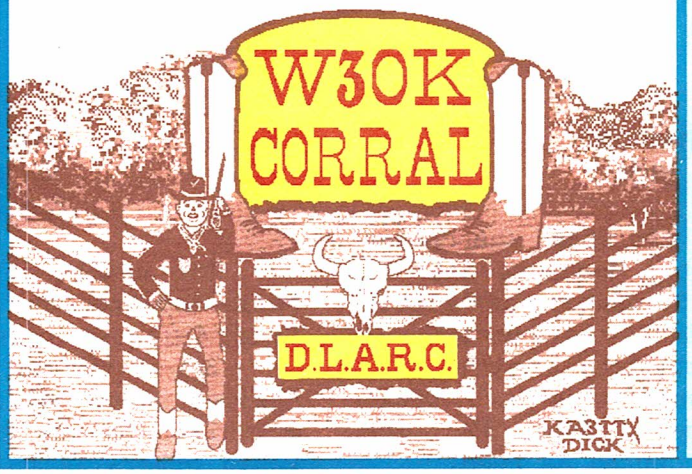
DELAWARE-LEHIGH AMATEUR RADIO CLUB, INC. W3OK

September 1992



SPECIAL SERVICE CLUB

ARRL Affiliated Club

COMPUTERS IN HAM RADIO



COMPUTERS IN HAM RADIO

The September speaker at the Delaware Lehigh Amateur Radio club on September 3rd, will be Joel Elston, K9TBD who started using computers in ham radio starting in 1967 when he built a special purpose computer designed by W9TO and W4UX to generate Morse code. The meeting will be held in the auditorium at the Northampton County Community College beginning at 7:30 PM.

With the proliferation of PC's and other affordable computers, one in four hams apply computers to their ham radio hobby - Logging, antenna designing, packet radio, to satellite tracking control.

PC/DOS machines are the current favorite for ham radio so this talk will cover the basics of the PC/DOS environment from computer hardware to DOS fundamentals and ham radio applications.

Follow up club sponsored classes may be held if interest is sufficient. Get your questions ready for the September meeting.

DLARC MEETING SEPTEMBER 3rd 7:30 PM
NORTHAMPTON COUNTY COMMUNITY COLLEGE

AMATEUR RADIO CLASSES BEGIN SEPT 14th
by Chris, NU3L

The DLARC will sponsor a course leading to the Novice or Technician class license. The course will cover radio theory, operating practice, Morse code and other knowledge needed to pass the tests to obtain a ham license. There is no charge for the course except for books and study aids.

Classes will begin on Monday, September 14, 1992 and continue for 10 weeks. Sessions start at 7:00 PM and are held in the Greystone Building in the Gracedale Complex near Nazareth, PA.

Preregistration is encouraged to help with planning and to ensure an adequate supply of training materials. To register or to obtain more information about this course, or just to learn more about getting your license, call the DLARC Telephone Mailbox at 215-820-9110, and after the messages finish, leave your name, address and telephone number and an information packet will be sent to you.

de Chris, NU3L

THE HAMFEST!!

In spite of the lack of cooperation from the weatherman, It was a complete success. Vendors were happy and buyers were happy, what more can we wish.

The cooperation from members of the club was great. At press time for the newsletter, financial figures were not available, but by the time of the September meeting, all will find out the results. Come on out and see for yourself how well we did.

de Clarence W3PYF

JUST THE MINUTES

by Chris, NU3L

The August meeting of the DLARC was called to order by president Robin Moseley, WA3T at 0730PM on August 6, 1992. 90 members and guests were in attendance. The minutes were unanimously accepted as written in the August newsletter. The treasurers report was given by Dick, KA3MOU, showing a balance of $4312.36. The report was unanimously accepted as read.

Twelve new members were unanimously accepted into membership:

Marc Borgo (N3GRE)
Robert Wodzicki (KA3HJW)
Zeke Biro (W3GMN)
Diane Reszek (N3JUC)
Donald Smith (KC3CV)
Edward Kita (N3MSK)
Richard Smith (KA2RUA)
Donald Reemer (KA3JWE)
Randy Masure, Gregory Gutka,
Chris Henderson, Jason Searock

Six guests were welcomed to the meeting.

The VE session for Friday, August 7, 1992 was announced by WA3T. Team 4 will be on duty. Novice / Technician classes will start on September 14; see details elsewhere in this newsletter. Additionally, the September meeting will feature an introduction to computers in amateur radio. This will be continued with three follow-up sessions on Thursday evenings during September. For more information contact Chris NU3L.

Bob, WF3H gave a final update on hamfest planning. N3IUW reported on prizes for the hamfest. Harlan negotiated an excellent deal with the major manufacturers of ham gear.

A letter from Dorothy, the wife of Clement Semper was received detailing a year of recuperation from an illness and explaining how ham radio has helped his recovery. She went on to explain his absence at DLARC meetings, that he had let his membership expire, and inquired about the procedure for reinstatement. The membership unanimously accepted his reinstatement through this year at no charge.

K3ANS reported on upcoming programs. The club picnic will be held Sunday, August 23, 1992 at 1230 PM at Hacketts Park. Bob Schroeder (WA2JZF) gave an informative and useful talk on the principles and practice of lightning protection.

Chris Hornaman, NU3L, acting secretary

WE DID IT!!

By Robin, WA3T
President DLARC

The weather forecasters took us on a roller-coaster during the week, and their final forecast couldn't have been much worse.

But in the end we were greeted by a fine English summer day: overcast with a light drizzle. So the crowd was thinner than it would otherwise have been, but in spite of everything our income exceeded expenses by a comfortable margin.

Vendors, tailgaters, buyers... everyone seemed to be happy with the traditional annual DLARC hamfest.

(It will be a tradition, won't it?).

Congratulations are in order. Several key individuals went well beyond the call of duty to make this success. But my present purpose is not to praise or thank these important individuals; they have been thanked, and will be thanked and honored again.

This is a time for us to recognize a substantial team effort: to proudly congratulate ourselves as a club.

Most clubs have a just a few key people who keep things hanging together. We don't have a few key people: we have many. We have the quantity, as well as the quality, of the skills and dedication to do whatever it takes to put on the best hamfest in the East. One day, perhaps, the biggest!

Congratulations, DLARC.

We have planted an acorn. Watch out, Dayton!

73 de Robin, WA3T

FOR DLARC INFORMATION
820-9110
CALL FOR CLUB INFO

JOIN THE ARRL
IT IS NOT JUST A MAGAZINE SUBSCRIPTION
Contact Dick KA3MOU, treasurer
Delaware-Lehigh Amateur Radio Club

TREASURERS
by Tom N3LLL

At a recent Hamfest (Not DLARC) I had the opportunity to purchase a pair of 410C Hewlett Packard Meters with probes and cords. The Amount invested for the pair was $5.00. What I got for my money was a pair of well used meters circa early 1970's with years of dirt a nd wear from daily use. The challenge at hand was to restore the units to original condition.

About 15 years ago I read an article published by Tektronics corporation on their in house procedure to clean and restore electronic test equipment to its original state, to my surprise the procedure they used consisted of washing the equipment in hot sudsy water and drying it afterward. About that time I was into RTTY and had been given a model 28 TTY unit that had been in operation continuously for over 20 years. It was full of grease paper, chaff and dust making a gooey mess. What was I to do? Nothing ventured nothing lost I took it to the "do it yourself" car wash. Before I turned the car wash on I took an entire bottle of "Fantastic" and sprayed the unit and with a stencil brush scrubbed the devil out of it. Once it was scrubbed I then turned on the high pressure rinse and cleared the detergent with hot water. As we all know "water + bare steel + air = rust" so at that point I resurrected an old Marine Corps trick, learned in caring for my M16 rifle, I used an entire can of "WD40" to displace any remaining water. I let the unit dry for several days before having the guts to turn it on. When I did the unit worked like new, it was quiet and responsive and I was a believer.

Over the years I have evolved a methodology to restoring surplus radio and test equipment. The first step is visually inspect the piece looking for paper items on the chassis. These items can be protected by coating with clear lacquer, to protect exposed transformer parts soak liberally with "WD40" . My next step is to strip every thing I can from the unit knobs covers and removable sub-assemblies, in the case of the 410Cs obviously I would not want to give the meter movement a bath. Removal of old paper base labels are always a problem another trick is to soak them with "WD40" , the oil soaks through the paper and loosen s the adhesive. I usually use a deep double sink in the laundry room to wash the units, tools tend to be a hand scrub brush, a large paint brush and several sizes of tooth brushes. I Spray the unit with liberal amounts of household degreaser, cleaner such as "Fantastic" or "Formula 409" scrub and then rinse. The key to success is to use very very hot tap water to rinse the un it after it has been washed. The hot water tend to evaporate quickly minimizing the drying time. After rinsing the unit should be shaken, if possible, and then placed on a towel or other absorbent material. The unit should be turned often to eliminate any trapped water. I usually wait at least 4 days before applying power to units cleaned in this way.

As for my meters I washed them replaced all of the test lead cables and calibrated the units. The DC scale will measure down to .015 volts and on AC to .5 volts with a frequency response up to 700MHZ, not bad for some elbow grease and a few bucks.

VE SESSION AT HAMFEST
by John, WX3C

At the hamfest on Sunday August 16th, 33 candidates took a total of 49 elements. There were 7 up-grades and 14 new Tech's. These included:

Gustav H Haak, W3PTG, Extra
Walter J Puzio, WA2MUN, Advanced
David A Haney, KB3AAM, Advanced
Edward M Seager, N2QZG, General
Francis T Hillibush, K3KVK, General
Paul S Reese, KB3AHG, Tech
David S Daugherty, KB3AHP, Tech

Edmond J Lokuta, Robt Fulton Jr,
Charles Cole, Glenn W Nielsen,
Steven P Hauser, Christopher M Henderson,
Gregory Gutka, Ileane T Phillips,
Lynn M Schuster, Janet R Gill,
John M Apostolow, Tomas A Bonome,
Carlos Valencia, and George T Cahill, all new Tech's.

The VE Team consisted of:
Robin, WA3T; Chris, NU3L; Bob, WF3H; Ken, WC3Y; Cully, N3HTZ; Ed, W3APE; Ann, KO3M and team liason, John, WX3C. This was a great session and a fine team.

73 de John, WX3C

UP THE BLOWN CHAIR CASE

By Steve, N6ST

A few years ago, while contemplating the construction of my present antenna system, I could already imagine the sore insteps I'd have from spending hours standing on the narrow rungs of the tower.

When I mentioned my problem to a yachting friend, he said, "What you need is a bosun's chair."

He described a chair made of heavy canvas, with a wooden seat that's used to hoist a sailor up a mast or down the side of a ship--to do repairs, painting, or cleaning. I barely let him finish before I bolted to the nearest Marine Supply store.

You "put on" a bosun's chair using straps around your waist and between your legs. Canvas arms on each side have heavy duty eyelets. The arms become vertical when the chair is in use.

Each side of the chair has handy pockets for tools, a handy-talkie, grease gun, soft drink, and whatever else you might wish to take up the tower with you.

A trip to a Sports shop, which caters to climbers, yielded four carabiners and a 25 foot length of climbing rope, plus instructions on how to tie a "rock climbers's knot." I cut two 6 foot pieces from the rope and tied carabiners to both ends of each. I then clipped one rope's carabiner through the eyelet on each canvas chair-arm. These safety ropes would secure the chair to the tower, keeping me from falling.

I cut a third length of rope and tied it from one eyelet to the other, over my shoulders. This rope acts as suspenders, keeping the chair in place before I get on the tower. Though not essential, this rope adds a convenient touch to the setup.

The two ropes with the carabiners keep me from falling while I'm on the tower, since at least one is always clipped to the tower. I climb about three steps, remove one carabiner from the tower, then reattach it three rungs higher. Then I move the other one to the same rung. When I get to the work area, I climb the carabiners to a rung high enough above that I can sit in the chair while working. The chair takes most of the weight off my feet.

I especially appreciate the way the bosun's chair allows me to remain safely attached to the tower even while climbing past various obstacles: beam booms, guy rings, etc.

After using it for three years, I would never go back to a traditional climbing belt.

My bosun's chair has blue canvas that also covers the seat. It's sturdy and comfortable. I think it cost me about $100.--the same as the price of a good climbing belt.

from the Northern California DX Club's July 92 'DXer"..and Amateur Radio News Service.

WHERE DID IT GO ?

by Ray, W3TDF

Do you remember the trophy that we had for 2 years. You know, the one in the shape of a 'keystone'. When I was at the Warminster hamfest, Bob (KU3K) and I were talking (needling) some smiling Dauberville tailgaters, who happen to have that 'one and the same' Trophy. It has our DLARC inscription thereon. In case you haven't guessed, its the PA-QSO Party Club award. **DON'T BE LOAFY - HELP BRING BACK THE TROPHY.**

They related that they were having some internal problems, and that the club may not be putting forth any extra effort this year. Do we dare believe them? And how about Erie and Murgass, not to mention Penn Wireless.

Its the second weekend of October. I hope to work you all from Sullivan County.

de Ray, W3TDF.

A LITTLE STORY

This is a story about four people named Everybody, Somebody, Anybody and Nobody.

There was an important job to be done and everybody was sure that Somebody would do it. Anybody could have done it, but nobody did it. Now Somebody got angry about that because it was Everybody's job. Everybody thought Anybody could do it. But, nobody realized that Everybody wouldn't do it. It ended up that Everybody blamed Somebody when Nobody did what Anybody could have done.

Are these people members of DLARC? A little more participation from a lot more members would sure keep the family happy and prosperous.

The 'Little Story' thanks to KA3TEQ. The comments at the end from W3TDF.

** CONTEST CALENDAR **

by Barry, KU3X

Sept 5-6	Bulgarian DX Contest
	All Asian SSB Contest
Sept 6	North American CW Sprint
Sept 6-20	FOC Late Summer CW QSO Party
Sept 11	W1AW Qualifying Run 35-10 WPM
Sept 12-13	Worked All Europe SSB Contest
Sept 12-14	ARRL September VHF QSO Party
Sept 13	North American SSB Sprint
Sept 18	W1AW Qualifying Run 10-35 WPM
Sept 19-20	Scandinavian CW Contest
	ARRL 10 GHz Cumulative Contest
Sept 26-27	CQ WW RTTY Contest
	Scandinavian SSB Contest

CONTEST TIP #4

Stay close to a station that is running a good rate. Don't stay too close as to cause him QRM! When stations get done working him, you will be the next station that they will hear.

73 de Barry,KU3X

NEWS OF THE TATE FAMILY

Do you know how many members of the Tate Family belong to the Delaware-Lehigh Amateur Radio Club?

Well, there is old man **DIC TATE** who wants to run everything, while Uncle **RO TATE** tries to change everything.

Their sister **AGI TATE** stirs up plenty of trouble, with help from her husband **IRRI TATE.** Whenever new projects are suggested, **HESI TATE** and VEGE TATE want to wait until next time. Then there is Mr. **IMI TATE** who wants our radio club to be like all the others. **DEVAS TATE** provides the voice of doom while **POTEN TATE** wants to be the big shot.

Not all the members of the TATE family are bad. **FACILI TATE** is quite helpful in packet club matters, and a happy member is **FELICI TATE,** while cousins **COGI TATE** and **MEDI TATE** always think things over and lend a helpful, and steady hand.

Then , of course, there is the black sheep, **AMPU TATE** who has completely cut himself off from the club.

Brought to you courtesy of Doug, N7KEJ

FCC WANTS TO CHANGE NOVICE TESTS

The FCC has issued a notice of proposed rule making in PR docket 92-154 that would require novice class license examinations to be administered by the volunteer examiner program, which now administers all other license class examinations. The plan is essentially as proposed by the ARRL and W5YI volunteer examiner coordinators and described in April 1992 QST, page 63.

The FCC's NPRM notes that the codeless technician class is now the entry-level license of choice over the novice class, that the FCC is burdened by an application error rate of 9.4 Percent for novices as compared to only 0.8 Percent for ve-administered examinations, and that no pass-versus-fail records are available from novice examinations, as they are for ve-administered exams.

The FCC believes bringing novice exams under the VEC system would be in the public interest, saying the vec system "has demonstrated both its efficiency and its integrity. We conclude that novice class amateur operator examinations would benefit from those same two virtues."

Opposition to this plan has been primarily a concern that novice exams would not be as readily available, especially in sparsely populated areas of the country. The League's response was that the explosion in new technician class licensees since the advent of the codeless technician class in April 1991 would indicate that VE examinations are readily available in most areas. The FCC NPRM did not directly address this question, although alluded to it in noting that the novice is no longer the preponderant first license.

The comment deadline is October 9, 1992. Reply comment deadline is November 9, 1992.

from ARRL Bulletin 69

JUST A HINT!

by Clarence, W3PYF

I noticed in the latest flyer of Radio Shack that they had a suction-cup glass mount for inside the window of a car. Works great with a handi-talkie, instead of worrying about the changes in shielding, as the rig is used.

Their part number is 20-0022.

SUMMER SPLASH/DID NEWS

by Clarence W3PYF

Northampton County EC/EO

As usual, we did it again. The Red Cross Summer Splash and Derriere in the Delaware on July 27th was the reason for the biggest turnout of the year for public service by our club.

With Adrienne, KA3YEB heading the group in the 25 mile relay race, and Dick KA3MOU heading the group for the DID, all worked as planned.

Red Cross officials were full of praise for the great job done by the members of the Delaware Lehigh Amateur Radio Club, AREC and RACES in keeping those on run and on the river safe.

Over 30 members of our group participated in the dual event fund raiser for the Lehigh Valley Chapter of the Red Cross.

Participating were: KA3MOU, KA3YEB, N3GOC, WA3T, KA3UZO, KA3TEQ, KD3TI, N3IGA, N5IEP, KA3WSL, WA3ENE, KA3ODI, KA3WSL, KB2ANG, N3GLZ, KE3AW, KD3SQ, N3GXW, WD5BRP, N3EBH, WF3H, N3HQE, N3SJ, W3PYF, K3CP, N3HET, N3JUC, W3FYK, KA3ONZ, N3FPK, NOKIA and N3JNV.

(If I missed anyone, I will make correction next issue)

EASTON HOSPITAL RUN

On August 2nd, the DLARC and ARES once again showed that when it comes to safety watches, we could handle anything.

Following the DID the previous week, nine members made sure that all was safe in the Easton Hospital Run and Walk.

Donna Mulholland, chief executive officer of Easton Hospital was vocal in her praise as she listened to our handling of the various check points and crossings.

Participating were: KA3MOU, KA3YEB, KD3TI, W3PYF, N3IGA, N2MWQ, KE3AW, N3LAI and KA3VJI.

COMPUTER-DAFFY

Apple device to seduce men, usually has display, mouse, and bugs.

Bar Chart list of places to go when it is Miller time.

Binary having friends of both sexes

Bipolar see binary

Bit describes computers, as in "My computer cost a bit."

Boot what people give you when you talk computers.

Chips small crunchy objects computer users eat to avoid leaving their keyboards for meals

Closed Loop execution method, now defunct except in Iran.

Cursor four-letter word expert

Disk goes out in your back if you bend over a keyboard all day

Error what happens when you first visit a computer store

File what secretaries do with their nails now that computers do all the work

Floppy computer user's stomach resulting from junk food (see chips) and no exercise

Hardware lawnmower,rake,..any heavy equipment you've ignored since getting your computer

IBM missile your family would like to drop on your computer

Interface opposite of "getoutamaface"

MegaHertz a really big car rental company

Menu something computer users never see because they can't afford restaurrants

Monitor what the FBI does to your phone line when your bank balance increases every time you write a check

Network occupation of fisherfolk

RAM male sheep

Real Time here and now, as opposed to fake time..now and then

Return what some do with their computers after just one week

ROM RAM after a delicate operation

Semiconductor a non-degreed ochrestra leader

Software silk nighties, etc., opposite of hardware

Terminal place for buses or trains

Transistor opposite of transbrother

Window place you heave computer after it loses thee days of your work

from the ARNS and Sacramento ARC"Mike and Key" amd ARCS News--WA6YZD

NOT ENOUGH STORAGE ROOM?
from AT&T news release

A team of researchers (Eric Betzig, Jay Trautman, Ray Wolfe, Mike Gyorgy and Patrick Finn) at AT&T Bell Laboratories has demonstrated a revolutionary new magneto-optic data storage technique that offers data densities of 45 billion bits per square inch -- a nearly 100-fold increase over today's best commercial magneto-optic methods and 300 times better than current magnetic-storage capabilities. At that density, two copies of "War and Peace" could be stored in an area about the size of the head of a pin.

Using a near-field scanning optical microscopy technique developed at Bell Labs, the system currently can write and image bits with dimensions as small as 60 nanometers (60 billionths of a meter or about 1,000 times smaller than the diameter of a human hair). The research, reported in "Applied Physics Letters," stems from earlier work conducted at Bell Labs to perfect a more powerful optical microscope for the inspection of integrated circuits and the investigation of living cells.

Many elements, such as read/write speed and bit-error rates, need to be investigated before the system can be commercialized. Nevertheless, Bell Labs researchers believe the system can be made competitive.

*** PACKING DATA --A team of researchers at AT&T Bell Laboratories, combining an optical microscope with fiber-optics, has invented a revolutionary new way to store visual information with a capacity that is 100 times greater than state-of-the-art equipment. Using what is known as a "near field" scanning optical microscope, the Murray Hill, NJ-based team said it had demonstrated a new kind of magneto-optical data storage technique that improves upon what is seen in today's conventional magneto-optical systems like CD players, using a laser beam to read or write data.

"The main commercial application for this is going to be in the large computer storage for HDTV or in other kinds of imaging," said Eric Betzig, a member of the Bell Labs team who works in the semiconductor physics research department. "As we go further along the line toward the use of detailed visual information, our storage needs are increasing exponentially along with our need to improve storage technologies."

courtesy Dave, WD5BRP

AUGUST VE SESSION REPORT
by John WX3C

At the August VE session at Gracedale, 13 candidates took a total of 17 elements. There were 2 up-grades and 3 new Tech's. These included:

Peter H Trapp, N4HVL, Advanced.
Philip A Leone, N3KWN, General.
Walter M Snyder, New Tech.
Ann Marie Trapp, New Tech.
John F Searock, New Tech.

The VE's at this session included: Robin Moseley, WA3T; Ray Bilger, W3TDF; Ed Gigliotti, W3APE; Bob Dickinson, W2CCE; Vic Tropiano, N3IQD and John Greenage, WX3C.
The next session will be September 4th at the Greystone Building Nazareth.

FOR SALE

Mosley TA33 with 40 meter add on and 17 and 12 WARC driven elements. Just months old. (6 bands-one boom-one feedline.) You take down. Easily done from 40' Tower. $390.00, with HAM-M Rotor in good working condition, $475.00.

WANTED: Tower climer/antenna enthusiast. Must have belt and gin pole to help me with new antenna project. I have a disabled spine condition, but will do all antenna construction, tuning and preparation. Call evenings, (6-8 pm Mon-Fri) Steve, K3DEM 868-0650.

JAMBOREE ON THE AIR
by Bob, KA3WJF

The 35th Jamboree-On-The-Air (JOTA) will be held on October 17th and 18th. JOTA is annually sponsored by the World Bureau of the World Organization of the Scout Movement and provides dramatic examples of worldwide scouting friendships with the help of Radio Amateurs.

All amateurs are welcome to participate. Members of DLARC are urged to open their shacks to scouts over the air via QSO.

Small groups could visit a members shack for an hour or two and be introduced to other scouts over the air via QSO. If you can participate contact Dave, WD5BRP @ 253-3775 or Bob, KA3WJF @ 252-0335. de KA3WJF.

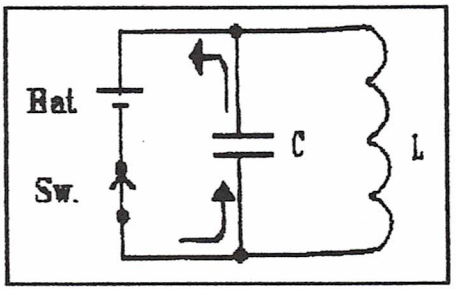
Oscillators

By Van K3CP

"Hi, Elmer," said Ima Lidd. "Nice to see you again. I wonder if you would explain oscillators to me. How do they work and what makes them different from amplifiers? The circuits look very much alike to me."

"Hello to you, Ima," replied Elmer. "I'll be happy to talk about oscillators. They are not all that difficult to understand. They are made up of inductors, transistors (or tubes), capacitors and resistors. You will remember that we discussed how all those devices work, but it might be a good idea to review some of the characteristics of them at this time.

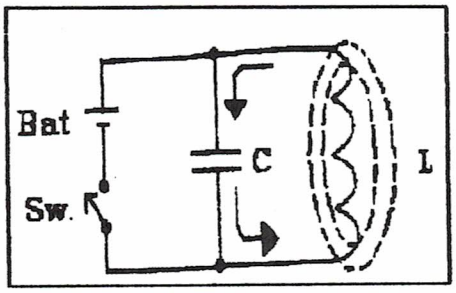
"Oscillators and amplifiers do appear to be alike as you observed. The main difference is that in an oscillator circuit some of the signal that is generated in the circuit is fed back (feedback) to the input of the device - either solid state or vacuum tube. For this discussion we will use transistors as the active device. Care must be taken to cancel this feedback in an amplifier circuit. The process is called neutralization. We will talk about this in our next meeting.



"Take a look at **Figure 1**. You should pay attention to what I am going to tell you in the next few minutes. It is absolutely essential that you understand this material. It is the basis of many of our circuits. You will be happy to see how easy it is to understand if you listen carefully.

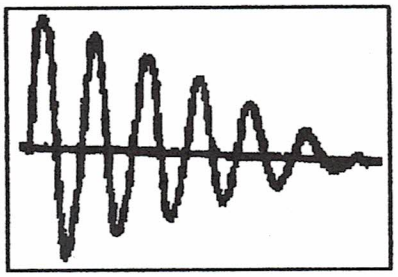
"Current flows when the switch is closed." Elmer continues, "it increases very rapidly from zero to its maximum value. It's this CHANGE in current that is important. At the instant current begins to flow, it's directed to the capacitor because an uncharged capacitor acts like a sponge until it's saturated and then it cannot be charged any further. The inductor on the other hand resists the changing current condition.

"In **Figure 2** we open the switch. Now the capacitor is fully charged, but the switch is open so the charge cannot flow back to the battery. Instead a current flows through the coil until such time as the capacitor is discharged. The current through the coil causes a magnetic field to be formed. After the capacitor is discharged the current stops flowing through the coil. Once the current stops flowing there is nothing to sustain the magnetic field. The field collapses. This field contains energy and when it collapses it induces a voltage which in turn charges the capacitor again. The cycle repeats itself. It would continue forever if it were not for losses in the circuit. These losses (resistance) cause each cycle to diminish in amplitude until there is no energy left. The result is known as a damped wave.



See **Figure 3**. Are you with me, Ima?"

Ima replied, "I think I am. The battery starts things by charging the capacitor. Then the capacitor causes a magnetic field to be established about the coil. Then that field collapses causing the capacitor to be charged again."



"That's right, Ima," said Elmer. "This is a form of oscillation. The only problem is that the whole operation is over in less than a second. We can overcome that shortcoming by closing the switch before the cycle stops. If we design the capacitor and coil so that they resonate at 7.0 Mhz our damped wave cycle would be 7 Mhz. Now if we use a 7.0 Mhz. crystal in a suitable transistor circuit, we could "hit" (close the switch) the tank circuit at a 7 Mhz. rate and sustain oscillation as long as we needed."

"I understand. Thanks a lot, Elmer, I now have a better understanding of oscillators. See you next time.

de Van, K3CP

DIGITAL COMMUNICATIONS
by Joel, K9TBD
Operating Systems

Operating systems are a piece of software that allows the user to utilize the capability of their computer. They come in all sorts of flavors and varieties from simple single tasking to multi-tasking, multi-user systems. Here is a brief rendering of some the things that an operating system must do to keep the user happy.

Some of the names of these special programs are MS-DOS, UNIX, VMS, DR-DOS, CP/M, and MORSE. Morse is one that I wrote and stands for Multi-tasking On-line Real-time System Executive. But, what do they do? An operating system provides an interface between the user and the computer innards. An important part is the command interpreter which decides what service to run for the user.

Transparent to the user is all that must go on just to honor a seemingly simple request such as listing a directory. Let's consider the DOS command DIR. Presume the operating system is just sitting around waiting for something to happen- not knowing what is going to happen next - or even when. Suppose the user strikes the letter 'd' on the keyboard, here's what happens:

o An interrupt from the keyboard hardware is asserted on a special line informing the central processing unit that the keyboard has at lease one character read- "CPU" please get my character quick before the user pokes another one and this one gets lost".

o The CPU, seeing an interrupt has occurred, stops whatever it was doing at the time, saves all pertinent information relative to the current state of affairs and starts the execution of a special program called the keyboard handler.

o The keyboard handler asserts special handshake lines between the CPU and keyboard hardware telling the keyboard hardware to make its data available. The data "letter d" is then transferred from the keyboard into main memory and the keyboard is informed of this. The keyboard handler informs the command interpreter of the receipt of the letter "d" and returns control back to the operating system.

o The operating system may decide not to restart the task that originally was suspended due to the keyboard interrupt but rather dispatch the command interpreter to decide what to do with the character 'd'. Suppose this happens.

o The command interpreter receiving a message that the letter has been received decides that 'd' is part of a valid command and wishes the 'd' to be displayed on the screen. The command interpreter sends a message to the screen handler via the operating system to display the character 'd' in some particular location on the screen.

o The operating system back in control may or may not decide to pass this message to the screen handler right away - suppose it does.

o The screen handler getting the request checks the status of the video controller to see if it is ready to receive the character - if so, it handshakes the special control lines (similar to the keyboard) and passes the character to the video hardware and returns to the operating system.

o This time the operating system may see that there is nothing more timely to do but restart the originally suspended program by restoring the saved status and start that program exactly where it left off.

At this point all that has been accomplished is getting the letter 'd' to appear some place on the screen.

When the command interpreter has seen the entire sequence of 'dir' and a terminator such as a Return key, it decides it's time to tell the operating system to consider running the directory utility program. Whew!

Now the system gets really busy switching between servicing the screen, keyboard, printer, disk, and oh yes - the clock to keep everything orderly.

What if this were a multi-tasking operating system which can keep more than one program running concurrently. What if it where also a multi-user system in which many keyboards, displays, and other peripherals are active at the same time. Busy, Busy, Busy.

Thus the operating system may be seen as a master of ceremonies keeping all the balls in the air at the same time. Acting like a scheduler, dispatcher, message passer between utility programs, hardware interrupt handlers, file management, memory management programs and finally application programs such as spreadsheets or word processors.

My son Chris is running a multi-tasking operating system on a 386 class PC. He has a cute program which displays a picture of a cat sleeping until the mouse moves the pointer which wakes up the cat. The cat runs after the mouse, plays with it a little, gets bored, after a while goes to sleep again.

This is all happening while he has one program downloading a file from a local BBS via modem while he is playing his favorite game while I am doing an FTP transfer from his computer to my radio computer while the radio computer is handling packets over another link. Boggles my mind to think of how many millions of decisions have to be made each second to keep all of this activity straight. Gotta hand it to the Operating System to make it all happen. <de Joel, K9TBD>

All Amateur Radio Operators are invited to participate in the DLARC, RACES & ARES nets on 146.70 W3OK/rpt with an alternate of 145.11

The Nets are held on Sundays at 9:30 AM and on Wednesdays at 7:00 PM.

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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 the Northampton County Community College

TALK IN ON 146.70

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