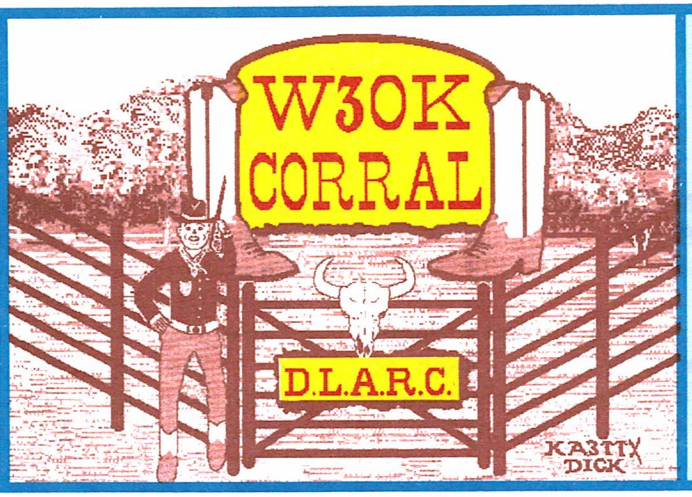
DELAWARE-LEHIGH AMATEUR RADIO CLUB, INC. W3OK

December 1990



SPECIAL SERVICE CLUB
ARRL

ARRL Affiliated Club

IT'S DUES TIME AGAIN

HOW ABOUT A TRIP TO A RUSSIAN HAMFEST?

by Bill, K3ANS

N2AA TO SPEAK

N2AA, Gene Walsh will speak to the Delaware-Lehigh Amateur Radio Club, Inc., Dec. 6, 1990, about his visit to the first hamfest in the Soviet Union. His slides show the parties and fun, his visit to Moscow and Leningrad, his visit to the Central Radio Club, Moscow. That is the famous Box 88 for USSR QSLs. Gene is an internationally know CW contest operator, famous for his managing and operating K2GL, the contest super station in Tuxedo Junction, NY. He operated from Libya (5A) when it was friendly, from the UN station, and other spots around the world. Gene was instrumental in opening friendly traffic and communication behind the now ripped open Iron Curtain. Bring your friends and ask questions about ham radio in Russia.

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DUES TO REMAIN THE SAME

In spite of the costs of running the club and the repeaters, the Board and the membership at the last meeting agreed to hold the line on the costs of maintaining membership in our club.

We will continue to assess $12.00 a year for a membership which will give full auto-patch and all services of the club. Additional family members will be charged $3.00 each. The family membership plan allows only one newsletter to be sent to the family. The only additional charge will be a $1.00 application fee for new members.

In addition, all who take our club Novice classes and pass their tests will get a full membership for a year free.

It is important however, that all fees be paid as early as possible.

W3OK TO OPERATE AS CHRISTMAS CITY STATION

The club station, W3OK, will again operate as the Christmas City Station on December 22nd & 23rd.

With the husband and wife team of John, N3GXU and Louise, N3GXV heading the group, all members are asked to participate by coming to the club station on those days. Make your schedule by calling John and setting up your operating time.

Operation will take place from 0400Z & 1600Z on those days on the frequencies of 3925, 7250, 14325, 21325 and 28425.

A beautiful certificate will be offered to those who work the station and send a QSL card and a SASE #10 envelope to W3OK, Greystone Building, Nazareth, PA 18064.

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PA QSO PARTY WRAP UP

by Clarence, W3PYF

What an effort! 72 members of the Delaware Lehigh Amateur Radio Club entered the PAQSO party and what a score. It exceeded my last month's estimate.

OVER 2.6 MILLION POINTS

It shows what can be done when everyone pitches in. This is truly a tribute to the club and all of us should be proud.

If we can get this kind of cooperation on Field Day, we'll top our class there. This year brought us 10th in the 4A class nationwide. A great showing. Let's get ready for the June outing.

Don't know what next year will bring, but it may be that they'll make DLARC operate next year with one hand tied behind our back.

W3OK REPEATER TO THE RESCUE
A True Story
by Fred (N3IJC)

There are times when a person feels deeply grateful to be a radio amateur and to have access to the auto-patch facilities of a repeater like the W3OK repeater. For me, this is one of those times!

In early November, I was in the process of moving to a new residence. My car was filled to capacity with a lot of very heavy boxes, which I was taking to storage. Unfortunately, I did not realize that my car was low on radiator coolant. The combination of low coolant and a heavy load to haul drove my car's temperature gauge all the way into the red. When I saw this, I pulled over as soon as I could do so safely. Loaded up as it was, my car was going nowhere until I could get some more coolant for the radiator. I was stuck.

LUCKY FOR ME, I had the 2 meter HT in the car when all this happened. I used it to call home, via the W3OK auto-patch. It was also lucky for me that my mother was there and was able to bring me some radiator coolant so that I could get myself out of this mess. (Thanks, Mom!) She soon arrived with the coolant, which I added to my car's radiator, and in a very short time, the "move-mobile" was driveable once again.

When I had a need, the W3OK repeater was there for me. Thank you, DLARC!

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IT'S NOW LT. COL BATES!

No need to worry about the military any more! Blair, K3YD has just been promoted to Lt. Colonel.US Army Reserve..Great Blair, the baby needs the money.

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JUST FOR THE RECORD
By Van, K3CP

CD's are the state of the art for audiophiles. Their fidelity and range are the best in the record industry. They are recorded in sound studios and played back on digital players. There is no provision for home recording as yet. The battle between records and tapes continues with records in the lead for the present, but the lack of a home recording feature has burdened records since the first wire recorders were introduced.

But not all CD's are the same. Some use analog media for the master. Ordinary tape is analog and CD's made from them are little better than the original source. However, some tapes are digital. DAT's or Digital Audio Tape as they are called are an example.

The record industry codes the CD's so that you can tell what methods were used in their production. There are three combinations that you need to know about. They are the masters used, the mixing method and the recording method. The first two of the three combinations can be either analog or digital. The third, the recording, is always digital. If the master is analog (tape) and the mixing is analog, the industry would code that as an AAD. If the mixing were done digitally, the coding would be ADD. If all three combinations were done using digital procedures, the coding would be DDD. These are truly state of the art.

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NOVICE CLASS UPDATE
by Bob, WF3H

One of the features we implemented for this years' Novice class being taught by Robin, WA3T; Daryl, K3EX; and Chris NU3L is an Elmer program to help get our prospective novices on the air.

We were fortunate to have an abundance of volunteers, and were able to provide all interested novices with Elmers.

Volunteer Elmers were:

BOB, W2CCE	BUD, WA3BOM
ED, KA3OLO	JOHN, K3GQJ
BOB, KA3TER	VIC, N3IQD
STOCKLEY, AJ3H	BOB, WF3H
ARCHIE, KX5X	

Thanks to all the volunteers, de Bob, WF3H

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NEW MEETING PLACE BEGINNING JANUARY MEETING

Due to increase of our membership to over 340..We will, thanks to Dick, KA3MOU and Bob, W2CCE change our meeting place to the Northampton County Community College KIVA Hall beginning with the January Meeting.

The January Issue of the OK Corral will have maps and directions for the membership to assure your ability to find this new facility. All other club functions such as board meetings, classes, and club station will remain at the Greystone Building.

VE SESSION
by John, K3GQJ

At the November 2 session at Gracedale, 8 candidates took a total of 16 elements. There were 2 up-grades and 1 new Technician and 1 new Novice. These included:

Danny G Steinberg, N2LAU, Extra
Norman S Daniel, N3GXW, General
Bruce F Shoemaker, new Technician.
Norman S. Pengelly Sr. new Novice.

The VE team at this session included WA3T, Robin; NS3J, Bill; KO3M, Ann; K3GQJ, John and NE3K, Charles.

Team 4 will be in charge at the December 7 session. 73 de K3GQJ

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AMATEUR RANKS CONTINUE GROWTH
from ARRL Newsletter

Both new Amateur Radio licensees and license upgrade showed a healthy increase in the past year. FCC statistics for the fiscal year ended Oct.1 have been released (statistics actually were compiled through Sept. 25) and are shown below along with the five-year trend.

1990	*1989*	*1988*	*1987*	*1986*	*1985*
26,134	23,065	21,080	24,338	20,979	17,373
29,699	26,789	26,342	23,814	22,228	16,184

First line is new licensees and second line is upgrades.

The total number of amateur operator licensees grew 6.1 percent, from 464,800 to 493,292. Here is the breakdown by license class:

Extra	52,847
Advanced	104,365
General	119,158
Technician	125,217
Novice	91,705
TOTAL	493,292

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FOR SALE

Heath SB-102, with external LMO (for split frequency operation), healthy power supply and matching speaker, spare power xfrmr, spare 6146's and other tubes. 250 firm. HEATH HL2200 Linear (uses 3-500Z;s), includes parts for adding 10 meters. Talking about 800. Call Ray, W3TDF, at 346-7313.

T H E G A V E L S P E A K S
by Ray, W3TDF, President

I hope everyone got their PA-QSO Party logs in the mail on time. I sent 43 of them, which accounts for over 1 million points. Our latest guesstimate is 2,655,000!

We need several volunteers to run (or guide) the Club Picnic on Aug. 10, 1991. Remember, many hands make light work! Is the 10th OK, or would the 17th be better? We have to know by the January meeting. The raffle tickets should be in your hands by the time you read this. The prizes are;

(1) SHARP VHS Camcorder,
(2) CODE-A-PHONE
Telephone answering machine
and auto-memory dialer
(3) SHARP Electronic Organizer/clock
telephone memory/calculator.

Now that's about as nice a slate as I could come up with. We will be holding our meetings at the Northampton Community College, beginning in January. More details elsewhere in this newsletter. Thanks & 73. de Ray, W3TDF

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ATTENTION DXERS!

Ann, KO3M informs us that those who wish to get the latest information on DX can subscribe to the Long Island DX Bulletin, issued bi-weekly. Mail $17.00 to: Long Island DX Bulletin, PO Box 173, Huntington, NY 11743-0876. In addition there is a good DX paper

THE W6GO/K6HHD QSL Manager list. It is a computer listing of over 5000 DX operators and their QSL managers. Send $20. to Electronics Enterprizes, PO Box 700, Rio Linda CA 95673-0700.

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CLUB LOGO PATCHES AVAILABLE
Ray, W3TDF

Club Logo patches, 3"dia., are available at $2.50 each. PA-QSO Party patches, 2-1/2"dia., have also arrived, and they are $3.00 each. Pick em up at meetings, or send order to me, BUT be sure to include SASE (#10 env). Make your check payable to DLARC. These patches can be iron-on or sewn. W3TDF-BILGER, 1706 State Rd., Coopersburg 18036.

They will be available at the Deember meeting, so if you can wait, get them then.

de Ray, W3TDF

ONE BILLION WATT XMITTER

courtesy KU3X

Defense News, Monday, June 25, Page 15...DOD seeks Atmospheric Heater to help contact submerged subs.....Congress has appropriated Ten Million dollars to build a ONE BILLION WATT High Frequency transmitter to be located in Alaska. The device will produce enough energy to cause the ionosphere to emit heat and visible light. This phenomenon would be similar to the spectacular light show of the aurora borealis, or northern lights, which is produced by the sun's heat upon the upper atmosphere's ions. (?)

The Defense News article also says: By using the device, researchers could collect information about ions in the atmosphere. This information could help improve other DoD systems. For example, the range of sophisticated Over the Horizon (OTH) radars may be increased by changing the number and density of the ions in the atmosphere, according to the Pentagon's March 1990 Critical Technologies plan. A modified ionosphere could improve OTH radar performance, possibly allowing the tracking of stealthy targets, the report said. The device could be ready by late 1992, according to a statement from the Office of Naval Research, Arlington, Va.

This article was originally posted on a private bbs by W5VYY.

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WHERE DO THEY COME FROM?

I am sure you have wondered where some of our words come from. You have heard that COPS comes from Chief of Police and NEWS from North East West and South. Is this true? Who knows, but it's interesting and fun. The word POSH has an interesting origin. It's means sumptuous, elegant and luxurious. Like a 'posh restaurant' or a 'posh resort'. Well anyway, the word was coined many years ago when Britain ruled the waves. Many of the wealthy families would sail to India for vacation. Of course they could afford the best accommodations. This included the shady side of the ship as it was very hot before electric fans and air conditioning. They had to change cabins for the trip back as the sun was on the other side this time. It so happened that the port side of the ship was the shady side for the trip to India and the starboard for the journey back home. Hence Port Outgoing Starboard Home - POSH. I don't know where I read this or even if it's true, but, like I said it's fun.

73, Van, K3CP.

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W1AW CODE PRACTICE AND BULLETIN SCHEDULES

((all times UTC))

Slow Code Practice
WF - 0300, 1400
TuThSa - 0000
TuThSaSn 2100
Sn - 0300

Fast Code Practice
MWF - 0000, 2100
TuTh - 0300, 1400
Sa - 0300
Sn - 0000

CW Bulletins
Daily - 0100, 0400, 2200
MTuWThF - 1500

Teleprinter Bulletins -
Daily 0200, 0500, 2300 MTuWThF - 1600

Voice Bulletins -
Daily 0230, 0530

Code practice -CW bulletin frequencies
1818/3581.5/7047.5/14047.5/21077.5/ 28077.5

Teleprinter Bulletin Frequencies
3625/7095/14095/21095/28095

Voice Bulletin Frequencies
1890/3990/7290/14290/21390/28590

Slow code practice is sent at 5, 7 and half, 10, 13 and 15 WPM Fast code practice is sent at 35, 30, 25, 20, 15, 13 and 10 WPM

On Fridays, UTC, a DX bulletin replaces the regular bulletin transmissions.

Teleprinter bulletins are 45.45-baud Baudot, 110-baud ASCII and 100-baud AMTOR, FEC mode.

CW Bulletins are sent at 18 WPM.

DEC CORNER
de N5IEP

Hams answered the call again at the Emmaus Halloween Parade on Oct. 20th.

Although we had a wrong date for the parade enough hams came out to help provide communication for the parade on saturday night. This is one of the events that we get good coverage from because we actually drive our cars in the parade with the club signs attached. There are also several TV stations that cover the parades.

Each of us that helped followed a band through the parade to ensure that there was no trouble on the side lines and to be there if someone dropped out. As usual all had a good time and enjoyed the comfort of a soft seat and a car heater during the chilly evening. Thanks go to those that helped.

KA3TEQ Carl & Marcia KD3TI Amy
KA3MTY Paul N5IEP Verne N3GRH David
NS3L Steve AI3D Rick
And also those hams that were on the curb side cheering us on and helping out, KA3VRR Pat, AJ3H Stokley, KA3AVN Andy and KD3IZ Tim.

On Oct. 27th hams led by KA3AVN Andy helped provide communications for the Emmaus Band Festival. We passed all types of traffic for the band officials, from an ambulance call for a sick band member to looking for a custodian for a stopped toilet to a phone call to the police for a one car accident up the street from the school. Hams put up with all kinds of traffic. Even though it was cool we were placed at strategic locations to pass messages for moving bands from spot to spot and any other messages the officials needed to pass. Most had a front row vantage point to watch the bands and all had the usual good time.

The band officials thanked us very much for a job well done and asked us to help out again next year. Thank you to those who helped out.
KA3TEQ Carl & Marcia KD3TI Amy KA3MTY Paul N5IEP Verne KA3TMR Leo WA3KIF Mark KA3AVN Andy KA3ONZ Bruce

Thanks to all who helped on these events and I hope to see more hams get involved in these public service events in the coming year.

de Verne N5IEP Dist 4 EC

ESTIMATED CALENDAR OF COMING EVENTS

January 26, 1991 BSA Klondike Derby
April 27, 1991 March of Dimes Walk-A-Thon
May 21, 1991 EMA Drill at Gracedale
June 22-23, 1991 Field Day
June 29-30, 1991 FCCC Bike Races
July 20-21, 1991 Derriere-On-The-Delaware
August 4, 1991 Easton Hospital Walk & Run
September 15, 1991 Lehigh Wheelmen 100 miler
October 19, 1991 Emmaus Halloween Parade
October 26, 1991 Emmaus Band Festival

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** CONTEST CALENDAR **
by Barry, KU3X

Dec. 4 West coast qualifying run
Dec. 8-9 ARRL 10 meter contest
Dec. 9 W1AW Qualifying run 10-35 WPM
Dec. 9 ARIC QRP CW Sprint
Dec. 27 W1AW qualifying run 10-35 WPM

Not too much in contesting going on this month. The ten meter band has been in very good shape lately. The JA's have been coming in nice and strong as well as the rest of the world. Looks like you will be able to work some real nice stuff in this contest.

Try a little QRP on Dec. 9. Hams that are in the contest will be fighting to work you. You will be surprised how much DX you can work with only 5 watts output power. Remember, 5 watts is only two and one half S units down from 100 watts. Not as much as you thought ?

de Barry, KU3X

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DLARC INFORMATION LINE

Remember! for club information call

820-9110

DIGITAL COMMUNICATIONS

by Joel, K9TBD

Digital Signal Processing What's Its All About ALF?

Today, most of our modern radios are digital systems. How do they work? Why have most 'previously analog systems' gone digital. What is the difference between the two systems - Analog and Digital. When should Analog be used, when should Digital be used? Some of these issues will be answered in this article and a simple example will be provided.

Most all processing in our RADIO circuits have been analog until the past handful of years. The DIGITAL REVOLUTION began! Why did this happen. One reason is that digital logic became fast enough to emulate the classical^r analog circuits, another reason is that programming ANALOG stuff requires changing 'tweaking' components whereas digital tweaking is nothing more than changing a few lines of code.

Since there is such a background of analog design, the first thing that digital designers emulated was the classical designs of the analog world. This is called a direct equivalent (from the analog world to the digital world). The next thing was that, there are some things that the digital world can accomplish that the analog world cannot (of course v.v.).

Most all of our radios are synthesized today....i.e. digital. How do some of these systems work? The following is a short discussion of how to turn a simple RC analog filter into a DIGITAL equivalent. This is the crux of most of the circuits that are used today for our "digital" radios.

LOW-PASS FILTER: In the analog world a simple (one-pole) analog low-pass filter may simply be realized by a series R and a shunt C. The output signal from this simple analog filter "clips" the higher frequencies that come into it. Remember that a Capacitor looks like a short circuit for high frequencies and an open circuit for low frequencies. I.E. no current passes through a capacitor if there is no variation in the voltage across the capacitor.

The digital world may simulate this low pass filter, but, there are a couple of extra steps that must be accomplished before the digital equivalent may be realized. They include - 1) convert the Analog signal into a digital signal - A/D converter, then 2) apply the equivalent filter, and finally 3) reconstruct the analog signal with a D/a converter. These steps seem cumbersome (and will cause some problems) but the advantage is that once in the digital world.....any changes only require a change in software as opposed to hardware in the analog world.

Our modern radios are nothing more than a collection of these digital equivalences of the original analog circuits - which historically have been refined over many years. The analog circuits (for those familiar with OP Amps, etc) have a few R's and C's and some OP Amp's, the equivalent digital circuits (after translation from analog to digital with an A/D converter consist of Adders, Multipliers, and Delay Elements). The equivalent circuits in analog and digital equivalent circuits are: (Summers and Adders), (Gain stages and Multipliers), (OP Amps and the all important Delay Element). What the heck is a delay element? Nothing more than a Flip-Flop - (more than one makes a shift register).

That really is all there is to the transition between the Digital world and the Analog world. There are a few subtiles such as sample rates and aliasing and such consideration.

Analog: Make an R and a C

Digital: Make a Summer, an Adder, and a Delay (Flip-Flop) (change the signal into digital A/D before use and convert back with D/A after use)

That is all there is to it (maybe).

The world of Digital is 'KING' today however there are some unparalleled uses of Analog circuits still. Did you ever 'Dip your final' with a digital meter? Did you ever 'Fly a plane (or simulator)' with a digital Airspeed indicator?

Hopefully, you will think a little about the differences between Analog and Digital worlds and see where each has its place.

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FOR SALE

Kenwood 2M/70CM Dualbander FM Rigs! Your Choice, TW4000A OR TW4100A $350.00. Heathkit Frequency Counter IM-2410 good to 225 MHz. $75.00. 2 Meter Power Amp for HT. Tokyo-Hi Power HL35V. 3W in 35W out with FASTEX rcvr preamp $75. Call Howard AE3T at 215 395-9716.

JUST THE MINUTES

by Louise, N3GXV

The November meeting of the DLARC was called to order by Ray, W3TDF, at 7:30 PM in the Greystone Building in Nazareth.

The minutes of the October 4th meeting were approved as printed in the Newsletter.

Treasurer Roy Buss, KA3MNY gave his report and it was approved as read. Six new membership applications were read and approved

KC3FC-Bruce Kirwan

N3IQD-Victor A. Tropianu

and the following who were graduates of our Novice classes and are awaiting calls:

Wilbur J. Howell III, Harlan S. French, Anne A. French and Robert A. Green.

The following is a summary of key points discussed at the executive meeting, that was reviewed with the membership by the president:

A. The Skywarn program was a hugh success and a packet station at the weather station will be ready for access soon. A 2 meter FM for ARES at the station for Net Control of weather emergencies will be available in the near future.

B. At present we have 335 + members, yet there remains poor participation in events (eg. bike-athons etc.). We need to become attuned to activities that need our attention and jump right in. We were reminded by Robin, WA3T to use the phone bulletin board" **820-9110** " to keep up to the date with upcoming events.

C. The annual raffle will be taking place and we all need to sell a minimum of 10 tickets. More information will be available soon so keep your ears perked.

D. The PAQSO party was a great success for the DLARC. Bill, K3ANS was the top member scorer. A committee headed by Gunk, KW3W will announce top scorers and award prizes. There will be more information in the future.

E. Five new magnetic signs have been ordered to be used for club promotion during events for which we provide communication

F. In an attempt to find out how much use the 440 repeater was used, and who had the capabilities of using it, it was determined that when membership requirements warrant it, an upgrade of that part of our repeater set up will take place.

G. Help is needed for schedule updates, notifications, reminders etc of happenings that are of interest to the DLARC membership. Volunteers will be announced at the next meeting.

H. The Christmas City USA event slated for the weekend prior to XMAS needs operators. John, N3GXU and Louise, N3GXV will schedule the event, p[lease contact them if you wish to volunteer. They will need your help.

I. The subject of location of a larger meeting hall was discussed and Stokley, AJ3H volunteered to lead a committee to locate a new meeting place.

J. Romaon, KA3OLN volunteered to help with the set-up and knockdown of the meeting room as long as it is at Gracedale.

K. With Field Day in June, KU3K will again head the committee, he will be assisted by K3MWN.

L. The Club picnic will be in August, the board recommenced and the membership approved the motion to charge $5.00 for picnic visitors that are designated outside of members immediate families.

M. The Board approved the purchase of batteries to be kept on hand for the use of the 2 club handi-talkies.

N. There will be no banquet this year, there will however be an informal gathering with advance reservations of $5.00(non-refundable). More information will be coming.

Volunteers are needed for the Elmer program. Contact Bob, KU3K for more information.

The membership decided after discussion that 1991 dues will remain the same, $12.00 per member and $3.00 for family members, with a $1.00 initiation fee.

It was announced that LNB is no longer a Digipeater, for digipeating use K3WGV.

Recognition is in order for Rick, K3OO for making 3200 plus contacts in the CQ World Wide contest.

The program was presented by John, W3GD on DX contesting in Aruba. He will present a program on DXpedition to Market Reef OJ0.

de Louise, N3GXV acting secretary

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FOR SALE

Clegg FM-76--220 Mhz mobile radio. Works very well. Asking $120, but will talk. Call Bryan, KA3WVB at 215 252-3387.

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RENEW YOUR ARRL MEMBERSHIP OR JOIN BY CALLING ROY, KA3MNY, our Treasurer. The DLARC benefits from your fees.

MODULATION

By Van, K3CP

Ima Lidd had a question for Elmer. "What are amplitude and frequency modulation," he asked, "and what is the difference between them?"

"OK, Ima," replied Elmer, "Modulation is the process of varying a carrier according to the intelligence (voice or music). If you modulate (combine) a 7100 Khz. and a 1 Khz note in such a manner as to vary the amplitude, it is called Amplitude Modulation (AM). You actually can see this with an oscilloscope. It would look like a carrier (7100 Khz.) that is varying in amplitude at 1 Khz. rate. When the signal is detected and the RF (7100 Khz.) filtered out, all that remains is the 1 Khz. note."

"In other words," replied Ima, "the receiver detector extracts the audio from the signal."

"Exactly right, Ima," said Elmer. "Let's examine how the modulation occurs. In the heyday of Amplitude Modulation (AM), the modulation (audio) was added to the RF carrier after the final amplifier. In order to achieve 100 per cent modulation (very desirable), it was necessary to provide audio power equal to one half the RF power."

"Do you mean that if a ham were running a kilowatt," interrupted Ima, "he would need 500 watts of audio in addition to his KW of RF?"

"That's right, Ima," said Elmer. "The carrier started at the oscillator and was amplified to the desired level. The audio started at the microphone, then it too was amplified to one half the RF power. That was the reason that there weren't too many kilowatt rigs in those days. The carrier was generated in an oscillator and amplified to the kilowatt level by using class C drivers and amplifiers. A class C amplifier has very high efficiency, but it is non linear and this non linearity would have caused distortion to the audio. Therefore the audio had to be inserted after all RF amplification had taken place.

"In today's modern rigs, most RF amplifiers are of the linear type. Now the audio can be added at one of the low level amplifiers. The audio could be introduced in one of the buffers where power levels are low - a couple of watts or so - now the audio level has only to be about one watt. Then the modulated carrier can be fed to one or more linear amplifiers with no fear of distortion to the audio."

Again Ima interrupted, "Boy! that's incredible. But how about the fellows who are not using linears?"

"Well, Ima," said Elmer, "mostly everyone uses a linear amplifier today, if they are on Single Sideband (SSB)."

"Wait a minute there, Elmer, I am not running a linear. I am just running my transceiver barefoot."

"Well, you are using linear amplifiers in your transceiver. All your buffer stages and driver stages in your transceiver are running in a linear mode. It's a common mistake to think that only KW amplifiers are linear.

"In the case of Frequency Modulation (FM)," continued Elmer, "the audio is introduced to the signal (carrier) in such a way as to vary the frequency of the signal. There are several ways of doing this. For purposes of explaining FM, we will discuss the method known as reactance modulation which actually varies the oscillator frequency. The oscillator is usually of the self excited type as it is difficult to achieve sufficient deviation in a crystal controlled type. The microphone signal is amplified in a speech amplifier and fed to the reactance modulator. Now we have a low level carrier that is modulated with audio. It is now frequency doubled and amplified to the desired power and frequency."

"I think I understand," said Ima. "AM has two common types in use today. Double Sideband, which is used more on the commercial broadcast bands than ours and Single Sideband which most amateurs use."

"Yes, that's about it, Ima," said Elmer. "Let's summarize the major points. Both systems of modulation produce sidebands which occur on both sides of the carrier. In the case of AM, these sidebands are above and below the carrier a distance that is equal to the highest modulating frequency. That is why amateurs must limit their audio to about 2700 Hz. on the HF bands. The higher the audio frequency, the broader the signal. FM, on the other hand swings the frequency in accordance to the audio. On 2 meters we use audio frequencies of 3500 to 5000 Hz. This results in higher quality audio, but it takes up more of the radio spectrum.

"Well, that ends this session. See you next time."

de Van, K3CP

YANKEE DOODLING

CQ FUNTEST

Funtest? Yep, that's what I call the ARRL 10-meter contest which will be held the weekend of December 8-9. It's a fun contest similar to the PA QSO party and even Novices can find themselves in the thick of things. The contest lasts the whole weekend, from 7 PM EST Friday till 7 PM EST Sunday--BUT you aren't allowed to operate for more than 36 of the 48 hours. [I doubt if the band will allow you to operate that long.]

Like the PA QSO party, you can work everybody, US states, Canadian provinces, DX countries, even maritime/aeronautical mobiles. You can work phone or CW, but cross-mode qso's aren't allowed. The exchange is simple, too. US/VE stations send signal report and ARRL section, DX sends signal report and serial number [starting w/001], maritime & aeronautical stations send signal report and ITU region.

Ten meters is one of those bands which allow everybody to get on the air. Antennas are physically small [a dipole is about 16'] and propagation can be a great equalizer between the guy with a KW and beam and the gal with 25 watts and a ground plane. One scheme I used successfully a few years ago was 2 dipoles-one vertical, and one horizontal. Neither was more than 20' off the ground.

What really amazed me was the difference between the two. Oh, both played well, but at times when I switched between them, it was like listening to 2 different bands. The difference on some signals was as much as 7 S-units. Sometimes the vertical was better, sometimes the horizontal was the better antenna. That's the fun part of 10 meters!

I know that many of you are working toward either DXCC or WAS [DLARC or ARRL versions] and this weekend is a good chance to increase your total toward both. Most every state will be on the air and if propagation and operating schedules coincide you can add a few to your total. This is a good time to find some of the tough W1's, mid-west, and upper south. DX, too, should be good. At the worst, South America and the Carribean will be booming in. If it's just a bit better, Africa will roll in in the late afternoon and early evening. And, if its really good you'll work Europe and west Asia in the early & mid-morning, Africa/SA in the afternoon, and the Pacific rim and east Asia in the late afternoon and evening.

The crazy thing about 10 meters is how it can seem to be dead, only because of inactivity. My first ZP [Paraguay] QSO was his answer to my blind CQ at midnight local time--on a low dipole. Signals were solid 599 both ways! There was nobody else on the band.

CRAMOLIN®-Part II

A couple of months ago I wrote about a great anti-oxidant called Cramolin® which I had discovered. At that time I offered a free can to be awarded by drawing if I got 5 or more "good product" suggestion. Well, I have 5 but they're all from the same guy. So, last call for hints and kinks. Some ideas for your suggestions: what tools and supplies do you use for soldering and de-soldering(like solder wick); what do you use to clean heavy conductors to get a good mechanical connection; what's your favorite screw-driver(and why); what "unusual" tool has found a home in your toolbox, etc. I'm really hoping to hear your ideas soon.

Oh, about Cramolin®. A local electronic parts house is threatening to stock it if it gets a few more requests. Soooo, ask for it the next time you stop in for something at the wholesale house on Union Blvd..

HAPPY HOLIDAYS

Best wishes for a very happy holiday season to everyone, and remember the less fortunate or your favorite charity in your holiday giving.

12.90 **73 de K3YD**

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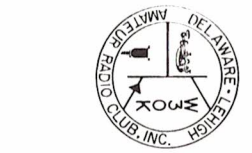
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All regular meetings of the D.L.A.R.C. are held on the first Thursday of each month at 7:30 PM in the Greystone Building at Nazareth
Phone....759-2600

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