

The Ragchewer

December 2006

The monthly newsletter of the
Lancaster & Fairfield
County Amateur Radio Club

On the Web: www.k8qik.org

Send email to K8QIK@columbus.rr.com

Club Meetings :

1st Thursday of every month
at 7:30 pm at the club house.

Radio Night:

Every Thursday except the
1st Thursday at the club
house, 6:30 pm to 8:30 pm

VE Testing:

The third Sunday of every
even numbered month.
Register at 9:30 am and
testing at 10:00 am

Club House

Location:

On State Route 37 (Granville
Pike) next to Beavers Field.

Nets:

Mondays at 9:00 p.m.

147.03 MHz (+.6)

146.70 MHz (-.6) Alt. Freq.

443.875 MHz (+5)

Thursday at 8:00 p.m.

443.875 MHz (+5)

UHF linked system

Packet BBS 145.53MHz

K8QIK-1 BBS

K8QIK-2: Ohio53

Weather Spotter Net:

146.76 Repeater with 123Hz

tone Tuesday at 7:30 pm

Alt frequency 147.24 MHz

December Birthdays

Paul W Daley	WT8S
Charles E. O'Hare	WA8DEB
Leonard B Schultz	W8DDG
Donard "Tuffy" Clum	WA8ZUU

Thursday Night Radio Night

Radio night is every Thursday at 6:30 p.m.
(except the first Thursday which is the club
monthly meeting). Work a little HF, make a
few DX contacts, maybe build something? How
about a hot cup of coffee and a few good
stories? We'll have them all waiting for you.

ARRL Membership

When you join the ARRL, or renew your
membership through the club, we retain \$15 for
each new membership OR lapsed membership
(of two years or more), and we retain \$2 for
each renewal. Please support our club, it doesn't
cost any more. Send or give all paperwork to
Treasurer with your money.

December VE Test:

The next VE test will be Sunday December
17th at the club house on Route 37. Register at
9:30 a.m. and testing begins at 10:00 a.m.
Prepare yourself, take this test and upgrade!

Free Swap and Sell

If you have anything ham radio related, you can
swap it or sell it here. List your items for free.
Give a price and how to contact you. Send the
list to K8QIK@columbus.rr.com

2006-2007 Officers

President:

Don Stephenson, WD8PCF

Vice President:

Scott Snoke, WD8IXO

Treasurer:

Ed Campbell Sr., WD8PGO

Secretary:

Robert Northrup, KC8PSW

Trustee:

John Hilliard, W8OF

Station Engineer:

John Hilliard, W8OF

Net Manager:

John Fick, KD8EEK

Activities Manager:

Kay Hanna, KC8HJW

Flower Fund:

Mary Travis, KD8EEI

Chief Cook and

Bottle Washer:

Charlie Snoke, N8KZN

Editor:

Jack Travis, AE8P

(740) 687-1985

December 7, 2006 Meeting Minutes

At 7:30pm meeting called to order by President Stephenson who led the pledge of allegiance.

There were 19 members and no guests present.

President Stephenson circulated one application for its second review by club members.

Trustee John, W8OF swore in the 2006/2007 club officers.

Secretary Report: Robert Northrup, KC8PSW

Minutes are posted in the Ragchewer. Motion to accept by John, W8OF and second by John, W8AGS. Carried.

Treasurer's Report: Ed Campbell, Sr., WD8PGO.

Ed gave the club financials. Motion to accept by Charlie, N8KZN and second by Robert, KI8JM. Carried.

Trustee Report: John Hilliard, W8OF

John said he had received a request from the Central Ohio Repeater Association for dues of \$5 per repeater. This will keep us in good standing with CORA and keep our frequencies active and coordinated. John will send check for \$15.

Also Robert, KI8JM requested the club put a small program on the 146.700 machine for CW practice to boost your speed and proficiency. John will install the program.

VP Report: Scott Snoke - WD8IXO

No Report

Activities Manager: Kaye Hanna, KC8HJW

The Christmas party will be held at the Ponderosa Restaurant on East Rte 22 on December 16 from 6:30PM to 9:30 PM. Come hungry for food and fellowship as well as some good door prizes.

Station Report: John Hilliard, W8OF

John said there was interest in resurrecting a packet operation on one of our repeaters. He will get one of the repeaters ready for this type of traffic and advise the club.

VE Testing: Allan Sellers, KB8JLG

The next VE session will be Sunday December 17 at the clubhouse. Doors open at 9:30 AM., testing will begin about 9:30 AM.

Monday Night Net: John, KD8EEK, Net Mgr)

Dec 11---John, W8AGS Dec 25-- No net

Dec 18---John, W8OF Jan 1 ---- No net

Also to note that John Fick, KD8EEK, our club's net manager, has been hospitalized with heart problems. He is doing better and was due to get out of the hospital on Saturday. When you catch him on the radio, wish him well and quick recovery.

Ragchewer: Jack Travis, AE8P

Jack said all is going well and is ready for the next installment of the "Chewer". Jack is still looking for local content, ideas, kit building info or home-brew activities.

If you wish to submit an article, news item, cartoon, or other Ham related bits of trivia, you can email him at k8qik@columbus.rr.com.

Emergency Coordinator: Ed Campbell, WD8PGO

Ed reported the new Joint Information Center (JIC) would be coming on line in early 2007. The JIC will be located in part of the Stansbury High School. Also the new Emergency Operations center (EOC) needs at least 2 trained radio amateurs per shift when in operation. To get involved and get trained, see Ed for details. Ed also noted there will be a "Hazmat" exercise in early 2007 in the Rushville area. The JIC, EOC, Fairfield Medical, Fire and Police will need several amateur radio persons to help out. In February 2007 the Fairfield County Health Dept will be conducting a "Pandemic" exercise that will simulate a viral outbreak and test all related health and safety systems. Our local EMA office is offering CERT Training in spring 2007. So if you were ever wondering what to do with your amateur ticket besides rag chewing and BS'ing, then come help out and get involved. You might just find it fun and interesting.

Safety Report: Scott Snoke, WD8IXO

No Report

The Flower Fund: Mary Travis, WD8EEI

There was \$18 collected for the fund and John-W8AGS won half. He donated his winnings back to the club radio fund.

Old Business:

Mark Borys, KD8CBU was voted into the club. Welcome Mark.

Kay, KC8HJW asked if the club was willing to reinstate our 50-50 fund raising activity. After a good discussion, Gary, W8GTS made a motion to reinstate the effort and it was second by Jeff, WD8JLI. Motion carried.

Charlie, N8KZN has repaired the grill for a grand total of about \$20 in parts.

Charlie, N8KZN also noted the fire dept did an inspection of the clubhouse and found all in order except for the smoke alarms. They said we needed to move one alarm and install one on each level of the clubhouse. Griff, KG4IDG made a motion to purchase 3 new smoke alarms and it was second by Jeff, WD8JLI. Motion carried. Charlie, N8 KZN will make the purchase.

New Business:

This is a notice for past club officers/members who are no longer serving as an officer to return your

club house key so that new officers may use them. Please come to the next meeting or mail your key to your club treasurer Ed Campbell, 1243 Quarry Rd SE, Lancaster, Oh 43130.

Dave, W8EZE asked when the club was started. There was a good discussion but no one really knows the exact date it was started, some think it was 1948.

Robert, KI8JM and Gary, W8GTS said they were running a CW practice net on Sunday nights from 6:00 to 7:00 so anyone can boost their speed and proficiency. Get with them and check it out.

Griff, KG4IDG stated he was having problems linking to the 440 MHz SE Ohio net we signed up to support and be a part of a few months ago. John, W8OF said he has had problems using it as well. John seems to feel the problem is with the net itself and not our equipment. John and Griff will both investigate.

Motion to adjourn was made by "Hollywood", WA8YSC and second by Griff, KG4IDG. Motion carried.

Meeting adjourned at 8:25 PM.

Respectfully submitted,
Robert Northrup, KC8PSW

Upcoming Hamfests

January 14 is 11th annual Sunday Creek Amateur Radio Federation hamfest in Nelsonville, Ohio. You can get more information at <http://www.scarfclub.org/>

January 28 is the Tusco Amateur Radio Club hamfest in Strasburg, Ohio. You can get more info at <http://noard.com/tuscoarc.htm>

February 11 is the Mid-Winter Hamfest in Mansfield, Ohio. You can get more info at <http://www.iarc.ws>

No Monday Night Net

There will be no Monday net on December 25 and also on January 1. Happy Holidays. The nets will resume on January 8.

Tubes For Sale

If you need tubes for your boat anchor or TV contact Jeff Bell WD8JLI at 614-774-2973 or email at jbell@imagearray.net he has a huge supply for most needs.

Weekly CW Practice

Bob Hughes, KI8JM and Gary Snider, W8GTS have started having CW practice over two meter radio every Sunday from 6:00 P.M to 7:00 P.M. The practice session will be on the 146.70 repeater. This is not for learning CW, but it is intended to improve your speed. Each session will start at the slowest speed and increase over the course of the hour.

Local Radio Nets

The following was inadvertently omitted. Please add it to your list.

Thursday

8:00pm 443.875 Central and Southeast Ohio UHF Linked System (Lancaster)

Any errors or additions to the net list should be sent to me. K8QIK@columbus.rr.com.

The Wayback Machine #6

by Bill Continelli, W2XOY

The Radio Act of 1912 was hopelessly obsolete by the early 1920's. Conceived in an era of long and medium wave spark telegraphy, the Act was totally inadequate when it came to broadcasting and the shortwaves. The Department of Commerce tried to stretch the Act to meet new requirements; the 1922 and 1924 "regulations" that banned broadcasting by amateurs, set up the broadcast band, and carved out the 160, 80, 40, 20, and 5 meter bands, were really nothing more than "gentlemen's agreements", valid as long as they weren't challenged.

For a time, they worked. Amateurs settled in on their new bands and began working the world, while the number of broadcasters in the new 550 to 1500 kc region jumped from 30 to almost 600 in just 3 years. Technical advances had not kept up with this growth, however, and there were problems. Crystal control of transmitters was still a couple of years away, and the unstable broadcasting stations drifted from their assigned frequencies, sometimes to the point of interfering with adjacent channels. Even stations off frequency by 400-600 cycles could cause ear splitting heterodynes. Most receivers of the 1920's were either regenerative or TRF (Tuned Radio Frequency), good on sensitivity, poor on selectivity. As a result, the 1920's broadcast band was saturated with only 600 stations. (Compare that to today's medium wave where tight frequency control of 20 Hz, coupled with directional antennas and selective superheterodyne receivers, allows over 4000 stations to occupy the AM broadcast band without undue interference).

The Department of Commerce, therefore, issued regulations mandating such solutions as time sharing (where two or more stations occupied the same frequency at different times of the day), and daytime only operations. Stations were constantly moved to another frequency, or told to decrease power, in order to minimize interference. The Department also went after stations whose transmitters drifted onto adjacent channels. An interesting example of this was the Los Angeles station of "Sister" Aimee Semple

McPherson, an evangelist who was the leader of the International Church of the Foursquare Gospel. Her station was notorious for drifting up and down the broadcast band. When the Federal Radio Inspectors tried to keep her on frequency, she imperiously wrote to Secretary Hoover, demanding that his "Minions of Satan" stay away from her transmitter. The Almighty would choose her Wavelength, she wrote, not the Department of Commerce. Many of the stations that had been moved, told to reduce power, or share their frequency, did what any patriotic American would do-hire a lawyer. Once the legal bloodhounds began digging, certain things came to light.

Article I, Section 8, of the Constitution allows the Federal Government to regulate INTERSTATE commerce. Furthermore, it is an accepted fact that a Federal Agency cannot issue any regulations, unless it was given the power to do so by Congress. Thus, the lawyers for the disgruntled stations challenged the Secretary's "regulations" on two fronts, first, that the Radio Act of 1912 gave the Department no authority to regulate broadcasting stations, and second, that since many stations could not be heard across state lines, there was no "interstate commerce" and therefore no Federal jurisdiction. (This is the argument used by "Radio Free Berkley" and other low power pirate stations).

The Day of Reckoning arrived in 1926 when an Illinois District Court held that there was no Federal Law to permit the Secretary of Commerce to assign broadcasting licenses or frequencies. The Attorney-General admitted that the Federal Government had no control over radio, except what was specifically authorized in the 1912 Act.

Pandemonium broke out. Stations, liberated from all Federal control, upped their power, jumped frequency, and/or began full time operations on daytime or time shared frequencies. Smaller stations were jammed off the air. Unlicensed transmitters appeared out of nowhere, dropped down on any convenient (or inconvenient) frequency, and began broadcasting. Anarchy was King.

Amateurs, of course, could have legally joined in this RF orgy. There was nothing preventing them from going back to broadcasting, moving to new frequencies, exceeding the one kW limit, or anything else they desired. To their credit, they did nothing of the sort. One reason was the immense respect they felt for Secretary Hoover, a man who over and over publicly supported amateur radio in any way possible. They would abide by their "gentleman's agreement" with him. The other reason was common sense. They knew that Congress would soon rectify the problem by passing appropriate legislation. The broadcasters were "big boys" with a lot of money, powerful corporate backers, and 6 million listeners; they could afford to violate the spirit of the law and get away with it. Amateurs did not have this luxury. They realized that any violations of the 1922 and 1924 agreements, even if they were legally unenforceable, would cost them dearly in political support. So, while the 550 to 1500 kc segment was a free for all, the amateur bands were disciplined and orderly, as hams mastered the art of crystal control, and improved their operating skills.

Incidentally, one area in which those skills were honed was expeditions. From the Arctic to the Antarctic, from MacMillan to Byrd, amateurs provided the necessary communications of almost every major explorer. Also, in the area of emergencies, amateurs provided communications during snow and ice storms, hurricanes, earthquakes, and floods.

The Federal Government quickly moved to end the chaotic mess on the broadcast band. The Radio Act of 1927 was approved on February 23. This law defined "amateur radio" for the first time in a Federal statute, and created the Federal Radio Commission,

which was given the power to classify and regulate all aspects of all radio stations for "the public interest, convenience or necessity". Criminal penalties were written into the 1927 Act for violations of the Act, or any regulation there under.

The Commission immediately went to work. "Minions of Satan" got Sister Aimee's station back on frequency, and shut down the transmitter of KFKB, the station of "Dr." John Brinkley, graduate of the Eclectic Medical School and proponent of prostate operations and (get this) goat gland transplants to cure all medical ills. Patients by the thousands listened to KFKB's broadcasts, and flocked to Kansas to have the operations, picking out their goat from the pens next to the hospital as they went in. (Do you think I could make this up?) Unfortunately, after the Commission shut him down, "Dr." Brinkley went to Mexico by the Texas border, set up a 150,000 watt station, and continued his fraudulent operations.

In regards to amateur radio, the Commission, in effect, kept the status quo for the 15,000 hams. All agreements and regulations enacted by the Department of Commerce were maintained and incorporated into current regulations. The only change that hams noticed was the addition of a prefix on their calls, thus 1AW became W1AW, 1JS became W1JS, etc.

However, the existence of a sympathetic Commission and friendly regulations wasn't enough. Radio was truly international, and, as a result, an International Radiotelegraph Conference was scheduled in Washington, D.C., for October 4, 1927. Word was filtering out of Europe and the Far East that many governments were anti-amateur radio.

How would our hobby fare? Join us next time as "The Wayback Machine" shows us the answers.

American Red Cross Clarifies Background Check Policy

The American Red Cross (ARC) has attempted to clarify its policy to require background checks of its employees and volunteers, at least as far as the policy applies to possible credit checks. After the ARC announced the policy in July through its regional and local chapters, Amateur Radio Emergency Service (ARES) members who support Red Cross disaster relief and recovery efforts began expressing concerns to ARRL. In some past incidents – most notably the 2001 World Trade Center terror attacks and the 2005 Hurricane Katrina response -- ARES volunteers have had to badge in as Red Cross volunteers. In a statement <http://www.arrl.org/FandES/field/Red>

[Cross-LauraHowe-Statement.pdf](#) to the ARRL November 9, Laura Howe, the ARC's director of response communication and marketing, stressed that, while background check applicants must give permission to conduct a credit check, the ARC has no intention of conducting them across the board.

"The Red Cross realizes some volunteers may have concerns about authorizing a credit check. Those concerns are understandable," Howe said. "But please rest assured that credit checks are only run in rare instances and are not a part of the routine minimum basic check the Red Cross performs on employees or volunteers." Howe told the League that

the "standard minimum check" verifies the applicant's Social Security number and a search of the National Criminal File for the past seven years.

"While the Red Cross will never run a credit check on the vast majority of its employees and volunteers," she asserted, "it is important that this standard language is included in the consent form to protect our clients, volunteers and employees."

The ARC has contracted with MyBackgroundCheck.com LLC (MBC) to handle the on-line background checks. MBC notifies the applicant's local Red Cross chapter whether or not the individual passed the background check, but it does not share any personal data.

In a statement <<http://www.arrrl.org/FandES/field/RC-Background-Checks0610.pdf>> October 24, ARRL President Joel Harrison, W5ZN, urged ARES and other ham radio volunteers to tread cautiously and read very carefully what they are giving MBC permission to collect on behalf of the Red Cross, especially given the wide net being cast. Howe acknowledged that by signing the consent form, applicants do give MBC permission to "conduct a credit check or other investigation into an individual's background." ARES members are not obliged to submit to a background check, however; the choice to do so is a personal one.

Several ARES leaders maintain that they and their volunteers represent ARES when supporting the

ARC as a served agency. "Our issue is not the background checking, but the fact ARC considers ARES members ARC volunteers," one ARRL Section Emergency Coordinator told ARRL. An ARES District Emergency Coordinator suggested the ARC policy is too arbitrary. "The unfortunate thing is that if a member decides not to submit to this check, then that will hamper our ability to serve the Red Cross in an emergency," he said.

ARRL Field and Educational Services Manager Dave Patton, NN1N – whose department supports and oversees the ARRL Field Organization -- believes the Red Cross stands to lose a fair number of volunteers because of the requirement -- and not necessarily just ARES volunteers.

The Statement of Understanding (SoU) between the ARC and the ARRL does not address the issue of background checks. It also is ambiguous on the subject of whether ARES volunteers automatically become ARC volunteers when supporting Red Cross operations and become subject to a background check. The bottom line: The requirement extends to whomever the Red Cross says it does. While some Red Cross chapters will allow ARES member participation without requiring that they register as Red Cross volunteers, others may not. The ARRL-ARC SoU is up for review in 2007.

RED CROSS, AGAIN

By Jim Weaver, K8JE, Director
ARRL Great Lakes Division

I want to make it clear that I support the Red Cross and have supported it since I first became a volunteer through the Queen City Emergency Net in early 1964. However, in answer to questions I've received from members, I unhesitatingly say I will not give the Red Cross or its agent, Mybackgroundcheck.com, permission to run a credit check or lifestyle check on me. It isn't that I have anything to hide; it is simply that they have no business prying into these matters. Unfortunately, whenever a volunteer authorizes Red Cross to do background checks, Mybackgroundcheck.com on behalf of Red Cross is automatically authorized to do these irrelevant types of background checks. This is true even though Red Cross insists they don't typically receive credit and lifestyle checks. Why is the Red Cross acting in this schizophrenic manner?

I am writing the Cincinnati Area Chapter of the Red Cross to authorize them to do a criminal check on me. This is all they need. I simultaneously am denying

permission to do the other checks. The letter is addressed to the CEO and the Chairman of the Chapter. I am copying the Chapter Disaster Chairman and the Disaster Communications Chairman, both of whom are personal friends. I have great appreciation for the people in the Disaster Office of the local Chapter. Provided the National officers of the Red Cross do not intend to obtain credit and lifestyle checks on volunteers, they should not require us to authorize these checks. If you disagree, I have this bridge to sell. It is neither my, nor ARRL's business to tell you what you should do if the Red Cross (or anyone else) asks you to complete the form at Mybackgroundcheck.com. This is your business. My only reason for sharing my comments on this is to ensure you are aware of the extent of information being demanded at Mybackgroundcheck.com, so that you will read the disclosure form carefully and do what is best for you.

Scholarships for the 2007 - 2008 Academic Year

THE FOUNDATION FOR AMATEUR RADIO, INC., a non-profit organization with headquarters in Washington, D.C., plans to administer fifty-six (56) scholarships for the academic year 2007 - 2008 to assist licensed Radio Amateurs. The Foundation, composed of over seventy-five local area Amateur Radio Clubs, fully funds three of these scholarships. Eleven are funded with the income from grants. The remaining forty-two (42) are administered by the Foundation without cost to the various donors.

Licensed Radio Amateurs may compete for these awards if they plan to pursue a full-time course of studies beyond high school and are enrolled in or have been accepted for enrollment at an accredited university, college or technical school. The awards range from \$500 to \$3000 with preference given in some cases to residents of specified geographical areas or the pursuit of certain study programs. Clubs, especially those in Delaware, Florida, Maryland, Ohio, Pennsylvania, Texas, Virginia and Wisconsin, are encouraged to announce these opportunities at

their meetings, in their club newsletters, during training classes, on their nets and on their world wide web home pages.

Additional information and an application form may be requested by letter or QSL card, postmarked prior to April 30, 2007 from:

FAR Scholarships
P. O. Box 831
Riverdale, MD 20738

Applications are also available electronically upon request to Scholarships@Farweb.org

The Foundation for Amateur Radio, incorporated in the District of Columbia, is an exempt organization under Section 501(C)(3) of the Internal Revenue Code of 1954. It is devoted exclusively to promoting the interests of Amateur Radio and those scientific, literary and educational pursuits that advance the purposes of the Amateur Radio Service.

More Nikola Tesla – Part 1

Nikola Tesla was a brilliant man. He was a greater inventor than Thomas Edison yet his name is not well known by the general population. This story will be in 3 parts, the second part will be next month.
- Jack, AESP, editor

Nikola Tesla (July 10, 1856 - January 7, 1943) was a Serbian-American physicist, mathematician, inventor, and electrical engineer.

Tesla was born "at the stroke of midnight" with lightning striking during a summer storm. He was born in Croatia in the Austro-Hungarian Empire. The midwife commented, "He'll be a child of the storm," to which his mother replied, "No, of light."

Tesla's most famous contribution was the theory of polyphase alternating current electricity, which he used to build the first induction motor, invented in 1882, as well as developing the designs of numerous other electrical machines and related technology. His theory and many of his patents form the basis for the modern electric power system. Tesla is also noted for inventing the Tesla coil and a bladeless turbine (which functions on the principles of fluid viscosity and the boundary layer effect). Tesla's contributions to the modern world are widely regarded as more important and long-lasting than those of his nemesis, one-time employer, Thomas Edison.

In 1881 he moved to Budapest to work for the

telegraph company, American Telephone Company. On the opening of the telephone exchange in Budapest, 1881, Tesla became the chief electrician to the telephone company (engineer to the Yugoslavian government and the country's first telephone system). Tesla invented a precursor to modern wireless telephone, known as a telephone repeater (or sometimes a amplifier). The device could act as an audio speaker (not a audio transducer). The device had it's resonance tuned to a particular frequency of other repeaters to communicate between each. In 1916, Tesla described the prior developed audio transducers. The audible sounds were of the quality of the telephones diaphragms of that period of time. The invention was never patented nor released publicly (till years later by Tesla himself). The device also contained the characteristics of modern wireless telephones.

For a while he stayed in Maribor, Slovenia. He was employed at his first job as an assistant engineer. Tesla suffered a nervous breakdown during this time.

In 1882 he moved to Paris, France, to work as an engineer for the Continental Edison Company. He worked designing improvements to electric equipment. In the same year, Tesla conceived of the induction motor and began developing various devices that use rotating magnetic fields (for which he received patents in 1888). Tesla visualized the rotating fields and thereby designed the induction motor.

In 1884, leaving the warfare of his birthplace behind,

Tesla moved to the United States of America to accept a job with the Edison Company in New York City. He arrived in the US with 4 cents to his name, a book of poetry, and a letter of recommendation (from Charles Batchelor, his manager in his previous job).

Tesla worked for Thomas Edison for a time. Edison offered him \$50,000 for improvements in Edison's DC dynamos. Tesla worked nearly a year to redesign the inferior construction. Upon returning to Edison and inquiring about the \$50,000, Edison replied, "Tesla, you don't understand our American humor." Tesla resigned.

In 1886, Tesla formed his own company, **Tesla Electric Light & Manufacturing**. The initial financial investors disagreed with Tesla on his plan for an alternating current motor and eventually relieved Tesla of his duties at the company. Tesla was unemployed for a time.

Tesla worked on a New York street gang, as a laborer, from 1886 to 1887 and in 1887, he constructed the initial brushless alternate-current induction motor. He demonstrated the brushless two-phase one-fifth horsepower induction motor to the **American Institute of Electrical Engineers** in 1888. Also in 1888, he developed the principles of his Tesla coil. In the same period, he began working with Westinghouse's Pittsburgh labs. Westinghouse listened to Tesla's ideas for polyphase systems as these systems would allow alternating current [AC] electricity to be transmitted over large distances.

In April 1887, Tesla began investigating what would later be called X-rays using his own devices as well as Crookes tubes. He did this by experimenting with high voltages and vacuum tubes. His technical publications indicate that he invented and developed a special single-electrode X-ray tube. Tesla's tubes differed from other X-ray tubes in that they had no target electrode. He stated these facts in his 1897 X-ray lecture before the New York Academy of Sciences. The modern term for this is the bremsstrahlung process, in which a high-energy secondary X-ray emission is produced when charged particles (such as electrons) pass through matter.

Around 1889, Tesla became a USA citizen. When he was 36 years old, the first patents concerning the polyphase power system were granted. He continued researching rotating magnetic field principles and polyphase power distribution.

In 1891, Tesla established his Houston Street laboratory in New York. He lit vacuum tubes wirelessly in the lab, providing evidence for the potential of wireless power transmission.

Around this time, Tesla developed a close and lasting friendship with author and humorist Mark Twain. They spent quite a bit of time together in Tesla's lab and other areas. Tesla's closest friends were writers and artists. Tesla's also befriended R. A. Jonson, who adapted several poems of the Serbian poet Jovan Jovanoviæ Zmaj (and

which were translated into English by Tesla).

By 1892, Tesla became aware of certain characteristics later identified by Wilhelm Conrad Röntgen as effects of X-rays. He performed several experiments (including taking photographs of the bones of his hand). Tesla did not make his findings widely known. Much of his research was lost in the 1895 Houston Street lab fire. He did obtain pictures of the human body with X-rays and subsequently sent the images to Röntgen. His later X-ray experimentation by vacuum high field emissions led him to alert the scientific community first to the biological hazards associated with X-ray exposure.

Tesla served as the Vice-President of the IEEE from 1892 to 1894. From 1893 to 1895, Tesla investigated high frequency alternating currents. He generated one million volts of alternating currents using a conical Tesla Coil. He developed the skin effect in circuitry, designed tuned circuits, invented a machine for inducing sleep, cordless gas discharge lamps, and transmitted electromagnetic energy without wires, effectively building the first radio transmitter.

In St. Louis, Missouri, Tesla made the first public demonstration of radio communication in 1893. Addressing the Franklin Institute in Philadelphia and the National Electric Light Association, he described and demonstrated in detail the principles of radio communication. The apparatus he used contained all the elements that were incorporated into radio systems before the development of the vacuum tube.

At the 1893 World's Fair Exposition, in Chicago, Illinois, celebrating the 400th anniversary of Christopher Columbus' first voyage to America, an international exposition was held, in which, for the first time, a building was devoted to electrical exhibits. It was a historic event and the beginning of a revolution as Tesla and Westinghouse introduced visitors to AC power by providing AC energy to illuminate Chicago's Columbia Exposition. The public at large observed firsthand the qualities and abilities of AC power. All the exhibits were from commercial enterprises. Edison, Brush, Western Electric, and Westinghouse all had exhibits. General Electric Company (backed by Edison and J.P. Morgan) proposed to power the electric fair with direct current at the cost of one million dollars.

Westinghouse proposed, armed with Tesla's AC system, to illuminate the exposition for half as much. Tesla's high-frequency high-voltage lighting produced more efficient light with less heat. A two-phase induction motor was driven by current from the main generators to power the system. Edison tried to prevent the use of his light bulbs with Tesla's system. GE banned the use of Edison's lamps in Westinghouse's exhibits. Still, Westinghouse's proposal was chosen over the inferior DC system to power the fair.

Westinghouse displayed several polyphase systems.

The exhibits included a switchboard, polyphase generators, step-up and step-down transformers, transmission line, commercial size induction motors, commercial size synchronous motors, and rotary direct current converters (one of which was operating a railway motor). The working-scale system allowed the public a view of a system of polyphase power which could transmit long distances. Meters and other auxiliary devices were also present.

Tesla displayed the first neon light tubes at the exposition, demonstrating his phosphorescent lighting powered without wires by high-frequency fields. Tesla's lighting inventions exposed to high-frequency currents would bring the gases to incandescence. Tesla displayed the first practical phosphorescent lamps (a precursor to fluorescent lamps). His innovations in this type of light emission were not regularly patented.

Also in the exhibits were Tesla's demonstrations, most notably the "Egg of Columbus". This device explains the

principles of the rotating magnetic field and his induction motor. The Egg consisted of a polyphase field coil underneath a plate with a copper egg positioned over the top. When the sequence of the coils were energized, the magnetic field arrangement inductively created a rotation on the egg and made it stand up on end (appearing to resist gravity).

The Exposition's illumination with electricity using Tesla's and Westinghouse's alternate current removed any doubt of the utility of the polyphase alternating current.

During this time, direct current was the standard, and Edison was not disposed to lose all his patent royalties to a former employee. Adversaries due to Edison's promotion of DC for electric power distribution over the more efficient alternating current advocated by Tesla, Edison (or, reportedly, one of his employees) employed the tactics of misusing Tesla's patents to construct the first electric chair for the state of New York in order to promote the idea that alternating currents were deadly.

Are We Really Ready ?

By Jack Travis, AE8P

I was thinking about the lack of activity on the local repeaters and was wondering how to "kick start" our repeater use. It dawned on me that most of the people I know from the radio club are from seeing them at the monthly meetings. I don't hear most of them on 2 meters and wonder why. I've decided to start exercising my hand held and have made a promise to myself to get on the radio at least once a day. I know if everyone makes the same commitment we will be a much stronger and more capable organization. I know there is a lot of talent out there and we can help one another with our knowledge.

This new exercise of thinking brought up a number of issues that should be addressed. Twenty years ago I believe the club was better prepared for an emergency than we are now. We had a good working relationship with the Sheriff's Department. We had a calling list in case of emergency. I think we had a plan.

Think about the possibilities if we were to have a weather emergency today. My first reaction is to turn my 2 meter radio on to 146.76 in Columbus. That's OK but I don't live in Columbus, I want local information. Furthermore, I know I can't hit the 146.76 repeater if I have to relay some information to them. There is no person set up to coordinate a local emergency net. We have no calling list. Years ago there was a good calling tree in place to call as many

hams as possible for participation in case of emergency.

I'm hoping the general membership will be in favor of setting up a valid emergency plan, a calling tree and a coordinator. There are those who may say we should wait for the Fairfield County EMA to have a plan in place. It's something we need right now. I believe if the Fairfield County EMA is to have a plan, it will be many months from now and we can't expect them to foresee all our needs. We need to be pro-active and let them utilize our talents as we define them. Winter is here and with it the possibility of some real weather emergencies. There are other potential conditions that may arise at any time which would require substantial involvement of ham radio operators.

There was a time when we worked closely with the Sheriff's Department. We handled communications for them when their radio systems were down. I can remember riding with a deputy all night long and relaying information with another ham who was stationed at the Sheriff's headquarters. We went on stake-outs when they were spread too thin to do it themselves. We need to have a higher profile in Lancaster. We can do more than handle communications at parades.

Let's exercise our radios. Make yourself a promise to get on the air at least once a day. Let's come up with ways to utilize our many talents in a positive way.

Antennas for Beginning Hams Part 1 of 2

By Max KO4TV

One of the most challenging, and yet rewarding, aspects of Ham Radio is the construction and installation of antennas. Since most, if not all, beginning Hams use commercially manufactured transceivers and other equipment, antennas are among the only items left to the imagination and ingenuity of beginning Hams. Even if you decide to purchase a commercially available antenna, there are many pitfalls to avoid.

Just as "patriotism is the final refuge of the scoundrel," antenna advertising is sometimes the refuge of scoundrels, with the unsuspecting ham being the victim. Some unscrupulous vendors will advertise that their antennas will "punch holes through mountain ranges," "violate all laws of physics," and otherwise perform miracles beyond belief. As my wise old pappy always said, "Son, anything that sounds too good to be true usually is." So, before getting into any details of antenna construction, let us clear the air about their claims.

First, we need to become familiar with the different types of antennas, their strengths and limitations, and how they compare with one another. Antennas are commonly described in several categories: polarization, beam width, front-to-back ratio, Radiation angle, and most importantly, GAIN! Therein lies the basis of most misunderstanding: an antenna is a passive device, and as such, can have NO gain in and of itself! When an antenna is referred to as having gain, it is always in comparison with another antenna, usually one of lesser "gain." Just as soap manufacturers always claim their products "get clothes cleaner," the first question should be, "gets them cleaner than what? Another soap product, or a mixture of chimney soot and North Carolina red mud?" The same applies to antennas. Any antenna claiming "gain" should specify what it is being compared to. Antenna gain performance is usually

expressed in Decibels, or dB, a unit of measurement named for Dr. Alexander Graham Bell.

A dB is not a fixed unit, like an inch, a gallon or a pound, but is a ratio of power, voltage, sound level, etc. There are two standards by which most antennas are measured: The dBi (Decibels of gain over an isotropic antenna), and the dBd (Decibels of gain over a half-wave dipole). The dBi is rarely used in Ham Radio, except for measurements of parabolic dish antennas used for microwave communications. It is the theoretical radiation pattern of an antenna which radiates energy equally in all directions, which is impossible in the real world. A much more common and useful measurement is the dBd, or Decibels over a half-wave dipole, which is a real antenna and is readily available for comparison to the average ham.

The Decibel is a unit of ratio, equivalent to an increase or decrease of about 26% from the standard of comparison. Thus, a 1 dB gain represents an increase of about 26%, 2 dB represents an increase of about 26% over the last figure, 3 dB about another 26%, and so on. Thus, as you can see, a dB is not a fixed amount, but increases or decreases in a logarithmic fashion. It is commonly termed, "A rubber yardstick."

So, the first thing to watch out for is any manufacturer that claims a certain dB gain without specifying what the gain is referred to. A gain of 3 dB represents an increase of about double the previous amount. Thus, going from 1 watt to 2 watts is a 3 dB gain; also, going from 100 watts to 200 watts is a 3 dB gain!

So, as we can easily see, a dB, in and of itself means nothing without a previous reference point.

That's about enough confusion for one month, so next month we will present a chart showing the relative gain of different types of antennas, along with the advantages and disadvantages of each.

Ham Radio Propagation: - NASA Looks at Future Sunspots

The next sunspot cycle will be a year late and as much as 50% stronger than the last one. This, according to a forecast released by scientists from NASA and the National Science Foundation.

The latest forecast was made using sophisticated software developed by Dr. Mausumi Dikpati and her colleagues at the National Center for Atmospheric

Research in Boulder, Colorado. The program is based on mapping of subsurface plasma flows discovered by NASA's Solar and Heliospheric Observatory.

Using it, Dr. Dikpati found that the solar cycle was powered by massive rivers of electromagnetic plasma flowing near the sun's surface from its

equator to the pole and back again. She said that the flow is like a massive conveyor belt, carrying large quantities of plasma as well as isolated magnetic fields from the Sun's equator to the pole and back over a 22-year period. That's about twice the 11-year period of sunspot cycles. The magnetic eddies that break through the surface release enormous amounts of energy, sending sheets of ionized particles and ultraviolet radiation toward Earth.

The most recent cycle, which peaked in 2001, was relatively weak. Solar scientists predict that the next sunspot cycle, called cycle 24, will begin in late

2007 or early 2008 and will produce sunspots across an area slightly larger than 2.5% of the sun's surface. The cycle is likely to reach its peak about 2012 and have a far larger impact on radio communications. Such predictions are vital because the solar storms associated with the sunspots not only endanger humans in space, but can slow satellites in orbit and disrupt communications on Earth. This is especially true on the high frequency bands from 160 through 10 meters but sunspots can also influence and at times improve communications on 6 meters, 2 meters and bands above as well. (NASA Release)

Another Reason to Upgrade

By Marsha Fleming, KA8DMR

Are you a Technician who spends all of your time on 2 meters or 440 and thinking why should I upgrade if I don't even own a HF radio yet? Well, don't let that stop you from upgrading.

Take it from one old ham (26 years in ham radio). I love HF. I am on HF mobile at least 5 days a week. Recently there was some discussion on 2 meters about why upgrade if you cannot afford the equipment. I would like to discuss that here.

If you are in the study mode, then go with the flow. Think of your brain as a sun spot cycle... if it's a good one, then you have to take advantage of it. Otherwise, you'll miss all the good DX (or in this case, the opportunity to upgrade when you're most receptive to taking the test). I heard someone on the radio the other day talking about not upgrading

because they don't have any HF gear. First off, let me say, please don't let that keep you from upgrading. There are many opportunities for getting on HF other than having your own radio in a spare room or basement.

There is always Thursday night radio night at the club house - as well as friends and family that want to share their love of ham radio and help each other enjoy it.

Although many of us have HF rigs in our own shacks, it is not always possible. And some people with General and above license cannot have HF radios set up for one reason or another. But ask them if they regret upgrading. The answer is a resounding, "NO". They want that license ready and waiting for that one day when just the right DX station comes on the air calling CQ DX...

Amateur Radio HF Band Changes

With publication in the Federal Register November 15, the long-awaited changes to the amateur rules are set to take effect 30 days later, at 12:01 AM EST December 15. The so-called "Omnibus" Amateur Radio proceeding, WT Docket 04-140, includes a significant expansion of the 75 meter phone band and a variety of other changes. The highlights:

- For Amateur Extra class licensees, the 75 meter phone band will start at 3600 kHz, while Advanced class licensees start at 3700 kHz and Generals at 3800 kHz. The high end of the CW/RTTY/Digital band is now 3600 kHz (although CW is allowed on the entire band).
- On 40 meters, Amateur Extra and Advanced licensees will be able to operate phone beginning at 7125 kHz, while Generals start at 7175 kHz.

The top end of the CW/RTTY/Digital band will be 7125 kHz (although CW is allowed on the entire band).

- There are no changes to the 20 meter band.
- On 15 meters, the General class phone band now starts at 21275 kHz.
- On 10 meters, Novice and Technician Plus licensees can now operate CW/RTTY/Digital from 28000 kHz to 28300 kHz.
- In addition, Novices and Tech Plus licensees can use CW only on the same frequencies as General and Advanced licensees on the 80, 40 and 15 meter bands: 3525 kHz-3600 kHz; 7025 kHz-7125 kHz and 21025 kHz-21200 kHz.

The Report&Order as published in the Federal Register clarified two items that had raised some concerns when it was first released October 10: That

the 80/75 meter band split applies to all three IARU Regions, and that FCC licensees in Region 2, which includes North America, can continue to use RTTY/data emissions in the 7075-7100 kHz band.

Several controversial aspects of the proceeding are still to be resolved, although the FCC is working on an erratum for the inadvertent elimination of J2D emissions of more than 500 Hz bandwidth. The

Commission intends to release the erratum by the December 15 effective date.

The FCC also took several other miscellaneous actions.

Editors note: On page 19 of the Ragchewer is a full page listing of the new frequencies allowed on the Amateur Bands suitable for printing.

Amateur Radio and Education

By Ken Anderson, W4JQT

The basis and purpose for the existence of amateur radio is stated as an existing reservoir of trained operators, technicians and electronic experts available for public service in times of emergencies to provide or assist with communications. Radio amateurs also help to advance the state of the art and enhance international good will. While it is understood that the amateurs are a national resource of trained operators and technicians, little has been said about the training and education.

Education and training is basic to amateur radio. It would be nice if it was included in the FCC rules as one of the reasons for the existence of the service. When you consider all the schools operated by radio clubs throughout the country, there is no question but what the amateur radio service is educational. In fact, perhaps our greatest public service is education, with the other stated reasons being second and third, etc.

Young people with technical instincts and curiosity are naturally attracted to amateur radio. Where there are clubs or individuals to help them get started, they are exposed to all the benefits of technical study and discussion, examinations, technical vocabularies, and association with individuals active in many of the professional disciplines. Thus many young people are oriented toward careers in science, engineering, and electronic industries through an initial interest in amateur radio.

Being able to operate equipment on the air and communicate with others around the world provides

the "hands-on" training that converts theory into reality and gives one the confidence that can only come from "doing-it". Research and study required on various projects provides additional training and education. The various classes of licenses and operating privileges provide the incentives to advance through more study and education. Thus education is really the foundation of the amateur radio service.

By the time amateurs have earned the General Class license, they have done a lot of study and reading, memorized formulas and circuits, brushed up on math, learned the Morse code, and operated some pretty complicated equipment. Most amateurs know a lot more than they realize.

When amateurs get involved in training others, whether it be Novice or upgrade, the study and preparation required adds more education. In fact, it's when you start teaching others that your own understanding really comes into focus.

Getting around to the real purpose of this editorial, I encourage all who read this to be an "ELMER". Seek out someone you can help. Many need a little encouragement or a helping hand but they are too embarrassed or afraid to ask. All of us have had lots of help along the way. Give some back by helping others. You will feel good about it and learn something new every time you do. Get involved in training programs. You will be surprised at how much you learn and you will be helping others at the same time.

PSK for Beginners

By Jeff Brone, WB2JNA

You may have heard about PSK31, a fairly new mode of communication that's getting quite popular with hams. With PSK, you use your home computer with your radio to send and receive digital signals with other hams. The signals come through the radio,

are fed into the computer and are decoded by software as the words being sent appear on the screen. The computer then turns the words you type into a signal that is sent through your radio to the ham you're talking to. It all works amazingly well, and pretty simply at that. With that in mind, here's a

basic explanation of how to get involved in PSK31.

Getting Started

If you want to get started using PSK31, I suggest that you begin by listening (and watching) some PSK signals. First, go on the Internet and download the latest version of the Digipan program to your computer (just follow the links and instructions). Digipan is free and simple, so it's a good place to start.

You'll want to run a cable from the headphone or speaker jack of your radio to the "line in" jack on the back of your computer (next to this jack will probably be a drawing of an arrow pointing to the center of a circle). Keep in mind that not all computers have a LINE input (most laptops don't). If yours does not, you'll have to use the microphone input.

Next, adjust your sound card controls (double click the little "speaker" icon at the bottom of your computer screen) so the "line in" volume is at about 75 percent and is not muted. When you double click the tiny speaker, you'll see the VOLUME controls, which control transmit audio, not the RECORD controls that you need to adjust for receiving. To get the RECORDING window, you have to click on OPTIONS in the upper left corner of the VOLUME window, then click OPTIONS, then PROPERTIES, then RECORDING, then OK.

Next, open Digipan, tune the radio to about 14.070 MHz, adjust the radio volume until the program's computer screen shows a neutral dark color and maybe some noticeable trails of signals that stand out clearly from the background. You are now looking at the "waterfall display." You also can try listening on or around 7.070 or 21.070 MHz.

You may need to tune the radio a few kHz either way to get a good signal to read. I find it best to tune the rig so the signal you're monitoring is around the "1000" marker on the waterfall display. PSK signals sound like high-pitched warbling, and they appear very thin and individual on the display. Use your mouse to double click on a trail, and the words being sent should appear on the larger receiving box on Digipan. You are now reading PSK signals, which should keep you busy for a while. Notice the friendly tone that the operators use and the relaxed feeling of most exchanges. This is something most PSK ops seem to enjoy a lot.

You'll want to send some signals and talk to other operators. Do a dry run practice session first. Connect the speakers (or a headset) to your computer

and adjust your sound card to make sure you have moderate volume coming out of them. Then type some text in the smaller "transmitting" box and click the "T/R" button at the top of Digipan. You will hear a signal coming out of the speakers and see the text you would be transmitting scroll across the screen. If you again click the "T/R" button at the top while this is happening, the program will automatically finish sending the whole text before going back to receive (this trick will come in handy later). Play around with this for a bit and see how it feels. In fact, spend some time getting used to using the program in this "practice" mode.

PSK the "Easy Way"

Eventually, you'll feel ready to send a signal on the air. Here's a simple tip on how to send PSK the easy way. Put your computer speaker right up against your rig's microphone (make sure you're in a quiet room), and wrap them up in cloth or foam to keep out extraneous noise. Set the rig on the right sideband for the band you're using. Turn on the rig's VOX, or set up a little PTT switch (many rigs have an outboard connector for this on the back panel).

You can send PSK directly from the computer speaker through the microphone. Although the rig's switch may say SSB, the mode you're transmitting is PSK, so it's quite legal. There are a couple of things to remember:

The PSK signal drives the rig pretty easily, so turn the soundcard volume control for the speakers way down to about 15-20 percent.

When transmitting, advance your rig's power output (slowly) starting from no power at all. I like to stop at about 20 percent of full power. You may be able to use more, but PSK is pretty much a full duty mode, so go easy on your rig.

Watch your transceiver ALC (automatic level control) meter. If the ALC is indicating anything other than "zero," you are overdriving the radio.

This method may not provide quite as clean a signal as if the PSK went directly through the microphone plug, but I've used this method with about 20 W out with very good (clean) signal reports. One measure of a signal's purity is the IMD, which should be below -25.

Another ham can check this for you, and Digipan will check this on a received signal in the little "IMD" box at the bottom. Check the IMD when a PSK signal is on "transmit," but while text is not being sent.

You also can feed the computer speaker's output directly into your microphone plug. Connect the

ground side of the computer speaker jack to the mic plug's ground side, and the center pin of the speaker jack to the nonground, mic input side of the mic plug. If you don't have VOX or a PTT jack on the back of the rig, you may need to fashion a PTT connection switch through the mic plug. Turn the computer's speaker volume output way, way down (to about 20 percent), transmit a PSK tone and gradually inch up the rig's power to the desired level. I don't even use any interface circuit between the rig and computer, and it seems to work well. You may need an interface, and there are several on the Internet if you'd like to build one, or you can always buy one. Many QST advertisers, like West Mountain Radio, MFJ, Tigertronics and RigExpert sell them, as well as other companies like MicroHAM and MixW. Remember: watch the ALC or you could be

generating a horrible signal and interfering with others.

High Tech Thrills

You can also experiment with the program's functions, including the macros, allowing you to assign transmission text to certain buttons at the top of the program. This makes it easier to send the standard information, such as call sign, location and rig, without retyping everything. You can clear the text in either or both of the transmit and receive windows.

Check out the help file for lots of good ideas and information. There's a lot to learn to the program, and I recommend playing around in the previously described practice mode for a good while before you go on the air.

PSK can be quite a thrill, as it seems kind of high tech, yet still is good old radio at heart. Have fun!

WD-40 - History and Uses

The product began from a search for a rust preventative solvent and de-greaser to protect missile parts. WD-40 was created in 1953 by three technicians at the San Diego Rocket Chemical Company. Its name comes from the project that was to find a "water displacement" compound. They were successful with the fortieth formulation, thus WD-40.

The Corvair Company bought it in bulk to protect their Atlas missile parts. The workers were so pleased with the product, they began smuggling (also known as "shrinkage" or "stealing") it out to use at home. The executives decided there might be a consumer market for it and put it in aerosol cans. The rest, as they say, is history. It is a carefully guarded recipe known only to four people. Only one of them is the "brew master." There are about 2.5 million gallons of the stuff manufactured each year. It gets its distinctive smell from a fragrance that is added to the brew. Ken East says there is nothing in WD-40 that would hurt you.

Here are some of the uses:

- Protects silver from tarnishing.
- Cleans and lubricates guitar strings.
- Gets oil spots off concrete driveways.
- Gives floors that 'just-waxed' sheen without making it slippery.
- Keeps flies off cows.
- Restores and cleans chalkboards.

- Removes lipstick stains.
- Loosens stubborn zippers.
- Untangles jewelry chains.
- Removes stains from stainless steel sinks.
- Removes dirt and grime from the barbecue grill.
- Keeps ceramic/terra cotta garden pots from oxidizing.
- Removes tomato stains from clothing.
- Keeps glass shower doors free of water spots.
- Camouflages scratches in ceramic and marble floors.
- Keeps scissors working smoothly.
- Lubricates noisy door hinges on vehicles and doors in homes.
- Gives a children's play gym slide a shine for a super fast slide.
- Lubricates gear shift and mower deck lever for ease of handling on riding mowers.
- Rids rocking chairs and swings of squeaky noises.
- Lubricates tracks in sticking home windows and makes them easier to open.
- Spraying an umbrella stem makes it easier to open and close.
- Restores and cleans padded leather dashboards in vehicles, as well as vinyl bumpers.
- Restores and cleans roof racks on vehicles.
- Lubricates and stops squeaks in electric fans.

See <http://www.twbc.org/wd40.htm> for 2000 more uses for WD-40

Notice To All Visitors

WHAT YOU ARE ABOUT TO WITNESS IS AN AMATEUR RADIO STATION, LICENSED AS _____ BY THE FEDERAL COMMUNICATIONS COMMISSION IN WASHINGTON, D.C.

BEFORE YOU ASK THE QUESTIONS, HERE ARE THE ANSWERS:

- 1) The total cost of this equipment cannot be discussed here as it creates marital conflicts.
- 2) No, we cannot send a message to your brother in Hong Kong, we suggest you call Western Union.
- 3) This is strictly a hobby, we do not have the facilities or the time to fool around with TV sets, radios or HI-FI. We can recommend a good service man.
- 4) Yes, an antenna in the back yard is essential to the operation of the equipment.
- 5) The farthest station we have contacted is in the Ubangiland.
- 6) The cards on the wall are called "QSL cards". They are confirmation of contacts made with other stations.
- 7) It is technically impossible for this station's equipment to interfere with television reception, telephones or stereo systems. Any interference problems of that nature are caused by design flaws in the home entertainment devices themselves.

- 8) An Amateur Radio station may only be operated by a highly qualified, technically skilled electronics expert. It takes dedication, training and intelligence to reach the level of competence that justifies one to be licensed by the United States government. Therefore, it is NOT considered inappropriate to show proper awe, respect and general obsequiousness when I discuss my hobby or operate the controls.

FURTHERMORE...IF YOU ARE GRANTED THE EXTREME HONOR OF BEING INVITED TO SPEAK INTO THE MICROPHONE, PLEASE OBSERVE THE FOLLOWING RULES:

- 1) Speak in a low and soothing tone.
- 2) Do not disagree with me in any manner.
- 3) Say no bad words and tell no off-color jokes.
- 4) It is customary for guests to make complimentary remarks about this station and its operator when talking to other hams on the air.

DO NOT TOUCH ANYTHING, TURN ANY KNOBS, SIT ON EQUIPMENT, ETC.

I HAVE LOST SEVERAL VISITORS BY ELECTROCUTION IN THE PAST FEW WEEKS.

Little Known Fact

He came from a very poor home. And it was necessary for him to go to work at a very early age. So he did. He started out as a jeweler's apprentice. He did that to support his widowed mother. But two things ended that career: one, his heart wasn't in it; and two, he was a terrible jeweler. He once wrote that his creations in gold and silver were so bad that people would hide them from public view.

So, of course, he turned to acting. He told his mother that he was going to pursue a career on the stage. He even wrote two stage plays. That didn't last long either, but this time for a different reason. One day he got his hands on a popular science book of the day and that changed everything - both for him and for us. He fell in love with science, and especially electricity.

He was able to work his way through a local college as an administrative assistant. There he excelled. He dove into every science book he could

find, and in 1817, there really were not too many science books to be found. But he did find the writings and discoveries of a genius named Benjamin Franklin to be fascinating. Electricity had just been discovered a few years earlier, and he was beside himself with anticipation.

He put together the first homemade batteries and started experimenting with the idea of wrapping different lengths and diameters of wire around a soft iron core. Back then what little wire existed wasn't insulated, so he used wax to insulate the wires. Yes, he invented insulation for electric wires. And he found that with a simple little 21-pound piece of iron and some wire and a little current, he could lift more than 750 pounds with ease. That, of course, literally changed everything. He had invented the electromagnet.

And if you think about it folks, it would be difficult to name a piece of machinery that does not

use a transformer or electric motor today. It was considered the invention of the century. Considering how it changed the world, I guess it was.

And you may want to know one more little invention he came up with. Something that was probably the other great invention of the century: a way for people to communicate over long distances instantly. Yes, the telegraph. He invented it. So we want to thank and honor the inventor of the electromagnet and the telegraph: Joseph Henry!

Yeah! Joe Henry. Yes, I know you've been told that Sam Morse invented it the telegraph, but he didn't! It's a Little Known Fact that Joseph Henry

invented the telegraph nine years before Sam Morse. As a matter of fact Joe taught Sam Morse how it worked.

Now, to give credit where credit's due, Morse did invent the code that is used on the telegraph. And he is the one who patented it and got all the credit. But it was Joseph Henry who invented it. Sam Morse said so many times, too. He tried to give the credit to Joe, but too many people had come to believe that since he invented the code, that he also invented the device. But he didn't. So our hats are off to you Joe. You literally changed the world - twice!

Weather Spotter Training

The 2007 Fairfield County Weather Spotter Training will take place on:

- Date: Monday, March 26, 2007
- Location: Pleasant Township Fire Department
(Fire Chief Jeff Mathias)
2925 Lancaster-Thornville Road
Lancaster, Ohio 43130

- Time: 7:00pm - 9:00pm
- Cost: FREE

I will be creating a flyer to distribute to the public, media, etc. in January 2007.

Matthew J. Keefe, Director
Fairfield County Office of Emergency
Management and Homeland Security.

Ten Personal Suggestions for Amateur Radio Operators

By Riley Hollingsworth

1. Be proud of what you have and let your feelings be known. Let the public know what you are, what Amateur Radio is, and why it's valuable. Let your feelings be known to Congress, to the FCC, to the media, to your states and to emergency agencies. Sprint does. AT&T does. Motorola does.
2. Operate as if the whole world is listening. It is!
3. Take nothing for granted. Bill Gates can't, and you can't either.
4. You're at a crossroads now. An old Chinese philosopher (or my grandmother- I can never remember which!) said, "Be careful what you wish for. You may get it." Seize the moment, and make this your finest hour. Ham radio has been at a crossroads before and has thrived. Continue that tradition.
5. Make sure that, on your watch, Amateur Radio never becomes obsolete.
6. Teach the new licensees all you know. We've needed numbers for a long time. Respect this wonderful legacy known as Amateur Radio that our mentors and Elmers gave us. Every time you key the mike or hit the key, think about what a legacy you were given and your duty to pass it on.
7. Enjoy ham radio. Celebrate it. But realize it comes with responsibility. Every gift of lasting value always does.
8. Stay away from arrogant, negative operators who know all the answers. They just haven't thought of all the questions. Encourage them to take their anger and hate to the Internet. Every minute they are on the Internet is a minute they aren't on Amateur Radio.
9. Never allow Amateur Radio to become the audio version of The Jerry Springer Show.
10. You may not always agree with the League, and that's fine. But I'm standing here before you tonight talking about enforcement because they never gave up. Take care of the one voice you have. You must never doubt that a small group of dedicated people can change the world. They just did.

Rich Man's Hobby? Three opinions

From: Kevin Muenzler, WB5RUE

Now we have to make a decision. Which of the following necessities do not get paid so I can get my new toy: Rent, Food, Electric, Water, Gas for the house, Life Insurance, Car, Car Insurance, Gas for the car, Wife?

When ham radio starts getting too big a spot in my thoughts, I always drop back to the Amateur's Code and re-read that section that says "An Amateur is balanced." Right after I passed my Novice, I went out and spent big bucks (for me) on a TS-440, matching power supply, mic and cool Kenwood headphones.

That was the last time I ever did anything like that. (Not to imply I wouldn't *like* to do it again....) But over the course of years, good stuff has accumulated. The trick is to know what you want and stay open to the possibilities.

Over the course of years, I got a top-of-the-line Tektronix 'scope for \$100, I got a great junk box just for hauling it away, operating equipment, power supplies, old radios and test equipment. All just because I was open to letting it happen.

When I move, I look with an eye toward ham radio operation. This last time it didn't do me any good, because it was more important to get the kids into a specific school district. But maybe next time I'll be in antenna paradise -- who knows?

Stay alive to the possibilities, stay patient and don't wait for perfection -- operate now with what you have.

In fact, ham radio is a dangerous hobby if you tend to think in terms of acquiring *stuff* instead of operating. There's always better stuff out there. Stuff you got to have. Life would be perfect if you only had the stuff. I was at a ham radio demo once where we had thrown a wire over a branch and stuck the end into the connector of an really funky old Icom rig just to let people hear what ham radio sounded like. There was no intent to operate. But while I stood there and listened to a DX wannabe tell me why he wasn't trying for DXCC yet because he didn't have a tower or the right rig or *stuff*, one of the best DXer's I know walked up, and operating into what had to be a huge mismatch started working European stations to the delight of the crowd.

From: "Kevin Muenzler WB5RUE

This is what happens when we have a "generation" of appliance operators entering the hobby. ...and from the other side it stems from a lack of good Elmering to the

incoming hams. I was given my first rigs (rec/xmt pair) by my Elmer. They weren't working because they had been hit by lightning. We spent many, many hours working on those rigs at HIS workbench and mostly HIS parts getting those rigs on the air. I learned more in those few weeks/months than I ever could have done from books. This sort of thing is almost non-existent these days. We are all hams, let's work together -- all ye olde fartz and geezers out there, I count myself among ye, let's take one or more of those new upstarts under your wing.

From: Bob Gorman, WA1SCH

I really do have to wade in here on this one. I have weighed the costs of ham radio and track it yearly. Some years it's more some less. But if I were a bowler...say I bowl 3 strings have 3 beers every week—say 50 weeks—\$15 to \$20 a week reasonable?

It does not go out of the pocket all at once like the initial cost a rig, but BOWLING COSTS \$\$\$\$\$\$!! So does Golf!! So does tennis!! So does Boating (Whew!!) Member of a church?? In terms of money, it costs cash one way or another to belong to any church or other organization....But not all at once! Really...guys...wife has always loved it. I'm always home tinkering with this or that. When the boys were babies, I would bring them into my shack and goo them between contacts!

Today with these QRP rigs and the used market you can get on the air very reasonably and there are tons of articles about building stuff "on the cheap".

I take exception to this statement "rich mans hobby"! I will bet you over the years with volunteering in Scouting I have spent all kinds of \$\$\$ on uniforms, camping equipment, etc. Just the patches to go on the uniform must cost \$20.00!

Ham Radio is like a haven for me...a place to go...in the middle of the day or late at night. I remember once I had a tooth pulled and I was in agony with the pain! I could not sleep and it was 4 AM. So, I fired up my HW101 and called CQ on 20 meter CW and a guy in Cuba came back to me. I told him about my tooth ache—we had the best time! Forty-five minutes later I was back to sleep. I had made a new friend and I felt wonderful!

Am I a rich Man from that experience? Well, I feel that I'm certainly a richer Man.

Ham Radio has NEVER let me down—someone is ALWAYS there! I guess if I am a richer human because of it then so be it.

A nursery school teacher was delivering a station wagon full of kids home one day when a fire truck zoomed past. Sitting in the front seat of the fire truck was a Dalmatian dog. The children started discussing the dog's duties. "They use him to keep crowds back," said one youngster. "No," said another. "He's just for good luck." A third child brought the argument to a close. "They use the dogs," she said firmly, "to find the fire hydrant."

Computers and Ham Radio

By Norman Young, KA4PUV

It was a sad day for hams when Heathkit went out of the kit business. For years, many hams got their first taste of hands-on construction of radios and other electronic gadgets by building a Heathkit. Sadly, the days when you could build your own rigs, accessories, test equipment, organs, computers and color TV's – all with the Heathkit brand – are long gone! However, that does not mean it is no longer possible for hams to build their own equipment from kits, and the good news is that many of them are as good or better than Heath.

There are still lots of companies producing kits, but not all kits are created equally. For those of you who remember the Heathkit manuals, you know that their manuals led you every step of the way through construction, and were loaded with lots of detailed drawings, technical info, and assembly checklists. Some companies, such as Ten Tec, still provide manuals of that detail, but others will be much less detailed, so even though there is still a lot of kit building fun out there, you'll need to shop around to find a kit that matches your skill level.

With that in mind, I have collected a number of websites that feature kits and parts of interest to hams of every skill level. Happy surfing!

Milestone Technologies

<http://www.mtechnologies.com/>

This site features kits formerly offered by Morse Express and Oak Hills Research, and also sell hard to find parts. But this one comes first for another reason. If you go directly to...

<http://www.mtechnologies.com/building/atoz.htm>

you'll find an excellent series of articles on construction techniques and equipment. There is information here for both the neophyte and the old pro.

Elecraft <http://www.elecraft.com/>

This outfit is perhaps the closest thing to Heathkit around today. This is also the company that produced the kit that Jimmy, KC4MH, built. (See Holt's column this month.) They feature the Elecraft K1 and K2 2 and 4 band QRP transceivers that are very popular with the QRP crowd. They are relatively more expensive, but unlike many QRP kits, they have many features found only on commercial QRO rigs. (Late flash... they also have a 100 watt transceiver kit in the works.)

Antique Electronics Supply

<http://www.tubesandmore.com/>

This site has kits for the nostalgia buff including crystal and tube BCB and SW radios. (That's right... tubes!) They also carry lots of parts for construction of "old timey" radios.

Dan's Small Parts

<http://www.fix.net/~jparker/dans.html#dan's38>

This is a small sole proprietor business run by a ham for hams. Dan features mostly QRP kits from "classic" designs. These kits are primarily a circuit board, parts, and the construction article the kit was based on. He also has a lot of hard to find parts and gets high marks with the QRP community.

Far Circuits <http://www.farcircuits.net/>

This company has been around for years and sells printed circuit boards for many projects in CQ, QST, and other magazines. Note that they do not sell complete kits.

Small Wonder Labs

<http://www.smallwonderlabs.com/>

Here is another ham operated sole proprietor business. His product line features simple and inexpensive CW and SSB QRP transceiver kits. Another favorite with QRP'ers.

Vectronics

<http://www.vectronics.com/vectronics/products.php>

You've seen their ads in QST and CQ. They feature lots of kits, many of which appear to be similar to Ramsey kits. Manuals are available online before you order.

Ramsey Kits <http://ramseyelectronics.com/>

There are lots of kits here as well, both ham and non-ham.

Ten-Tec <http://www.tentec.com/Amateur.htm>

They are best known for their line of amateur transceivers and equipment, but they also have a number of QRP and other radio kits. I have personally built a couple of their T-kits, an audio amplifier and an external BFO. The manuals are on a par with Heath.

Borden Radio Company

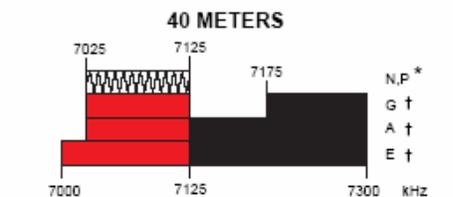
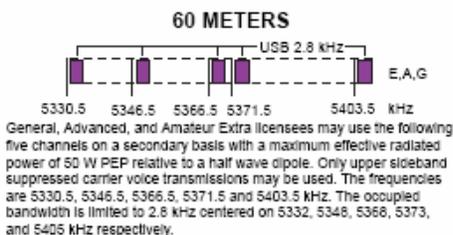
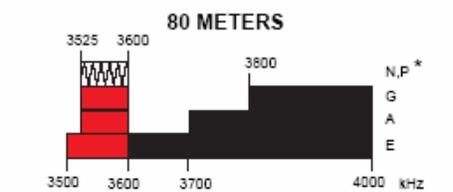
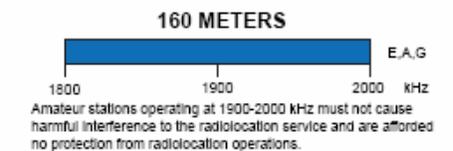
<http://home.swbell.net/wb5rex/xtalman/index.htm>

Here is another site for nostalgia buffs. There are a number of crystal and tube radio kits featured here.

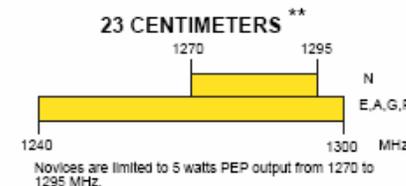
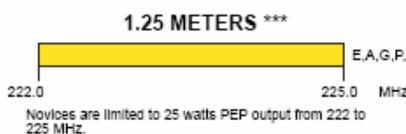
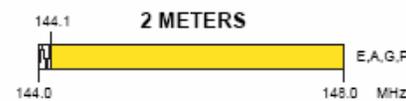
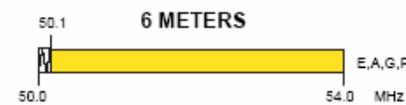
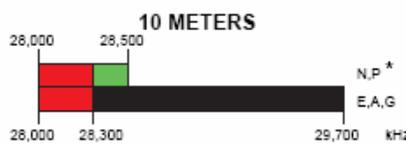
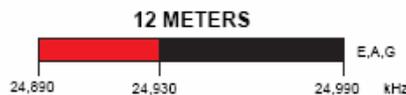
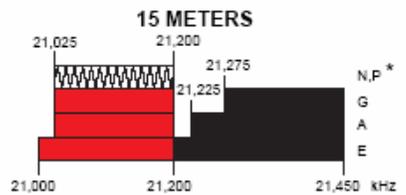
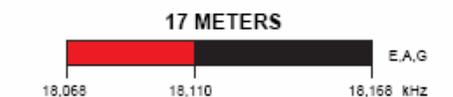
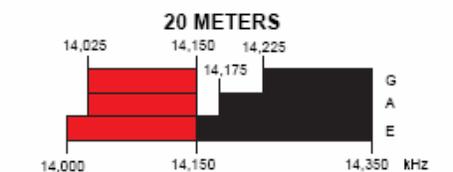
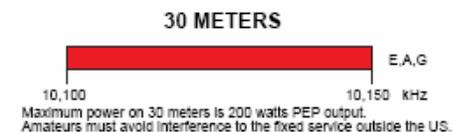
Kanga US <http://www.bright.net/~kanga/kanga/>

This is a small business distributor for a wide variety of kits. Most, but not all, are QRP. Enjoy!

Effective Date December 15, 2006



† Phone and image modes are permitted between 7075 and 7100 kHz for FCC licensed stations in ITU Regions 1 and 3 and by FCC licensed stations in ITU Region 2 West of 130 degrees West longitude or South of 20 degrees North latitude. See Sections 97.305(c) and 97.307(f)(11). Novice and Technician Plus licensees outside ITU Region 2 may use CW only between 7025 and 7075 kHz. See Section 97.301(e). These exemptions do not apply to stations in the continental US.



US AMATEUR POWER LIMITS

At all times, transmitter power should be kept down to that necessary to carry out the desired communications.

Power is rated in watts PEP output. Unless otherwise stated, the maximum power output is 1500 W.

Power for all license classes is limited to 200 W in the 10,100-10,150 kHz band.

Novices and Technicians are restricted to 200 W below 28.5 MHz.

In addition, Novices are restricted to 25 W in the 222-225 MHz band and 5 W in the 1270-1295 MHz subband.

- KEY**
- █ = CW, RTTY and data
 - █ = CW, RTTY, data, MCW, test, phone and image
 - █ = CW, phone and image
 - █ = CW and SSB phone
 - █ = CW, RTTY, data, phone, and image
 - = CW only
 - █ = USB Phone only

- E = AMATEUR EXTRA
- A = ADVANCED
- G = GENERAL
- P = TECHNICIAN PLUS
- T = TECHNICIAN
- N = NOVICE

* Technicians who have passed the 5 wpm Morse code exam are indicated as "P".

** Geographical and power restrictions apply to all bands with frequencies above 420 MHz. See *The ARRL FCC Rule Book* for more information about your area.

*** 219-220 MHz allocated to amateurs on a secondary basis for fixed digital message forwarding systems only and can be operated by all licensees except Novices.

All licensees except Novices are authorized all modes on the following frequencies:

- 2300-2310 MHz
- 2390-2450 MHz
- 3300-3500 MHz
- 5650-5925 MHz
- 10.0-10.5 GHz
- 24.0-24.25 GHz
- 47.0-47.2 GHz
- 76.0-81.0 GHz
- 122.25-123.0 GHz
- 134-141 GHz
- 241-250 GHz
- All above 275 GHz



Copyright © 2006, ARRL rev. 11/2005

ARRL We're At Your Service

ARRL Headquarters
Publication Orders
Membership/Circulation Desk
Getting Started in Amateur Radio
Exams
ARRL on the World Wide Web

860-594-0200 (Fax 860-594-0259)
Toll-Free 1-888-277-5289 (860-594-0355)
Toll-Free 1-888-277-5289 (860-594-0338)
Toll-Free 1-800-326-3942 (860-594-0355)
860-594-0300
www.arrl.org/

hq@arrl.org
orders@arrl.org
membership@arrl.org
newham@arrl.org
vec@arrl.org

Table of Contents

Page 1 – December Birthdays
Page 1 – Thursday Night Radio Night
Page 1 – ARRL Membership
Page 1 – December VE Test
Page 1 – Free Swap And Sell
Page 2 – December Meeting Minutes
Page 3 – Upcoming Hamfests
Page 4 – No Monday Night Net
Page 4 – Tubes For Sale
Page 4 – Weekly CW Practice
Page 4 – Local Radio Nets
Page 4 – Weather Spotter Training
Page 5 – E-Mail Addresses
Page 6 – The Wayback Machine # 6
Page 6 – American Red Cross Clarifies Background Check Policy
Page 7 – Red Cross, Again by Jim Weaver, K8JE
Page 7 – Scholarships For The 2007-2008 Academic Year
Page 8 – More Nikola Tesla – Part 1
Page 9 – Are We Really Ready
Page 10 – Antennas for Beginning Hams Part 1 of 2
Page 10 – Ham Radio Propagation – NASA Looks at Future Sunspots
Page 11 – Another Reason to Upgrade
Page 11 – Amateur Radio HF Band Changes
Page 12 – Amateur Radio and Education
Page 12 – PSK for Beginners
Page 14 – WD40 – History and Uses
Page 15 – Notice to All Visitors
Page 15 – Little Known Fact
Page 16 – Weather Spotter Training
Page 16 – Ten Personal Suggestions for Amateur Radio Operators
Page 17 – Rich Man's Hobby? Three Opinions
Page 18 – Computers and Ham Radio
Page 19 – U.S. Amateur Bands – Effective December 15, 2006

