



RAGCHEW

MARCH 2017

FROM THE EDITOR

Spring is well on the way and it is at this time of the year that I look forward to getting outdoors for some /P operating. Looking back over my old log books I see that it was usually around Easter time that I took to the hills for some 2 metre operating. What better way of enjoying the great outdoors! With such rigs as the FT817, HF portable operating has never been easier. Do let me know by way of an article your /P adventures.

Also on the horizon is the Sporadic E season when VHF operators can look forward to enhanced propagation particularly on 50MHz. So what better time to feature the UK Six Metre Group (UKSMG) in the "Special Interest Clubs" feature. Are you a member of a Special Interest group e.g. ROTA (Radio Amateur Old Timers Association) or ISWL (International Short Wave League)? If so, how about penning a short article for "Ragchew"?

A few weeks ago I spent a wonderful hour renewing an old friendship with Terry Adams G4CHD who called by at our shop whilst on his recent visit to Cheltenham for the funeral of the widow of Roger Hawkins. Many will remember Terry as the RAE Lecturer at Gloscat during the

1980s. In the 1970s both Terry (then G8ENK) and I worked at Smiths Industries (now GE) at Bishop's Cleeve and we learnt Morse together, both of us listening regularly to Slow Morse transmissions on 2 metres from G3RAF at RAF Locking. After our 30 minutes of 5, 10 and 15wpm Terry and I would often have a QSO on 2 metres comparing notes. During our conversation Terry mentioned about me accompanying him to Portishead Radio near Burnham to take his Morse test in 1973. Unfortunately Terry's memory - like mine - is a bit hazy and I assured him that it was not me as I did my Morse test at the Ships Surveyors Office, Bute Street, Cardiff. His only recollection of that day was that they had to go via Bath as the person who accompanied him had a relative there that he wanted to visit. Were you that person or can you shed any light on who the amateur was who went with Terry that day? A long shot I know, but there may be someone out there who remembers!

Andy MORON has submitted a brilliant article about some recent interference he experienced on 2 metres. His detective work in trying to solve the mystery makes interesting reading.

Special Interest Clubs

No 2 - The UK Six Metre Group

The UK Six Metre Group (UKSMG) can trace its roots back to the early 1980s when Steve G4JCC, who had been an SWL on the old 5 metre band, met some of the amateurs who had been given special permits to operate on 6m during Solar Cycle 19 (April 1954 - October 1964). The Solar Cycle 19 peak coincided with the International Geophysical year (1957/8). It was during these discussions with Harold Rose G4JLH, Al Slater G3FXB and Ken Ellis G5KW and others involved in 10m/6m cross band QSOs that Steve learnt of the probability that UK TV transmissions on Bands 1 and 3 were to be discontinued and that the future of those frequencies could not be ascertained. More discussions with G4JLH coined the name 'UK Six Metre Group' and it was decided that the aim of the group was to collect and disseminate information about the 6 metre band and press for a permanent allocation of frequencies. A temporary committee was formed to guide the new group with G4JLH as chairman and Steve as treasurer, secretary and editor. They made arrangements to have their first Annual General Meeting (AGM) at the 1982 VHF convention at Sandown Park, at which the temporary committee resigned to allow the proper appointment of a committee and officers. The UKSMG now boasts over 600 members and produces a glossy quarterly journal "Six News" which I certainly look forward to receiving. For the latest information visit their web site <http://www.uksmg.org/landing.php>. A sample copy of "Six News" is available for downloading. The current membership subscription is £15 which includes receipt of a printed copy of "Six News" or if you only wish to receive "Six News" as a download then the annual subscription is £10

RF Notes by Tony G4HBV

The projected QSO attempt between Dave, G4BCA/P Isles of Scilly and Brian, G4CIB/P Lundy Island on the 70cm band will be an interesting exercise. It is also interesting to examine the factors effecting the chance of success or failure.

First we need to consider the radio horizon. The atmosphere immediately above us causes RF (radio frequency energy) to be refracted downwards, causing the radio horizon to be 1.34 times the visual horizon. If we assume both stations are located on cliff tops overlooking the sea, a simple formula gives 14 miles range for a height of 100ft and 20 miles for 200ft. Contact is possible if the horizons for the stations overlap, giving ranges of 28 and 40 miles for the two antenna heights above the sea. Note that propagation on 70cm is by direct wave (space wave) and not the ground wave used on say the 2MHz band, where RF is propagated by diffraction along the surface.

Beyond the radio horizon distances, propagation will depend on further refraction caused by changes in the composition of the lower atmosphere, termed scattering. Such conditions could extend the range to over 100 miles. On the map the path appears as 115 miles over water which increases the chance of success because colder, moist air immediately above the sea will act as a boundary to drier air above and hence refract the RF for longer distances. It is also accepted practice that horizontal polarisation is better for long distance at VHF and UHF. So success is going to be dependent on atmospheric conditions – a matter of chance. Finally let's have a look at signal strengths we might expect over such a path.

There is no way that we can calculate the signal strengths caused by the kind of enhanced propagation just described. What we can do however, is to calculate signal levels on the basis of "Free Space" propagation. What this means is that we ignore the radio horizon and assume that a direct (space) wave can exist between the two stations. The factors in such a calculation are twofold: firstly there is the spreading loss – because RF is expanding outwards from the transmitting antenna so weakening the field strength as it progresses. Secondly, and rather complex, is the interaction of the field and the receiving antenna, which brings the frequency into the calculation. As I don't know the exact make-up of the two stations, going by what Dave told us in his ten-minute talk, I have made some assumptions as follows:

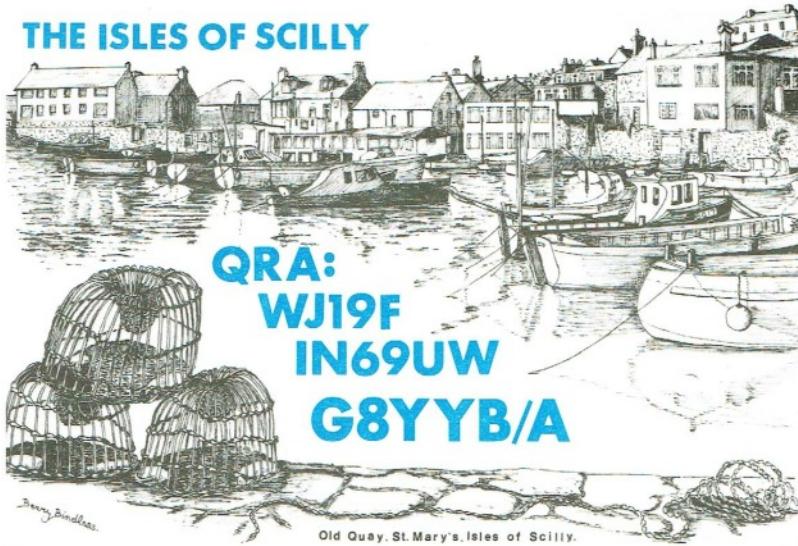
Both stations will be using low power transmitters with modest antennas having a gain of around 5dB over a dipole. So I've done the calculations for two cases, assuming ERPs (effective radiated powers) of 10 and 20 watts. In the two cases the field strengths come out at 70 and 100 micro-volts per metre respectively, which then give 16 and 20 micro-volts at the receiver inputs. This is more than enough for effective communications on narrow band FM, with receiver sensitivities of around once microvolt.

Lundy Island 9th-16th September 2017 by Brian G4CIB

Leta G4RHK and I will be on Lundy between the above dates and as you will have realised from Tony's article, Dave G4BCA will be on the Isles of Scilly at the same time. Tuesday 12th September, being the second Tuesday in the month, it will be the 70cm UKAC contest and Dave will be a much sought-after station located in IN69 square. We thought it would be a good opportunity to attempt a Lundy to Isles of Scilly QSO on this band during our stay. So watch this space! The rig at the Lundy end of the QSO will be an IC7000 running 35 watts into a 6 element yagi at about 12 feet above the ground, the location on Lundy being approximately 500 feet ASL.

While discussing our plans with Dave I remembered that years ago I had worked a station on the Isles of Scilly on 2 metres and that I had received a QSL card. Sure enough in my collection I found the card confirming my QSO with G8YYB/A on 8th July 1985. The card is reproduced on the next page.

THE ISLES OF SCILLY



**QRA:
WJ19F
IN69UW
G8YYB/A**

TO RADIO **G4CIB** CONFIRMING OUR QSO OF **8 JULY 1985**
AT **1645** HRS GMT ON 144 MHZ SSB (J3E). YOUR RPT R **5 S4**

EQUIPMENT:- ICOM 251A + muTek FRONT END: LINEAR: NAG 144XL □
TOKYO HY-POWER 160V: ANTENNA: 13 ELEMENT PORTABLE TONNA.

LOCATION:- THE GARRISON, SAINT MARY'S, ISLES OF SCILLY.

LAT:- 49 55'N LONG:- 6 19'W NGR:- SV 897103

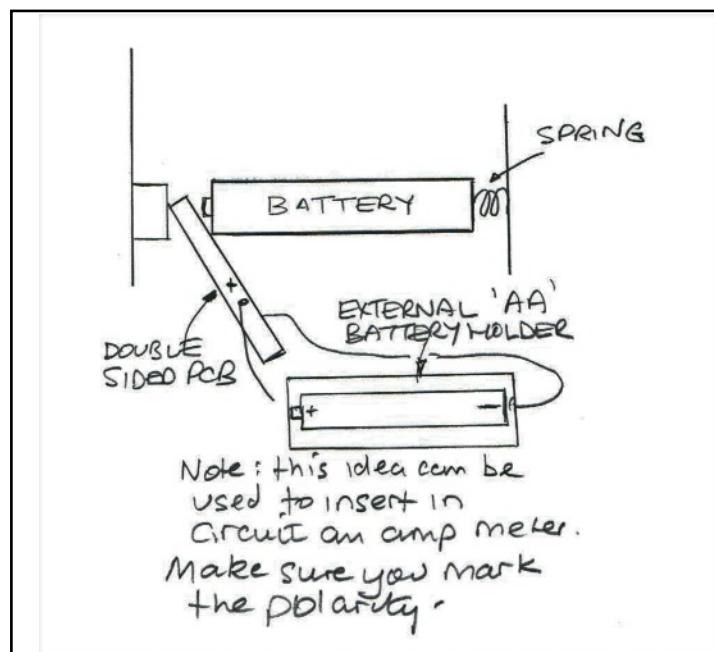
OPERATOR:- DAVE GRAY, 68 SIXTH CROSS ROAD, TWICKENHAM, TW2 5PD.

PLEASE OSL VIA RSGB OR DIRECT WITH SASE/IRCs. THANKS !

G8YYB/A WILL RETURN TO THE ISLES OF SCILLY IN JULY '86 WITH
144 and 432 MHZ. SEE YOU THEN ! BEST 73s *DG*

An Omission!

Many apologies to Malcolm G6UGW for omitting a diagram from his article in last month's "Ragchew" which is reproduced here.



Interference on 2 Metres

By Andy M0RON

My reception of 2m FM signals at home has always been good, as is normal, until the start of the New Year. Whilst listening on 145.500 the channel had no noise on it unless I received a modulated signal when the wanted signal was accompanied by a rhythmic noise rendering any signal below S3 impossible to copy, below S8 tiring to copy due to the noise and only S9+ signals being clear of the noise. This noise wiped out the whole of the 2m band. The following is my attempt at tracking down the noise and the offending source.

At home I quite often use a Yaesu VX8 DE handheld, either with a Diamond antenna on the handheld or I hook it up to my Diamond V-2000 co-linear up above roof height. When the noise first appeared I wondered whether it was a fault in the radio so I tried a Baofeng handheld side by side with the Yaesu, both radios were affected so it was unlikely that they both had the same fault. I then hooked up the Yaesu to my co-linear along with my FT-817ND and used an antenna switch so that I could very quickly switch between radios using a common antenna, both radios were affected. So having established that the fault was not in any of the three radios used and that different antennas picked up the noise I was then faced with the prospect of tracking down the source, I will also add that all three radios were battery powered.

I set down to keep a log and quickly established that the noise only occurred at two times of the day, breakfast time and as soon as it got dark. To see if it was anything in my house causing the problem I turned off the power to see if the noise stopped, of course I could only do this if the noise was present, with the power to my house off. So when the noise was present I turned off the power at the fuse box, the noise was still present so I reasoned that the noise had to be originating external to my house.

At this point I should say that the interference was worse when I was outside my house, whilst standing on my deck in the back garden it was bad, inside the house at certain points it was a little better but still making reception difficult, transmitting was unaffected with good reports received, when I could understand what the person replying was saying. Also I could only try and trace the source if I could receive a modulated signal AND it was breakfast time or dark, not easy. To the front of my house the noise was still present although if I walked 10 metres north of my front door or 15 metres south of my front door the noise disappeared and normal reception was obtained. At one point to the front of my property just above Virgin's cable TV junction box to my house the noise became louder. So it appeared to be coming from my house, my neighbours house or Virgin's cable, remember that I had turned off my power and the noise was still present so it couldn't be me so maybe it was the little old lady next door that was the source of the problem, and that was my opinion. Especially as the noise seemed to coincide with her putting her lights on.

I made some recordings of the noise and sent them to Les, GOULH, who couldn't shed any light on the source but we decided to set up a sked between us so that I would have a modulated signal to work with and also see if other bands were affected. So the sked happened with Les on his home radio, me on my handheld so that I could walk around and Rita on the telephone co-ordinating operations. Would you believe it, no interference, Mike G4IZZ joined in giving me good reports but without an interfering noise we stopped our attempt at finding the source.

Then for a couple of days the little old lady next door went away and so did my noise reinforcing my thoughts that she was causing the problem. Another experiment was set up involving me running up and down stairs when the noise was present to see if there was any benefit by abandoning the handheld with its whip aerial and just using the co-linear above the roof, although the co-linear was better it was still there. One evening whilst unable to listen or participate in the club net due to interference I knocked on her door to ask if she had any new electrical items, she hadn't and would not let me knock her electric off and at this point convinced that it was her house causing the issues I resigned myself to keeping a detailed log and involving OFCOM.

Then something happened to change my thinking. One evening for about 60 seconds all the household lights started flickering, the TV turned itself on and off, a radio in the kitchen did the same, I went to turn the lights off when it all

went dark. A power cut I thought, we have quite a few in Bishops Cleeve. After a while I realised that other people still had power, and it appeared to be only my house affected, There was no bang so I assumed that the service fuse hadn't blown and I phoned the electric company responsible for the grid network. They confirmed that no one else was off grid and despatched an engineer to the local substation and there he found that I had blown the fuse that fed the circuit that my house is on, no one else, just me. He put the fuse back in and my supply was reinstated only my electricity meter had no display. It is not a smart meter but it has a digital display showing how many units have been consumed. The engineer looked at it and told me to contact my supplier as he could not change it. At this point I got to thinking that my meter may, just may, be the source of the noise. Two weeks later the meter was changed and the noise disappeared.

It appears that it was my electric meter causing the problem, maybe a component was going bad, finally failed and blew the fuse in the substation. When I turned off the power to my house the noise persisted as the display was still working and the meter was still being fed as it is mains side of the fuse box. Moral of the story? Even if you turn off the mains to your house at the fuse box and the noise still persists it may still be you causing the problem.

Why was the noise greater in certain parts of the house or outside? The meter is inside my hallway and has line of site through a big window to the rear garden, also through a front window to the spot where the TV cable junction is. It seemed to radiate over a distance of about 20 metres however it was unable to penetrate a three foot thick chimney breast but could penetrate a normal brick wall decaying as it passed through subsequent walls. Why only at breakfast or at dusk, presumably because that was when the meter was passing most current although sometimes it was OK. I had walked up to my meter with an AM radio and the noise there was worst but as I had turned my supply off thus proving it wasn't me and my neighbours meter is in the same place just the other side of the wall I had assumed that the issue was in her house near the hallway.

I'm glad it has been resolved but if the substation fuse hadn't blown I'd have never found it. RSGB EMC have never had one of these meters do this before, smart meters yes but this was a first. Hopefully my experience may help someone in the future and bear in mind that knocking off the power doesn't guarantee that it isn't you causing the problem.

What I don't understand and if anyone can shed any light on it I'd like to hear from you, is why the noise only occurred if a modulated signal was present. It seems that it piggybacked on a wanted signal with a parasitic action.

-----0-----0-----0-----

And Finally

Many thanks to Tony G4HBV and Andy MORON for two very interesting articles. I am always pleased to receive material for publication so do put pen to paper. Leta is always happy to type up your article! You can of course submit articles by email to g4cib@outlook.com

Many members of GARES are supporting various RSGB Contests both HF and VHF and earning points for the club. Do ask any of the regular participants if you would like to "have a go" and are not too sure how to put your entry in.

Also coming up is the Spring Challenge which should be interesting as it features the so-called "WARC bands" and for the first time in a Club Challenge you are being asked to decide on a single mode (SSB, CW or Digital) for your entry. Already I sense tactics are coming to the fore. Another first for the Challenge is an opportunity for newcomers who have never entered a Club Challenge before to scoop an award which will be given to the highest place new entrant in each mode.

And don't forget to join in the Club Net on Wednesday evenings ably hosted by Tony G4HBV, Club on the Air on Thursday evenings hosted by Tom G3XMM and a new 70cm Club Net on Friday evenings at 1930 on 433.220MHz ssb hosted by Dave G4BCA