GLOUCESTER AMATEUR RADIO & ELECTRONICS SOCIETY

G4AYM
G2HX

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RAGCHEW

APRIL 2021

A Happy Easter to all GARES members and families

From the Editor

Another month has flown by and since the last issue the Club has held a very enjoyable Zoom social gathering. It was great to see so many members in fine fettle.

In this issue **Tony G4HBV** continues the Top Band theme with some further memories of operating /P and **Mike G6OTP** updates us on the progress he has made restoring his old Regentone domestic radio.

The recent notification from Ofcom sent to all licence holders has prompted a lot of discussion over the air, in amateur radio magazines and on social media. Our Chairman **Dave G4BCA** updates us on the **Ofcom EMF Calculator.**

In **Vintage Column** this month I describe my Heathkit Valve Voltmeter which over many years has proved to be a useful piece of kit.

The RSGB has recently updated the guidelines regarding /P operation on the VHF Contest pages of its web site as follows:-

”From 29th March, as the 'Stay at Home' restriction is removed in England, we will once again accept portable entries from stations in England. Portable multi-operator entries must normally be from the same household/bubble as typical portable locations, camper vans, cars and tents are considered indoors and indoor mixing of households is still not allowed.”

Early in March 2020 Leta and I were able to pay a flying visit to Lundy before the first lock-down was imposed on us all. At the time, plans were made for 2021. Read in this issue the original plan and what, at the time of writing, is what we hope will happen.

And now for something that made me smile. I recently decided to upgrade my loft 70cm antenna set-up and purchased a 12 element Diamond beam. I used this opportunity to upgrade the feeder and opted to use Ultraflex 7. The Diamond antenna and my IC7000 use SO239 sockets, but the coaxial cable manufacturers Messi and Paoloni (based in Italy) offer a re-engineered PL259 plug with electrical specifications similar to N type connectors. Following the instructions for fitting the plug on to the cable, the first operation is remove 10mm of outer sheath. The manufacturers, no doubt aware that in the UK there is a hard-core of Imperial traditionalists, very helpfully offered the appropriate conversion - strip 0.393” of the outer sheath. My old Imperial ruler is graduated in 8ths, 16ths and 32nds. I think even the most pedantic Imperial measurement fan could cope easily with measuring 10mm! The antenna and feeder, by the way, are a great improvement on my previous 7 element ZL special fed with RG58 coax.

As usual, the plea for more articles for “Ragchew” - send to **g4cib@outlook.com.**

That’s all for this month

73 Brian G4CIB

Contest Corner

By Brian G4CIB

Another reminder that Club contesters gather together every Friday at 15.30 local time on 145.425 MHz to post-mortem the previous week’s contests and formulate plans for the upcoming week. **Martin G4ENZ** hosts this net which, if you cannot join on-the-air, he is able to offer live internet streaming. If you wish to avail yourself of this option, please email Martin g4enz@outlook.com for details.

At the time of writing the club is still in **19th position** in the **UKAC Local Clubs table.** Welcome to **Steve G7ITD** who submitted first-time logs for the 50 MHz March and 432 MHz March contests.

In the **FMAC series,** the club is still in **2nd position** in both the **2m** and **70cm Local Club tables.**

On the **HF front**, in the **80m Club Championship,** we have climbed up a place and we are now in **9th position.**

OFCOM EMF CALCULATOR UPDATE

By Dave G4BCA

All licensees should now have been contacted by OFCOM regarding the changes being made to our licenses from May 2021 regarding electromagnetic field (EMF) compliance. I don’t think it is necessary to go into detail on what OFCOM are asking for, as they have produced two useful documents: Guidance on EMF Compliance and Enforcement and What you need to know as an Amateur Radio User. Additionally, a series of articles has commenced in Radcom on the topic. The above documents are available from the OFCOM website or via the RSGB at:

https://rsgb.org/main/technical/emc/emf-exposure/

The OFCOM calculator has been updated to version v0.1.2 and this is also included in the newly-released combined RSGB/OFCOM calculator v0.1.2-rsgb9. The latter is also available from the article in the above link. The combined RSGB/OFCOM version contains a ‘front sheet’ developed by the RSGB to enable a number of parameters to be entered including transmitter power, mode, feeder type and length and antenna type from a drop-down menu. The ‘front sheet’ calculates the inputs required for the OFCOM calculator and also displays the results of the calculation. This is still a prototype version but having used the previous RSGB/OFCOM version, the version just released represents a significant improvement in user friendliness and in explanation.

Top Band Memories
by Tony G4HBV

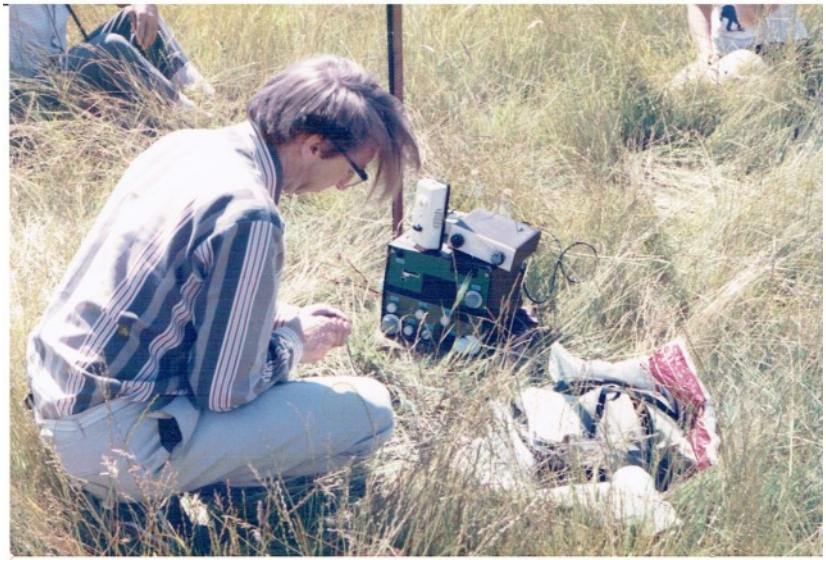
In my 'Trawler Band' articles I mentioned the superhet receiver described in the third edition of the RSGB Handbook and that I used it with a crystal-controlled transmitter (xtal TX) for top band. Actually the receiver was built from a broadcast transistor portable.

I mounted the intermediate frequency (IF) and audio stages in a wooden box, then added the mixer/oscillator stage and a beat frequency oscillator (BFO) from the RSGB design. TheTX was CW/AM with an audio amplifier and transformer modulating the collector of the oscillator transistor – which started life as a BFX50 and then, if memory serves me right, was replaced by something more powerful.

In my log I see that I first took part in a top band club net on 8th March 1980 and with various other gear this was to continue for many years. I liked going portable (from the car) and used a home-made vertical supported by a bracket from a roof-rack. This vertical used a loading coil on a plastic tube force-fitted onto a wooden broom-handle. A most unsatisfactory experience was trying to resonate the antenna using a FET dipper – the process seemed to depend on the level of coupling dipper to coil.

On the evening of 28th July 1982 my log reminds me that I was at Tog Hill working a local net in Bristol. Then on 3rd August 1982 I worked the same net from the lay-by in Whitminster. I particularly remember that evening as a CBer came over and said to me “Hi good buddy – I see you putting up your twig”.

Also from my log I see that on several occasions I operated from the beach at Uphill, Weston-super-Mare, working another local net which included G3YRM (given as 'you remember me'). Another time at Uphill, monitoring the frequency of my xtal TX, I heard Phil G3XUL. He was in Weston, testing an xtal TX in his garage on CW. He must have been quite surprised when I called him.



Eventually I built a RX/TX using a double sideband (reduced carrier) TX which I still have. With G4CIB and G4RHK we had a couple of bicycle expeditions to various local sites using this gear.

This photo was taken when we cycled down to **Noel Baker G4PHF’s (SK)** farm at Gamage Court where we operated NFD for many years.

In addition to the DSB top band TX, I had built up a direct-conversion CW transceiver for 80m from home. I used both rigs with an 807 class A linear amplifier. As well as pepping up the RF to about 10 watts, it had the excellent benefit of removing harmonics from these solid-state transmitters. I had problems with both of these but eventually solved them – one was a layout problem causing RF feedback and the other being incorrect bias on the RF output stage causing audio distortion.

Restoring a domestic valve radio
Episode 2 and last(ish)

The photo below shows the underside of the chassis again which was well stripped down. The valves were out and put safely away and the tuning scales were removed and cleaned, the big double smoothing capacitor went to Jim 2E0GKN for refurbishment and new drive cords were fitted.

The under-chassis wiring looks like a bird's nest but really it is a good example of point-to-point wiring done well. All the joints were mechanically secured before soldering thus giving rigidity and security which is essential in the high voltage and tuned circuit areas. It does mean, however that replacing components will not be a simple matter. It will not easily be possible just to unsolder a component and substitute a new one so a repair plan will be needed for any that are suspect.

Replacing Parts

A new **mains-lead** for a start but this time three cores instead of two with the chassis grounded and a low value fuse.
The four **electrolytic capacitors**. Two used as cathode resistor bypass capacitors and the other two to smooth the HT. Electrolytic capacitors degrade with age and can explode if powered up after a very long period out of use although sometimes, they can be 'reformed'. (Yes, they can explode!) Thanks again to Jim 2E0GKN for this.
All **wax paper capacitors**, which also degrade but this is going too far for the moment because for all I have done so far, it is time to take stock.
The **resistors**. The best advice that I could find was that even if their values had drifted, it was best to leave them alone. If it's not bust...

Had it been all for nought? Only one way to find out.
I did resistance checks of mains to chassis and found no short circuits, so all was put back together again and the chassis put back in the cabinet and with the back panel in place as well for safety. If anything was going to go bang, it would at least be contained. With a few feet of wire pushed into the aerial socket and secured with a matchstick (as one did in those days) and with fingers crossed, I switched on, and power flowed in for the first time in twenty years at the very least.

Nothing. Then, in the far distance came a feint hum. Valves have to warm up of course and the hum got louder and louder and louder. I advanced the 'volume' but again nothing much happened because I forgot the on/off switch was ganged with the tone control. At last, turning the right knob, there was sound and lots of it. It would receive on all three wavebands and with good volume after a 'soak' of half an hour or so. That 6V6 was really doing its stuff. Then, came a series of rather sinister popping noises and it was time to switch off. There were a few obvious jobs to do. No dial lights, the tuning pointer way out of position and that awful aggressive hum so over the next few days I gave it a soaking in, gradually increasing to several hours.

The end, almost. On taking the chassis back out of the cabinet, I found a little blob of wax that had dripped from a warm capacitor. I found the guilty object and it will have to be replaced in due course. It was as well that I took that photo in the first place which made it easy to find the source of the drip. The dial lights did work after all but were blacked so I will fit two new. The dial pointer has been re-aligned and the hum has mysteriously, and thankfully, almost disappeared.

I will have to replace that capacitor when I can find one and I want to try the radio with a full-size aerial. Even into the fifties, almost every house would have had a 'long wire aerial' to a pole at the bottom of the garden and an earth stake near the back door. Well, that's it and yes it was worth it.

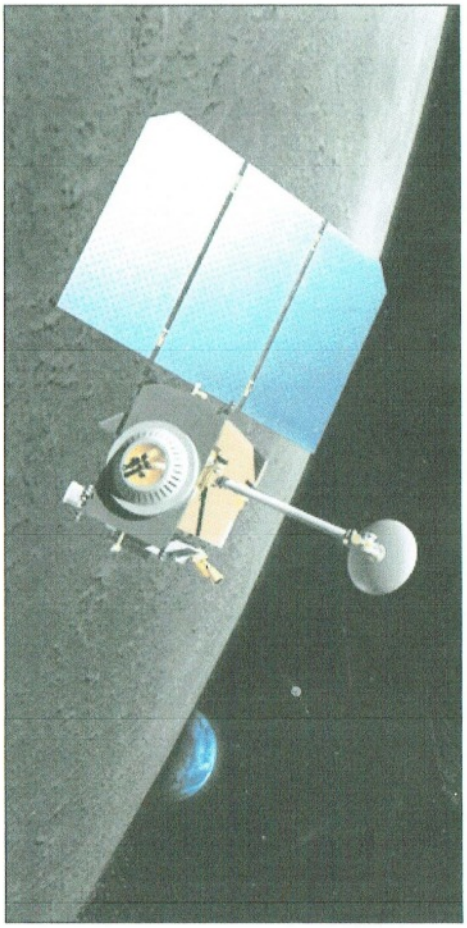
From the G4AYM Archive

Here's a suitable photo to accompany **Mike G6OTP's** article. On 3rd May 1983, GARES members visited the Droitwich transmitting station. Here's the group photo outside the main entrance.

I suspect Mike's receiver would have been tuned to this transmitter many times during its lifetime.

From the 2E1GKY Archive

Following on from **Gary M0XAC's** download from the ISS recently featured in "Ragchew", **Anne 2E1GKY** came across this certificate she had forgotten about.



Certificate of Participation

This certificate recognizes that

Anne 2E1GKY/M3GKY Reed

has joined the Lunar Reconnaissance Orbiter

"Send Your Name to the Moon" Project

Date: **May 21, 2008** | Certificate No: **1010283**

The Lunar Reconnaissance Orbiter is built and managed by NASA Goddard Spaceflight Center for NASA. "Send Your Name to the Moon" is a partnership with NASA, the LRO Project, The Johns Hopkins University Applied Physics Laboratory and the Planetary Society.

Editor's note

I was intrigued to find out more about this project and it seems that prior to the launch of the Lunar Reconnaissance Orbiter in 2009, NASA gave members of the public the opportunity to have their names placed in a microchip on the LRO. Some 1.6 million names were submitted.

More details can be found on the relevant pages of the NASA web site

https://www.nasa.gov/mission_pages/LRO/main/index.html

G4CIB and G4RHK on Lundy 2021

Readers may remember that between 9th - 13th March last year Leta and I were able to stay on Lundy, the plan being to return to the mainland on the Friday in time for the Lundy Field Society AGM to be held on the Saturday in Crediton. Owing to the Covid-19 crisis which was beginning to grip the country, the AGM was cancelled but as we had booked to stay in a pub in Exeter and they were willing to accommodate us, we stayed for the weekend, returning on the Monday. Knowing how properties get booked up well in advance, we set about planning our 2021 stay and decided that the first week in May would suit us well. No sooner had we booked and paid the deposit, we received a communication from the Lundy Field Society that as 2021 would be their 75th Anniversary, they had booked the whole island for the second week in May and would be holding their AGM for the first time in its history on the island. Would we like to go? Initially we were bit hesitant but after some thought we decided that we would book the second week as well. The Chairman of the LFS, having recently re-acquired his call-sign after seeing me operate on the island a few years back contacted me with a proposal that the occasion should be marked with the setting up of a Special Event Station on the island during the week. Obviously we wished to incorporate 75 into the call sign but after consultation with Ofcom we had to content ourselves with GB5LFS, multi-digit SES call signs now only being available for stations marking occasions of national significance. As 2020 drew to a close and in the early days of 2021 we became increasingly pessimistic. During the past month the situation has resulted in some good news and some bad news, as follows:-

The good news is that we can stay on the island from 1st - 8th May in our booked property.

The bad news is that the B & B booked on the mainland for the night before our departure cannot re-open until 17th May so it's an early start from home on Saturday 1st May for an 0830 sailing from Bideford.

The even more bad news is that the Tavern on Lundy is closed until restrictions are lifted and we will have to self-cater for the whole week.

The further bad news is that the LFS 75th Anniversary celebration from 8th - 15th May has been cancelled as large groups are obviously unable to gather under current restrictions so the SES has been cancelled.

And of course when we return to the mainland on the early evening of Saturday 8th May, it will be straight back home!

So in conclusion, as of the beginning of April, unless the Government change the current restrictions, we will be on Lundy from 1st - 8th May. We plan to be QRV on HF and VHF so hopefully can be on for the 2m FMAC and UKAC on Tuesday 4th May and will be looking out for the 80m Club on the Air on Thursday 6th May.

I'm more than happy to arrange a sked - either contact me before we go at g4cib@outlook.com or when we are on the island lundycurmudgeon@gmail.com or text on either 07749 896698 or 07743 370120.

Castle Cottage (the fomer cable hut in the early 20th century) - our location next month.

Vintage Column

By Brian G4CIB

Following on from last month's Vintage Column I'm still in Heathkit mode. Very early on in my amateur career c 1969 I realised that the run-of-the-mill analogue VOM (volt-ohm-milliammeter) would not be suitable for accurate measurements to be taken in RF circuitry. The full-scale deflection of an analogue VOM is measured in ohms/volt, so if the meter has a 50µA FSD meter, it will have a sensitivity of $1/50x10^{-6}$ i.e.20,000 ohms per volt. So if the meter is set to read 20 volts, the impedance of the meter presented to the circuit being measured will be 20 x 20,000 ohms which is 400 kohm which could have a significant loading effect on the circuit. The valve voltmeter overcame this loading problem, and the Heathkit V-7AU featured here boastS an input impedance of 11 megohms on all ranges. Remember, this was the days before the digital VOM.

I purchased this item ready-built from a former club member Terry G8DKR who I think was an out-worker for Heathkit, then based at the junction of Cole Avenue and Bristol Road. It came with all the leads including a 309-CU RF probe. The standard leads enabled accurate AC and DC voltage measurements to be made up to 1 MHz. The RF probe, which consists of a diode rectifier, a high value resistor (4.7 Mohm) and a DC isolation capacitor, enables RF voltage readings to be made up to 100 MHz with reasonable accuracy without loading the circuit being measured. All in all a worthwhile investment all those years ago!

This shows the VTVM along with the RF probe. Other leads supplied enables both AC (rms and peak scales) and DC voltages to be measured with 7 ranges, 0-1.5, 5, 15, 50, 150, 500 and 1500 volts full scale. The accuracy on DC is +/- 3% full scale, and +/- 5% full scale.

It incorporates an internal power supply (EB91 twin diode rectifier) and an ECC82 twin triode which forms the meter bridge.

When **Roy G3VZR (SK)** had his shop in Barton Street he acquired a large number of Heathkit spares when they closed their factory in Gloucester. Among the stock was a meter movement for this model which I purchased so I have a replacement should I need it.

Looking on the internet there is obviously still a great interest in Heathkit products and as long as they come with the assembly manual theyare fairly easy to fault-find and repair - as long as you can source the correct components or suitable modern equivalents.

Do you possess and vintage radio items? If so, why not write an article for "Ragchew" and let other members share in some nostalgia.