

FEEDBACK

APRIL 2016

And the Results are In



Harold "Van" Van Daveer, KØHCV defended his 2014 win in the Kansas Section of the ARRL DX Contest (phone) by topping the section again in 2015.



John Raydo, KØIZ, won first place in the 2015 Colorado QSO Party in the high power, phone, single operator category, using his vintage Collins station in Colorado. John will tell the club about remote station operation at the April 8 JCRAC meeting.

MARCH MEETINGS

April 8 – Remote Operations - John Raydo, KØIZ

April 22 – Preparing for the May 13 Foxhunt

The Johnson County Radio Amateurs Club normally meets on the 2nd and 4th Fridays of each month at 7:30 PM at the Overland Park Christian Church (north entrance), 7600 West 75th Street (75th and Conser), west of the Fire Station.

Much of the membership travels to the Pizza Shoppe at 8915 Santa Fe Drive for pizza buffet and an informal continuation/criticism/clarification of the topics raised at the meeting ... or anything else.

Leave the church, turn right (west) on 75th. Turn left (south) on Antioch. Turn right (west) on Santa Fe. Pizza Shoppe is just past the Sonic on your left.

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Greet our New Hams



Kathy Charlton, KEØHWE



Kim Ledbetter, KEØHWN

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Community Emergency Response Teams

Sometimes an emergency is big enough that professional responders are not immediately available to help everyone who needs help. The idea behind Community Emergency Response Teams (CERTs) is that, with a little training, ordinary citizens can help stabilize a neighborhood. The neighborhood benefits from immediate attention. The larger community comes out ahead because the professional responders can move to additional neighborhoods and spend their time on higher level skills.

Although the CERT program is affiliated with the Federal Emergency Management Agency (FEMA), CERTs are locally trained and locally sponsored to respond to local emergencies. In Johnson County, for example, much of the emphasis is on what to expect and how to respond in the aftermath of a tornado strike.

The "Public Service" column in the April QST explains "Getting Started with CERT". The QST article, of course, emphasizes the need for emergency communications. Not coincidentally, amateur radio operators head up four of Johnson County's five CERT programs: JCRAC member **Dennis Smeltzer, KCØQBU** (Overland Park), **Del Sawyer, KØDDS** (SW Johnson County), **John Sanches, KCØZWH**, (Olathe), and **Terry Kegin, KEØGRB** (Shawnee). (In Leawood, the fire chief oversees the program.)

The CERT to amateur radio communication works both ways. New ham **Kim Ledbetter, KEØHWM** found the JCRAC as a result of her CERT training with Overland Park.

Watch the site www.jocogov.org/dept/emergency-management/prepare-now/get-involved/cert for upcoming training opportunities.

PRESIDENT'S CORNER

With April, the public service events that need amateur radio support return. Spend a few



hours helping others and learn more about your radios. Volunteering is a very good way to meet other hams and learn. This is especially true for new licensees.

Last year the Club provided volunteer guides for Ensor museum. In return, the City of Olathe gave the club \$720. The museum is open on Saturdays and Sundays and needs volunteers for about four hours each day. Last year a very small number of club members supported the effort. We alternate months with the Santa Fe Trail Amateur Radio Club. May will be the JCRAC's first month this year. We would like to fill the slots before the end of April. Last year Ted dropped everything and covered slots that were not filled. We can not ask him to do the same thing this year.

Our Club will be sponsoring the next The WW1USA which is set for May 7 and 8. Sign up to support the event. During the event, the museum discounts tickets for amateur radio operators. So work the event for a few hours and then tour the museum.

Keep an ear on the 145.290 repeater for Don Warkentien, WØDEW. He has been talking about Ensor campfires weather permitting.

- Bill Gery - WA2FNK

Johnson County Radio Amateurs Club - March 11, 2016

Attendance: Self introduction with name and call sign. 26 signed the check in sheet. This was followed by the Pledge of Allegiance.

The Minutes from the February 26, 2016 were accepted with 1 opposed vote.

The Treasurer's report, as follows, was read and accepted unanimously.

Cash on Hand	\$ 147.35	Repeater Operating Reserve	\$ 722.44
Checking Account	\$ 464.42	Memorial Fund	\$ 310.00
Savings Account	\$ 9,878.94		
Total	\$ 10,490.17	Active Members	154

Old Business:

- Repeater Update – All Repeaters are working well. The Repeater Usage Guidelines have been updated and will be posted on the Website.
- With regards to the 442.600 Yaesu System Fusion Repeater, Jay Burgherr N0FB has funded the cost (approx. \$550) out of his own pocket to make this Repeater Wires-X capable for the Club. A recommendation was made to reimburse Jay for the equipment he has purchased. Harold "Van" Van Daveer KØHCV will collect receipts and costs from Jay and present that to the Club.
- WW1USA – The Club is Sponsoring the May 7 – 8 Event at Liberty Memorial and Museum. This event will take place outside.
- Field Day 2016 – June 25-26 at the Observation Tower in Shawnee Mission Park. Looking for someone to coordinate the dinner on Saturday. If anyone has suggestions/pricing for dinner please let Jay Greenough WJ0X know. Tom Wheeler NØGSG and Keith McKinney KEØAEP will set up a solar/experimental Station.
- Rod Rodriguez, K6TBJ has Ararat Shrine Hambash tickets for sale at a discounted price.

New Business:

- Because the next Club meeting falls on Good Friday and there is no adequate meeting location at the Church, a motion was made to cancel the meeting but still have the after Club pizza Meeting at 8:00 pm. The motion passed unanimously.

Reports:

- 6 m – NR.
- 10 m SSB Roundtable – 1 participate.
- 440 Wheat Shocker net – 18 participated on March 9.
- 2m Wheat Shocker net – 26 participated on March 10 and 19 participated on March 3.
- HF Activity – NR

Announcements:

- Welcome to all the 1st time visitors and those with new licenses.
- Tom Wheeler, N0GSG DMR Contact Manager has a custom-designed software package for use with Connect Systems CS700 and CS701 radios.
- Johnson County ARES SAR Drill Monday March 14.
- Ham 101 Class Saturday March 19 Smithville Fire Station.
- Watch Larry's List for upcoming events.

Business meeting adjourned at 8:01 PM

Program:

The Program for this meeting was presentation on Military Auxiliary Radio System (MARS) by Kent Dickinson, KØWEW.

Hambone's Revenge -- Jaimie Charlton, AD0AB

The thin layer of last winter's snow has disappeared and a yellow sun smiling in an azure sky is coaxing the first green shoots to rise up through the warm, loamy, Kansas earth. The local fauna is busy, too.

Bluejays, grown fat from months of feeding at Hambone's generously filled feeders, search each other out with only one thing in mind, and you know what that is. Squirrels, bright-eyed and bushy tailed, frolic across the new grass and through trees still pushing out new leaves.

Looking closer we see uncle Elmer busily struggling with, and swearing at, some large panels in his backyard. From next door, a spectator runs over.

"Hey Unck, what's all this?" asked Dude, Elmer's young and precocious nephew. "It looks like you're building bleachers for giants."

"These are the photovoltaic solar panels I ordered last fall," replied Elmer, grateful for a reason to take a break from mounting another panel on a large wooden frame. "They finally arrived just in time to capture a lot of free summer sunshine."

"Nice!" cooed Dude as he ran his hand over a mounted panels' smooth surface and along its edge. "I've never seen a solar panel before."

OUCH! What the F***," shouted Dude picking himself up off the warm loamy earth and no longer admiring Elmer's fine construction. "I just got a shock! Why didn't you tell me this thing was on?"

Elmer, surprised by young Dude's expletive, laughed and said, "Dude, what part of photovoltaic solar panels don't you understand?"

Photo means light and solar means sun. Voltaic means voltage. So, Dude, put them together and they mean that these panels produce voltage when sunlight shines on them. Duh!"



"Well, you shoulda' warned me, I coulda' been killed," muttered Dude. "How much voltage do these things produce anyway?"

"These panels are capable of producing between 100 and 150 watts at 24 volts each in really bright sunlight. The six panels on the rack you were messing with are wired in series so I guess you got a pretty good jolt."

So, now you know. Solar panels are like batteries, they are always on—at least during daylight. Not so much at night."

"How do these things actually make electricity out of sunshine, anyway?" asked Dude, his natural technical curiosity winning over his embarrassment of getting kicked on his butt in front of his favorite Uncle who he is always trying to impress.

"Look closely, you can see each of these panels is composed of lots of small cells that are connected in series to give about 24 volts. Each cell produces only about half a volt."

"I got that part about the voltage," said Dude, still brushing the warm, loamy earth off his butt. "I want to know how they actually work."

"Each cell," continued Elmer, drifting into his professorial mode, "Contains two types of crystallized

silicon – negative, or n-type and positive, or p-type."

"What do you mean, two types of silicon? I thought there was only one type of silicon, atomic number 14 on the Periodic Chart of Elements," stated Dude trying to act smart.

"That's pure silicon," continued Elmer. "Tiny

amounts of impurities are added to the pure silicon crystals to give them either an excess of electrons, that's n-type, or a shortage of electrons, that's p-type. Where the two types come together, that's called a junction."

"Sort of like the junction in a diode or transistor?"

"It's just like that. There are different types of photovoltaic cells, but these are made by placing a very thin layer of n-type silicon on top of a somewhat thicker base of p-type silicon. N-type silicon is made by adding a tiny amount of phosphorous to the otherwise pure silicon crystal. This gives that layer an excess of electrons."

The p-type silicon that forms the base is created by adding a tiny amount of boron to the pure silicon. The boron creates a shortage of electrons in that layer. The area where the two types of silicon meet is called the junction. The fact that we have an excess of electrons on one side of the junction and a shortage on the other means we have an electric field trying to "suck" the electrons across the junction."

"Why don't the electrons just go from the n-layer to the p-layer? Is there insulation between them?"

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from HAMBONE on page 4

“No, but there is the *band gap*. The band gap is like a wall that the electrons must get over before they can pass from the n-layer to the p-layer. Do you remember when we were playing tennis and I hit the ball out of the court and you ran to get it? “

“Yes, but what does that have to do with electrons?”

“Well, to get the ball back in the court you had to throw it pretty hard to get it over the fence. In a sense, you had to give the ball extra energy to get it over the fence. Without that extra energy, the ball could not cross over the fence even if it wanted to.

Well, the electrons in the n-layer are like that tennis ball, they want to get over the fence, er, cross the band gap, but they don't have enough energy to do it - until sunlight hits them.

As you know, light is made of tiny energy-carrying particles called photons. Photons travel at the speed of light because they are light. When the photons hit the electrons in the n-layer, they give them enough energy to jump cross the band gap and get to the p-layer. But then they get homesick and want to go back. So, we provide an external path for them to run back to the n-layer and they do. That flow of electrons going home through the external path is the electrical current we want. In fact, it's nice pure DC.

As long as photons keep kicking electrons across the band gap, the current returning them home keeps flowing and we keep getting our electricity from sunlight.

“Oh, okay,” murmured Dude.

Actually this analogy is too simple. There's a lot more to the band gap and kicking electrons across it. But, it's good enough for now.”

“You've got my head spinning, Unck. Let's see how much voltage these panels are actually producing,” said Dude hooking his uncle's old Triplett 630 multimeter to the terminals that bit him moments ago.

“It looks like about 100 volts, but it's not pure DC, it's ‘bumping’ up and down a little.”

“What'ya doin'?” asked Hambone wandering over to his uncle's house.

“What does it look like, Dumdum?” Dude replied to his older brother. “He's putting up solar panels.”

“I can see that. What are *you* doing with Unck's antique meter? Don't stick yourself with those pointy probes.”

“Obviously, I'm checking the voltage,” responded Dude. “It shows about 100 volts, but it seems there's a loose connection or something causing bumps in the reading.”

“Let's see,” said Hambone grabbing the meter. “Hmmm, those are funny bumps. First there's one bump, then two, then three. It looks like they go up to five, stop, and start over.

What could cause that, Unck?”

“I don't know,” said Elmer who had gone back to muscling another panel onto his wooden frame. “You guys have probably screwed something up. Let me see that meter.”

“Oh, you're right, it does seem odd. I wonder if we're picking up some sort of radio signal. These panels are really just diodes. Lets block

the light and see if the voltage fluctuations are still there. Help me put this tarp over the panels.”

“That stopped the voltage and the bumps, Unck.” Observed Dude. “The sunlight seems to have something to do with them.”

“I don't see how it could,” mused Elmer as he removed the tarp and the voltage and the bumps reappeared. “It must be something else. Let's see if it's directional. Help me point the panels away from the sun.”

As the trio moved the panels away from the sun, Dude, still acting as the meter reader, noted that the voltage dropped to about fifty volts and the bumps disappeared.

“Okay, let's turn the panels back and see if the bumps come back,” said Elmer.

“The voltage is back up to about 100 volts and the bumps are back, only different,” reported Dude. “Now, they are one, one, two, three, five, eight and repeat. I don't know what could cause this.”

“I don't know what's going on either,” added Elmer.

“Hey! Those numbers are a Fibonacci series!” shouted Hambone. “Maybe you're receiving signals from outer space. I read someplace that aliens might send pulses arranged in a Fibonacci series as sort of a CQ. These pulses do seem to be coming from the direction of the sun.”

“Why would anybody, especially aliens, send signals with light? They would use radio, wouldn't they?” asked Dude.

“Who knows? But it's possible, I guess. We send signals with light through optical cables,” said Hambone.

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from HAMBONE on page 5

"We do," said Elmer, still wondering what was going on.

"In fact, it's pretty easy to send messages with light. Even that guy, Chip, who writes the club newsletter, made a gadget that sends code over a light beam," said Hambone. "I think he has dreams of becoming a brass-pounder."

"Don't they all," mused Elmer.

"Wow! We're receiving signals from outer space," exclaimed Dude as he excitedly pulled up his Twitter account. "I'm gonna tell the world!"

"Not so fast," said Elmer. "We don't really know what's happening."

"But what if Dude's right?" said Hambone. "Other guys may be receiving the same signals. Don't we want to be the first to announce the news that aliens really exist and are contacting us? We'll be famous!"

"Hammy is right," continued Dude. "Why wait? We're receiving signals that are clearly from some intelligent source and they are coming from space. Just because our antenna is a solar panel, that's no reason to think the signals aren't real."

"Oh, I think the signals are real," said Elmer, "I'm just not sure they are coming from outer space. While you guys were busy cheering each other on, I called my friend who works part-time for SETI and told him what we found. He was mildly interested and said he will ask their engineers to check for radio signals from that same area of the sky. But, he warned, it will take at least all day before he will have any results."

As the boys' discussion grew more animated, the words alien, signals and outer space began to attract a small group of onlookers and the ubiquitous cell phones were capturing every action and word. Even Dude's pal, Joey, magically appeared and quickly posted a YouTube video featuring Dude as the discoverer of space monsters.

"Excuse me, are you Elmer? I'm from Channel 6 Real Time News, can you tell me what's going on?"

Elmer turned and was instantly transfixed by golden blond hair shimmering above the bluest eyes, reddest lips and perkier pair he had ever seen.

"Excuse me," the lips repeated.

Shaken from his trance and realizing that those lips were talking to him, Elmer pulled in his belly, puffed out his chest and stammered, "Why, ah, yes. I'm Elmer, what, er, can I do for you?"

The lips continued, "I'm from Channel 6 News, can you tell me what's happening here?"

"S-sure," replied Elmer now noticing a news chopper circling overhead. "My nephew, Dude, over there, thinks he has picked up signals from outer space on these solar panels. They are just pulses, really, but they seem to represent numbers..."

Before he could finish his sentence, the golden-haired goddess with her somewhat pudgy cameraman in tow headed across the backyard to where Dude was holding forth before a small audience.

"... I first noticed the signals when I hooked a voltmeter to this solar panel," explained Dude. "I expected the voltage to be pure and steady, but it sort of bumped up and down. That shouldn't happen."

My uncle and brother thought the 'bumps' were just a loose connection to the panels, but I realized that the 'bumps' were numbers – one, two, three, four and five. I thought this was strange and could not imagine how a loose connection or simple sunlight could cause that.

Then the bumps changed. The numbers became one, one, two, three, five, eight - that's a Fibonacci series, you know. That's what alien hams would use to call CQ. The number sequences repeated over and over endlessly and I'm sure they are from some sort of extraterrestrial intelligence." Dude paused so the audience could marvel at his analysis and appreciate the magnitude of his discovery.

"It's pretty hard to see the voltage bumps on my meter so I've hooked up a decoder that changes the numbers to big letters and displays them on that 80" plasma display over there. It's set up so the number one displays as an 'A', the number two as a 'B' and so on. It's displaying the actual signals we are receiving right now."

As Dude explained the display the audience turned to see a series of large numbers followed later by their equivalent letters stream across the big screen.


Using her beautifully pointed elbows, the blond goddess/reporter muscled a space for herself and her cameraman in the front row and asked, "Have you informed SETI about your discovery?"

"Oh, of course," replied Dude, realizing he was now on national television. "We called them as soon as we had something. They were

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<p>from HAMBONE on 6</p> <p>very impressed with our work and, as we speak, they are analyzing radio signals from the same part of the sky.”</p> <p>“Where do you think the signals are coming from?” asked a voice in the back row.</p> <p>“I don’t know,” stated Dude. “I only know they are coming from the direction of the sun. SETI astronomers are working to determine possible sources in that direction.”</p> <p>“So, you are absolutely sure these signals are from outer space?” asked the voice.</p> <p>“I am,” replied Dude adopting an ever more professorial tone. My uncle Elmer and I have verified every aspect of these signals and we are sure that we are receiving the very first messages from an alien, non-human intelligence. This is a great day that will go down in</p>	<p>history and I’m glad you all could join me here to be part of it.”With that, the audience began applauding wildly as all major networks carried the announcement live across the globe. But Dude, who had now been joined by Elmer, and was basking in his fifteen minutes of fame, heard a small voice from the audience calling his name.</p> <p>“Mister Dude, Mister Dude, look at your screen, the aliens are sending something new.”As Dude, Elmer and the rest of the world watched, the following filled the screen:</p> <p>1 16 18 9 12 6 15 15 12 8 1 8 1 8 1 13 2 15 14 5</p> <p>Well, you can figure out what they said.</p> <p>POST SCRIPT</p> <p>Two weeks have past. The jeering has largely subsided and Elmer and Dude are once again able to appear in public without being sneered at,</p>	<p>much. The golden-haired news goddess won’t return their calls and the CNN channel seems to be blocked from their cable TV.</p> <p>It has been confirmed that Hambone did, indeed, originate the “extra terrestrial” signals by using a very bright LED spotlight. He keyed the light on and off with his Raspberry Pi programmed to blink out the number sequences and his final message. Although the spotlight was hidden and pointed up to blend with the sunlight, dust particles and water vapor in the atmosphere reflected enough of its light back to register on the solar panels.</p> <p>Nobody has seen Hambone. But, rumor has it he left a note saying this was payback for the cruel trick played on him last Halloween. From his Instagram photos, it appears he is enjoying his revenge in Nassau while snorkeling in the warm Caribbean waters.</p>
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The Amateur in Amateur Radio: ODDS AND ENDS -- Chip Buckner, ACØYF

<p>First, there was the Downton Abbey finale. Then there was the new season of House of Cards. Then this choir boy had a gazillion services to sing during Holy Weeks. Then there were the Theatre in the Park auditions. As a result, no major radio projects got done this month.</p>  <p>Nonetheless, there are always little observations that a tyro can inflict upon his superiors.</p> <p>INVESTING IN SOME TEST EQUIPMENT</p> <p>When working my laser modification to Tom’s original code practice oscillator, something didn’t work and I needed to test circuit con-</p>	<p>tinuity. It was a sufficiently simple problem that I inserted a resistor and an LED into a circuit and verified that current was flowing. I fear that my electronics projects may have moved beyond that level. First, Tom’s article on building his improved code practice oscillator recommends testing voltages at various points throughout the construction. Second, in working out the audio heterodyne material for this month’s column, I found a computer-based spectrum analyzer, but abandoned the idea of using it because calibration required a multimeter. Third, last month Hambone needed a multimeter to solve a problem.</p> <p>I reluctantly concluded that I needed a multimeter.</p>	<p>I went on-line, read various reviews and recommendations and compared specifications. My careful evaluation led me ... to the orange one. I like orange. I’ll let you know how it works out.</p> <p>SEVERE WEATHER</p> <p>Deb and I attended the informative and entertaining National Weather Service storm spotter training when it was held in Johnson County. We saw many familiar faces in the crowd ... and it WAS a crowd. If you haven’t done this, do it next spring. Just show up. It’s free and no registration is required.</p> <p>LEARNING MORSE CODE</p> <p>"H" and "5" sure sound a lot a like.</p>
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