RAGCHEW

MAY 2021

From the Editor

Our trip to Lundy is imminent and following on from last months's article I'm pleased to report that everything is going to plan. We had a Zoom meeting with the Island Manager last Tuesday for a last-minute briefing and all we need now is a smooth crossing! See later in this issue for details of how to contact me if you would like a sked.

On the shack front, I've been doing some more work with my Nano-VNA and It was brilliant to log into the recent RSGB "Tonight @ 8" live webinar entitled "Introduction to VNAs and the NanoVNA" by Alan Wolke, W2AEW. Lasting just over an hour, it answered many questions regarding the use of these devices. All of the previous webinars are archived on the RSGB web site and cover a wide range of topics.

Having sampled a few of the Tonight @ 8 webinars it made me realise how far the hobby has come with regard to learning resource. Many years ago the aspiring amateur would have probably purchased a copy of the RSGB Examination Manual and maybe the RSGB Handbook and VHF Manual plus any other books available in the local library along with learning from older licensees in the club. And that was essentially it. Today we have through the internet this vast repository of information. The only thing that hasn't changed is time - there never seems to be enough of it to do all these things!

Many thanks to **Graeme G0EEA** for the heads-up on the club net about the recent Radio 4 programme "The Life Scientific" featuring Professor Martin Sweeting, inventor of microsatellites. Another Radio 4 series that may interest club members started on Tuesday 27th April at 11.00am called **"Dare to Repair",** the first episode - why electronic gadgets don't last as long as they used to and why repairing them is hard. I caught the first ten minutes or so of the programme and will be catching up on BBC Sounds.

In this issue **Tony G4HBV** commences a new series "A Brief History of Radio" and explains some of the early work on the discovery and behaviour of electric and magnetic fields.

Anne 2E1GKY is now set up to operate from the garden this summer from a new shed and has already had some QSOs on 2 metres.

I have recently made a 2 metre antenna which goes under the name of the **Half-Wave Flower Pot** and I've outlined the details in this issue. In **Vintage Column** this month I stay with the **Heathkit** theme and examine a popular VHF transceiver introduced around 1960, the **HW-30 "Twoer"** affectionately known as the "**Benton Harbor Lunchbox".**

Next month - "A QRP Power Meter" by **Richard M0HNK**

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

With the results of the **April 70cm UKAC** just published, we are still maintaining **19th position** in the **UKAC Local Clubs table.** It was our best score so far this year with 6 members submitting logs.

Still on **70cm**, in the **FMAC series,** the club is in **2nd position.** With the Tall Trees CG posting a good score in the April session, we need as many members as possible to submit logs if we are to maintain our lead over them! Sadly in the **2m FMAC** we've dropped down to 4th place, Tall Trees CG and Swindon & DARC both submitting good scores in the April contest.

On the **HF front**, in the **80m Club Championship,** we have dropped a place and we are now in **10th position.**

WANTED

More Club Members to submit logs for the VHF UKAC and FMAC Contests also the 80m Club Championship Contests!

WANTED

A club member to take over writing the "Contest Corner" feature for "Ragchew

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HEMA

HuMPs Excluding Marilyns Award

I came across this web site hema.org.uk by accident and further investigation revealed that several sites I have operated from are listed in the summits. A HuMP is defined as a summit that has Hundred Metre Prominence, i.e. that it sticks up above the surrounding land by at least 100 metre. A Marilyn is a summit with 150 prominence, so the HEMA Award is an award for HuMPs with a prominence of less than 150 metres.

Here are some local sites listed:-

Alderton Hill (my usual Boxing Day site) is designated G/HCE-001, **Birdlip Hill** G/HCE-006, **Robinswood Hill** G/HCE-018, **Churchdown Hill (Chosen Hill, Tinkers Hill)** G/HCE-023.

Further afield:-

Beacon Hill, Lundy G/HDC-002. This is the location of Old Light on Lundy where a few years ago I worked our Chairman **Dave G4BCA** who at the time was walking near Boscastle

A Brief History of Radio – Part 1
by Tony G4HBV

The story starts well before Marconi, recognised by most people as the 'inventor' of radio.

In 1854 the brilliant, theoretical physicist and mathematician James Clerk Maxwell realised that there was a contradiction in the accepted laws of electricity and magnetism. There were then five established laws and Maxwell first expressed the laws in terms of mathematics before realising there was a contradiction. He realised that Ampere's Law was not complete; it needed an extra term, which he called displacement current. This took account of the fact that a changing electric field would also produce a magnetic field. He deduced this from believing in symmetrical behaviour of the electric and magnetic fields, fields that had been established by Faraday. The magnetic field produced by a changing electric field had been small enough to be missed by the measuring instruments of the day.

But this was not the end to Maxwell's brilliant work. He saw that the interaction of changing electric and magnetic fields would produce waves of electromagnetic energy and deduced that they would propagate at the speed of light. He published his work in 1867.

Not until twenty years later, by which time Maxwell was dead, was Hertz to confirm the existence of these waves by experiment.

Seven years before Hertz, an experimenter, D. E. Hughes, had demonstrated the propagation of electromagnetic waves, but had not interpreted the results correctly.

How did Hertz confirm Maxwell's theory? His equipment was two metal spheres, close together, and energised by the secondary of an induction coil. This was the transmitter. His receiver was a circular loop of wire with a metal sphere on one end of a spark gap.

Hertz made use of such simple equipment to determine wavelength, frequency and thus the propagation velocity. He investigated its reflection, refraction and polarization properties. I have read that he used wavelengths between one and forty feet. From his experiments he concluded that these electromagnetic waves were part of a larger spectrum including light.

I believe that, apart from the scientific results he obtained, there was an unfortunate consequence of his work …….....

G4CIB and G4RHK on Lundy 2021 - update

As mentioned in my Editorial notes, our trip to Lundy is going ahead as scheduled and we depart Bideford on the **M.S. Oldenburg** on Saturday 1st May, departing at 0830. During our Zoom meeting with the Island Manager on Tuesday 27th April we were concerned to hear that the sailings on the previous Saturday and Thursday had been cancelled because of the strong easterly wind which is always a problem at Lundy when trying to moor against the jetty in the Landing Bay. In these cases the helicopter is drafted in with all the attendant problems of luggage limitations. At the moment the forecast for the Bristol Channel is a moderate north-westerly so it will be a lumpy crossing but an easy landing!

I have all the equipment packed - FT857D, HF vertical antenna, 2 metre 3 element beam, 50 MHz dipole with an FT817ND as a back-up rig. I plan to be QRV for the 2m FMAC and UKAC on Tuesday 4th May also I have a sked with **Jim 2E0GKN** on 80m (3.7 MHz +/-) at 0815 local time also on Tuesday 4th May and on 2 metres (144.320 MHz +/-) at 1030 local time. On Thursday 6th May I'll be lurking on 80 metres looking out for Club on the Air. I can be contacted on 07749 896698 (voice/text) or 07743 379120 (text only) if you wish to arrange a sked. I can also be emailed **lundycurmudgeon@gmail.com**

Club members may have noticed **GB5LFS** listed in the Special Events Station column in the latest Radcom. This was scheduled to take place from 8th-15th May on the island as part of the 75th anniversary celebrations of the **Lundy Field Society. Owing to the Government restrictions still in force this event will NOT take place**

Anne 2E1GKY outside her new summer operating quarters. The 2 metre antenna is shown here at low level and with extra poles can be extended to 4 metres above ground level. Recently she had her first QSO from here using a Yaesu FT1500M

Anne tells me she has been waiting patiently for an outdoor operating shack for many years and at long last it has come to fruition.

Hopefully we will get a good summer for plenty of operating outdoors.

I know several members are anxious to operate /P after the extensive lock-downs of the past twelve months.

Email me with your /P exploits g4cib@outlook.com

Wanted!

Shack views or antenna photos - let other GARES members know what you are up to on the bands!

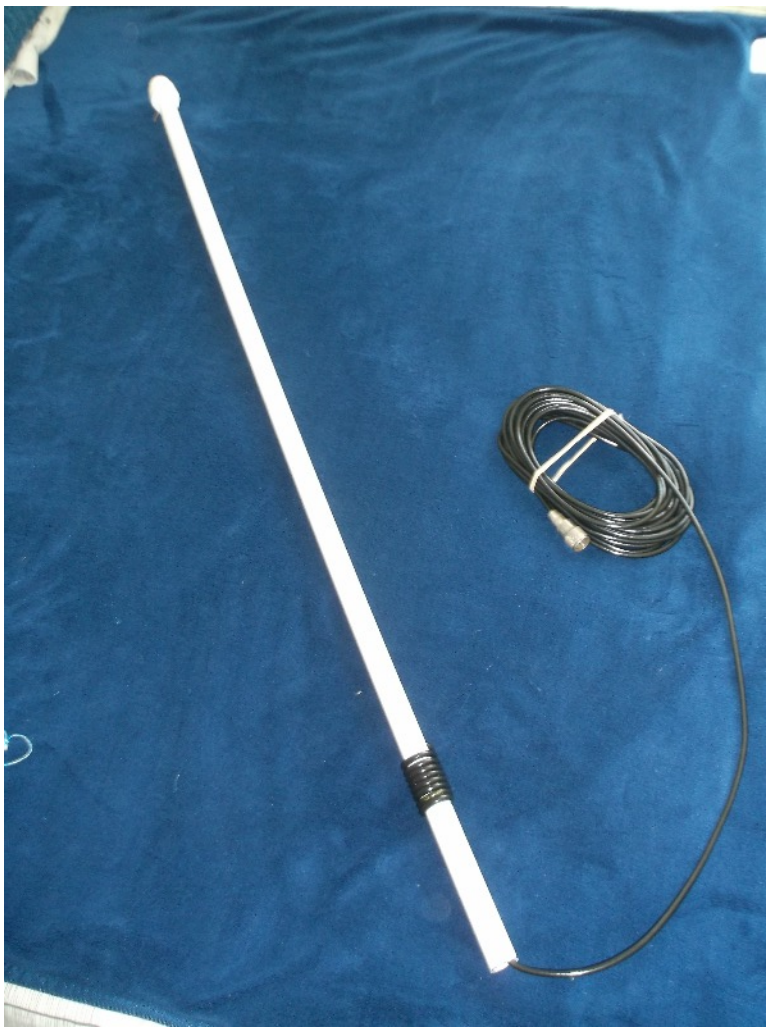
2 Metre Half-Wave Flower Pot Antenna

By Brian G4CIB

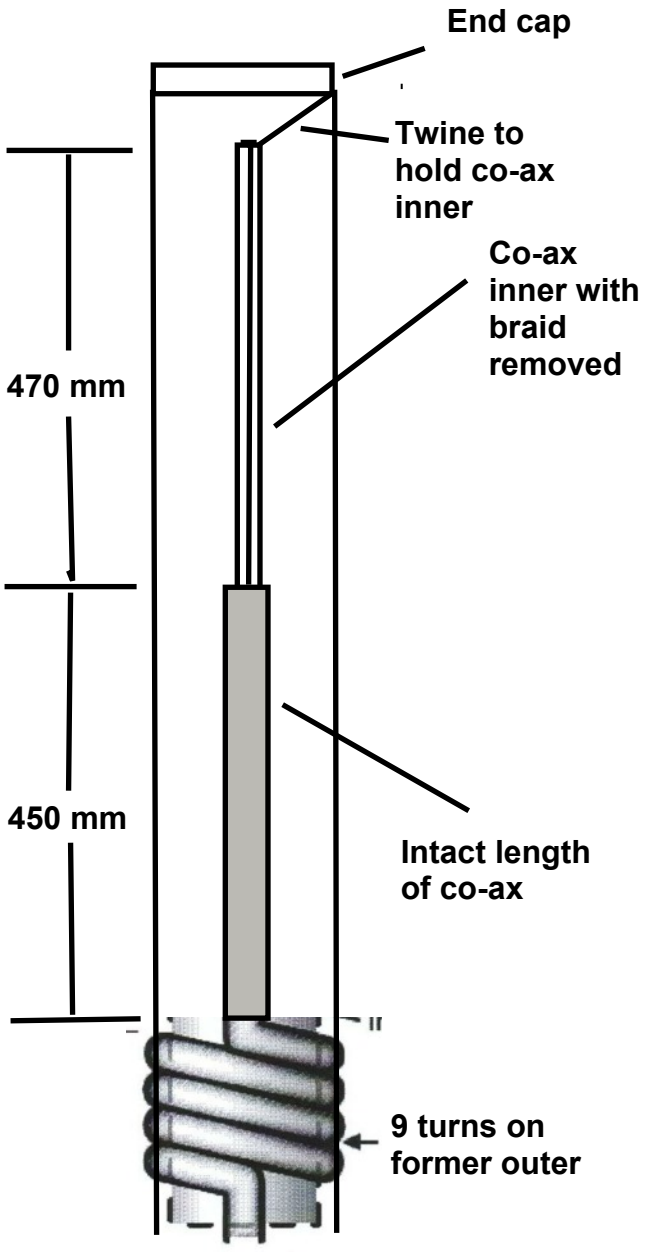
I came across this antenna design on the web site of **John VK2ZOI** so claim no originality. On his web site he states that, among other things, an antenna project should be cheap and easy to build, a design that can easily be replicated and meet the performance specifications, with dimensions that are not too critical. He also states that it should be not easily de-tuned by nearby objects and that no gimmicks are needed to make it work.

It took me at most an hour to make from scratch, and initial tests showed an SWR of 1.2 to 1 on initial tests. A few QSOs on 2 metres confirmed it was working well.

This antenna certainly meets these objectives and full construction details can be found on his web site but essentially all that is requires is a length of 25mm plastic tubing a metre or so long, a length of co-ax (enough for the antenna proper and feeder to the rig.



The finished antenna - ready to go!



Dimensional details

Vintage Column - The Heathkit HW-30 ”Twoer”

by Brian G4CIB

For the first time in ages I recently put in an appearance on the club **2 metre AM net** held every Tuesday at 20.30 local time on 144.550 MHz. I used my IC7000 which like most “modern” rigs, generates the AM signal at low level and then amplifies the signal linearly. The old fashioned way was to generate the RF from a crystal oscillator (usually 8 or 12 MHz) followed by a series of multiplier / buffer stages and then amplitude modulating the power amplifier with high level audio. A power amplifier running 10 watts DC input would need at least 5 watts of audio power to fully modulate the carrier. Looking around my shack I realised I had a Heathkit HW-30 - a 2 metre valve transceiver dating from the early 1960s. This model was the first rig I ever purchased around 1970. It had been built by **Russell G3VDX** who lived near Alvechurch and he decided he needed something with a better receive capability.

The HW-30 (left) is a self contained transceiver comprising a crystal controlled transmitter running a DC input of 5 watts to the final amplifier and a super-regenerative receiver along with a self-contained power supply for the valve HT and LT requirements. When this set was introduced, the use of a super-regenerative receiver was adequate due to the low number of stations active on the band. Although very sensitive, selectivity was very poor and the technology was soon overtaken by the use of 2 metre converters into HF receivers. I continued for quite a few years using the transmitter side of this rig with the receiver disabled and using an outboard converter giving an output of 4 - 6 MHz which I fed into an HRO receiver.

Chassis underside view

Two 6BA8 valves (L) form the Tx oscillator, multiplier and PA stages, 6AQ5 modulator valve and transformer (R) and mains transformer (C). The Rx valve is hidden behind the mains transformer and smoothing cacpacitor.

Checking my set over, the RF output is a bit low and I suspect the PA valve needs replacing although I need to do some further checks to confirm this. Luckily I have the assembly manual so I have all the information I need to do a thorough check of the circuit. I’ve searched through my box of crystals and so far have been unable to find one that will bring the transmitter up on 144.550 MHz.