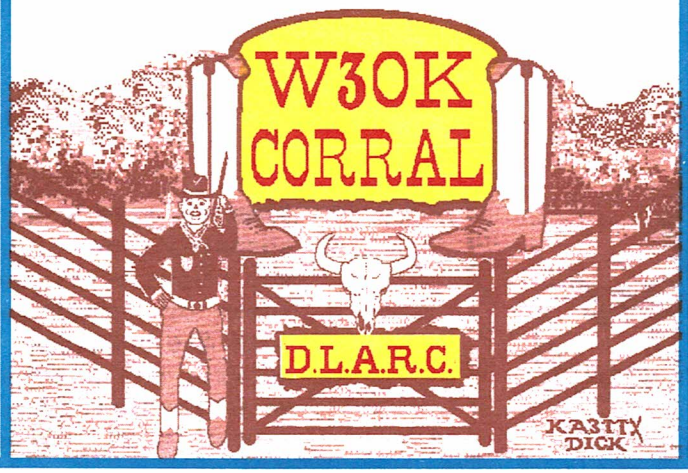
DELAWARE-LEHIGH AMATEUR RADIO CLUB, INC. W3OK

November 1990



SPECIAL SERVICE CLUB
ARRL

ARRL Affiliated Club

WOW WHAT A PARTY! OVER 2.4 MILLION

NOVEMBER 1st MEETING

by Bill, K3ANS

DXpedition to Market Reef OJ0, Arctic blast W2GD. John Crovelli of Milford, NJ is a world famous contestor and DXpeditioner . He is a regular columnist for the ARRL's National Contest Journal, a bimonthly magazine subscribed by big guns and big dreamers. In January 1988 W2GD, braved subfreezing arctic weather, high winds, dangerous helicopter rides over the rough North Sea to lonely remote Market Reef, a wilderness suburb of Finland. He and his Finnish friends set up a temporary field day station in the lighthouse, using a generator. The cube heaters were ineffective in fighting the frigid, icy conditions. No shorts, just down parkas and insulated thermal clothing to operate OH0MB/OJ0. John had a tragic accident when a gust of wind caught all of his 151 pounds and threw him against a building, landing a few feet away on the icy rocks. After recovering from the initial shock, he became aware of severe, acute pain in his left shoulder. His biggest fear was of not being to get back inside and freezing to death.

Eventually he got to a portable cellular phone and called OH2MM another famous ham who is a doctor. John was evacuated by the Finnish Coast Guard. Despite the rugged conditions and accident OH0MB/OJ0 had 10,020 contacts. 5,461 on CW; 4,434 on SSB, and 125 on RTTY.

As a bonus, John will discuss the new proposed World Radio Federation to sponsor Olympic style ham radio international competition. The recent World Games in Washington state gave a sampling of the opportunities for world radio sport. John is one of the organizers and leaders.

IF WE DIDN'T WIN, IT'S NOT CAUSE WE DIDN'T TRY

by Clarence, W3PYF

Looks like we did it..Thanks to the pushing of President W3TDF, if anyone beats us, it's not because we didn't try.

With over 50 participants in the contest, there were many who really did more than their share. Bill, K3ANS did it again as the high point maker with over 201K for first in Northampton County, K3NZ made number one in Lehigh County with 180K. KB3TS made number 1 in Monroe County and did it with QRP.

A few of the interesting points found Ann, KO3M working every county in the state and definitely winning the Carbon County Award. Ray, W3TDF with his 147K won the Clarion County award and N3IK, Ike sure won the Elk County award and did it QRP as well. Three mobiles I know of were WD5BRP, NC3P and WA3CQU and all did very well and added to our great point total. Danny, N2LAU, one of our younger members, licensed in the past year came through with over 24K.

For the first year, the club station, W3OK operated with W4YID and N3IGA at the controls for most of the time. There were a few others joining in the operation and they made over 72K in contacts. Great for the first year.

The computer program written by Van, K3CP and Robin, WA3T did very well for all that used it. It made it easy. Just type in the call and away it goes. When done with the contest the contest logs were printed out and ready for shipping to Nittany.

Congratulations are in order to the Novice/Techs who may not have contributed as much as the big guns, but as a group did a super job. Now as a closing, make sure that you send in your scores. de *Clarence, W3PYF*



ERNEST SMODISH, W3QBF
1917-1990

Ernie, Smodish, W3QBF became a silent key on October 11th.

Ernie was one of the founding members of the Delaware-Lehigh Amateur Radio Club and an active member until his illness, which began about 5 years ago. He still attended meetings until travelling became a problem.

He was secretary-treasurer of the DLARC during the early 50's.

Active in Civil Defense since the beginning of our activity, from Field Day to exhibitions at local stores. He will be remembered for the fact that he was always there and available for any emergency.

Ernie was a building contractor for 25 years and then was a service manager for Bogar Electric for 20 years.

He leaves his wife Mary, 2 sons and 2 daughters, with 11 grandchildren and 1 great grandchild.

Ernie from all of us *REST IN PEACE.*

de Clarence W3PYF

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THE PRESIDENT SPEAKS!

A message from the new President W3TDF

I am happy to report, as noted elsewhere, that our new year not only brings you a new slate of officers, but a potentially super high aggregate score in the PA QSO Party. I just returned from my safari (DXpedition) in Clarion Co., and I'm really pleased with my accomplishment. As your new President, I hope that you will help me make the DLARC a club to be proud of. I have several goals which will not have any chance of success without your help. Committee appointments (volunteers) will be forthcoming. If you have been dragging your feet up until now, then it's time to give some serious consideration to throwing some weight behind my wagon so we can get it out of the mud. PLEASE, if you have any ideas or suggestions for a larger place to hold our meetings, we need to know about it. We will not move our club station, nor will we jeopardize our good rapport with the Northampton County dispatch. 73. de Ray, W3TDF

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FCC CHECKS CABLE SYSTEMS

Engineers of the Federal Communications Commission conducted field tests of cable television systems around the country the week of August 20, according to a Commission release. The stated purpose of the checks was to assess and improve compliance with a new Cumulative Leakage Index (CLI) that went into effect July 1.

The CLI standard sets a leakage limit that cable operators must not exceed, in order not to cause harmful interference to aeronautical communications and navigation frequencies. Cable systems found not in compliance will be ordered to shut down operation in the aviation bands 108-137 MHz and 225-400 MHz, the Commission said. If a cable leaks out, it leaks in as well. Amateurs operating on the 2 meter band can be affected (most cable TV systems put Channel 18 within our 2 meter band), as are those operating 220 MHz. Cable system licensees are required to provide documentation of compliance to the FCC, and all systems are subject to on-site evaluation by Commission personnel.

Results of the tests are not yet available.

from ARRL Letter (September 7, 1990)

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VALSEZ

by Val, W3EFL

An out-of-towner was so struck by the beauty of the the University Campus that he parked his car, got out and strolled across the lovely rolling lawn.

Spotting a young man, he stopped him and asked what the name of the University was.

" I really don't know, Mister," came the reply. "I'm just a football player here."

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REMEMBER IF YOU ARE NOT A MEMBER OF ARRL, CONTACT TREASURER ROY, KA3MNY. IF YOU RENEW DO THE SAME, THE CLUB BENEFITS.

$250,000 FINE AND PRISON FOR 2 METER QRM

FBI agents with the assistance of FCC investigators arrested a New York City amateur radio operator and seized 20 pieces of his radio transmitting equipment. The action took place after the amateur made death threats over the radio against an FCC investigator. The United States charged Anthony V. Marcantonio, 311 Forest Road in Douglaston section of Queens, with making threats by radio. This crime is a felony and carries a penalty of up to five years in prison, a $250,000 fine, or both. A Federal judge set Mr. Marcantonio's bond at $50,000 following a hearing.

This case came to the FCC's attention after members of the amateur community complained that Marcantonio was interfering with amateur radio communications by transmitting unidentified, disruptive signals on the two-meter amateur radio band. On July 27, 1990, FCC investigators, using direction-finding equipment, traced the signal to the Marcantonio home. The investigators discussed the situation with a family member who then shut the transmitter off. The transmissions resumed that evening and continued into the next day. It was then that Marcantonio made the treat.

Mr. Marcantonio holds a novice class amateur radio operator license, KA2ZGE.

For further information, contact Kevin Mckeon or Jud Mansbach of the FCC's New York Office at (212) 620-3437/8.

At FBI, contact Joseph Valiquette at (212) 335-2700.

From PUBLIC NOTICE Federal Communications Commission, 1919 M Street N.W., Washington, DC.

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JUST THE MINUTES

by Dave, N3EYT

The OCTOBER 4TH meeting of the DLARC was called to order by Clarence, W3PYF, at 7:30 p.m. A total of 78 members and guests attended the meeting held in the greystone building at the Gracedale complex.

a. The treasurer's report submitted by Roy, KA3MNY was read by Dave, N3EYT, and approved. **b.** The secretary read the minutes of the September DLARC meeting and were approved as read. **c.** A training session for Skywarn was conducted by KB3YS during the month of September. Radio operators which participated in the training session are now qualified to report weather condidtions to the National Weather Service. **d.** Bob, KU3K, reported that the Century Ride went well and the radio communication provided by the DLARC was much appreciated. **e.** Vern, N5IEP, reported that the club helped out in another bicycle event on September 30th. Habitat for Humanity sponsored 50, 25, and 10 mile rides. This was a first time event for Habitat and DLARC communicaation skills were well received. **f.** Bill, K3ANS, reported that an article appearing in the July-August edition of the National Contest Journal featured the PAQSO Party and W3OK club efforts to win again this year. **g.** A letter from Doug, WB3IIY, commended W3OK for the autopatch and credited the use of "star-1" for saving an accident victim's life by being able to quickly call for emergency help when he came upon an accident. **h.** Ray, W3TDF, offered logs, dupe sheets, instructions, etc. for use in the PAQSO Party on October 13-14. Some 160 mtr activity is scheduled for 10:30 pm Saturday. **i.** Clarence is looking for writers for the club newsletter. Barry, KU3X, offered to do a calendar of events, contests, etc. Any other takers? **j.** The October club election outcome is as follows: President: Ray, W3TDF; Vice President: Van, KC3P; Secretary: Dave, N3EYT; Treasurer: Roy, KA3MNY; Board of Directors: Bob, KU3K; Bob, KW3W; Bill, W3FYK; Bill, K3ANS; and Richard, KA3MOU. Clarence, W3PYF, is a member of the Board for one year following his term in office as president. **k.** Vern, N5IEP, reports two opportunities to provide communication during October. Both in Emmaus, the Band Festival on October 27th and the Holloween Parade on October 28th. See Vern for details. **l.** Ray, W3TDF, moved that the club purchase five additional magnetic signs to be used for club promotion during events where we provide communications. The motion was seconded and passed. **m.** The DLARC would like to welcome the following new members into the club. WB3JYZ, Joseph; WB3EFH, Dave; KA3GEE, Vincent; and KA3WAY, Jason. This brings the club membership to 338!

The program was presented by John, W3UM, on antenna farm construction and operating from Bonaire as PJ1B contest station. Respectifully submitted by,

Dave, N3EYT.

HOW IMPORTANT IS OUR STAR ONE?

The following is a letter our club received from one of our members, WB3IIY, an EMT-Paramedic. From what he says, we should all be proud of our W3OK repeater...de Clarence, W3PYF

To: DLARC

Subject: Emergency Autopatch

On the afternoon of September 6, 1990 at about 4 PM I had occasion to utilize the DLARC's emergency autopatch into Northampton County Control Center.

While on my way home from work, I happened upon an apparent auto accident on the ramp to westbound route 22 at route 33. Upon arrival, a young male was reportedly ejected from his auto and was now unconscious. The injuries that were found upon examination were of a critical nature and required immediate action. I initially used the patch to request both basic and advanced life support units. The MedEvac helicopter was also placed on standby. After a quick re-assessment and some initial basic care, I accessed the patch again and requested MedEvac to respond. In a short period of time, the help I requested was on scene and the patient was enroute to the Trauma Center.

I wanted to take this opportunity to thank the Delaware-Lehigh Amateur Radio Club for having such a service available for the local amateur community. Because of the direct link with Northampton County Fire, the young patient was taken to the proper hospital in an expedited fashion. Although his condition is critical, he is alive today because of this vital emergency service.

Thanks again for everything

(SIG)

Doug Deutsch, EMT-Paramedic, WB3IIY

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VE TESTING CHANGES

Beginning with the December 7 testing session, all VE testing by the Delaware-Lehigh Amateur radio club will need pre-registration.

The November 2nd sessionwill still take walk-ins but beginning with the December session, calls must be made to John Greenage, K3GQJ @215 767-4778 at least three days before the tests.

Tell all who are coming to the tests!

FOR SALE

For the experimenter:

8 element two meter antenna

2 meter transceiver from a railroad engine

Air Force surplus, including oscilloscope, switches meters, resistors, capacitors, autotransformer etc.

An unopened word processor (Practiword) and an unopened database (Practibase) for IBM type computers. First $100.00 takes it all!

Call Richard WA3CLC at 866-3715.

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VE SESSION OCTOBER

by John, K3GQJ

At the October 5th VE session at the Northampton County EMA headquarters, the following participated.

Ten candidates took a total of 13 elements and there were 6 up-grades.

1. Danny G. Steinberg, N2LAU- Advanced
2. DAniel L. Vassilaros, KA0PUF-General
3. Thomas D. Conville, KA3WTY-Technician
4. Mark E. Clark, KA3WXM-Technician
5. Glenn J. Luzzi, WB2WPU-Extra
6. Robert L. Piester, N3ICD-Extra

VE's participating were N3EBH, KA3MNY, K0EM, NW3W, NU3L, WA3T and K3GQJ.

For the November 3rd session, team 3 will be in attendance. This will be the last test without pre-registration. Beginning with the December session, all testing will be by calling and making arrangements.

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FOR SALE

If you want to go mobile, here are some Hustler Mobile antennas.

75 Meter high power resonator	$ 20
40 Meter high power resonator	$ 15

also

ARRL Antenna Compendium Volume 2 (new) $7

Call Barry, KU3X at 691-8888...

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DLARC INFORMATION LINE

Remember! for club information call

820-9110

SAREX NEW SCHEDULE

from AMSTAT News Service

NASA officials were forced to scrub the launch of STS-35 on Sept. 11, 1990 due to the recurrence of a hydrogen leak in the aft engine compartment. Because this leak appeared to be much worse than leaks previously encountered, NASA officials will again roll the Shuttle Columbia back to the "hanger" to perform needed repairs. During the time that the repairs are being performed on Columbia, the Shuttle Discovery will be made ready for lift-off.

Discovery carries a "time-critical" payload, known as Ulysses, which must be launched within a thirteen day period beginning Oct. 5, 1990. After the Ulysses mission comes a classified DoD launch on the Shuttle Atlantis. This mission is planned for November 10, 1990. NASA planners are working on a December 1, 1990 launch for STS-35/SAREX. Although four launch attempts would try the patience of even the most stalwart SAREX enthusiast, it is evident that NASA remains committed to completing the STS-35 mission goals. AMSAT would like to thank the many dedicated volunteers who have worked so hard to make the Shuttle Amateur Radio Experiment a reality. As the launch of STS-35 approaches again, AMSAT and the ARRL will start to again publish the necessary information for the SAREX mission. Watch for bulletins from the AMSAT News Service (ANS) and W1AW bulletins in mid-November for updates on the progress of the STS-35/SAREX mission.

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THE ARRL OUTGOING QSL BUREAU SYSTEM

One of the greatest bargains of League membership is being able to use the ARRL Outgoing QSL Bureau to conveniently send your DX QSL cards overseas to foreign QSL bureaus. Your ticket for using this service is your QST address label
and just $1. per pound. You can't even get a deal like this at your local warehouse supermarket! And the potential savings over the substantial cost of individual QSLing is equal to many times your annual dues. Your cards are sorted promptly by the Outgoing Bureau staff, and cards are on their way overseas usually within a week of arrival to ARRL hq. More than four million cards are handled by the bureau each Year!

QSL cards are shipped to QSL Bureaus throughout the world, which are typically maintained by the national Amateur Radio Society of each country.

While no cards are sent to individuals or individual QSL managers, keep in mind that what you might lose in speed is more than made up in the convenience and savings of not having to address and mail QSL cards separately. In the case of DXpeditions and/or active DX stations that use U.S QSL managers, a better approach is to QSL directly to the QSL manager.

As postage costs become increasingly prohibitive, don't go broke before you're even halfway towards making DXCC.

How to use the ARRL Outgoing QSL Service

1. Presort your DX QSLs alphabetically by call-sign prefix (AP,C6,CE,DL,F,G,JA and so on).
2. Enclose the address label from your current copy of QST. The label shows that you are a current ARRL member.,
3. Enclose payment of $1 per pound (or less) of cards..In other words, $1 is the minimum whether you send 1 card or 155.. Pay by check or money order and write your call on your check. Do not send Cash.
4. Include only the cards, address label and check in the package. Wrap the package securely and address it to the ARRL Outgoing QSL Service, 225 Main Street, Newington CT 06111.
5. Family members may also use the service by enclosing their QSLs with those of the primary member. Include the appropriate fee with each individual's card and indicate "Family Membership."

There are approximately 270 DXCC countries are served by the ARRL outgoing QSL Bureau, as detailed in the ARRL DXCC Countries List. This includes nearly every active country. AS noted previously cards are forwarded from the ARRL Outgoing Bureaus to a counterpart in each of these countries. In some cases there is no bureau in a particular country and cards therefore cannot be forwarded.

The ARRL QSL Service should not be used to exchange QSL cards within the 48 contiguous states.

For further information on countries not served by ARRL, write, giving your name and address with a self addressed stamped envelope to ARRL and request it.

SHACK GROUNDING AND THINGS TO AVOID!

Good grounding is one of the most important things that contribute to an efficient pleasant to operate station. This statement appears in every instruction book, operating article, but seldom is a good ground defined.

The result is many operators do what they think is the best, but end up with ground-generated problems.

If you need a good ground use a COLD water pipe, but be sure that there is no plastic pipes in the run. If possible and you are able to, drive a ground into the floor of your basement or outside, it should be at least 8 feet long. If possible drive a second one a few feet away and tie them together with heavy braid.

If possible, use the braid from old RG8U cable, it is far superior to any wire, regardless of size.

1. Don't ground to hot water or heating system plumbing. Electrical continuity may not exist.
2. Don't make any connection to a natural gas line. Dangerous , and the RF grounding of the pipe is questionable.
3. Don't try using the house wiring as a ground system. Neither the neutral (white wire) nor the ground (green wire) are designed for RF grounding. They won't work, but they will introduce hum.

from ARNS Bulletin

ARES ACTIVITIES
Sept 25th Bike-A-Thon
by Vern, N5IEP, DEC

The DLARC was called upon to provide communications for a Bike-A-Thon for the Habitat for Humanity organization. This is the first time they have used amateur radio on any of their events. Even though we only received a call 5 days before the bike ride, between early volunteers and last minute arrival of more hams we were able to man all the check points and sag wagons and provide complete coverage of the 10, 25, and 50 mile bike rides. The coordinators of the Bike-A-Thon were totally amazed at what we could accomplish with radio communication and on such short notice. They also said they will be contacting us again next year to help out. All had a good time and my personal thanks go out to KA3AVN Andy, KD3SQ Chuck, KA3TEQ Carl & Marcia, KA3UIU Gene, KA3ONZ Bruce, KA3RBH Bill & son, W3YXS Wally, KA3MTY Paul, KD3TI Amy, WA3KIF Mark and N3GRH Dave (motorcycle mobile) for a job well done.

I hope to see more hams get involved in future public service events.

de Vern, N5IEP

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FOR SALE

CLEGG 27-B 2M Rig with power supply in excellent working condition under factory maintenance $50.
KENWOOD T R-2400 2M Handheld with mic, case, needs some work..$50.-
EICO 753 Tri-Band Transceiver SSB 80/40/20..Needs power supply capacitor repair. Best offer.
HY-GAIN Model TH-3 3 element beam for 10/15/20. All parts and manuals..$50.00
HY-GAIN Model 18 AVQ 10-80 Meter Vertical. Good condition $100.
HAM CDR AK 119 Rotor with all cable and coax. $75.00
SQUALO 6M mobile antenna. $10.00
ASTATIC D-104 Mike with Stand. $30.00

Call Bob Johnson, WA3FJG 395-0889 All prices negotiable.

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** CONTEST CALENDAR **
by Barry, KU3X

Nov. 10	W1AW Qualifying run, 10-35 WPM
	ALARA Contest
Nov. 10-11	OK-DX Contest
	European DX RTTY Contest
Nov. 17-19	ARRL November sweepstakes, phone
Nov. 24-25	CQ WW DX Contest, CW
Nov. 27	W1AW Qualifying run, 10-35 WPM
Nov. 30-Dec. 2	ARRA 160 Meter contest
Dec. 8-9	ARRL 10 Meter contest

Two major contests have already past. One was the PAQSO Party and the other one was the CQ WW DX SSB contest. If you are not a contest person, that's ok. But you don't have to enter any contest to have fun. Just get on the air and hunt around. I think you will be fascinated by some of the calls that you may find. What do you need for your Delaware-Lehigh Amateur Radio Club DX-100 or your W.A.S. award? If you put a few hours into the contest, you could get one or both awards in a very short time. Good luck and good hunting.

de Barry, KU3X

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NEW MASTHEAD

This issue shows the new masthead with the name W3OK CORRAL. Named by WA3T it was computer designed by Dick, KA3TTX and completed by Norm, K3NZ..Thanks to all for the new format.

TEST EQUIPMENT - 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

DIGITAL (sometimes) COMMUNICATIONS

by Joel, K9TBD

"The End Fed Antenna - Get on 80m and then some"

It was getting late for the Pennsylvania QSO party. Just two days to go and my eighty meter antenna blew down. I wanted 80 meters but also wanted a general coverage receive antenna after the contest. I decided upon an End-Fed long wire (random) antenna. This antenna has a high feed point impedance and you will need a tuner. I selected an "L" section which was sitting idle.

After looking through a half dozen antenna books and three ARRL Handbooks (1949 pp 320, "Transforming Impedances"; 1967 pp 49 "Impedance Matching Circuits"; 1971 pp 356 "An L-Network Coupler for End-Fed Wires") I found no design equations just some practical circuits and values of components. So I spent a number of 'happy' hours deriving the general equations for the "L-Network".

"L-Network" for Loading an End-Fed Antenna
Assumptions: a) the radiation resistance of the antenna is greater than the source impedance, b) an end-fed long wire has relatively high radiation resistance, c) for maximum power transfer - the source impedance (in this case resistance - say 50 Ohms) must equal the load (tuner plus antenna) d) reactive components must cancel. With these considerations in mind the following is a brief description of the entire system - transmitter to antenna.

The transmitter is (say 100 Watts) a Voltage source through a 50 Ohm resistance (Z). The intermediate "tuner" is a series inductor (L) with a shunt capacitor (C) from antenna connection to ground. The output goes to the long wire which has (R) as a radiation resistance. Looking into the antenna tuner from the transmitters point of view, it sees a series (L) with a capacitor (C) in paralleled with an antenna radiation resistance (R) at the other end. This complex impedance must match the transmitter output resistance (Z=50 Ohms) for maximum power transfer to the antenna.

This means that the reactive part of the total load the transmitter sees must be zero (one equation). The remaining part of the equation says the source resistance of the transmitter (Z) must equal the load resistance - tuner plus antenna. With LaPlace, Fourier, and my friend Euler to the rescue, solving these equations {my references never did solve these equations} yields the required values for (L) and (C) for the L-Network required to feed the End-Fed wire antenna:

```
Eqn#1   L = Z * SQRT {R/Z - 1} / ( 2 * PI * F)
Eqn#2   C = SQRT {R/Z - 1} / ( 2 * PI * F * R)
Where:  F = Frequency of interest (Hertz)
        L = Inductor required (Henrys)
        C = Capacitor required (Farads)
        R = Radiation resistance of the antenna (Ohms)
        Z = Transmitter output impedance - resistive
            (Ohms)
Eqn#3   2*PI*SQRT { L * C } =  SQRT { 1 - Z/R } /  F
```

Note: This last equation shows the change from natural resonant frequency of the LC 'tank' to the loaded tank. The reciprocal of Eqn#3 is the modified frequency.

If you have read this far I am sure that you would like a practical example:

1) you have a 100 Watt transmitter working at 3.5 MHz (50 Ohms output)
2) your End-Fed antenna is near 1/2 wave and is 2,000 Ohms at resonance

What should the (C) and (L) be and what currents and voltages are in your antenna system?

```
From Eqn#1  L = 50 * SQRT (2000/50 - 1)/(2*PI*3.5*10**6)
= 0.142 uH
From Eqn#2  C = SQRT(2000/50 - 1)/(2*PI*3.5*10**6*2000)
= 141.2 pF
From Eqn#3  F/SQRT{1-Z/R} = F/SQRT{1-50/2000} = 1.0127*F
= 3.544 MHz
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From the standard power equations 100 Watts to the antenna means that the antenna current is 1.414 Amps with a Voltage of 70.7 Volts. These computations lead to 'normal' components. Do remember to ground this thing well and get it away from the radio to minimize RF floating around in the shack.

An End-Fed antenna may not be the answer for everyone, but, at least I have taken some of the mystery out of "making it work for you". If you experiment with this sort of system - drop me a note on your findings. I will let you know how it worked for me in the contest and for a general coverage antenna afterwards. ... 73's Joel ...

yANKEE DOODLING

"Did you hear the scores they're giving out on the '.70 repeater? Some of those guys have scores higher than our whole club's score!" -A comment heard Sunday evening(10/14) on another Pa. Repeater.

I don't think that anyone wants to jinx the club by claiming victory prematurely, but it looks like the DLARC buzz-saw just might have cut a new place in Radiosporting history. With many scores still unreported, we have an unofficial score of over 2.45 MILLION points. That's the first time that any club ever broke the 2 M barrier in this contest. Doug, W3HDH, kind of summed it up with a comment to me on Sunday afternoon, "You really have the troops fired up this year; all I'm working are Lehigh and Northampton stations!" I've got to admit, it was fun to be part of a team effort like this one.

HERE'S TO THE HEROS!

If you operated at all during the contest, you couldn't miss the **big guns**. These were the stations with big antennas, good equipment, and operating skills honed in many contests. They were LOUD, they operated smoothly, and they were passing out some pretty high numbers. These are guys and gals who are familiar with, and like, the whole contest scene.

But, there's recognition due to another whole group of operators--let's call them the "LITTLE PISTOLS". These are the guys and gals who seldom, if ever, operate in a contest--maybe this was their first one! They got on the air to help their club score, or because a buddy downstate asked them to, or in a couple of cases [like a Potter Co. station who gave me his #7 late Sunday afternoon], almost by accident! They felt like they were driving a 1962 VW in the Indy 500, but they stuck it out, made contacts and helped the Big Guns and the average operators run up some really good scores.

I wish that there was a "Elmer of the Year" award in this contest--I'd nominate N3BAT in Venango Co. On Sunday afternoon he was sharing the frequency with, coaching, and helping N3INR, the Potter County station who gave me #7.. Now, Venango is kind of rare and 'BAT could have probably run up more of a score operating by himself. But, by coaching 'INR he kept a new operator from feeling blown away and helped the rest of us by keeping an even rarer county on the air. Who knows, next year we might just find N3INR running 500+ contacts as a resident Potter county station??

LEST AULD ACQUAINTANCE..and all that.

Another fun part of the QSO Party, to me, is meeting old friends and saying hello. I used to live up in Murgas Country [Luzerne County] and know many of the Murgas members personally. It's always nice to take the extra second or two to say hello. Besides, there's nothing like using someone's name to break through a pile-up. (It works, doesn't it Ray?)

Our call letters represent a unique identity, our names don't. For example, there are probably several Bill Goodmans', Clarence Snyders', and Richard Saegers' in the world, but there's ONLY ONE W3PYF, ONE K3ANS & ONE K3OO. Once we settle down with a call, after the flurry of call changing which seems to go with upgrading, we get known far and wide by those call letters. Tom, KA3LAM told me that he was riding through Massachusetts last weekend and ran across WA3EEC on one of the local repeaters. When he mentioned that he was from Bethlehem, WA3EEC asked Tom if he knew K3YD. I don't know if Ladd, WA3EEC, remembers my full name, but he sure knows my call. It's like that in the QSO party, too.

THANKS, K3CP & WA3T!

It's two days after the contest, and 90% of the participants have their logs and dupe sheets finished; some are probably in the mail already. It's a far cry from "the good old days" when we operated for a weekend and suffered with the logs for the next two weeks. Gone are the days of manual dupe sheets, & recopying logs so they can be read by log checkers who aren't pharmacists. Computer logging, with some good software, has just about eliminated the worst part of contesting--THE PAPERWORK.

A hearty THANKS to Van, K3CP; & Robin, WA3T, for all their hard work in developing the PA QSO Party logging software which many of us used this year. It really made a difference. **What, you did your logs on paper & you don't own a computer?** Well, find a friend with one and enter your log after the contest. With one person reading and the other at the keyboard, a 400 contact log can be entered in less than an hour. When you've finished, the paperwork can be generated while you fix a cup of coffee--it's the only way to contest today.

11.90 **73 de K3YD**

THE DELAWARE-LEHIGH AMATEUR RADIO CLUB, INC.

W3OK CORRAL

RD #4
GREYSTONE BUILDING
NAZARETH, PA
18064

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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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
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