high in the rank of heaven. Oh yeah and I was looking at this new FT1000 in the catalogue and I was thinking...

de George N3OWG



Repeater List 144 and 440

2 meters

FREQ.	LOCATION	PL	CALL	CLUB
145.110	NAZARETH, PA	-	W3PYF	DLARC
145.150	HAMBURG, PA	-	N3CHL	DDXA
145.170	PINE GROVE, PA	- (10M LINK)	K3SLG	AARG
145.190	TELFORD	131.8	NK3U	TARA
145.230	LONG POND, PA	131.8	N3DZM	LINKSYS
145.290	BRACKNEY, PA	82.5	N3HPY	-
145.310	QUAKERTOWN, PA	131.8	W3AI	RFHILL
145.330	HILLTOWN TWP.	131.8	K3ESJ	HPRC
145.370	DELANO, PA	-	W3EEK	SARA
145.410	WILKES-BARRE, PA	-	N3DAX	-
145.450	EPHRATA, PA	-	K3RZF	EARS
145.490	READING, PA	-	WB3FYL	DDXA
146.610	WILKES-BARRE, PA	-	K3YTL	MURGAS
146.640	PINE GROVE, PA	-	K3SLG	AARG
146.655	ALLENTOWN, PA	131.8	N3DZM	LINKSYS
146.670	HAZELTON, PA	-	K3JSZ	ARC
146.700	NAZARETH, PA	-	W3OK	DLARC
146.730	WILMINGTON, DEL	-	WA3QPX	DELRA
146.745	ALLENTOWN, PA	146.2	KA3HJW	-
146.760	VALLEY FORGE, PA		W3PHL	PARA
146.775	BETHLEHEM, PA	-	K3LPR	
146.820	WASHINGTON, NJ	110.9	W2SJT	PA/NJ
146.835	EAGLEVILLE, PA	-	W3EAG	RACES
146.835	SCRANTON, PA	131.8	KC3LW	LINKSYS
146.850	FRENCHTOWN,NJ	151.4	WA2GWA	-
146.865	TANNERSVILLE, PA	-	N3BFL	MONCO
146.880	HATFIELD, PA	-	WB3BJE	PARA
146.910	READING, PA	-	W3BN	RRC
146.940	ALLENTOWN, PA	71.9	W3OI	LVARC
146.940	SCRANTON, PA	-	K3CSG	SPARK
147.000	SCRANTON, PA	-	K3KAW	-
147.030	PHILADELPHIA	-	W3QV	PHILMT
147.045	BANGOR, PA	131.8	WA3GYE	SPARK
147.060	RADNOR, PA	-	WB3JOE	MARC
147.120	BLOOMSBURG, PA	-	N3DZM	LINKSYS
147.135	ALLENTOWN, PA	71.9	W3OI	LVARC
147.150	CANTON, PA	-		
147.180	READING, PA	110.9	W3BN	RACES
147.195	NEWTOWN SQ, PA	-	AK3M	-
147.210	POTTSTOWN, PA	-	W3BWD	PART
147.210	MEHOOPANY, PA	88.5	WB3IWZ	EMARC
147.225	BLOOMSBURG	-	N3ERZ	C-MARC
147.225	ALLENTOWN, PA	151.4	WA3VHL	-
147.240	ELK MOUNTAIN, PA	-	N3HPY	SCARC
147.255	PALMERTON, PA	-	WB3ESS	EPAVHF
147.270	WARMINSTER, PA	-		FRC
147.285	NEW ALBANY, PA	-	NE3O	NTRG
147.285	ALLENTOWN, PA	151.4	W3IDZ	-
147.315	LEBANON, PA	-	W3EIA	LVS
147.330	WILKES-BARRE, PA	-	K3FUT	-
147.345	POTTSVILLE, PA	-	WB3CRM	SARA
147.375	MONTROSE, PA	-	N3HPY	
147.375	CHERRYVILLE, NJ	-	WB2NQV	CRA
147.390	DOYLESTOWN, PA	-	K3ESJ	CBUCKS

UHF 440

442.000	PARKESBURG, PA	94.8	KJ6AL	-
442.400	LEBANON, PA	131.8	N3KZ	U OF P
442.750	POTTSTOWN, PA	141.3	KI3I	-
443.350	ALLENTOWN, PA	100.0	WZ3L	-
443.400	WILKES-BARRE, PA	77.0	AA3CV	MURGAS
443.450	NAZARETH, PA	-	W3PYF	DLARC
443.590	COOPERSBURG, PA	-	W3LR	-
443.700	EASTON, PA	151.4	K3LZ	-
443.800	VALLEY FORGE, PA	131.8	N3KZ	U OF PA
443.850	CHERRYVILLE, NJ	110.9		
444.100	ALLENTOWN, PA	151.4	KA3NRJ	-
444.200	TANNERSVILLE, PA	131.8	WA3BXW	BEARS
444.300	COOPERSBURG, PA	-	W3LR	-
444.350	READING, PA	114.8	W3YRT	DDXA
444.650	EPHRATA, PA	-	K3RZF	EARS
444.700	BROOMALL, PA	131.8	KM3W	RETS
444.750	QUAKERTOWN, PA	167.9	N3BKN	-
444.900	NAZARETH, PA	151.4	W3OK	DLARC
444.950	POTTSVILLE, PA	-	-	-
447.175	WIND GAP, PA	131.8	N3DZM	LINKSYS
447.275	BANGOR, PA	162.2	-	
447.375	ELK MOUNTAIN, PA	-	N3HPY	-
448.025	BANGOR, PA	151.4	KA3ODJ	-
448.475	WIND GAP, PA	131.8	N3KWM	-
448.775	BETHLEHEM, PA	136.5	N3MFT	-
449.375	ALLENTOWN, PA	131.8	WB3IIY	-
449.425	HAZELTON, PA	103.5	KD3JZ	AARC

Supplied by John, N3GLZ

All Amateur Radio Operators are invited to
Participate to the DLARC, RACES & ARES nets
on 146.70 W3OK/RPT with an alternate of W3PYF/RPT 145.11
W3OK trustee Rick Saeger, K3OO
The Nets are held on Sundays at 9:30 AM and Wednesdays at 7:00PM

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DLARC INFORMATION LINE 820-9110

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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 at Northampton County Community College
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