RAGCHEW

SEPTEMBER 2019

From the Editor

Although we close for the summer at Churchdown School, many club members keep in touch via COTA (Club on the Air) on Mondays and Thursdays (controlled by either **Gary M0XAC** or **Les G0ULH**) as well as the 2 metre club net hosted by **Tony G4HBV** on Wednesday evenings and the 70cm club net on Friday evenings usually hosted by **Dave G4BCA**. Maintaining contact with other club members over the air not only cements friendships but demonstrates to listening non-members (and I often wonder how many there are) that the club is a positive force for good. It is always sad to learn of instances of clubs being "slagged off" particularly on social media. Amateur Radio is a broad church and this is reflected in the varied and many interests of GARES members who, on a regular basis help and assist each other, the only reward being the satisfaction which comes from giving someone the benefit of your experience and knowledge.

As if to demonstrate the broad interests of our members, **Tony G4CMY** has submitted an article in which he describes the restoration of a Pilot domestic radio which not only presented him with some interesting choices but brought pleasure and joy to a neighbour.

Gary M0XAC and **Les G0ULH** operated for the World Cup Cricket Marathon using the call sign **GB19EB** and their report is in this issue.

Also in this issue "Now it can be Told" which originally appeared in the May 1983 issue of Practical Wireless, which is reproduced in "Ragchew" by kind permission of the PW Editor **Don Field G3XTT.**

Malcolm G6UGW continues with his Amateur and Broadcast band series and this month covers the 20 metre Amateur Band and the 25 and 31 metre Broadcast bands.

Our AGM is almost upon us and I have been trawling through the archive and found the minutes of the first meeting the club held at the **Lamb Inn,** in Kings Square Thursday 20th October 1966. Previous to this, meetings had been held at "The Cedars", the home of member Ivor Fear who lived at Brockworth. Many thanks to **Ron G3SZS** for jogging my memory about that.

73 and good DX! Brian G4CIB

Nick Perkins - G3MA

Many congratulations to Nick Perkins on attaining his grandfather Pat's call sign **G3MA.** This news prompted me to go back through my old log books. My first QSO with **Pat** was on 12th May 1969 on 2 metres and we chatted for some 40 minutes. I was running 5 watts of AM (amplitude modulation) and we exchanged 5-9 reports.

Contest Update

By Brian G4CIB

The latest standings in the **VHF UKAC** series, GARES is currently in 24th position in the Local Clubs table. In the August 144MHz contest **Gary M0XAC** running 10 watts clocked up 22 qsos, his best dx being GM3SEK at a distance of 353km. **Brian G4CIB** running 5 watts scored 11 qsos, the best dx M1MHZ at 175km. In the July 144MHz contest, **Brian G4CIB** managed 16 qsos again with 5 watts, the best dx being UKAC regular **GD8EXI** at a distance 290km.

On 70MHz we are struggling a bit as the only regular participants are **Gary M0XAC** and **Les G0ULH.** 432MHz is slightly better with **Gary M0XAC** and **Les G0ULH** being joined by **Brian G4CIB** and **Matt 2E0MFH.**

It would be great to see some more entries from members as they will all add to the club score. Any of the regular participants will be more than happy to assist any newcomers and show them what is involved!

The **Practical Wireless 70MHz** contest takes place on **Sunday 22nd September 1300-1600 UTC.** The club will be entering with the call sign **G2HX/P** from the usual Crickley Hill site. If you wish to join in at the club station, then have a word with **Gary M0XAC.** I will be on Lundy in the Bristol Channel and plan to be on for this contest. I have made up a three half wave wire dipole, each arm of the antenna being approximately 120 inches and fed it with coax feeder. In theory it should give 6dB of gain. Initial tests have proved positive - it loads up with a low SWR so in the next few weeks I will be trying it out "on-the-air".

See how the club fared in the 80 metre Club Championship later in this issue.

Cricket World Cup Amateur Radio Marathon Activity

GB19EB

By Gary M0XAC

Recently most will have been aware of the Cricket World Cup that was held in England and Wales from the end of May to mid July 2019 and that the RSGB ran an amateur radio marathon activity to coincide with this event.

There were 31 unique GB19 call signs the ends of which included letters for grounds, teams and some other 'HQ' stations as they were termed. There were also some international call signs as well. There was also an award scheme for the number of stations worked.

Les, G0ULH and I decided we would like to have a go at the event and duly registered our interest. The operating slots were of 6 hours in length and we decided we would do three of them. There were many other slots as they were designed to be on the air 24 hours a day for the whole period of the event but we decided this would be enough for us.

We signed up for Sunday 30th June, Wednesday 2nd July and Thursday 11th July operating from 13.00hrs to 19.00hrs local time using GB19EB for Edgbaston, Birmingham Cricket ground.

Unlike the usual SES's these operations can be conducted from home qth's so we decided to operate from Les's station. On the first day of operations we started on 15 metres having decided the higher bands were not cooperating and spotted ourselves on the cluster. Within minutes of doing that and calling CQ we were off and very busy immediately. I looked up after about the first hour to find that we had worked 90 stations and I was already tired! Being on the end of a pile up is quite an experience and picking out call signs is quite difficult. We managed to stay working simplex as the callers were quite well behaved. Much better than I have heard at other times!

We gradually worked our way down the bands with a short break about halfway through and finished the day on 40 metres which seemed to working for a change. By the end we had worked 300 stations - and it felt like it!

The second day was not quite as good as the first, propagation wise and we even tried some FT8 for a while which was quite hard and slow compared with single sideband. The third day again was similar to the second.
Our final total was 592 stations worked and we felt quite pleased with this. We worked all across Europe and down to Israel and out to Asiatic Russia. Les's station got a good work out, we used his Icom 7300 and amplifier for about 300 to 400 watts output. N1MM+ was used for logging which is excellent for this kind of operation. Some club members managed to work us, some on multiple bands and we thank those members for their efforts. Thanks also go to Rita M6RYL, our Club Secretary for keeping us fed and watered.

All in all it was a very interesting and enjoyable if tiring experience. I would recommend that others try this at least once if the opportunity arises again, as I'm sure it will.

The icing on the cake was that England won the cup!

The GB19EB Operators - Les and Gary at G0ULH QTH

G2HX/P - Low Power Field Day

Luckily the weather held for this contest - but conditions were not particularly good. Our best band was 80 metres with 44 qsos (the highest number in the 10 watt Portable section). 40 and 20 metres, however, let us down with only 9 qsos and 1 qso respectively. G2HX/P came 4th out of the six entrants. Some discussion took place after the contest regarding the choice of antenna for future Low Power Field Days. For the record the operators were **Mike G4IZZ (not in the photo below), L-R Bob M0NQN, Tony G4CMY, Gary M0XAC, Dave G4BCA and Brian G4CIB**

Thanks once again are extended to **Cliff G8CQZ** and his wife **Beverley** for the use of their QTH.

This is a very civilised contest - there is even a lunch-break!

If you would like to get involved in any future club contest activities, then do have a word with any of the "contest regulars" at club.

Even if you do not want to operate, you can "listen in" - an ideal way to brush-up your CW receiving skills.

GB4RSE

Special Event station at Epney for British Inland Waterways On The Air or 'BiWota'.

By Gary M0XAC

This year's BiWota SES was again held at The Anchor public house at Epney which is on the banks of the River Severn (hence RSE, River Severn Epney,) We occupy the field at the rear of the pub.

Set up began at 08.00hrs local and we were ready to begin operations by the appointed hour of 10.00hrs. We had erected the 80 metre Doublet, a 2 metre Slim Jim both at 12 metres agl, and the club's Gazebo had yet another outing.

We immediately ran into problems. There was distorted audio coming out of the headsets on HF which we could not resolve at the time and when we switched to the standard hand microphone and started calling, it became obvious that there was something wrong with the aerial as it was hard to tune and the vswr varied wildly whilst transmitting. After various checks it was found that one leg of the feeder was broken in a terminal block extension. I know - we should have checked there first really!!

After that problem was resolved we were off and running and started making contacts. Progress was slow on both HF and 2 metres in the late morning but as we went into the afternoon we discovered that there was propagation on 40 metres and so we stayed on that band for the rest of the day. It was very nice to have a steady stream of UK callers for once.

As most will recall it was a hot day but at least we had some shade under the Gazebo. We also had a fair number of club members visit us not least of whom was Club Secretary Rita, M6RYL with Les, G0ULH in tow bringing the tea and coffee makings and some very nice doughnuts! Some members also availed themselves of the Pub facilities.

The day was a great success both socially and operationally and we finished the day with 99 contacts in the log,the vast majority on 40 metres.
Grateful thanks go to all that helped or visited or made a contact with us and especially to those who operated the stations other than myself, Martin G4ENZ,Dave G4BCA, Sally 2E0OCO and James 2E0KVC who gets 'Operator of the Day' (no award sadly!) James is off to University in September and our best wishes go with him.

Above - James 2E0KVC operating with Gary M0XAC

Left - James 2E0KVC operating with Sally 2E0OCO

80 Metre Club Championship

The final results tables have been published and **GARES** were placed **11th out of 49 stations** in the **Local Clubs Table**.

This series of contests which run from February through to July were supported by club members **Martin G4ENZ, Bob M0NQN, Gary M0XAC** and **Mike G4IZZ.**

Martin G4ENZ came top in the **March DATA 10W Unassisted Section** also in the **March SSB 10W Assisted Section** - **Well done** - March was a good month for you!

For a detailed breakdown of all the individual scores by contest, go to the **RSGB website HF Contest section.**

Many thanks to the above operators for getting a good result for GARES!

Resurrection of a Classic

This is an account of the refurbishment of a Pilot Radio domestic radio receiver model U355 of 1937 vintage, that had been in my neighbour's loft for many decades.

The story starts at a (different) neighbour's funeral. I was talking to a couple who are in their 80's and the conversation went something like.....

Him: "Do you still do your radio?
Me: "I certainly do"
Him: "I've got an old radio in my loft. It used to belong to my father in law and my wife used to listen to Radio Luxembourg on it. It's in a bit of a state" ...(expectant pause)
Me: ..... "I could have a look at it for you but I can't guarantee results."
Him: "That would be great - if it works then my friend could do up the cabinet."

So a few days later he had retrieved it from the loft and called me round to look at it. It was in a sorry state; the cabinet was filthy, faded and scratched with bits of veneer missing. most of the knobs were missing, there was no back panel and the chassis was loose inside the cabinet. However it did seem to be otherwise complete and someone had already replaced the HT smoothing electrolytics (although clearly some time ago but a professional looking job). "OK", I said, "I'll take it home and have look".

Unfortunately I never thought to take photos of it in it's original state.

On closer inspection I was pleased to find that it was AC only so it had a mains transformer rather than a mains dropper resister so it would be more comfortable to deal with if there was any chance of it working.

I obtained a service sheet (they are, surprisingly, readily available for old radios) and discovered that it was a straightforward 4 valve superhet plus rectifier with a 6A7 oscillator/mixer, 6D6 IF amplifier, type 75 detector/AF preamp and a type 42 AF output. The rectifier was supposed to be a type 80-S but it had been replaced by a 5Z4G with its octal base removed and the 4-pin base from a type 80 attached very neatly in its place. The receiver covers the long, medium and short wave bands.

Since, back then, they were not able easily to make strong permanent magnets, the speaker uses a coil as an electromagnet which, cleverly, doubles up as the HT smoothing choke. It also has a "hum-bucking" coil which is a small coil wound in opposite phase to the energising coil to cancel out any residual mains hum.

So there was plenty that could be wrong with it after 80 years.

Resistance checks of the mains transformer primary, the speaker energising coil and the output transformer proved promising but before applying any power I replaced the mains lead as the old rubber insulation was perished and cracked in several places.

I reckoned it would be OK to apply mains but did so initially via a lamp limiter. This is a 100W bulb in series with the mains feed to the radio. The resistance of the bulb reduces the mains voltage supplied to the radio so reducing the possibility of higher than expected currents flowing in the circuit and doing more damage. The brighter the bulb glows the hotter it gets so the higher its resistance so the more it reduces the voltage applied to the radio. If the bulb glows brightly then the radio is drawing a relatively high current indicating a possible problem with the mains transformer.

The bulb lit dimly which was a good sign however the radio was dead apart from a faint hum from the loudspeaker. All of the valve heaters were glowing and a finger placed on the grid cap of the AF preamp

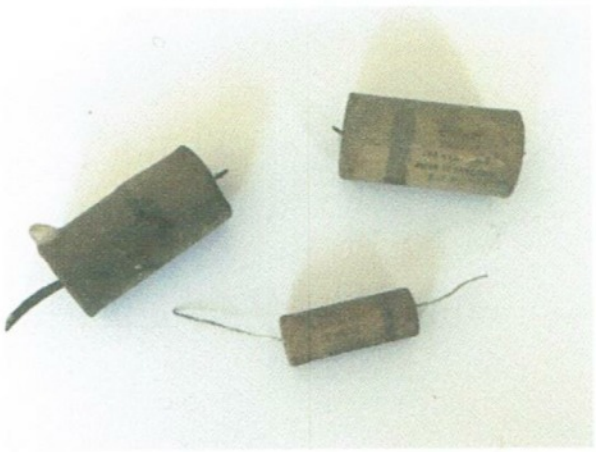
valve caused a louder (but not very loud) hum from the speaker. This suggested the audio stages were working after a fashion.

A field strength meter indicated that the VFO was oscillating so I tried replacing the IF amplifier valve. Now the radio came to life, albeit very quietly. I left the lamp limiter in for half an hour to see if anything began to smoke. It was OK so it was time to look at the decoupling capacitors.

Back then a common way of constructing capacitors with values around 0.01uF was to take layers of metal foil and waxed paper and roll them into a cylinder stuffed into a cardboard tube. Unfortunately, over time, the wax dries out and/or migrates to the outside so the capacitor changes its value or behaves more like a resistor. It was obvious from a visual inspection that the wax capacitors in this radio were all likely to be in this state.

I replaced all of the wax capacitors one by one with modern (and physically much smaller) equivalents. As each one was replaced the volume and audio quality improved.

These are some of the capacitors I removed from the radio. They are very big by modern standards.



There were also a couple of electrolytic capacitors which looked OK physically but, since they are cheap to buy, I replaced those just in case.

One resistor was showing about twice the expected value so I replaced that. Now the anode and screen voltages were measured and found to be within 10% of the expected values.

The volume and tone controls were in a poor state so I replaced both of those, sprayed some switch cleaner into the wave change switch and the tuning capacitor and lubricated the moving parts of the tuning drive mechanism.

Tom Morgan, G3XMM kindly tested all of the valves, together with some spares that I had acquired and gave them a clean bill of health. He also found a spare 6A7 which is quite a rare item these days. It tested just about OK and proved to work fine in situ.

After a bit of research I discovered that a company in the USA actually makes replacement knobs for this radio. Since they cost $10 each, plus postage, VAT etc I called the neighbour round to listen to his radio and decide whether he wanted to pay £60 for a new set of knobs. He couldn't believe how good the radio sounded and agreed without hesitation to order some knobs.

The chassis mounted into the cabinet via four metal and rubber bushes. After 80 years the rubber had perished and disintegrated. I managed to find some rubber grommets that fitted the metal bushes perfectly so I was able to recreate the mountings. All I needed now was some bolts to attach them to the cabinet.

I found one bolt that fitted but I had no idea what sort of thread it had. A visit to another neighbour who is a retired engineer resulted in the bolt being identified as 2BA. I came away with a tobacco tin full of 2BA bolts of various lengths.

Now I removed the speaker from the cabinet. As expected, the rubber mountings had perished and the fibre washers had hardened. Also, the gasket between the speaker frame and the cabinet was solid. I think it was originally a spongy rubber. Again some grommets were found that replaced the mountings, along with some new fibre washers and a strip of self adhesive speaker gasket from China, via EBay.

At this stage I gave him back the empty cabinet so his friend could do something with it.

The cabinet came back looking like new. He had cleaned, repaired and French polished it.

Next job was to make a back panel. I could not find a picture of an original back panel so had to make one up. I used a sheet of hardboard. I made holes for the pick up socket, the extension speaker socket and a slot for the mains lead to slip through. I drilled a matrix of 0.5 inch holes for ventilation and fitted a couple of binding posts for the aerial and earth connections.

The final job was to assemble the speaker and chassis into the cabinet and fit the knobs. Originally there were felt washers behind each knob but these were long gone. A bit of research showed me that felt washers are used when attaching guitar straps to guitars and these happen to be available in the size needed to go behind the knobs. EBay to the rescue again and the job was finished.

Here's the finished article:-

The purists would have done a full restoration - dismantling the whole thing, cleaning the chassis and all moving parts and inserting new capacitors into the hollowed out cases of the old ones but my neighbour really just wanted it to work.

It works as good as it looks and I've got some very happy neighbours. I just wish I had taken more photos along the way.

NOW IT CAN BE TOLD

by

JOHN D. HEYS G3BDQ

(Thanks to Don Field G3XTT, editor of Practical Wireless for his kind permission to publish in “Ragchew”)

Forty-six years ago this month (May 1943) an event took place which deserves more than a passing mention in the annals of amateur radio. It is odd that one of the biggest stories relating to our hobby was kept a close secret for so long, but it appears that "security" and the natural wishes of the leading participants and organisers of the affair to remain anonymous has until now perpetuated the news "blackout". All the principals in the story which follows are now dead, so it is fitting that their actions, which have had a lasting and beneficial influence upon the amateur fraternity's fight to keep, guard and hold exclusively our precious bands, should be reported. During 1935, the German High Command, which was already under the strict control of the ruling Nazi Party, sought a cheap but effective radio system that would enable small military units to keep a listening watch with the Abwehr HQ in Berlin. The system desired was to be free from jamming and enemy interference. Eventually a scheme was approved and work began during the autumn. It soon started operations in a limited form and by the end of 1936 was virtually complete. It was essentially a radio system based upon s.s.b. transmitting techniques and simple receivers using what is now called "direct conversion". Elegant in concept, the network used communications concepts far in advance of those extant at that time. The receivers were small, lightweight and basic. They had encapsulated pre-tuned " front-end" circuits with specially developed double-diode-triode valves to act as balanced detector and crystal-controlled oscillator. The detector was followed by a high gain twin-triode a.f. amplifier and suitable filter. The crystal oscillator could be "tweaked" a few hundred hertz about its nominal frequency, and this was the only tuning control. There were both battery and mains operated versions of the receiver, and all the valves were small metal types similar to the "Nuvistor" valves of the 1960's. Being so simple the receivers were rugged, and with the exception of the crystals (which depended upon a secret mass importation of special quartz from Brazil) were cheap to produce. The transmitter station was high-powered and normally radiated a clean un-modulated carrier which was broken at minute intervals by the letters ABW in high-speed Morse. Single sideband telephony with much reduced carrier could be transmitted when needed and also normal c.w. telegraphy. Reception of the s.s.b. was easily accomplished by unskilled personnel, who found its resolution simpler than tuning in broadcast stations on their home receivers. The receiver antennas suggested were just end-fed five metre wires, which could be slung up into any convenient tree or fixed to any suitable vertical support.

The transmissions were vertically polarised and the intent was to provide an extremely strong ground wave over the whole of Germany and most of Western Europe.

The High-Power Transmitters

Two transmitters were built and set up. Each had a staggering power output of 10MW on c.w. At that time this represented an unprecedented power level and showed that German technology was in some respects ahead of much of the world. The number one station was located on Hohen-Neuffen peak at an altitude of 742m. This mountain lies in the southern part of Germany and forms part of the Rauhe Alp in the part called Swabia. The second or "stand-by" station was on an island in a lake to the east of Allenstein, in what was then East Prussia, and was almost identical in design to the first station. Both transmitters were linked by a unique system which enabled one discrete frequency to be generated (a caesium clock with suitable dividers was the frequency source and it ensured first-rate stability) and used by both stations, although they were separated by many hundreds of kilometres.

The enormous power levels needed special cooling arrangements. At the East Prussian site water from the lake was circulated around the many output and driver valves. In addition, several hundreds of tonnes of salt were dumped into the lake to increase its effectiveness as a ground plane. It was rumoured that when the station was working the lake temperature rose dramatically, and that, together with its newly found salinity, the water acquired some of the characteristics of the dead Sea! The transmitting antennas were simple, but massive, dipoles at the top of 270m towers and were fed by a special water-cooled coaxial cable, which was largely air spaced and had an outside diameter of a metre.

Drastic Effects

Unfortunately for all the amateur fraternity, the frequency chosen for the new ABW system was 14·141MHz! This was almost slap in the middle of the twenty-metre band, the chief DX band at that time. Although the intent was to provide a powerful ground wave over the service area, much of the 10MW output power went skywards at low angles and returned hundreds or thousands of miles from Germany. The years 1936 and 1937 were the peak points of Solar Cycle 17, and the effect upon the twenty-metre band only be imagined. The so-called "woodpecker" QR experienced at the present time is only a minor irritation by comparison. Anyone who has built and used a t.r.f. receiver must be aware of the swamp effect produced by strong signals. Fairly strong signals necessitated a judicious increase in the reaction or regeneration control and very strong signals (such as the pick-up from one's transmitter oscillator) prevented oscillation for many kHz on either side of the frequency and produced a "hole' in the band where nothing could be received.

A Rig of the Mid-Thirties

Many such rigs were used in the anti-ABW operation. The ABW megawatts killed straight receivers all over the world and made operation on 14 MHz only possible near the band edges. The rather more fortunate owners of superhets had similar problems, for the front ends of moderately priced receivers did not have an r.f. stage and big signal capabilities on even the highly priced imported American sets were limited. The Abwehr transmitters virtually closed down the twenty-metre band for amateur use, and all over the globe desperate operators could not understand the reason for or what the intruder was. An official silence and a heavy veil of secrecy (which has never until now been lifted) fell over the whole business. All seemed lost! The author, then a keen schoolboy s.w.l., was using a home-built I-V-1 receiver, and was mystified by his inability to make the detector stage oscillate over much of the twenty metre band. There were also funny noises which seemed impossible to resolve when the German stations switched over to s.s.b. It must have been particularly frustrating for the German amateurs who lived within 160km or so of the ABW sites. The radiated power was so intense that a simple tuned circuit coupled to a half wave dipole could activate a 60W light bulb anywhere within a 30km radius from the transmitter positions. This knowledge was exploited by several experimenters, but their ability to acquire free illumination by night and day came to an end when some gaps in the transmitter radiation patterns were noticed. The freebooters were discovered and severely dealt with by the authorities.

The Meeting and a Plan

Fortunately for amateur radio, there was at that time someone who had the necessary scientific skills, drive and organising ability to counter the menace of the German Army radio system. Arabackle Oblifork, Albanian National with a Georgian mother, polymath, electrical engineer and amateur radio expert, must be remembered with gratitude for all time as the saviour of the twenty-metre amateur band. Oblifork, licensed ZAIA0 (formerly AIA) was instrumental in interesting his Head of State, King Zog of Albania, in the hobby, and set up for His Majesty (call sign ZAIZ) one of the finest stations in the world. The story of Oblifork's humiliation of the South African Railway Authority will serve to illustrate that he was a force to be reckoned with, and the tale is worth re-telling, for there must be many younger amateurs who know nothing of the affair. During the early 1920's, Oblifork was commissioned to plan the electrification of a particularly long stretch of railway line in South Africa. For some now unknown reason, a bitter and mutual antagonism arose between Oblifork and his employers and he decided to teach the South African Railways a lesson they would never forget. He proceeded with his work and eventually the overhead electrification was completed. At the first switching on of power with no trains on the track all the fuses blew. Oblifork

was then in Switzerland and could not be called upon for advice. Close examination of the 1460km of line revealed no faults or short circuits, so the Chief Engineer ordered that the fuse ratings be multiplied by the factor of four. A little later when power was re-applied the effect was catastrophic. The alternators at the newly built power station blew up, although there was seemingly no load or fault on the line. Arabackle had arranged that the total length of the overhead wires, allowing for velocity factor, made them an open-ended quarter wave stub at the Supply frequency of 50Hz! The resultant replacement, of heavy power plant from Manchester helped the unemployment problems of that city during the depression. Oblifork arranged an urgent and secret meeting of the worlds leading radio amateurs which was to be held at his London laboratory. The only item on the agenda was the formation of a plan to counter and destroy the effects of the ABW transmitters which Oblifork had learned about from his German informants. The meeting took place in December 1936, and the small but influential band of amateurs there learned of Oblifork's plan. Radio propagation and the mechanics of reflection and refraction had been a pet enthusiasm of Oblifork for many years, and his "Electron density/Radiation intensity" theorem was to prove the undoing of the German threat. The now well-known impossibility of communication with returning astronauts is a phenomenon known to be brought about by re-entry friction and the generation of plasma. Oblifork's theorem can be. used to determine the parameters of re-entry communications and the frequencies needed and it shows how he was many years ahead of his contemporaries in his thinking. His assembled guests were told that nothing could be done to prevent the radiation of the ground wave signals from Germany but that with the adoption of his special measures the sky waves could be eliminated. He reckoned that the radiated power of an ABW transmitter plus a similar external power level on the same frequency would "take-out" the ionosphere and prevent all reflection and refraction of signals on that frequency for two months. After that period the effect should gradually disappear. By organising most of the amateurs of the world (outside the Axis Block) into a massive combined jamming force the worst features of the Abwehr stations would be eliminated for a time, and this would without doubt reveal to the German High Command that even their uniquely high-powered transmitters could be interfered with. Oblifork set a date for the operation and the meeting broke up on the evening of Friday, December 18. The International Freemasonry of amateur radio then secretly and without fuss swung into active preparation.

The Operation is Prepared

Unfortunately, many amateurs used crystal-controlled transmitters at that time and could not use their normally set up rigs on the ABW frequency. Most, however, had the skill to change their oscillators temporarily into self-excited jobs, and the old t.a.t.g. (tuned anode tuned grid) circuit came once more into its own. Some were fortunate in owning a Meissner "Signal Shifter", one of the first commercially available vfos. Others resurrected from attics and lumber rooms the high-power oscillators used in former days as one valve transmitters. Even more fortunate were the really high-powered stations. For the most part they were American and even in the mid-thirties "Californian Kilowatts" were not uncommon. Here in the UK was Gerry Marcuse G2NM whose very high-powered (and at first unlicensed!) station initiated the Empire Broadcasting network. Gerry, the " Caterham Wizard", was only too eager to take part in the exercise; indeed, he was one of the select few at the December meeting in London. A number of British and overseas amateurs held posts of responsibility at broadcasting and other commercial stations. They, together with many in charge of powerful military transmitters, agreed to help. Perhaps our greatest contribution resulted from the efforts of Dr Eric Megaw G6MU (later to be GM6MU when Scotland was granted a distinctive prefix). Megaw was what would today be described as an electronic "whizz-kid". He was licensed when still a schoolboy, and was one of the leading British DX chasers. During the· early 30's Megaw was doing research into electron oscillators, and is now best remembered officially for work in developing the magnetron. Without the magnetron, high-powered pulse centimetric radar could not have been possible during the last war, and it was a British success story.

For this important work Megaw was awarded the CBE and at the time of his death in early middle age in 1956 was Chief Officer in the Royal Naval Scientific Service. He, too, had been present at Oblifork's meeting and had promised help.

In an outbuilding at his research establishment Megaw built a crude but giant magnetron device. It filled the building, and was independent of the mains supply, using instead the mini power station on the site. It used enormous electro-magnets and when in operation could generate pulses with a peak power of 8MW at a p.r.f. (pulse repetition frequency) of 400Hz and a pulse width of 50s. Its effect later when used on the 14MHz band was devastating and contributed largely to the success of the final operation. To test the magnetron oscillator, Megaw used a section of nearby salt marsh as a dummy load. It is said that for many winter nights the local poachers and wildfowlers were astonished at the un-seasonal night temperatures, and the thick mists which swirled around at knee height!

The Big Pile-Up

A little before 0500GMT on Thursday 1 April 1937 the author plugged in the twenty metre coils of his battery-powered t.r.f. receiver in yet another attempt to pick up Andrew Young VR6AY on Pitcairn Island. In s.w.1. circles it was well-known that VR6AY operated near the hf. band edge well away from the mid-band QRM which we now know was from the German Abwehr stations. Andrew was reputed to QSL 100 per cent on receipt of useful reports and to log him was every young listener's dream. That morning there was nothing heard from Pitcairn and the band (apart from the " thing" on 14·141MHz) appeared quite dead. The logging of one of the Spanish Civil War "pirate" broadcasters down in the c.w. sector and an Italian operator calling seemingly endless CQ's proved that a radio blackout was not the reason for the band's emptiness. At 0500 precisely a musical tone which was not strictly tuneable came up and it became much stronger near the middle of the band and could be heard even in the dead section caused by the powerful intruder. This dead section rapidly extended and reached almost to each band edge. In desperation, the antenna, a simple dipole, was taken off the receiver and at once the reaction control had some effect. Without an antenna and with the detector in oscillation the amazed listener heard for about five minutes a fantastic cacophony of carriers, beat notes, clicks, hums and an all-prevailing 400Hz tone. For those few minutes most of the amateur fraternity were on or near the frequency pumping out every watt they could muster. There was also Megaw and his 8MW of pulse and hundreds of irregular transmissions from broadcast, military and other transmitters "borrowed" from their normal duties for just a few minutes and coaxed onto 14MHz. By 0505 the band suddenly was quiet and when the dipole was reconnected the receiver behaved normally. There was just one signal, a strong S9 c.w. carrier from the ground wave of ABW. Only its ground wave came in and it was possible to tune normally over the whole band. A few brief minutes of fruitless tuning had to be followed by switch off, breakfast and preparations for school. That was the last day anything was heard from either of the two German transmitters. The massive welter or barrage of QRM on their frequency, which was, of course, fixed and could not be altered, had rapidly induced the Abwehr signals chiefs, on the advice of their technical experts, to stop all further operations. The system was fallible and could be jammed. Development of another quite different system began soon after, but it is understood that when hostilities began in 1939 Germany had still not developed a satisfactory replacement for the ABW idea. Oblifork's plan had worked perfectly, but it was only some weeks later that an interesting fact came to light. Experts concerned with m.u.f. (maximum useable frequency) observations using the new radio reflection techniques with frequency sweep transmitters-receivers discovered that no ionospheric reflections could be gained on one specific frequency. This they deduced was on 14·141MHz. Even months later, indeed to this day, there remains a " dead spot" near the centre of the 14MHz amateur band where what goes up never comes down! Modern frequency measurements show that the exact frequency of the " hole" is 14·141407MHz. Oblifork's theorem specified that a total power radiation of approximately 20MW would produce a temporary cessation of ionospheric reflection at the ABW frequency. The total level of power hitting the ionosphere must have exceeded this amount, and after consultation, Oblifork admitted a rider to his theorem which suggested that above a certain critical power level the time became infinite and the effects would therefore be permanent. This critical power level was computed as 25·7MW, a total which most certainly was achieved or exceeded on that April morning in 1937.

Conclusion

The train of events out of memory must seem bizarre or even incredible to many of the present generation of radio amateurs and swls; for the "hole" in the band is just 0·5Hz wide and is unnoticed by operators on the 14MHz band. The stability of our receivers and transmitters is not good enough to lock on to the "hole" frequency and for all practical purposes it may be ignored. The unsophisticated may be prompted to wonder how the author gained this hitherto undisclosed information. Confession is said to be good for the soul, and it must be admitted that all the details of the operation were gained second-hand and not from anyone actually involved in its inception. There is no doubt in the authors mind that his late friend and near neighbour " Tommy"J Thomas G6QB would have had no reason to re-tell the Pile-up story if he did not himself believe it. For many years "Tommy" was the compiler of DX Commentary in The Short-Wave Magazine, and perusal of those columns will reveal many references to Arabackle Oblifork. One day when the moment was propitious the author induced 'QB to tell something of that odd Albanian gentleman, and that was when the full story was revealed. It seems that Oblifork and "Tommy" met when both were working at one of the RAF coastal radar sites during the last war. Oblifork was a "boffin" attached to the Royal Aircraft Establishment at Farnborough during much of the war and his work sometimes led to the out stations. The pair had a lot in common, both being pre-war amateurs for many years, and they soon began to reminisce over drinks at a village hostelry one evening. Later that night, Oblifork told his companion much of what has been re-told in these columns and made " Tommy" swear to its secrecy. After the war, Oblifork defected and slipped through the Iron Curtain to the USSR sometime during 1946. There he became actively engaged upon plasma physics, space communications, laser techniques and also surprisingly the setting up of the post-war network of Russian Klub stations over the USSR. One day, "Tommy" showed me a QSL card relating to a contact in 1956 with Arabackle, who at that time was operating and testing a UL7K station. They kept in touch for many years and each Christmas '6QB received a card with scribbled greetings from him. Time runs on, and it must be assumed that ZAIAO has now joined the ranks of the silent keys. Without doubt he must also be rated a Hero of the Soviet Union and we must belatedly hail the departed Albanian as the saviour of the twenty-metre band!

Practical Wireless, May 1983

The Bands Explained - Part 3 - 31, 25 and 20 metres

By Malcolm G6UGW

31 Metre Broadcast Band - Frequency range 9.2MHz - 9.7MHz

This band offers the greatest coverage of all. Primarily a night time band, it offesr some daylight listening as well. It also holds up well during the winter evenings, making it one of the best all-round bands in the spectrum

25 Metre Broadcast Band - Frequency range 11.7MHz - 11.975MHz

The daylight reception is somewhat improved over the lower frequency broadcast bands. Evening reception is possible at certain times of the year but not as regularly as on the lower bands.

20 Metre Amateur Band - Frequency range 14.0MHZ - 14.350MHz

This band is normally used for distances of 600 to 3000 miles, but has occasional openings of up to 7000 miles. Peak distances are usually at sunrise and sunset. This is primarily a daylight band with night-time activity limited to the late spring, summer and early autumn months.

Minutes of the Meeting held at "The Lamb" Inn, Kings Square

On 20th October 1966

The inaugural meeting held at the new HQ was attended by 13 members - J Newitt. D Bingle, S Parry, J Beckinsall, J Fletcher-Cooper, G Bryant, S Cook, I Fear, E Perkins, L O Rogers, A Kingscote, N Gardiner and D Mountjoy, the chair being taken by the TR, E Perkins (*TR - RSGB Town Rep - Ed)*

Future meetings of the club were discussed and it was decided to continue to meet at the "The Lamb" fortnightly on Thursdays (Proposed L O Rogers, Seconded J Newitt)

The annual subscription of £1 was proposed by E A Kingscote and seconded by D Bingle and carried unanimously.

The election of officers resulted in the Committee being formed as follows:-

E A Kingscote - Chairman, C Partridge - Vice Chairman, E A Perkins TR and Secretary, J Beckinsall - Treasurer, D Mountjoy - Members Rep with L O Rogers being appointed as Technical Advisor.

The newly elected Chairman, E A Kingscote now took the chair and the meeting continued.

It was proposed by D Bingle and seconded by J Beckinsall that a programme of events should be run and this was carried unanimously.

The Secretary was instructed to enquire about RSGB Tape Lectures and Mullard Films and Lectures.

A provisional talk on 2 metre converters was promised for November 3rd meeting by G3MA and G2HX promised a talk on his SSB transmitter for November 17th.

The meeting closed at 10.00pm

Signed E A Kingscote

Editor's note - these minutes would have been read to the members for approval at the following meeting. To clarify for newer members - E Perkins was known as Pat and held the call sign G3MA which has recently been allocated to his grandson Nick. L O Rogers (Owen) held the call sign G2HX, and is now used by the club in contests. Why was G3MA called Pat? It's an amusing tale which goes back to his school days and I'm sure Nick will tell you the story at club.

From the Archives

The caption on the back of this photo reads "Field Day Lads 1st/2nd June 2002"

L-R Pat G3MA, Tony G4HBV, Brian G4CIB, Tony M5EET (now SK) and his son Michael