STARLITE

THE NEWSLETTER FOR THE STOURBRIDGE AND DISTRICT A.R.S.

G6OI
G6SRS

G4CVK

ISSUE: SEPTEMBER 2019

STOURBRIDGE & DISTRICT AMATEUR RADIO SOCIETY
INCORPORATING
OLD SWINFORD HOSPITAL SCHOOL RADIO CLUB

MEETINGS HELD AT

OLDSWINFORD HOSPITAL SCHOOL
HEATH LANE
STOURBRIDGE
[8:00 TO 10:00 PM]

VISITORS ALWAYS WELCOME

THE SOCIETY HOLDS ITS FULL MEETINGS
ON THE 1ST AND 3RD MONDAYS EACH MONTH

SSB FIELD DAY = 7/8TH SEPTEMBER

RSGB AFFILIATED SOCIETY

The views expressed in STARLITE may not be those of the Committee – Stourbridge and District Amateur Radio Society

STARLITE

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http://g6oi.ross-lewis.co.uk/index.html

StARS Facebook Page:-
https://www.facebook.com/groups/stourbridge.ars/

Forthcoming Meetings

September 2nd	On Air. Informal. Digi Modes Group.
September 7/8th	**SSB Field Day 2019**
September 9th	On Air. Informal. Digi Modes Group.
September 16th	Main Meeting – Subject t.b.a.
September 23rd	On Air. Informal. Digi Modes Group.
Septemebr 30th	On Air. Informal. Digi Modes Group.
October 7th	On Air. Informal. Digi Modes Group.
October 14th	On Air. Informal. Digi Modes Group.
October 18th - 20th	**Jamboree On The Air @ Norton Scouts**
October 21st	Main Meeting – Subject t.b.a.
October 28th	On Air. Informal. Digi Modes Group.
November 4th	On Air. Informal. Digi Modes Group.
November 11th	On Air. Informal. Digi Modes Group.
November 18th	**Annual Surplus Sale**
November 25th	On Air. Informal. Digi Modes Group.

Editor's Comment

Once again it's **SSB Field Day** month. This year it is on the weekend of 7/8 September and we shall be at the High Acres Garden Centre in Sugar Loaf Lane. Keith MØHPY has done his usual great job at recruiting operators & loggers for the weekend, but there are still a couple of spots which require cover. If you can spare an hour (or two) to help out, the team would be very grateful.

We were unable to use OSH for two of our August meetings, due to the Hebrew group taking over the school.

On the 12th, Nick G6DQN kindly allowed his shop to be used for those who wished to attend a meeting.

On the 19th the meeting was held at the SSB FD site in Sugar Loaf Lane, in order to test/check a new aerial with the rig to be used for the imminent contest weekend. I listened on 20, 40 & 80m from 1830-1930 GMT, but did not hear the Club station make any test calls or QSOs, so how did it go?

I've heard nothing else (*what a surprise!*), so I hope the meetings were enjoyed by the attendees.

A question which has been asked at several meetings is "*Why do we not have a listing in RadCom?*". The answer is quite simple. It has come to my attention that a Committee member volunteered to enact this small PR exercise in April ***last year***, but, to date, it has not been actioned. I do not wish to deprive the volunteer of fulfilling the job, but I have taken it upon myself, without Committee sanction, to send our details to RadCom for the October/November/December issues. I don't know what will happen after that, so it's in the management's hands to decide!

We certainly had a super August Bank Holiday weekend, not only for the weather, but for the enhanced tropo conditions, too. I had a chance (for a change) to switch on the radio and was pleasantly surprised to be able to take advantage of the situation. Looking on the bands, it was nice to find lots of stations on 28 &50MHz, but to my delight 144MHz was alive, with almost every FM channel occupied from early morning to late afternoon, together with much activity on SSB during the day, Friday-Monday, with a little less on Tuesday. Then the tropo forecast was for a decline in conditions during the following days. I hope to take further advantage during the next 'lift' conditions.

The following was heard on the 18th August RSGB News:

"*The 144-146MHz band is subject to the French proposal for a WRC-23 agenda item for aeronautical use. IARU and its Member Societies have been busy in recent weeks. IARU has submitted a paper to the meeting that includes background on amateur usage and regulatory concerns. It also includes a basic technical analysis showing the impracticality of such a proposal and believes there are much more appropriate parts of the spectrum for such an application.* "

Seen on the StARS Facebook page

Wayne M5LLT asked, "*Anyone identify the Receiver being used here as a 2 way radio.....extra points if you can guess the TV programme.*"

If you have any idea, please send to the Editor g4xom@g6oi.org.uk

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This could have been YOUR space!

Is Ham Radio a Hobby, a Utility…or Both?
A Battle Over Spectrum Heats Up

Some think automated radio emails are mucking up the spectrum reserved for amateur radio, while others say these new offerings provide a useful service.

Like many amateur radio fans his age, Ron Kolarik, 71, still recalls the "pure magic" of his first ham experience nearly 60 years ago. Lately, though, encrypted messages have begun to infiltrate the amateur bands in ways that he says are antithetical to the spirit of this beloved hobby.

So Kolarik filed a petition, RM-11831 [PDF], to the U.S. Federal Communications Commission (FCC) proposing a rule change to "Reduce Interference and Add Transparency to Digital Data Communications." And as the proposal makes its way through the FCC's process, it has stirred up heated debate that goes straight to the heart of what ham radio is, and ought to be.

The core questions: Should amateur radio—and its precious spectrum—be protected purely as a hobby, or is it a utility that delivers data traffic? Or is it both? And who gets to decide?

Since Kolarik filed his petition in late 2018, this debate has engulfed the ham world. Fierce defenders of both sides have filed passionate letters and comments to the FCC arguing their cases.

On one side is Kolarik in Nebraska. In his view, it's all rather simple: "Transparency is a core part of ham radio," he says. "And yet, you can find tons of traffic from automatic[ally controlled digital] stations that are extremely difficult to identify, if you can identify them at all, and they cause interference."

The automatically controlled digital stations (ACDS) Kolarik refers to can serve to power services like Winlink, a "global radio email" system.
Overseen and operated by licensed volunteers around the globe, Winlink is funded and guided by the Amateur Radio Safety Foundation, Inc. (ARSFI). The service uses amateur and government radio frequencies around the globe to send email messages by radio. Users initiate the transmission through an Internet connection, or go Internet-free and use smart-network radio relays.

On Winlink's website, the service says it provides its licensed users the ability to send email with attachments, plus messages about their positions, and weather and information bulletins. Representatives of the service say it also allows users to participate in emergency and disaster relief communications.

But Kolarik's petition argues two points: First, because such messages "are not readily and freely able to be decoded," the FCC should require all digital codes to use protocols that "can be monitored in entirety by third parties with freely available, open-source software."

Secondly, he wants the rule change to reduce the interference that he says services like Winlink can create between amateur-to-amateur stations—by relegating the often-unattended automatic stations to operate solely on narrower sub-bands.
Loring Kutchins, the president of ARSFI, says he believes Kolarik's petition is "well intentioned in its basis. But the fundamental conflict is between people who believe amateur radio is about hobby, not about utility. But nowhere do the FCC rules use the word 'hobby.'"

The divide between hobbyists and utilitarians seems to come down to age, in Kutchins' opinion.

"Younger people who have come along tend to see amateur radio as a service, as it's defined by FCC rules, which outline the purpose of amateur radio—especially as it relates to emergency operations," he says.

In short, Kutchins says, his view boils down to abiding by the FCC rules as currently written: "Why is email inappropriate for amateur radio? Why should utilitarian purposes not be part of amateur radio?"

While Kolarik's petition touches on some of those questions, an ex parte letter[PDF] by professor Theodore Rappaport, who leads the NYU Wireless research center at NYU's Tandon School of Engineering, makes particularly strong statements against services like Winlink.

Rappaport's letter calls Kolarik's proposed rule change vital to "safeguard the national security of the United States," and key to attracting young people to ham radio. He also accuses services like Winlink of being used to flout various FCC rules. For example, he wrote these services are used "often by boat owners to avoid other readily available commercial means for sending private email (a violation of numerous FCC rules which explicitly prohibit bypassing other commercial means and prohibit pecuniary interest)."

Kutchins, however, doesn't think Rappaport's passion is genuine. He fired back in his own letter [PDF] to the FCC: "Theodore Rappaport and the opponents he informs offer an emotional, layman's conjecture in their assertions that hard-to-monitor, advanced digital protocols used in the amateur radio service will encourage crime, terrorism, and are a threat to national security," Kutchins wrote. "They clearly do not know or appreciate what monitoring and inspection routinely occurs, and are thus not qualified to judge."

In an interview, Kutchins says Winlink has system operators who monitor traffic for illegal activity, and though every group has bad actors, he argues that "people on Rappaport's side have gone through and picked out anything that could be a violation, rather than use the amateur radio principle that we're supposed to be self-regulating. We call each other out when somebody does something wrong: Inform the violator and educate how you think they have violated the rules."

Further, Kutchins says, any licensee can read any message sent through a U.S. station on amateur radio frequencies in plain text via a message viewer that is open and available online, and he adds that Winlink has a reporting program established at the FCC's request.

But Rappaport says his chief “concern is that the proliferation of illegal, effectively encrypted data will turn the hobby of ham radio into a mean-spirited, non-technical dummied-down mosh pit of signals that eventually becomes a high-frequency Internet access point in the sky.”

His fear is “that many applications and transmissions will be closed and controlled by a tiny group of individuals who do not share the vision or incentive for providing transparency of all activities—or technology—in amateur radio. How will that attract youth and help the STEM effort in America?”

The battle continues in letters and comments to the FCC about the proposal. It could be months before the agency completes all of its comment periods and other processes and ultimately decides whether to codify the proposal or strike it down.

In the meantime, back in Lincoln, Nebraska, Kolarik says he’s simply focused on the future of his cherished hobby. He’s heartened by young ham fans who commented on the proposal, like 15-year-old Bryant Rascoll, an Extra Class amateur radio licensee in Alabama who wrote in support of RM-11831 about protecting “our precious spectrum.”
“I don’t want to see amateur radio turn into essentially a smartphone for sending email—today’s kid has that and more there in his pocket,” Kolarik says. “But if they can turn on a machine and talk to someone thousands of miles away, without the worry of interference, they will feel that magic that I did too, years ago.”

This could have been YOUR space, too!

Like 'human hair in the ocean': Why ham radio still has an enduring appeal

It's not just a hobby. In a crisis, amateur operators provide a lifeline.

Larry Horlick still marvels when he thinks about what happens when he turns on his ham radio.

"I'm taking my voice and that radio is converting it into an electrical signal and the amount of electrical energy that he is receiving is so minuscule," said Horlick, a Coley's Point resident who is one of a group of radio enthusiasts in Conception Bay North.

"It is like a human hair in an ocean and that fascinates me to this day."

Amateur radio was around for nearly a century before the internet, and to this day is the only form of communication that does not depend on a network.

Even in a world of smartphones, Facebook and texting, ham radio still holds a mystique for many people. More than two million people around the world still use the technology. Of the estimated 40,000 users in Canada, as many as 1,500 live in Newfoundland and Labrador.

An amateur radio user can connect with anyone practically around the world. The only countries that do not allow amateur radio operators are North Korea and Yemen.

The legacy, and appeal, of Marconi

If amateur radio has a prophet, it surely would be Guglielmo Marconi, the communications pioneer who in proved — in St. John's — that radio waves follow the curvature of the Earth by bouncing off the ionosphere.

No longer did telegraph wires or "ground waves" bind communication. Now it was possible to talk to anyone in the world who also had a transmitter and receiver.

"When other hams discover you are from Newfoundland, they want to know about Signal Hill," said Horlick, referring to the place where Marconi received a wireless transmission in December 1901.

Carbonear ham radio operator David Parsons agreed the allure is strong with colleagues.

"A friend of mine visited me last year and that is one of the things he had to do — go to Signal Hill and see where it all started," Parsons said.

Right in the middle of the action

Geographically, Newfoundland is in the centre of a lot of amateur radio activity, because it happens to be between Europe and the rest of North America.

"We're centrally located — you've got everything all around us here," Parsons said, pointing to a screen to see which parts of the world are likely to be reachable. "It's a really good spot for radio."

For many enthusiasts, amateur radio is a hobby. They log their daily "QSOs," or contacts. While talking to other people around the world, they exchange weather, call signs or other information.

There are contests on who can make the most contacts over a certain amount of time. Some even talk to astronauts on the International Space Station.

However, this hobby has a serious side as well. In the event of natural disasters or other emergencies — when more conventional forms of communication go down — amateur radio operators are called on to help.

In the summer of 2017, for example, damage to fibre optic cables meant that internet and phone services failed in much of Atlantic Canada.

Parsons and other amateur operators helped keep communications open. They were on alert to help ambulances and other emergency personnel locate people in distress or to just relay information from one station to another.

The incident proved that a communications system that gets taken for granted can be vulnerable.

"The internet, the world wide web, is just that. It's a web of interconnected signals that are transmitted by satellite," said Parsons, adding that the chance of failure becomes greater as the world becomes more interconnected with Wi-Fi, satellites and cellular towers.

A simple form of communications

The beauty of amateur radio is its simplicity: one radio talking to another.

"All you need is a power source, a transceiver and an antenna," said Parsons. "Power can be in the form of a car battery, a gas power generator or solar panels."

Parsons has also helped out with other cases farther from home.

During the 2015 earthquake in Nepal, Parsons helped relay radio traffic from Israel and sent it to stations in the United States.

Parsons and Horlick both belong to BARK — the Baccalieu Amateur Radio Klub — which operates in the Conception Bay north area. The club holds an annual field day every year where about a dozen local operators use only generated power to make contact with hundreds of other operators worldwide.

The Society of Newfoundland Amateur Radio — or SORNA — is another organization that is trying to recruit new members through education and community outreach.

Becoming an amateur radio operator, though, it is not as simple as buying the equipment. After all, a ham radio is capable of operating in the commercial radio spectrum, where ships and air traffic controls operate.

Operators require a licence, and the licensing process is a verification of your skill.

"You really got to know what you are doing, so you do not interfere with their operations," said Horlick. "That could be very dangerous."

Scientists Uncover New Battery Chemical With 50% More Storage Capacity

Scientists have found a way of using alternative metals in lithium-based batteries that might not only help relieve the issues associated with conflict materials, but also offer more storage capacity in future devices.

The research team, led by professors at the University of California, Berkeley www.berkeley.edu/ managed to build lithium cathodes with 50 per cent more storage capacity than conventional materials - potentially enabling batteries to be made that can last considerably longer between recharges than current battery technology.

This could change how we use technology in the future as these batteries are used in phones, laptops, tablets and even some cars.

It is also a potentially important step environmentally as lithium-based batteries currently use more than 50 per cent of all cobalt produced in the world, of which around half comes from the Democratic Republic of the Congo, where it's largely mined by hand - in some instances by children.

For the first time we have a cheap element that can do a lot of electron exchange in batteries. "We've opened up a new chemical space for battery technology," said the University's professor in the Department of Materials Science and Engineering and senior author of the report, Gerbrand Ceder www.sciencedaily.com/releases/2018/04/180411131623.htm.

"For the first time we have a really cheap element that can do a lot of electron exchange in batteries."

The study has been published in the April edition of the journal Nature and is a collaboration between scientists at UC Berkeley, Berkeley Lab, Argonne National Lab, MIT and UC Santa Cruz www.nature.com/articles/s41586-018-0015-4.

"To deal with the resource issue of cobalt, you have to do away from this layeredness in cathodes,"

Ceder added. "Disordering cathodes has allowed us to play with a lot more of the periodic table."

In the new study, Ceder's lab shows how new technologies can be used to get a lot of capacity from a cathode.

In the world of batteries, this is a huge improvement over conventional cathodes

Using a process called 'fluorine doping', the scientists incorporated a large amount of manganese in the cathode. Having more manganese ions with the proper charge enables the cathodes to hold more lithium ions, thus increasing the battery's capacity.

"In the world of batteries, this is a huge improvement over conventional cathodes," said lead author Jinhyuk Lee, who was a postdoctoral fellow at Ceder's lab during the study.

The new lithium alternative technology needs to be scaled up and tested more to see if it can be used in applications like laptops or electric vehicles, however.

But Ceder says whether this technology actually makes it inside a battery is beside the point as the researchers have opened new possibilities for the design of cathodes, an even bigger feat, apparently.

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