



RAGCHEW

DECEMBER 2021



From the Editor

In last December's "Ragchew" our Chairman **Dave G4BCA** looked forward to the time when we could all meet up again face-to-face. Happily this came to pass in the Autumn with fortnightly meetings being held in Down Hatherley Village Hall. With rising Covid-19 cases, some members are understandably reluctant to meet others in a closed environment as even being double or triple-jabbed is no guarantee of avoiding infection as Leta and I can both testify. For those who do attend these meetings, be assured that both the hirers (Down Hatherley Village Hall Committee) and the club Committee have assessed the risks involved and provision is made to ensure a safe environment for everyone. During the last few days a new variant of Covid has been discovered in South Africa and restrictions such as mandatory face-masks in shops etc are being re-introduced so caution is the watchword.

In this issue **Tony G4HBV** continues his series "A Brief History of Radio" which brings us to the early decades of the 20th century. **Malcolm G6UGW** has some further thoughts on the ¼ wave antenna and calculating the dimensions of the 5/8 wave antenna.

I describe how I bring an old analogue VOM (volt-ohm-meter) back to life on all ranges and finally (non-radio related) a brief note on a seasonal visitor to our garden.

Can I take this opportunity to thank all members who have submitted articles during the past twelve months and look forward to receiving more material in 2022.

And to round off, this time of the year (usually in the quiet period between Christmas and the New Year) I check all my equipment and gadgets which contain batteries: checking voltages and looking for any showing signs of leakage. It can save a lot of problems later!

Wishing all members and their families

a Merry Christmas and a Happy New Year

Best 73 and Stay Safe,

Brian G4CIB

Contest News

By Brian G4CIB

As the year draws to a close the **VHF UKAC** contest finishing line is almost upon us. As of going to press in the dying days of November, the club is in the following positions:-

Overall UKAC: 18th position out of 42 in the Local Clubs section, and broken down into the various bands as follows:-

50MHz 14th out of 31 entries, 70MHz 18th out of 26 entries, 144MHz 15th out of 41 entries and on 432MHz 15th out of 34 entries

In the **FMAC** series, the club is in 3rd position on 432MHz and 4th on 144MHz

I will summarise the **HF results** in the next "Ragchew"

A Seasonal Friend

By Brian G4CIB

Back in the summer during my stints in the garden I befriended a young robin which was soon eating mealworms out of my hand. He has since taken up residence in the garden and claimed it as his territory having seen off what I think was another robin from the same brood. He still follows me around whenever I'm in the garden and with these colder days, insists on being fed some worms! Several times he's come into the house and it's the very devil to get him to go back outside!



A Brief History of Radio - Part 5

By Tony G4HBV

In the time between the late 1890s and the First World War starting in 1914 there was a period when experimenters were either infringing patents or trying to find ways of working around them. This period also saw the demise of the un-tuned radio systems, such as the first of the Marconi company's products. Marconi had demonstrated his system to both the American and British navies, but both had concluded that the working of a radio system, in itself, was not patentable - only individual devices could be so protected. Both navies decided to go their own way. Patent battles in the industry would continue for years.

As an example of what was happening it is interesting to see how various attempts were made to produce the detector and avoid using the patented coherer. There was an electrolytic detector using a fine wire dipping into a platinum cup of dilute acid. Signals were heard in headphones via a potentiometer across the detector. There was a 'tikker' detector which used a rotary slipping contact to break the RF down into random parts that could be heard on headphones.

The Marconi Company invented a magnetic detector which consisted of a soft iron wire travelling between several coils and depended on the hysteresis effect to make the RF audible.

But all these detectors were somewhat of the "freak class" - they all had serious disadvantages; coherers were delicate and subject to vibration and magnetic detectors were of low sensitivity. J. A. Fleming in England had experimented with early electric filament lamps and when he became scientific advisor to the Marconi Company in 1899, he became aware of these problems and in 1904 onwards some Marconi receivers adopted it as the detector. However, although the Fleming valve detector was more sensitive than the magnetic detector, some Marconi operators preferred to continue using magnetic detectors as they were considered more reliable.

However within a year or two, Lee de Forest in America, had invented the triode valve and this was to unleash yet another protracted patent battle.

Further thoughts on the $\frac{1}{4}$ wave antenna

By Malcolm G6UGW

In a recent "Ragchew" I submitted the calculation for the length of a $\frac{1}{4}$ wave antenna (divide 7000 by the frequency (in Mhz) and the answer is in centimetres).

Whilst thinking about the $\frac{1}{4}$ wave antenna and pondering about a $\frac{5}{8}$ wave size I realised that a $\frac{1}{4}$ is two $\frac{1}{8}$ ths. So to get a $\frac{5}{8}$ antenna size divide the $\frac{1}{4}$ wave result by 2 to get $\frac{1}{8}$ th then multiply by 5 to get the $\frac{5}{8}$ th dimension.

I hope this tip might be of help.

Bringing a vintage VOM back to life

By Brian G4CIB

For a long my main instrument of choice for voltage, current and resistance measurements was with an old Cirkit DVM (digital voltmeter). A bulk purchase was made on behalf of the club and at the time many members purchased one. As an aside, **Vernon G0HTO** was one member who purchased one and he recalls using it to measure the mains voltage when the meter lit up like a lamp bulb and promptly went "pop"! He concluded that over many years of use the plating on the rotary switch had degraded and formed a fine resistive film between the switch contacts. Normal use on low voltage DC circuits was satisfactory but 230V AC across the meter terminals was the kiss-of-death! I've only recently pensioned mine off, replacing it with a Tenma DVM.

Rummaging around in one of my many cupboards I came across an analogue VOM (volt-ohm-meter) which I had purchased (according to the Instruction sheet in the box) on 13th April 1984 from **Richards Electrics** in Barton Street, owned by **Roy G3VZR (SK)**. The brand name is **Altai model C723OHN**. It has various ranges to measure DC voltages up to 1000V with a sensitivity of 100,000 Ohms/V, AC voltages up to 1000V with a sensitivity of 10,000 Ohms/V and DC currents up to 500mA. The resistance ranges measure up to 100 MOhm. Interestingly it has a scale calibrated in Decibels from -20 to +62 dB. The calibration is for 0dB=1 milliwatt (0.774V) in a 600 ohm line for 6V in the 10V AC range. Higher levels can be measured by switching to a higher AC voltage range and adding the appropriate number of decibels as listed on the meter scale plate e.g.50V range add 14dB. The unit contains a 1.5V AA battery which is used for the resistance ranges up to 1 Mohm, and a 15V battery on the very high resistance (100MOhm) range. Although the instruction sheet does not actually specify a part number for the 15V battery I recall that it was a square cross-section battery approximately 30mm long and was a type used in photographic applications. Removing the back cover I noticed a label that I had removed this battery on 30th December 2015 as it was starting to leak. I inserted a new AA battery and confirmed that the Ohm ranges worked OK except of course the 100 MOhm range. I found that the local hardware shop stocks a 12V battery part number MN27 but it is only about 26mm long so I found a small piece of aluminium tube into which the battery fitted snugly, cut the tube to approximately the same length as the original battery and inserted a small spring in to the tube at the negative end. By using a small screwdriver I was able to insert the battery assembly into the meter. As it was only 12V, I found that with the leads shorted together to adjust to FSD (full scale deflection), the meter needle was just shy of zero ohms, so at least it would be usable on the very high resistance range albeit with a small error. Idly searching on eBay I discovered that a 15v battery is available specifically as a replacement for the batteries used in photographic applications along with the legendary **Avo 8** and the reference is **BLR121**. I understand for later Avo 8 models, the replacement is **BLR154**. The photos below show the front and inside view of the meter with the replacement 15V battery at the top. It appears to be a stack of 10 1.5V button cells in a heat-shrink sleeve. I've also included a photo of my original solution with the small MN27 12V battery, spring and aluminium tube

