

Waterside Amateur Radio Society

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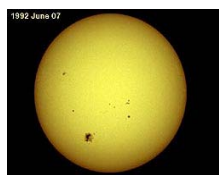
John M0XIG

johnbwakefield@aol.com

Microwave Workshop at Flight Refuelling ARS!

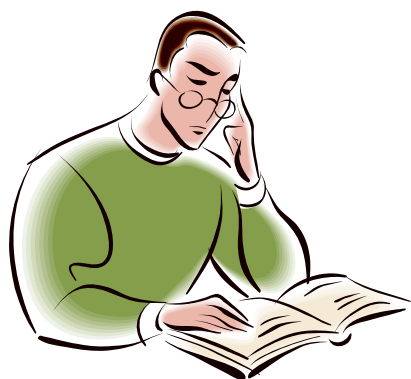


Flight Refuelling ARS organised the second UK Microwave Workshop which was held on Saturday 30th September 2006. Nineteen attended for the day to get an insight into working these higher frequencies and the equipment required. Paul Marsh M0EYT introduced the subject and gave a demonstration of how simple it was to get a system working with just two components (Gunn diode and speaker) plus a power source; though understandably with so few components the quality of sound was poor. Other presentations included the Dorset microwave beacon complex at Bell Hill (Andy G4GNT) and microwave antennas suitable for amateur radio (John G0API).



SOLAR CYCLE CONTINUES ITS DECLINE

The latest reports show that the solar cycle continues its decline and the periods when there are no sunspots will continue to increase. The last minimum was ten years ago this month. So lets look forward to October 2007 when by many estimates the sun spot activity will be higher than it is now and climbing!



Editor's Diary

30th Sept: Attend Microwave Workshop at Flight Refuelling Club

6-8th Oct: Attend HF Conference @ Gatwick Worth Hotel

8th Oct: Anniversary of my passing my Intermediate Exam

10th Oct: Contact on 20m with Emilio YV5EAH in Caracas.

15th Oct: Attend FRARS for talk by G4POF, 'Radio Awards of the World'.

17th Oct: Research and calculations for project on Tesla Coils. Join Fists Club. I am using the computer program NuMorse Pro to learn Morse and the First Steps consists of 48 lessons. I am now almost finished and will then be able to read at the heady speed of 5wpm, and I haven't touched a key yet! I started on 1st April this year and spend 15 minutes each day. I am estimating a period of 12 months to achieve 12-15 wpm receiving and sending. NuMorse Pro uses the Koch and Farnsworth Method.

18th Oct: Contact on 20m with Leonid in Ukraine US4MCD and Puzant OD5NH in Lebanon.

Latest news on the new lifetime licence

The RSGB has received a number of enquiries over the last few weeks regarding the introduction of the new lifetime licence and it is apparent that there is some confusion. UK radio amateurs are reminded that the introduction of this licence has now been delayed until 1 December 2006. Although a final decision has still not been made, it anticipated that all UK amateur licences will be varied from this date to allow the new Terms and Conditions to be brought into effect.

Ofcom originally planned to allow Foundation licensees access to the 10m band and the Amateur Satellite Service from 1 October. However, the date for this has now been put back to 1 December to coincide with the introduction of the lifetime licence. You can download a sample Lifetime Amateur Radio Licence from the Ofcom Website.

There has also been clarification on the use of converted Private Mobile Radio (PMR) equipment by Foundation licensees. Providing the equipment has been modified and certified by a recognised PMR dealer as complying with IR2028, then the equipment can be used by a Foundation Licence holder.

Events Calendar

November 7th EGM: Update Constitution

November 21st TBA

December 5th Mulled Wine Evening

December 19th No Meeting

2007

January 2nd No Meeting

January 16th Annual Dinner. Venue to be confirmed

February 6th Surplus Equipment & Misc Sale

February 20th Committee Meeting [Special Events etc]

March 6th TBA

March 20th TBA

April 3rd AGM and Construction Contest

April 17th TBA

May 1st TBA

May 12 / 13th Special Event: Eling Tide Mill GB0ETM

May 15th Foxhunt

June 5th TBA

June 10th PW QRP Contest?

June 19th Foxhunt

July 3rd TBA

July 17th Foxhunt

July ?? H.F. Picnic

August 7th Foxhunt



MeI GOF OH

'A Life of Interference'

Mel GOF OH gave us an interesting presentation based on his experiences with the Radio Interference Service and how his early interest in radio was influential in his choice of career.

Mel became interested in radio when he was at junior school and built himself a crystal set and a single valve set. He was fascinated by the glow of the valves and the programmes he could hear. He subsequently joined the radio club at Glen Ayre Senior School and before he left he joined Southampton Radio Club; here he was enthusiastic and was given encouragement to progress. These were early days at a time when Mel wasn't able to imagine getting a radio amateur's licence.

Before leaving school Mel had an interview with the Youth Employment Service who setup an interview for him with Post Office Telephones. Despite Mel's lack of qualifications in Maths at this time, he managed to impress the engineer with his enthusiasm and knowledge of how relays and motion selectors worked and this secured him a three year apprenticeship in Telecommunications. During this time he covered every aspect of telephone technology from underground cables to microwave radio relay stations. For a short time he worked at Thornhill Radio Station where a 4GHz relay operated to the I.O.W. and the Post Office Tower in London.

Whilst serving his apprenticeship Mel continued his interest in radio by taking his amateur radio exam and he was helped by his studies in Telecommunications. He obtained his amateurs licence and was then offered a position in the Radio Interference Service. Mel was delighted with the offer and immediately accepted.

He found that the office of the Radio Interference Service was nothing more than a couple of rooms in an old building in the Regents Park area of Southampton. From these two rooms a team of seven engineers operated. Most covered Southampton but one covered Salisbury and another Winchester. He quickly found out as the new member of the team that his role was to fit suppressors to equipment that other engineers brought in to remedy complaints of interference. Sewing machines and electric drills were brought in among the items and these required four inductors to be fitted to each.

Regulations were not as tight and covered only motor vehicles and Electromagnetic Compatibility hadn't been heard of! To assist with the work the Radio Interference Service had transport and Mel particularly remembers a green Ford Anglia van which had a hatched roof and a 240 volt inverter to power the installed radios and test equipment. The receivers that they used were specially made for Medium and Long wave and then there were the 12 set and 24 set for the lower and higher VHF bands. At this time televisions didn't operate on UHF. The main receiver operated with small valves and contained high and low voltage batteries.

Mel's work was mostly led by the amount of interference complaints, and these could be made direct by telephone or as most people didn't have their own phone a form could be obtained

from the post office. This necessitated working at least two evenings a week to carry out the investigation. Only if suppressors were fitted was a charge made (Often 12/6d, 10 shillings labour and 2/6d for the suppressors).

The types of interference that Mel had to deal with took two forms narrowband and broadband. Broadband was often caused by the switching of contacts and very often the culprits were boiler thermostats. Often this was cured by fitting a suppressor across the solenoid in the gas valve. These can be difficult to trace because the switching doesn't occur very often and may last only a few seconds to a few minutes. During his time Mel traced thousands of these faults. One major problem that he had to deal with was on an estate where all the houses had been built around the



same time and although all the boilers had suppressors fitted they all began to break down together, so there was interference all around the estate making it difficult, if not impossible to trace.

When the old office building was demolished the Radio Interference Service was moved to another more modern building also in Regents Park and about this time the green Ford was replaced with a yellow Vauxhall van with a top box that contained the aerials. Also acquired was

a Bedford 15cwt that was built to order and contained such things as a pump up mast, inverter, spectrum analyser, frequency counter and signal generator.

The engineers were told that they were required to deal with the whole spectrum from DC to daylight, but in truth the UHF television band was about as high as they went. Narrow band above HF was a dream, but they did possess Eddystone receivers that went up to about 500MHz, these were only broadband. However, the Radio Interference Service nationally did acquire some second-hand RACAL RA17 receivers, which they later found out had come from GCHQ. The RA17 used a system called the **Wadley loop drift cancelling [1]**, which was very stable and covered the HF band. It performs very well compared with modern receivers and was the first professional receiver that Mel used.

To complement this fine receiver other engineers built a range of converters that covered 10MHz up to 500MHz and for the first time the Radio Interference Service was able to monitor PMR (Private Mobile Radio), aircraft, emergency services, marine and amateur with reasonably sensitive receivers. Signal strength was aided by a 40foot Versatower with rotator and a log periodic antenna.

In 1984 when British Telecom came into being and did not want to provide an interference service the R.I.S. were transferred to the Home Office Regulatory Department. Mel and his colleagues were moved and found themselves in a large office within the grounds of the Ordnance Survey site at Crabwood. Here, their area increased and staff were reduced. They were now responsible for Hampshire, Dorset, Isle of Wight and subsequently the Channel Islands. More equipment was supplied to the office and this included SX200 scanners, which was the first programmable VHF receivers that Mel had seen. This allowed CB radio to be monitored.

CB radio (27MHz) was at first illegal, and transmissions began to interfere with hospital paging systems which also had the same frequency. When CB became legal in 1984 there was a large upsurge in these transceivers being installed in cars and in the home. Breakthrough on television caused by these sets was dealt with by visiting the complainant and if they were not at home or the engineers could not get access for any reason then the Radio Interference Service



had a policy that they were to push a high pass filter through the letterbox with a descriptive note of how to install it.

Later, each member of staff was given a car to use. In addition the purpose built vehicle was changed to a Ford Transit and Mel had the job to take this vehicle out to wherever it was needed. Once again the work of Interference was transferred to another department; this time to the Department of Trade and Industry and their title was changed to the Radiocommunications Agency. This department covered the requirements of government regarding all radio and licensing.

Charges increased with domestic complaints costing £50 per complaint, whilst commercial complainants were charged £50 an hour. The Radiocommunications Agency encouraged the Radio Interference Service to deal with complaints from other sources such as Marine, Aircraft and later mobile telephones. The area of operation then altered to include the Channel Islands. Most of these complaints involved Private Mobile Radio and were caused by intermodulation products. An example was an instance when on one PMR site, the operator received a different PMR only when a third PMR transmitted. The fault was eventually traced to a mast and was caused by what is known as the '**rusty bolt**' effect [2]. The owner of the site would be advised and hopefully it would be sorted out. Because of the close proximity of the Islands to France all PMR channels have to be harmonised with the French authorities before they can be allocated.

The Transit vans were subsequently changed to Land Rover Discovery's, complete with pump up mast, mains inverter and a workbench and related equipment. One of the more recent problems that Mel had to deal with was in Chandlers Ford where he received complaints from almost everyone on a particular estate. The fault only occurred in the evening and produced bands of light across television screens. Mel was able to trace this fault to an industrial estate about a quarter of a mile away and found the cause to be security floodlighting. The lights were gas filled lamps which were notorious for causing interference and what made matters worse was the fact that the industrial floodlighting was situated between the housing estate and the transmitter on the Isle of Wight, so that every one had their aerial pointing to the security floodlighting!

Marine Radio channels are dedicated to the safety of ships and small craft. In the Southampton area all the channels have been used up due to the large number of ships and all the channels have to be shared to some degree with different operators. On one occasion Mel was required to investigate a complaint from Shamrock Marina that they were unable to use their particular channel. When Mel attended Shamrock Marina he monitored a very strong buzzing signal. Similar to paging TX modulation. He set up his spectrum Analyzer and was able to identify the source as a paging TX coming from a particular office block. A call to the paging company soon rectified the problem.

An unexpected problem occurred when the police service changed their radio sets to digital and Tetra bases all across the country were set up. Complaints then started coming in that breakthrough problems were being caused on domestic televisions. The majority of the problems occurred in weak signal areas and were the result of residents installing wideband television amplifiers, which of course not only amplifies the wanted signal but every other signal as well. Fortunately most problems were solved by the simple addition of a band pass filter between the TV aerial and the amplifier.

EPIRB's is the name given to small transmitters that signal satellites and identify the location

of the signal source. The letters stand for Emergency Position Indicating Radio Beacon and are used mostly by sailors as an emergency locator. Part of Mel's work was to locate any transmitter that had been activated that wasn't a known emergency. The transmitters are small hand-held units that transmit with very low power and alternate on and off at one second intervals. Activated units could be found anywhere and Mel traced one of these in a parcel sorting office and another in a workshop in Lymington. When Mel entered the workshop and explained the problem, he was told by an engineer that they repaired the units often and he then asked which one it was. Mel saw an EPIRB in his hand and said, "It's the one you're holding in your hand, I can see the light flashing!" On another occasion an EPIRB had been activated at the Southampton Boat Show about midnight. The coast guard helicopter had flown over the site several times and assisted Mel in getting access. He located the EPIRB, which was mounted on a display board in the exhibition hall.

It was obvious from the presentation that Mel really enjoyed his time with the Radio Interference Service and we are grateful to him for sharing his experiences with us and providing us with an interesting account of what was involved. Thanks Mel!

[1] Wadley Loop drift Cancelling System, I do not think it necessary to go into detail here obviously some may already know about it and others that are interested can look it up. Suffice it to say that it prevents frequency drift and makes the tuning very stable.

[2] Rusty Bolt Effect, is the generation of harmonics and / or intermodulation in the signal and can occur when radio waves from a clean transmitter interact with dirty connections or corroded parts which then act as a diode. Rusty objects can re-radiate radio signals with harmonics.

Editor's Note: *I was interested in Mel's enthusiasm for the Racal RA17 and looked up reviews by radio amateurs that gave the set a rating on eHam.net. All reviews gave the Racal an excellent write up and a 5/5 rating.*

G1RHV wrote: *Astonishing for its time. Unbelievable build quality. The chassis is a work of art. Triple conversion Wadley loop stability is awesome. Excellent selectivity offered by a range of filter bandwidths unmatched by almost anything since. You get the drift—or **not with this receiver**. But before you go out and look to buy. The receiver weighs almost 100lbs and has an enormous footprint. In fact you could lose most of a table under one! So here are one or two more photos:*



VENUE FOR ANNUAL DINNER JANUARY 2007

Now is the time to start thinking about the venue for the Annual Dinner next January. It isn't as far away as you think!

It has now been brought to my attention that last year's venue is no longer an option, so it looks like we need to come up with something else. Please give it some thought and let us know!

HF CONFERENCE 2006

Friday 6th October—Sunday 8th October



The annual HF Conference was once again held at Gatwick Worth Hotel Sussex and as in the previous three years amateurs who wish to take the Intermediate or Advanced Exams (or both!) were able to do so.

The programme had subjects for everyone and I went to five each day. On Saturday the ones that interested me and I enjoyed most were 'Backyard EME' presented by Paul Whatton, G4DCV; 'Exploits of a solo DXpeditioner' presented by John Warburton, G4IRN and '3YOX Peter 1 Island Expedition' presented by Bob Allphin, K4UEE.

On Sunday 'HF Operating for Newcomers' , a talk by Brian Reay, G8OSN was of interest and contained useful tips, and Len Paget, GM0ONX gave an excellent presentation on 'Planning Permission' for those of us who contemplate requiring it someday.

Propagation is an interest of mine so I found the presentation by Steve Nichols, G0KYA '3YOX—Propagation vs Predictions very worthwhile, especially as several software programs were compared using the data obtained from the expedition. The weekend was rounded off with 'First African Experience: Benin TY2006' presented by Ronald Stuy, PA3EWP. As in previous years there were many presentations to choose from and as they were run in parallel in three different suites you had to make choices. I made mine before arriving for the weekend—although one talk scheduled 'HF Antennas' by Peter Dodd, G3LDO didn't take place and was substituted by an HF Forum.

Last year of course, I sat my Intermediate and Advanced licenses, so it was a marked contrast this year to sit back, relax and enjoy what was on offer for the weekend. The conference is well worth attending if you can make it.

MOXIG

Try these as a General Knowledge Quiz!

- 1) How long did the Hundred Years' War last?
- 2) Which country makes Panama hats?
- 3) From which animal do we get catgut?
- 4) In which month do Russians celebrate the October Revolution?
- 5) What is a camel's hair brush made of?
- 6) The Canary Islands in the Pacific are named after what animal?
- 7) What was King George VI's first name?
- 8) What colour is a purple finch?
- 9) Where are Chinese gooseberries from?
- 10) What is the colour of the black box in a commercial airplane?

Answers are on Page with Miscellaneous Items



WATERSIDE ARS

14th New Forest Scout Headquarters,
Applemore College
Roman Road
Dibden Purlieu
Southampton
SO45 4RQ

Secretary: John M0XIG Tel : 01794322034



WE NEED YOUR IDEAS!

◀johnbwakefield@aol.com▶

Miscellaneous

Club Net

G4JYN/P run by Tim G4YVY every Wednesday 2100hrs frequency 145.500Mhz then QSY, usually to 145.525 till 2200Hrs or so.

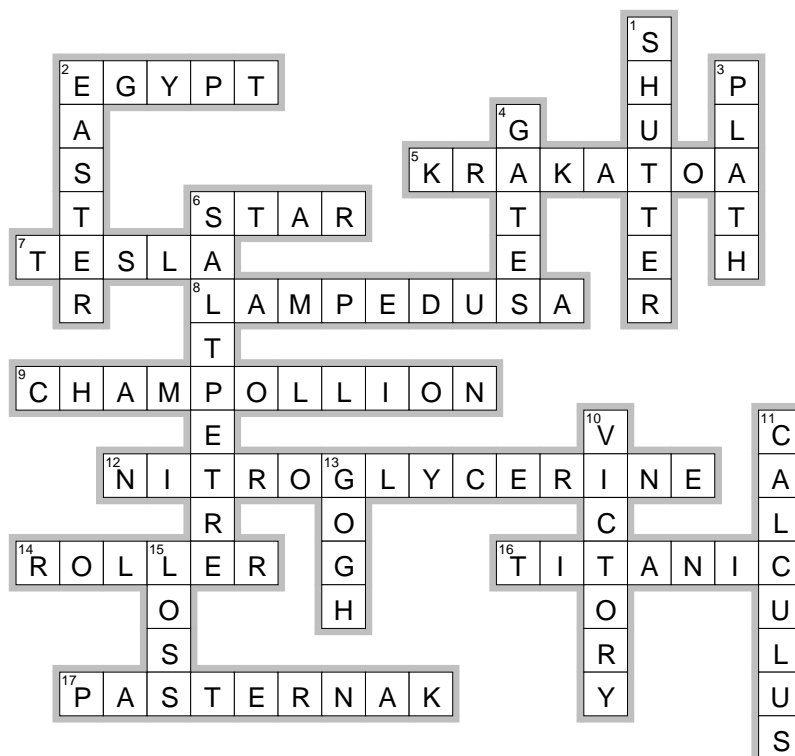
Articles for Submission

Please submit any articles to me by 20th of the month.

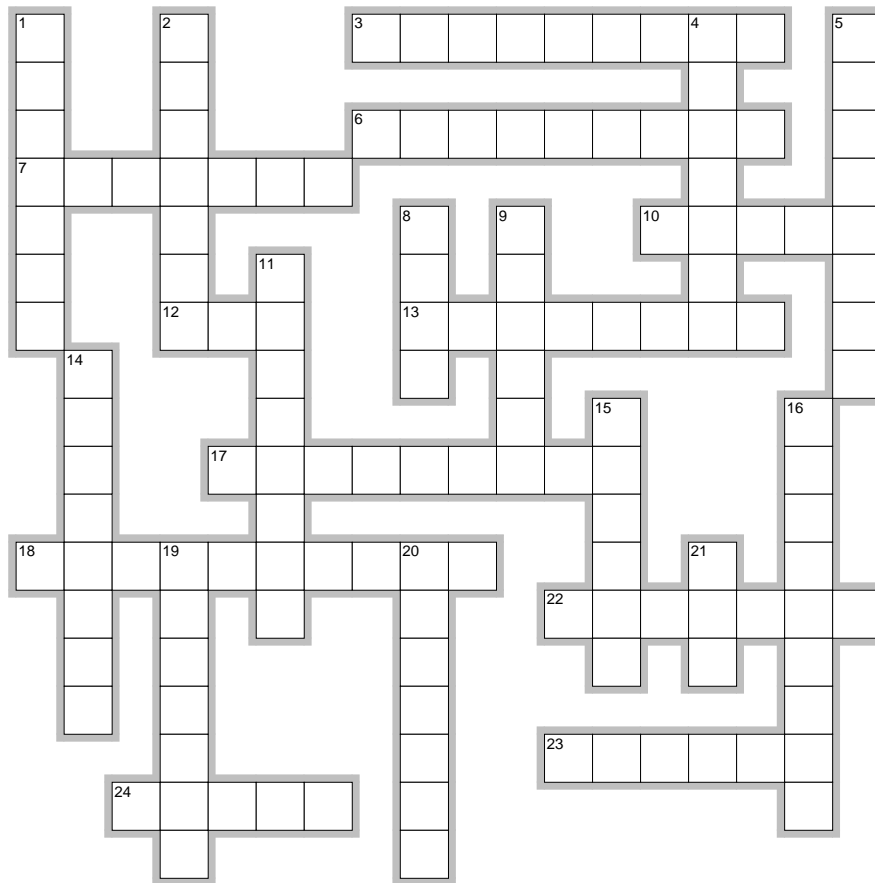
Answers to General Knowledge Quiz

1. 116 years
2. Ecuador
3. Sheep and Horses
4. November
5. Squirrel fur
6. Dogs
7. Albert
8. Crimson
9. New Zealand
10. Orange

Solution to Crossword No6



CROSSWORD NO 7



Created with EclipseCrossword — www.eclipsecrossword.com

Across

3. Britain's smallest bird (9)
6. Element discovered by Winkler in 1886 and used in semiconductors (9)
7. A volcanic crater of great size (7)
10. Chemically inactive gases that make up a small percentage of the atmosphere (5)
12. Deoxyribonucleic acid (3)
13. Western TV series 1955-75 starring James Arness as Matt Dillon (8)
17. A famous galaxy known as M31 and part of our local group (9)
18. Is a function of frequency (10)
22. An early form of radio wave detector (7)
23. Causes paralysis and used by Amazon Indians to put on the tips of their arrows (6)
24. The unit of electromotive force was named after this Italian physicist (5)

Down

1. Italian who composed the opera Tosca, which was first performed in 1900 (7)
2. An American inventor who was the first to use a rocket engine that used liquid fuel to power it (7)
4. The first artificial satellite launched in 1957 by the Soviet Union (7)
5. Lunar Landing Research Vehicle of the early 1960s was referred to as the "Flying....." (8)
8. A long detailed story (4)
9. Name of cornish village and site of lifeboat disaster in 1981 (6)
11. Surname of the author of "The Catcher in the Rye" (8)
14. French philosopher, author of Candide (8)
15. Biblical character of great strength (6)
16. Surname of Canadian born inventor, best known for his early work in radio (9)
19. The time when the sun crosses the equator (7)