

Ham

RADIO

News

Newsletter of The Ham Radio News of India (Member of IARU)

January 2013 Issue

President's message



Dear members:

I trust you all had an enjoyable festive season and I take the opportunity of wishing all of you and your families a very happy and peaceful new year.

I mentioned about the VHF hill topping contest in the last issue of HRN, and we are now ready with a large number of stations going on air over the 19th / 20th weekend of January on some very exciting locations. This should be a very interesting exercise.

Some other contests are planned and we expect the contest mood to take hold of many. At the moment there are very few contesters but the numbers are increasing and this is a good sign as taking part in contests improves operating skills and also gives impetus to improve our stations and make them more effective.

The Triennial conference of IARU Region 3 took place in Vietnam early November. For the first time ARSI was represented by five of our Governing Council members who took an active part in all discussions

and were also in the working groups and committees.

New directors were elected for the next triennium and I was then elected Chairman of the directors. Peter Lake from New Zealand had taken over after Michael Owen became silent key and he officiated during the conference.

I was also able to attend the Seanet Conference in Kuala Lumpur at the end of November and it was an interesting one. The 2013 Seanet will take place in Yokohama in Japan

The 2012 Hamfest took place in Chennai in December and there was a record number of registered delegates. Many interesting presentations were made by on several subjects of interest and there were several stalls displaying equipment

ARSI took the opportunity of presenting certificates to the winners of recent HF contests.

73, Gopal Madhavan VU2GMN

From the Editor's desk



Happy New Year to all of you!

2012 was quite an eventful year – Dxpeditons and Contests – in spite of poor band conditions, Conferences and Hamfests – keeping us busy. Hamfest 2012 at Chennai, IARU Region-III conference in Vietnam...

The first ever repeater in the country – VU2RSB celebrated it's silver Jubilee; a huge gathering of amateurs made it a gala event..

Interest in contests is growing – I find a number of participants in the popular contests; and now we have our own contests too. You will find an article on working contests in this issue.

73 and good DX

Ganesh VU2TS

News of IARU REGION-III CONFERENCE 2012

The IARU Region-3 Triennial conference was held in Ho Chi Minh City, Vietnam during November 2012. ARSI was very well represented – by VU2GMN, VU2KKZ, VU2ETS, VU2LU and VU2RMJ. VU2GGM, who had also registered for the conference, had to withdraw at the very last moment due to urgent business commitments

One of the major items on the agenda was the increase of subscriptions payable by societies to IARU Region 3. The conference voted to increase the subscriptions by 20% from the following year

Elections were held for the posts of Directors of IARU-R3. Earlier the conference had voted to increase the number of directors from five to six and the following were elected for the next three year period.

Joong Guen Rhee, HL1AQQ of Korea

Shizuo Endo, JE1MUI of Japan

Peter Lake, ZL2AZ of New Zealand

Geoff Atkinson, VK3VL of Australia

Wisnu Widjaja, YB0AZ of Indonesia and

Gopal Madhavan, VU2GMN of India

Katsumi Yamamoto, JA1CJP was elected secretary of IARU-R3. Later in an internal meeting the directors selected Gopal Madhavan, VU2GMN of India to be the chairman of the board of directors of IARU-R3. This is the first time that an Indian is the chairman of IARU-Region-III.

ARSI presented plaques in appreciation of the work done to the host society, Vietnam Amateur Radio Club (VARC) and to Mr. Ken Yamamoto, Secretary IARU-R3.

Hearty congratulations to our prez OM Gopal VU2GMN

MY FIRST CONTEST!

[by Kiran VU3KPL]

Phew! - Just out of the biggest mad rush on the air - CQWW CW contest!

As first timer to the CW contest and with XYL and little harmonics at home, I was really doubtful whether i can make an entry. Added to that, I just had beginner skills at CW of around 10WPM. I had lot of fun with that speed breaking few pileups over the last year, but was hesitant to enter a high speed contest like CQWW. My buddy VU2CDP suggested me to try assisted mode and make an entry anyway. At the beginning, I only had humble goal of making 100 QSOs. With my 50W power, Yaesu FT-857 and homebrewed Hexx beam (and 40m low height dipole) made all the courage to plunge. Believe me it was a great dive I ever did in this hobby.

How I did it :

1. Will to participate: With sun favoring propagation, I wanted to ride the wave which may vanish in a year or two for next 8 years or so. So I decided better now than anytime in future.

2. Practiced CQ DX using CW: Just prior to the contest came on air regularly to find my sweet spots and favorite bands. Even in pileups almost all stations slowed down for me to give 5NN XX report!. That is the beauty I realized only after making courage to throw my call in amidst high-speed pileups. So just go for it, lot of stations eager to work you.

3. Know your rig: Know your rig well in advance, avoid scrambling. Keep a stand-by equipment in case you go wrong. I got accustomed with FT-857's CW capabilities like CW keyer, message store, DSP Bandpass filters (DBF) etc. as a preparation step. Few of these features I had not even given serious thought on earlier. They now became obvious part of the drill.

4. Rig Control Software: If rig has CAT control, use it all the time with your PC. IT helps greatly in contests and well as during your normal operations. I used Ham Radio Deluxe (HRD) software to control rig and

DX cluster assistance. I find its capability to display various information, logs, bearings etc are simply great.

5. Logging Software: Used N1MM logger for contest logging.

Omni Rig could have been used for automatic port routing and rig control using two softwares, i will try that next time.

This setup worked nicely for me as a first timer in CW. Most important thing i kept in mind is that - "i should be able to identify my own call from other station at high speed" HI

Do's and Don'ts :

Do not trust cluster spots: Always double check by listening twice to the caller. During large contests callers are very close by and can mislead your logging.

Do try to Zero-in on caller frequency: Contesters use very narrow filters, if you are off by say 500Hz you may be missed out of their pass band. It happened to me early during the contest which I learned to rectify. My FT-857 has Blue LED indication when I am right on top of the caller. I did not use any mechanical filters, though sometimes used built-in DSP filters for avoiding Adjacent Signal Interference.

Do not hang on to someone's run frequency for more than 2-3 calls. If the contest caller does not respond to you on first or second call, keep moving ahead. There are many reasons for him not to respond. But one which I think is because I am too weak to be picked up (among the "big guns"). Low power guys will have chance to get them only after few hours in the contest.

If you do not understand any high speed code do not respond: Lots of stations out there to work for the beginner's appetite. Unless you are competing to become national/continental champ you can relax and work your way.



Antenna Direction: One nice thing is you will notice is how signals picks up and fades from morning to evening on various bands. This learning is important objective I have during contests as no one can tell you what works specifically from your QTH. Always start on lowest band and then move to higher bands and reverse the process. Also if you have directive antenna start with pointing YB, 9M VK, ZL in the mornings and gradually move to north as you hear JA, BY, then pick Asiatic Russia mid noon and then move to west for Europe and finally to PY, LU etc. at night. This may not be like a rule for everyone, it works best for me.

Do not forget surprises of LU or KH6 coming over North Pole for 20mtr during mid-day (are you kidding? – magic happens sometimes!). When this phenomenon happens be quick to point your direction of maximum signal, work them and look for any other stations from that part of the world!

Check my graph showing antenna bearings, time of the day and bands I worked ('O' indicates not so directional antenna ex: my 40m dipole)

DXCC: If you are trying to build your DXCC portfolio like me, keep special eye on those cluster spots and regularly click them to listen of them. QSO with them in early stage of the contest might be difficult with low power as biggies hog on them. Luck might open during propagation off times to NA/Europe towards them or towards the end of the contest when all biggies are now looking for low power multipliers only.

Improved reception: As a low profile ham from high RFI QTH, I was only able to hear the high power stations from other part of the globe mainly NA and SA region.

Wondering what if my station receiving was improved to listen weak stations, then I could listen to multifold of stations!. But for now I will have to live with high noise here.

Submit your logs: Due to technological improvements nowadays deadlines for the contest have been reduced to as little as a week. Even if you have worked few QSOs, make a log upload as a contester or Check log (so someone else will not lose the points).

Final notes:

Try to play entire length of the competition (of course with needed breaks). It is endurance that pays not just the high speed. Wish I had high speed listening skills, I could have had great run on 10mtrs on unassisted mode.

Finally was able to make 240 QSOs all using Search and Pounce method. Best part is that I had started actually copying them at 25-30 WPM towards the end!

So I use contests as platform to study propagation, operations, station efficiency etc.

73, See you in the next one!

Kiran's article leads to one of my pet theories.

You might like to look into a peculiar phenomenon. Last few years the HF bands viz., 3 to 30 MHz have been quite dead.

Not a squeak on any band during the day. I've been operating since 1965, and I think this (#24) is the worst ever solar cycle for ham radio. :-) Of course whenever there is a solar flare, the higher bands "open up" for a couple of days. You might have seen some of my "Proton Alert" mails. Even as I am writing this, no signals are heard anywhere on the HF bands.

Enter - the contests! There are some very popular contests in which hams from all corners of the world participate in large

numbers. In other words, the number of hams "on the air" is highest compared to other non-contest days - tens of thousands of hams switch on their radios and get on-air. Take the CQ-WW for instance.

On ordinary days, an op. may listen to various bands and decide whether to continue or not; if not many signals are heard, and then the band condition is not good and so forth. But not on a contest day! If the contest starts at 00.00Z then the ops. start calling CQ-TEST at 00.01Z, Hi Everyone has a favourite "parking place" and if you delay, then your place is taken – know what I mean?

Somehow, the sunspots and the solar flux become irrelevant at this time and we hear hundreds of stations on all the HF bands. Taking part casually in my spare time, (they call it Holiday Style) I make 500/600 contacts over the weekend and dedicated contesters come up with numbers like 2000+

Is there a possibility of our pumping RF into space collectively somehow "ionizes" the E and F layers providing a path for our long distance contacts??? So what happens if we can pump more power? That's what scientists are finding out.

Have you heard of HAARP – *High-Frequency Active Auroral Research Project* that is currently run in Alaska? The most prominent instrument at the HAARP Station is the Ionospheric Research Instrument (IRI), which is a high-power transmitter operating between 3MHz and 10 MHz with an output power of ~4 Megawatts. They use a phased array of 180 crossed dipoles covering an area of some 35 acres!!

The IRI is used to temporarily excite a limited area of the Ionosphere. Other instruments, such as a VHF and a UHF radar, a fluxgate magnetometer, a digisonde, and an induction magnetometer, are used to study the physical processes that occur in the excited region.

-VU2TS

JAMBOREE ON THE AIR – 2012

The Thane Amateur Radio Association conducted the JOTA very successfully, and here is the report from Milind Khorde, the Secretary:

At the outset I would say “hats off” to Om Bijoy Philip - VU3DOT for taking the Lead role & making the 55th JOTA event a Grand success, with a participation of 17 schools with some 300 ++ Scouts & Guides from schools in and around Thane.

I also would like to mention about the helping hands, namely Parin Gangar - VU2PIC, Rohit Purohit - VU2TOO, Jayant Kale - VU2UBQ, Yash Purohit - VU2YRP & Gaurav Thosar - SWL

And special thanks for visiting the JOTA Station - to Nandu - VU2NKS with his XYL Kookoo & Jaiprakash; VU2JPN with his XYL, harmonic & other family members.....& of course how can I miss the mention of Dombivali JOTA Stn. with Sateesh - VU2WSM & Preethi - VU2PYC, & Panvel JOTA Stn. with Pralhad - VU2TBV & Suresh - TCA, & our Night Owls Net Controllers

Last but not least: Wispy - VU2WLL & Parvez - VU2PJM for the on Air Support

HAM Radio and Computer Society of India in N.R.I.I.T.M.College, Gwalior

A three day National Seminar was organized at N.R.I.I.T.M. College, Gwalior, from 18/10/ 2012 by the department of Computer Science covering various topics related to computers and communications.

OM Jayant S. Bhide VU2JAU was invited to the inauguration of seminar. OM Jayant who is also a past chairman of Computer Society of India Gwalior Chapter delivered a lecture on the activities of CSI in India and by CSI Gwalior Chapter to motivate students of the college to open an Student Chapter of CSI in the Institute. This was followed by another lecture by him on Free open Source Software for Radio. It gave comprehensive information to the students about the software used in Radio communications, especially by hams.

A detailed information was given on Software defined Radio using

various softwares like Rocky, WinRad, HDSDR etc. He also explained the use of Echolink, Orbitron and some more software's used by HAMs for communication and for tracking satellites.

The last lecture was also delivered by OM Jayant Bhide - VU2JAU on HAM Radio presentation along with few clippings and a film on HAM Radio. It created a different interests in the students and their professors'. After the lecture so many queries were answered by OM Jayant.



Mr. Aniket Ashtikar VU2LOL and Ms. Varuni Gaur VU2VND helped a lot during the complete session. They are new to the hamdom and were getting familiar with the activities of the radio amateurs along with on-the-air procedure.

Feeding Power to a Vertical Antenna

[by Jim W4GFX]

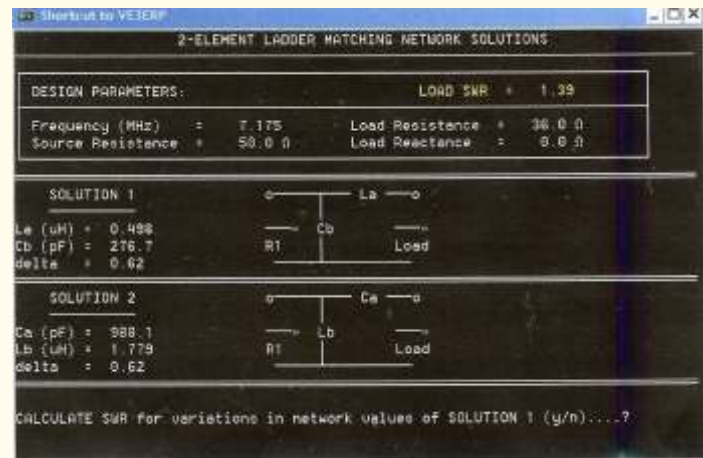
Resonance. The impedance (Z) of an antenna is described by $R \pm jX$. These terms describe the resistance (written as R in ohms), and the reactance (written as jX in ohms). The $+$ sign before j indicates that it is an inductive reactance. With a $+j$, the antenna looks like a coil and is too long at the frequency. With a $-j$, the antenna looks like a capacitor and is too short at the frequency. When the physical length of a vertical antenna is such that its reactance is less than ± 1 ohm, the antenna is said to be resonant. Resonance is not required for efficient radiation, but is a convenience for matching, bandwidth, and maximum power transfer. Antenna theory shows that an antenna accepts and radiates maximum power when it is a conjugate match to the transmission line. A conjugate match requires the same R for both the antenna and transmission line, but requires the jX of the antenna and the jX of the transmission line have opposite signs. If the antenna reactance is $+j$, the transmission line reactance should be $-j$. A conjugate match also reduces losses in the transmission line by a lower VSWR.

Length. A vertical antenna is theoretically resonant at $\frac{1}{4}$ electrical wavelength, $\frac{1}{2}$ wavelength, $\frac{3}{4}$ wavelength, and 1 wavelength. The longer antennas are not practical for amateurs and will not be discussed. With a $\frac{1}{4}$ wavelength, a vertical fed at its base is a current-fed antenna, and is the easiest to match. If the length is slightly increased, the resistance increases to 50 ohms (at ~ 0.28 wavelength), and to 70 ohms (at ~ 0.31 wavelength). The inductive reactance ($+jX$) that results from the lengthening can be canceled by a series capacitor

1. The j operator signals that the reactance X is 90 degrees out of phase with the resistance. R is plotted on the $+x$ Cartesian axis, and X is plotted on the $+y$ Cartesian axis for inductive reactance, and on the $-y$ axis for capacitive reactance. The vector sum of $R \pm jX$ solves for the impedance $Z = R \pm jX$.

($-jX$) at the base. With a 0.31 wavelength antenna the inductive reactance will be just under 100 ohms, depending upon the length to diameter ratio of the antenna. As an example, call it $70 + j85$ ohms.

VSWR. Most Antennas are not resonant due to their physical length at the frequency used, but can be made resonant at a frequency f by lengthening or shortening the antenna. The voltage standing wave ratio is fixed by the ratio of the antenna impedance to the transmission line impedance at the feed point. At mid-band resonance, a typical vertical antenna (Say $R=36$ ohms for a $\frac{1}{4}$ wave, base-fed vertical) fed by a 50 ohm transmission line, has a VSWR of 1.39. This is an acceptable VSWR. If your VSWR is less than 1.5, improvements are a battle for diminishing returns. If resonance (Reactance, $X < 1$ ohm) occurs at 7.175 MHz, the inquiry should be as to the higher and lower frequencies at which the VSWR becomes 2:1 (the bandwidth). As the frequency increases, the antenna will appear electrically longer and exhibit



inductive reactance (X_L). As the frequency decreases, the antenna will appear electrically shorter and exhibit capacitive reactance (X_C).

Two Matches are Needed. To perfectly match an antenna and transmission line at a frequency f both R_{Antenna} and $R_{\text{Transmission Line}}$ must be the same, and X must be less than 1 ohm. As X changes more rapidly with frequency than R , you should pay particular attention to minimizing X .

The L-Network. Antenna matching should be done at the base of a $\frac{1}{4}$ wave vertical antenna. This avoids additional transmission line losses (conductor and dielectric) caused by standing wave currents. The simplest and most efficient matching network is the L-Network. It usually consists of two lumped components - one inductor and one capacitor, or two inductors, or two capacitors. One component will be connected in series and one in parallel (shunt). The shunt element will be next to the higher resistance (either the antenna or the transmission line). There are 8 typical L Network configurations. Depending on where your $R \pm jX$ plots on the Smith Chart, you may have more than one network configuration to choose from. The network selection is usually made for the configuration with the lowest loss (delta), but it may depend on what components you have available in the junk box.

The Program. If you are interested, you can learn the math for series/parallel network equivalents. However, most hams prefer to use a computer program to solve and review the possible network solutions. On HAMCALC (free download from <http://www.cq-amateur-radio.com/>) you will find the program under "Ladder Network - 2 Element." From our facts there are 2 choices, each using one capacitor and one inductor. Both have the same delta of 0.62. The "Load" is the antenna. The "Source Resistance" is the transmission line. Above is a printout of the calculation screen for a resonant antenna. You can see there is a way to calculate network

Contd.

variations at the bottom of the screen. The program also allows you to input an X so that the transformation is complete and matched to a 50 or 75 ohm transmission line. The small reactance of the transmission line is ignored.

It's Easy. With an antenna analyzer to measure $R \pm jX$ the network design is easy, cheap, and accurate. I made the L-network (2 coils) for my vertical from a piece of house wire (#12 AWG).

Without an analyzer, at resonance, you can do a few iterations and get very close to a near perfect match.

73 and Good Luck, de Jim, W4GFX, in Shillong.

[You may contact Jim at <elkins1936@gmail.com>, or call 0 98560 40368.]

THE MOST WANTED

DX SURVEY RESULTS (DX Magazine's 2012 Most Wanted Countries Survey).

DX Magazine has published their Most Wanted Countries. Here are the "Top 20" (in the World-Wide "Weighted" Rankings Mixed Modes) as per DX Magazine (Jan./Feb. issue):

- 1 P5 North Korea
- 2 KP1 Navassa Island
- 3 3Y/B Bouvet
- 4 FT5Z Amsterdam
- 5 VKØ/H Heard Island
- 6 FT5/W Crozet
- 7 BS7H Scarborough
- 8 VP8/S South Sandwich
- 9 ZS8 Marion Island
- 10 FT5T Tromelin Island
- 11 PYØS St. Peter and Paul
- 12 KH5K Kingman Reef
- 13 ZL9 Auckland/Campbell
- 14 KH5 Palmyra
- 15 SV/A Mount Athos
- 16 E3 Eritrea
- 17 BV9P Pratas Island
- 18 FR/JE Juan de Nova/Europa
- 19 VP8/G South Georgia
- 20 KH3 Johnston Island

First 24 GHz contact between USA and Japan

Al, W5LUA and **Shichirou, JA6CZD** made the first 24 GHz EME contact between the USA and Japan on January 2 at 1430Z. The two stations had about an hour of common window where each had 15 to 20 degrees of elevation.

JA6CZD uses a 2.4 M offset fed dish with a 22 watt SSPA. W5LUA uses a 2.4M offset fed dish and a TWT mounted on the feed support providing 100 watts at the feed. JA6CZD sent Al a 559 signal report and Al gave Shichirou a 449 report.

Both stations use linear polarity and must compensate for the 70 degrees of spatial offset between their locations. JA6CZD was used horizontal and Al used vertical polarization. The noise figure at both stations was under 2 dB.

Al measured his Doppler Shift with his return echoes at 51 KHz at the start of the contact. The mutual Doppler Shift placed both at about 24048.108 MHz based on a center frequency of 24048.100 MHz. This shifted down in frequency as the schedule took place.

W5LUA was GPS locked and JA6CZD uses an OCXO and a Rubidium standard to control frequency.

Source: Al Ward, W5LUA, ANS

Morse Code as UNESCO Intangible Cultural Heritage

On December 12th, the Cabinet of Germany ratified the UNESCO Convention for the Safeguarding of Intangible Cultural Heritage, which brings us one step closer to the goal of the Deutscher Amateur Radio Club (DARC) and IARU to have Morse Code added to the list of Intangible cultural heritage.

The national UNESCO offices are checking the applications of their respective countries, and upon success they will be sent to Paris, where in November 2014, Morse Code could finally be accepted to the list.

[Tnx Southgate ARC]

Pasta-shaped radio waves allow for an infinite number of channels to be broadcast and received

Radio waves twisted into the shape of fusilli pasta have been beamed across Venice – and researchers discovered that they allow for a potentially infinite number of channels to be broadcast and received.

The researchers, from the University of Padova, Italy, and the Angstrom Laboratory, Sweden, believe that they have solved the problem of radio congestion.

As the world continues to adapt in the digital age, the introduction of new mobile smartphones, wireless internet and digital TVs means the number of radio frequency bands available to broadcast information gets smaller and smaller.

'You just have to try sending a text message at midnight on New Year's Eve to realise how congested the bands are,' said lead author Dr Fabrizio Tamburini.

A wave can twist about its axis a certain number of times in either a clockwise or anti-clockwise direction, meaning there are several configurations that it can adopt.

'In a three-dimensional perspective, this phase twist looks like a fusilli-pasta-shaped beam,' Tamburini continued.

Each of these twisted beams can be independently generated, propagated and detected even in the very same frequency band, behaving as independent

communication channels.

To demonstrate this, the researchers transmitted two twisted radio waves, in the 2.4 GHz band, over a distance of 442 metres from a lighthouse on San Georgio Island to a satellite dish on a balcony of Palazzo Ducale on the mainland of Venice, where it was able to pick up the two separate channels.

In addition to increasing the quantity of information being passed around our planet, this new discovery could also help lend an insight into objects far out in our galaxy. Black holes, for example, are constantly rotating and as waves pass them, they are forced to twist in line with the black hole.

According to Tamburini, analysing the incoming waves from the supermassive black hole at the centre of the Milky Way, Sagittarius A, could help astronomers obtain crucial information about the rotation of this monster.

Their results have been reported today in the Institute of Physics and German Physical Society's New Journal of Physics.

Sourced from "MAIL ON LINE" UK

[This discovery could end radio congestion for ever!! –Ed]

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*[Many people ask me:
 "How long will it take for me to get a ham licence?" Apparently it takes only ONE DAY (yes, 1 day).
 Attend the class, sit for the exam and pass...]*

HAM IN A DAY

The "Ham in a Day" class hosted by the Warren County Department of Public Safety RACES (Radio Amateur Civil Emergency Service) at the Youngsville VFD this weekend was a huge success, according to Terry Carlson, Chief Telecommunicator for the Warren County 911 Center, Warren, Pennsylvania USA.

The class was originally geared towards local Boy Scouts and Girl Scouts but developed into a statewide event with close to 120 participants. "Never in my wildest imagination did I think we would get that many people signed up in such a short amount of time," said Carlson.

As testing began late afternoon on Saturday, more than 100 people had attended the class with an additional 15 people walking in to upgrade their licenses. "This is the largest event like this that I know of and definitely the largest Ham in a Day class to be held in Warren County," reported Carlson.

In addition to the classes and the testing, participants took advantage of the chance to network with other amateur radio

operators, enjoyed refreshments provided by the volunteers and support people, and had a chance to win over 80 door prizes at the lunchtime drawing.

"We want to thank our sponsors, including the Warren Times Observer who did a piece on the event leading up to it," added Carlson. 16 radios were donated to the event by MCM Consulting, SBM Communications, and Stat MedEvac out of Pittsburgh as well as Ramco Communications in Warren. WestPA.net was also another large sponsor of the event among many others.

Close to 35 support people helped make the event possible from cooking lunch to the actual teaching of the class and the administration of the exams at the end.

Of the participants, most came from the county but there were several participants from Pittsburgh and as far as Virginia. Randy Nuhfer and his son Randy, Jr. were first-timers at the class. "I thought it would be pretty cool to do," said Nuhfer, Jr. "I take electronics classes up at the Warren County Career Center and I thought it would be a

good thing to be able to put on my resume."

"It's a good way to have a network," Nuhfer, Sr. added.

Amanda Clark and her father were also in attendance, proving that amateur radio is for everyone, not just 'the guys.' When asked what got her interested in the event, she laughed "My dad brought me."

Still others were spurred by the hopes of extra credit. Jacob Reno and several classmates were inspired by a teacher who was also in attendance of the event.

"It's been a great day," concluded Carlson. The success of the class has given him hope that not only will the hobby of Ham Radio continue on but also that membership for RACES will see a boost.

At the time, final results of the testing were not available, but Carlson was able to mention that several license tests had been successfully completed and hoped many more would be handed out.

[sourced from "Times Observer" of Warren, Pennsylvania, USA]

