RAGCHEW

AUGUST 2023

From the Editor

Leta and I spent the last two weeks in June on Lundy and as well as some amateur radio, monitoring the marine bands proved to be interesting. Read my report in this issue.

Tony G4HBV continues his **"Brief History of Radio"** and in this issue he covers the developments in radio as a result of World War 2.

Although **Malcolm G6UGW** does not join in the 2m club nets very often, he does listen-in when work permits. Some time ago he was monitoring when the subject of sunspots and the solar cycle was discussed. He has submitted some interesting information regarding these phenomena.

It's been a quiet month in my shack and operating on 2m and 70cm SSB curtailed owing to my loft rotator failing. Many thanks to **Les G0ULH** and **Vernon G6HTO** for pointing me in what is hopefully the right direction, namely a failed capacitor in the control box. A replacement was ordered on eBay and has duly arrived, Now I need to find time to get inside the box and wield the soldering iron!

When my rotator failed, I had hoped to do some operating on the lawn, particularly for some of the UKAC events, but the shocking weather put pay to that idea.

A recent visit to **Severn Beach** on the train proved to be an interesting day out as Leta and I managed to explore the area around the Second Severn Crossing, now called the Prince of Wales Bridge. I took my Baofeng hand-held and heard some interesting marine traffic, in particular Bristol VTS (Vessel Traffic Service). A further visit is planned in the near future to explore the area further, including Pilning and New Passage.

I expect many of you will have heard the proposed closure of the Long Wave transmitter at Droitwich next year. I expect that many of you, like me, got interested in radio with the construction of a crystal set and listened to the then Home Service (now Radio 4) when it transmitted on 1500 metres (200kc/s in old money).

And now the usual plea for more articles for Ragchew! It would be great to have some new contributors alongside our regulars **Tony G4HBV** and **Malcolm G6UGW.**

73 Brian G4CIB

Sunspots and Solar Cycles

By Malcolm G6UGW

Solar Cycle 25 began in December 2019, and sunspot numbers are rising*. We expect the solar maximum around July 2025. In case you are wondering, a solar cycle is approximately 11 years. Sunspots were discovered in the early 19th century by the German amateur astronomer Heinrich Schwabe (1789-1875). He monitored the sun for some 17 years from 1826 to 1843 and from his observations suggested that sunspot peaks occurred roughly every 10 years. Later astronomers carried out further observations which corroborated Schwabe's results and he was credited with this important discovery.

*In the range of 95 to 130.

References: RSGB Call Book 2020, Philips Stargazing 2023 edition.

DMR Radio. Help requested please

By Mike G6OTP

I have had a bit of a dabble at DMR this last year or so but only because I was able to get a handie at a knock down price.

Is it really Amateur Radio? I am not too sure, as it is only 'rf' as far as the repeater and then someone else's computer does the rest but I think it can still sit under the heading of 'mucking about with radios'.

My main interest at the moment is to finish writing a codeplug and talk through GB3CC at the least. I have a basic TYT380 handie and am using the stock CPS editor. So far, I have set it up for FM simplex and for FM into the Churchdown and Stroud repeaters. All on 70cm and QSO checked. Digitally, I know I have been heard through GB3CC but could not receive a reply for one reason or another and I can hear plenty of activity on talk group WR91 (worldwide).

Hope that's not too much detail but am I a million miles away or just a couple of keystrokes?

So, here's the request. If I brought my laptop along on a club evening, could someone please have a look at my efforts and put me straight?

I would be more than happy to share the info with anyone else struggling.

Editor's note: If any club member can help, Mike's email is mike.rainbow2@tiscali.co.uk

A Brief History of Radio (Part 10)
by Tony G4HBV

World War Two was a watershed in the development of radio engineering. During the war there were many advancements made which a few years before would have been unimaginable.

To illustrate the level that radio engineering had reached you could consult a text book of the era, such as the “Radio Engineers Handbook” by Terman. It is an American book for professional engineers, published in 1943 by McGraw-Hill. I have never seen a British book of the same era to rival this. Likewise at the end of the War, MIT in America published their “Radiation” series of books that they had produced as a result of their work on Radar.

I'll now describe some of these advances that appeared during the War. The first one, which really startled British scientists before the Battle of Britain was the German navigational system “**Knickebein**”. This was a radio beam, around the 30MHz frequency. But at a hundred miles range it was only 400 yards wide – remarkable – whatever must the antenna have been? The system and two later versions depended on cross beams to indicate the target - but they were all easily jammed or interfered with.

During the War the Germans used great numbers of armoured cars for reconnaissance. In all films and photographs I've seen of such vehicles, they have all had some sort of horizontal railing erected on the top of the vehicle. I cannot imagine what this was except being a horizontal loop radio antenna. If so, it was very advanced for the time. Being reconnaissance vehicles they would have needed good radio performance, more so than their tanks, which never seemed to have had such structures on them.

Going over to the Allied side, great advances were made in HF DF, or Huff Duff as it was known. This would track HF transmissions via surface wave from nearby u-boats and display an instantaneous bearing on a cathode ray tube. It became a significant weapon for Allied surface vessels in the Battle of the Atlantic.

The Proximity Shell was a masterpiece of engineering. Typically a 5-inch anti-aircraft shell was fitted with components that would trigger the shell to explode when near the target. How did the fuze work? The radar transmitter's primary radiation would not be sufficient to trigger the explosive, but as the target became close, reflected power came into phase with the primary radiation and added to become sufficient to trigger the shell. There was a small cell whose electrolyte was released when the shell was fired, the valve in the shell was made by Sylvania and had to stand the shock of the shell being fired! These shells came into their own when the V1's were launched against London.

The invention of the Cavity Magnetron by Randall and Booth of Birmingham University meant that 100KW could be obtained at microwave frequencies. This gave the Allies a tremendous advantage in airborne radar and at one time it was considered too valuable to risk its use over Germany.

Radio Caroline goes Green

By Brian G4CIB

I recently spotted an item about **Radio Caroline** which transmits from Ordfordness. A solar panel array has been installed which is designed to not only to fully power the transmitter but also feed excess power back into the national grid. So as many broadcasters wind down their medium wave and long wave transmitters, Radio Caroline still sees a future for this technology. Hope for the crystal set builders after all!

G4CIB and G4RHK on Lundy

June 2023

It's hard to believe as I write this on a dark, wet and windy evening in early August that we enjoyed two weeks of glorious weather on Lundy during the last two weeks of June. Amateur radio is only part of the holiday and this year was no exception. This time of the year is the perfect time to view the extensive sea-bird life on the island and since the rat-eradication programme carried out a decade or so ago, puffins along with Manx shearwaters have made a dramatic recovery. We were delighted to view puffins at many locations on the west side of the island. Manx shearwaters have evolved to be a nocturnal bird owing to them being predated by black-backed gulls. On the dark, moon-less nights the sound of hundreds of Manx shearwaters coming into land at their nest sites to feed their young was amazing experience. Another never-to-be-forgotten experience this year was the sight of large numbers of butterflies including Meadow Browns, Peacocks, Tortoiseshells and Red Admirals.

Another little known Lundy phenomena which we witnessed this year occurred on the Summer Solstice, June 21st. The church of St Helena on the island is not aligned east-west in the usual manner but offset such that on the longest day just before sunset (if the sun is shining), the sun beams through the west window and lights up the church altar. For about 15 minutes before sunset the light is well to the left of the altar, and gradually moves across the chancel. I managed to get a picture, reproduced on the next page.

On the radio front, I monitored channel 16 also channel 0 on the marine band along with the 3-hourly maritime safety and information broadcast from Milford Haven coastguard giving the latest weather forecast along with any other notices. Towards the end of the first week a call went out to all shipping to look out for a yacht which had left Plymouth with a sole occupant bound for Baltimore in Ireland and was three days overdue. This was repeated daily until it was seven days overdue and a subsequent broadcast I heard reported that the yacht had been located and was under tow. Sadly it would appear that the lone sailor was lost overboard.

https://www.irishtimes.com/ireland/2023/06/29/fears-for-missing-sailor-as-yacht-found-drifting-crewless-off-cork-coast/

Numerous other broadcasts were monitored on channel 0 (lifeboats and rescue helicopters) where bathers using surf boards, canoes and other small craft had got into difficulty.

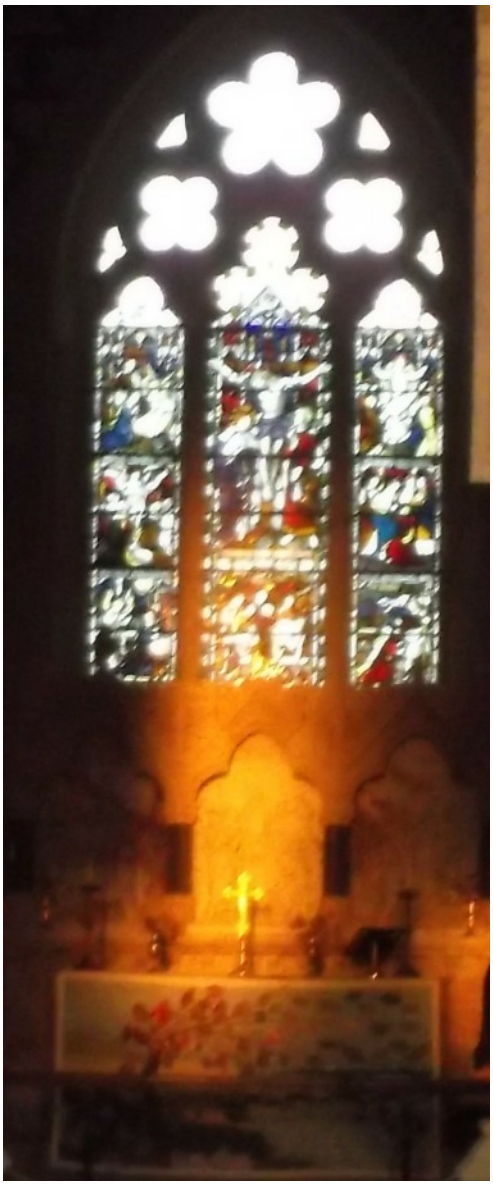
The location of our cottage in the Castle Keep on the southern tip of the island does not easily lend itself to HF operating, but I did manage to deploy a doublet antenna (actually a 3/2 wave dipole on 6m) which tuned up on 40m and upwards. For 2 metre FM I propped a vertical dipole in the upstairs window and was delighted to be able to access GB3WR on the Mendip Hills using my FT817ND and keep in touch with GARES members including **Jim 2E0GKN, Gary M0XAC** and **Martin G0ENZ.** On a couple of occasions I was able to set up outdoors in a paddock close by to the castle and use a home-made 3 element 2 metre beam to contact **Jim 2E0GKN** on SSB.

On HF, several QSOs stand out as memorable. On 40m SSB I was delighted to work **M3DPQ/P Bob** on Dunstable Downs who was also QRP using an FT817ND. On 20m SSB I worked SOTA stations **OE1WIU/P (OE/KT-260 Egger Kanzel 1595m ASL)** and on CW, **OE9TKH/P (OE/VB-488 Schoner Mann 1532m ASL)**

Advance Notice - G4CIB and G4RHK on Lundy 2024 7th - 14th September

G4CIB in QSO with Jim 2E0GKN on 2m SSB (above), and the view from the operating position showing the landing jetty and the South Light (above right).

Lundy Old Light (below). Years ago, before Health and Safety, I was able to drop an 80m sloping dipole from the top parapet. I seem to recall my TS120V with 10 watts did very well!



Sunset on 21st June

St Helena's Church