CQ Chatter

Volume B6•Issue #4 **Wood County Amateur Radio Club** **MAY 2005**
P. O. Box 534,Bowling Green, OH 43402 **http://wcarc.bgsu.edu**

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Secretary	**N8MSU**	**John Gruber**
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Minutes WCARC April Meeting
April 12, 2005
Wood County Sheriff's Training Room

Attending: *Esther Creps, N8OMV; Rolland Creps; Paul Perry, W8QZK; Don Buehrer, K8OVO; Bob Boughton, N1RB; Linda Boughton, N1LB; Steve McEwen, K8BBK; Bob Willman, WB8NQW; Jeff Halsey, KG8FH; Chuck Dicken, WD8ICP; John S. Gruber, N8MSU; and guest speaker, Jan Jellema, K1ND*

Jan was born in Europe and became a ham in 1954. He has had three calls, W8SWN, 9M2JJ from the time of his work in the Peace Corps in 1962-1965, and K1ND. He taught at Eastern Michigan University for many years. Tonight he presented his Elecraft K2 Transceiver.

The K2 is a home built (from a kit) HF QRP (10 watt) transceiver. It is very modular with a design that is very modifiable by the owner. It uses 12 volts for use in the home or in the field and can be run from battery power. A battery with mounting hardware is available from Elecraft. Jan reports that Elecraft customer support is excellent. The basic CW unit costs $599.

The K2 has excellent receiver performance and is fun to use. 3rd order dynamic range is 99 dB. The rig exhibits low phase noise and uses a phase-locked-loop synthesizer. The rig is modular and unlike other

WCARC Weekly Net:
Tuesdays at 2130
147.18 & 444.475 MHz

Next Meeting
Saturday, May 7th
Location: Cousin's in Grand Rapids, OH
Time: 9:30 AM
Visit to N1RB's shack: around 11:00 AM

May Hamfests

May 20-22 Dayton ARA

(F) 8 am to 6 pm, (Sa) 8 am to 5 pm, (Su)8 am to 1 pm. The Dayton Hamvention is the grandaddy of them all. If you haven't been there, you should go! Hara Arena Complex, 1001 Shiloh Springs Rd., Dayton. Admission: $20.00 in advance; $25.00 at the door. Also happening this year: ARRL National Convention. For more information see URL: *http://hamvention.org*.

Jun 5 Franklin Co. HC *9 am -?*
Franklin County (OH) Fairgrounds, Hilliard. Contact Chris, KC8BUO, (614) 267-7779. e-mail to: clind2@juno.com.
URL: *www.franklincountyfest.org*

June 12 Fulton Co. ARC *8 am to 1 pm*
Fulton County (OH) Fairgrounds, SR 108. Contact Angela, KB2AVN, (419) 822-4382. e-mail to: web master@k8bxq.org. URL: *k8bxq.org*

May Contests

The full contest lineup for the month of May includes the following:

May 7-8	*2000 to 2359Z*	80 to 10 m
New England QSO Party		**all modes**
May 7-8	*0001 to 2359 Z*	10 m
10-10 QSO Party		**CW**
May 7-8	*0000 to 2359 Z*	80 m to 10 m
MARAC County Hunters 'test		**CW**
May 7-8	*1600 to 0400 Z*	160 m to 10 m
Indiana QSO Party		**all modes**
May 7-8	*2000 to 1959 Z*	160 m to 10 m
ARI (Italy) Int'l DX 'test		**all modes**
May 7-8	*1400 to 0200 Z*	80 m to 10 m
Oregon QSO Party		**all modes**
May 7-8	*0000 to 0600 Z*	160 m to 6 m
Nevada QSO Party		**all modes**
May 14-15	*1600 to 0400 Z*	160 m to 10 m
Mid-Atlantic QSO Party		**all modes**
May 14-15	*2100 to 2100 Z*	160 m to 10 m
CQ-M Int'l DX 'test		**all modes**
May 21-22	*2100 to 0200 Z*	80 m
Baltic 'test		**all modes**
May 21-22	*1800 to 1800 Z*	160 m to 10 m
King of Spain 'test		**CW**
May 21-22	*0000 to 2400 Z*	80 m to 10 m
US Counties QSO Party		**SSB**
May 28-29	*0000 to 2359 Z*	160 m to 10 m
CQ WPX 'test		**CW**

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kits uses few wires. It is easy to understand and comes with a very good manual which contains a good theory of operation section. It weighs 3 lb; 6 lb with the battery kit.

Coverage is 80-10 meters, and 160 meters is available with an additional module. The basic model is CW only but an optional module adds SSB. It took Jan 6 hours to assemble this particular module. The receiver down converts to a low IF and by minimizing IF stages reduces the number of birdies heard.

The front panel is an important tool for constructing and calibrating the rig; it functions as a frequency counter, voltmeter, and ammeter. The display uses a reflective LCD. Diode switching is used to switch between transmit and receive. Relays are used to switch tuned circuits when changing bands.

Options include: SSB (seven pole filter, speech compressor) $89; Internal auto antenna tuner $159; 160 m band with second antenna port $39; Audio Filter/Real Time Clock $79; Noise Blanker $39 (good quality); Internal 2.9 A-h battery $67; DSP Filter/Clock $219; 100 W amplifier $359; External antenna tuner $239.

The K2 is easy to work on and has the capability for self calibration. Jan says he probably has about $1000 invested in his rig. He and his wife Milly, KC8MMH, take the rig on tent-camping and other trips. Elecraft's web site is *www.elecraft.com* and sales is at: *sales@elecraft.com*.

WCARC Net Control Roster

Net meets every Tuesday at 2130

May 3	**WB8NQW**
May 10	**N1RB**
May 17	**K8OVO**
May 24	**WD8ICP**
May 31	**N8QMV**
Jun 7	**WB8NQW**
Jun 14	**N1RB**

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The K2 can communicate through a serial port to a computer. Jan uses a serial cable and a serial-USB converter to attach to a USB port on his laptop. He demonstrated a program which speaks the radio's settings, a program from Elecraft to provide radio control, and another program called Ham Radio Deluxe that Jan prefers. This latter program was greeted with appreciation by those attending for its tuning and frequency display capabilities. Ham Radio Deluxe controls many radios and is available free from: *hb9drv.ham-radio.ch*.

Jan mentioned that he also like the free internet phone program Skype, which he often uses for international calling. It can be obtained from *www.skpe.com*. He concluded his presentation by removing the cover, containing the battery, speaker, and internal antenna tuner, and passing the rig around. As Jan mentioned, the parts were all very accessible for making changes or servicing the radio. Jan can be reached at:

K1ND@comcast.net,
jan.jellema@emich.edu
and emuprof@yahoo.com

The only business considered was the motion to adjourn. Meeting adjourned at 9:10 PM. ■

Follow the Sun

The major influence on long distance radio propagation is the Sun. Anybody who listens to AM radio knows that reception is mostly "local" during the day, but stretches out to cover more DX at night. This result is a good example of the Sun's influence on radio propagation.

During the day, the Sun streams in electromagnetic energy across a wide range of frequencies. Any radiation at ultraviolet or above carries enough energy to easily ionize

Brain Teasers

1. The Maidenhead grid number for Wood County is:

(a) EM81 **(b)** EN81 **(c)** EN80 **(d)** EM80

2. The driven element of a Yagi (beam) antenna should be what multiple of the wavelength?

(a) 0.5 **(b)** 0.25 **(c)** 1.0 **(d)** 0.625

3. A 1 μF, 2 μF and 3 μF capacitor are connected in parallel. What is the equivalent capacitance?
(a) 6 μF **(b)** 1 μF **(c)** 3 μF **(d)** 0.55 μF

Answers to last Month's Brain Teasers:
1 (c); 2 (c,d); 3 (b)

May Program to Feature DX'ing

The May WCARC meeting on May 7th will be a breakfast meeting 9:30 AM at the Cousins restaurant in Grand Rapids. Phil, W8PSK, will review a recent meeting in BG with Ed Hare, W1RFI, Director of the ARRL Lab. Ed, Phil and George Stossel of Dacor (operator of the BPL system in BG) toured BG to make noise and BPL interference measurements. The tour ended with a good thorough technical and open discussion. The meeting will be followed by a visit to the shack of N1RB. All members are invited to visit the shack of your editor, at 930 Champagne Ave. in Bowling Green (directions will be available at the meeting). The presentation will cover operation on the hf "DX" bands using N1RB's equipment. Some aspects of DX'ing and contesting will be discussed. Hopefully, if the bands are open, we can make some QSOs. ■

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the air molecules. The term ionization simply means that an electron or two is ripped away from its home molecule and is then free to go wherever it wants to. As this radiation enters the topmost layers of our atmosphere, the UV does its job on the molecules of nitrogen, oxygen and even carbon dioxide, releasing electrons in the process.

So we have a combination of both positive molecules and negative electrons floating around up there. In fact, because of variations in the temperature and pressure with altitude in the atmosphere, there are several layers of ionized particles that form. These free negatively charged electrons and positively charged molecules form a portion of the atmosphere called the *ionosphere*.

The particles in the highest layer (called the F-layer at 150 miles or higher) tend to stay ionized for a long time because there are so few of them up there that they don't bump into each other very often. The lower ionization layers (the E-layer at about 70 miles and D-layer at about 40 miles) occupy regions where the density is much greater. The ionization there doesn't last very long after the Sun goes down because the ionized particles collide a lot.

The ionization layers in the atmosphere provide a reflector for radio waves launched from Earth. We call this type of propagation sky wave. The amount of reflection and the angle of reflection depends a lot on how much ionization is present in the layer and on the radio frequency.

The F-layer is most important for DX work because it is the highest ionization layer and it sticks around the longest. The D- and E-layers do some reflecting but mainly act to absorb rf waves.

The reason why signals in the 300 m band (AM radio) don't travel very far is because there is very little skywave propagation---most all of it is due to rf waves traveling along the ground.

After the Sun goes down, the D- and E-layers recombine and there is no longer any ionization there to absorb rf waves. This leaves the F-layer, which can sometimes last through the night for us to bounce our signals off of. This "skipping" type of propagation permits hams to work other stations all the way on the other side of the Earth.

The Sun plays another important role in that its radiation output varies with an 11-year cycle, called the sunspot cycle. This is so-named because at the peak radiation time in the cycle, many black "spots" appear on the Sun's surface. It was discovered that the radiation output and the number of sunspots track with each other pretty closely.

When the solar radiation is at its peak the amount of ionization in the ionosphere is bigger. This means the F-layers last longer and are more highly concentrated. During the year or so when the maximum is reached, conditions for DX-hounds are the best. The 10 m, 12 m, 15 m, 17 m, 20m, and 30 m bands regularly stay "open" all night with great propagation. The 40 m, 80 m and 160 m bands also have medium to long DX propagation at night.

Right now, we are 3 years into the cycle---this means that solar radiation is heading downward to the sunspot minimum. This will occur in about 2 or 3 years. During this period, the only reliable DX band is 20 m and occasionally, 15 m. Many nights, the only DX will be found on 40 m and 80 m. ■

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