

Horndean & District Amateur Radio Club Journal

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Stuart G0FYX practicing a new mode of communications

Hordean & District Amateur Radio Club
Founded in 1975

Club President

Lt Cdr Doug Hotchkiss MBE QCB RN (ret'd) G4BEQ

Club Officers

Chairman Ken Lindsay GØJWL

Tel 02392 612687

e-mail klg0jwl@msn.com

Secretary Stuart Swain GØFYX

Tel 02392 472846

e-mail g0fyx@msn.com

Treasurer Bill Kenway 2EØWGK

Tel 07976276304

e-mail Bill.Kenway@ntlworld.com

Committee Members

Membership Secretary

Tel: 07878763185

Neil Stone

M6LPI

e-mail: M6lpi@Hdarc.co.uk

Journal Editor

Tel: 07429639890

Sean Grant

MØXAN

e-mail: m3sgo@hotmail.co.uk

Social Secretary & Exam Secretary

Tel: 02392 785568

Julia Tribe

GØIUY

e-mail: juliatribe@ntlworld.com

Training Manager

Ken Lindsay

GØJWL

(for contact details, see above)

Station Manager

Tel: 07724048212

Chris Jacobs

MØKTT

e-mail: oldbikenut1@gmail.com

Training Associate (ex-officio)

Tel: 02392 785568

Simon Tribe

GØIEY

e-mail: simontribe@ntlworld.com

Printer (ex-officio)

Tel: 02392 256768

Peter Tagg

G8PIQ

e-mail: g8piq@btinternet.com

Awards Manager

Please contact Stuart GØFYX with any
award applications or enquiries

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Articles, letters of interest, photographs are always needed and should be sent to the Editor :- Sean Grant 51 Winchfield Crescent Havant PO9 3SR Tel : 07429639890 & Email : M3SGO@Hotmail.co.uk

It would be appreciated if submitting typed script that it is of good quality bold lettering. This allows me to scan it in direct. Saving me time retyping. Copper plate handwriting most acceptable. I use Microsoft Publisher 2013 to produce the journal so am happy to accept articles/photographs on a CD providing it is compatible and can be read in Word. If you require the material to be returned please enclose a SAE. Opinions expressed in the journal are not necessarily those of the HDARC. The editor has the right to reproduce the articles for our affiliated club journals/newsletters. The Editor decision is always final.

Closing date for next journal is : 3rd of Sept 2017

Editorial

Hiya Folks

Hope everyone is well, and for them feeling under the weather, hope you get well soon.



Well as promised, I have the articles from last time and as you can see in this journal it's been a busy time for the club, and there are a few club events for the next couple of months. More details will be in the weekly email, and hopefully I will have a write up for you in the next journal.

As you all know by now, I'm hanging up the reins for the editorialship and I'm looking for someone to take over. So I thought I would take this time to try and explain what software I use. The main software is Microsoft Publisher, current version is 2010. I use this to do all the main work: I also have Microsoft Word. Most of the content I receive comes in this format, and is easy to copy over to Publisher. And there is another piece of software I use to convert PDF to JPEG mainly for the adverts we receive and this is Ghostscript.

Then the rest is down to your own creativity, something I must say I lack hi hi hi !!!

And that's it really, you then pass it onto Stuart G0FYX who will proof read it and any problems let you know, and then pass to Peter G8PIQ who will then produce the final copy, and I must say they both do a fantastic job .

Anyway less of the boring stuff. As I said before, the club is getting into summer mode and there is plenty of activity and plenty of maintenance work also needing to be done up at the Fort, so if you can lend a hand or want to operate a club station watch out for the weekly emails and give a hand.

Until next time, 73

Sean MOXAN, Journal Editor HDARC

TRAINING 2017

Since the club moved from Anders Hall in Waterlooville to Deverell Hall on the A3 in Purbrook, the Amateur Radio training sessions for both FL and IL levels have taken on a different approach. Having now got far more facilities at Deverell Hall (which was the club's first ever registered exam centre in 2008), we have been running these courses in parallel to each other. The use of the upstairs conference room, the rest room adjacent to the kitchen, and the main hall, have all played a very important part which has enabled the two levels to progress during each club night meeting. The assessors can move around the building to train candidates in whichever room best suits the requirements on that occasion. Flexibility to carry out these tasks is paramount if the club is to succeed in training on behalf of the RSGB and Ofcom.

Despite varying levels of study, PowerPoint and practical elements, the first FL candidate was able to plan ahead and book his examination with the Intermediate candidates upon his return from holiday. I completed the paperwork and posted off his application the following day.

The remainder of the FL candidates have almost completed their practical tasks, so it won't be too long before another exam is booked from our centre.

Due to space and equipment the IL candidates had to be split into two groups with the more experienced having already completed some practical tasks to continue on. Four of the six IL candidates were ready to sit their exam on Friday April 7th which included the FL candidate to sit his exam at the same time. The club is pleased to announce that all five candidates passed their levels on this occasion. Due to work commitments etc the remaining candidates who couldn't complete the course in time to sit the exam on this occasion have been attending sessions since, as and when they are able to. The national rules are that examinations for FL and IL cannot be taken unless all practical elements have been completed and their record of achievement cards have been signed off by the assessor, this then validates the document which has to be shown to the lead invigilator to verify before the exam can be taken.

I enclose two pictures taken after the exam which show both the FL and IL candidates.



I take this opportunity to thank the assessors for a wonderful job they do, a lot of hard work and dedication goes into each course that takes place. All training given by the assessors is voluntary. There are other club members who give up their time on club night meetings to help with the practical tasks and some theory work, without their help these elements would have to be spread over additional club night meetings. Booking an exam date therefore in advance is difficult should the candidates be at different stages due to other commitments and non attendance some nights.

On every exam day the club has held since we began in 2008, Stuart GOFYX has been the club's lead invigilator and has done a sterling job keeping everyone in check and is therefore a vital part to the team. In all this time Stuart has only ever missed 2-3 exam dates so from the club's Examination Secretary I thank you Stuart. On those occasions Stuart has not been able to help and no one else is able to take on that role, I have stepped in because I do not get involved with training. As Exam Secretary I do the exam application paperwork and collect exam fees.



The club is looking for additional help by you to mentor, you all have skills and knowledge in different areas so if it's a section in the syllabus, we and the candidates need you. If you would like to be a backup for Stuart as lead invigilator, should neither of us be available, we would love to hear from you. Training for this position is easy so please, please give my request serious consideration and contact the committee. Thank you, from Julia G0IUYY.

SKITTLES NIGHT APRIL 2017

The club held its annual skittles night at the Southwick Park Golf Club on Friday 28th April. I thank the new members in the club for supporting me by bringing family and friends along, who all said they had a good time. The Christmas social is booked and I look forward in seeing you all there.

As always the food and service during the course of the evening was first class. Simon and I arrived early to get the place names and overall function requirements ready for guests when they arrived. During the course of the evening (before and after food was served) a total of three games was achieved per person which was great as the final scores were more spread out.

Rather than call guests to the skittle alley in order of list we just played at random which enabled a quicker play and end time for all. Once the games were completed Simon kindly took the board away to count the scores ready for prize giving. I thank Simon, Stuart, Frank and any others who spent the evening helping me to make the event a success.

It was time for prizes to be awarded. This year's club champion was Chris MOKTT who was presented with the skittle trophy which he keeps for a year, a large wall clock which would look good in his shack and a bottle of wine. The highest scoring lady was Christine M6UBI who won a bottle wine. The highest scoring male was Ken G0JWL who also got a bottle of wine presented to him by Julia, as Ken was in the main doing the presentations to the other winners, so was difficult to present a prize to himself. There were a few other prizes to award together with a lucky ticket number guest. All numbers were placed in a container, given a good shake, and a new guest attending was asked to draw out a number. The lucky ticket number was won by Christine Lindsay the XYL of our club chairman who himself had just won highest male prize. Congratulations to everyone who picked up a prize.

To end a perfect evening a raffle was held with a lot of good prizes to be won.

Some photos accompany this article which I hope you will enjoy reading.

Julia G0IU Y Social Secretary



Small Antennas

At the club meeting on April 21st, club member Rob Brown, MØRZF, gave us a talk about 'Small Antennas' and their associated technology. Rob has made the slides he used during his talk available in the files area of the club Yahoo site.

He started by saying that HF antenna size is usually a problem we have to deal with. A simple dipole has a total length of $\lambda/2$, so for 28Mhz for example this is 5m, about 16', length, but for 1.8MHz (160m, top band) it will be 80m long, which is about 262' and few people have this much space.



So, can we make the antenna smaller (shorter?). There are ways, and include loading, capacitive or inductive, energy storage, antenna tuner and matching networks, wire engineering - bending into 3D shapes. All methods end up against fundamental limits, and Rob discussed these.

Analysis involves vector calculus, J.C. Maxwell's equations, or complex simulation. Result: measurement difficulties, counter-intuitive, lots of wrong information and mistakes. The inverted 'V' dipole is the simplest bent dipole, and matches 50Ω really well. We can go much further

in bending the wire, but there are side effects! Matching is difficult - high SWR, bandwidth reduces, and the antenna is more complicated. Rob showed a picture of a helical winding for the wire, and asked, 'Has anyone ever looked into how small we can make an antenna?'. Answer is YES!

Rob then went over the basic equations that link frequency with wavelength, Q factors, antenna bandwidth, and efficiency. Please refer to the Yahoo file for these, or ask Rob. Similarly with something called the Chu-Wheeler limit. It is particularly difficult to measure efficiency. So, practically, how small can the antenna be?

Rob explained about one example of a small antenna, the 4-arm folded spherical helix antenna, devised by Professor Steven R Best. It matches 50Ω , has high efficiency, and fits the ideal Chu-Wheeler sphere. Practical diameter at 30MHz = 0.8m, but scales to 7m diameter at 3.5MHz. Impractical and awkward to make! It gets to 1.5x the Chu limit, and is about as good as wire bending can be.

The second example is a magnetic loop, with a 0.1λ circumference but can go smaller. It's just a radiating tuned circuit. The advantages are: mainly works by H-field, low noise pickup, and has low ground losses. Disadvantages are that the loop must have low resistance in loop (skin effect), also the capacitor gets very high voltages, has very narrow bandwidth requiring constant retuning, The narrow bandwidth is a consequence of the Chu Limit. However, it can be a very useful antenna, A helically wound version uses wide copper tape would on a plastic pipe. Remote controlled automatic tuning is possible.

Another example is "Metamaterial" loading. Sounds hi-tech, but it's just a form of secondary loading system. It uses a short dipole with a bent secondary radiator. It's practical to make, using aluminium bars from B&Q, and in many ways the dual of the magnetic loop, and tuned with a variable inductor. Rob brought along a device for the 10m band. Metamaterial research is applicable at higher frequencies. It doesn't break Chu Limit, has a narrower bandwidth than a dipole. The Mag loop or metamaterial loading can be combined with the next idea...

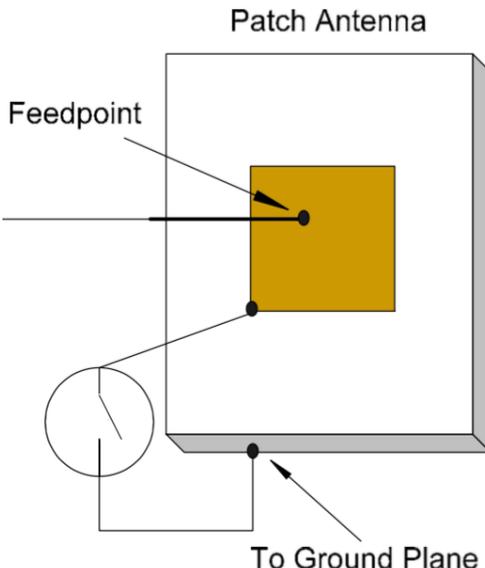
A short dipole (or a short monopole) has low radiation resistance. It also is highly capacitive. A $\lambda/10$ monopole is 5Ω of radiation resistance. It is about $-j150\Omega$ (capacitive) and a very poor match to 50Ω . The result is high SWR. We can use a loading coil to counter the capacitance and get a 50Ω match at resonance. The equivalent circuit is an L-C tuned circuit...NARROW BANDWIDTH!!

Low radiation resistance is less a problem than the reactance. A negative capacitor would cancel the capacitive reactance to give a new equivalent circuit. Dr. R. M. Foster said negative capacitance doesn't exist!. An active semiconductor circuit can act as a negative capacitor. This is called Non-Foster matching. Some prototypes exist - e.g. a 1-40MHz active antenna with $>3\text{dB}$ lower noise than with conventional techniques. Complex to implement, not widely used, difficulty with Tx.

Next, Rob introduced the subject of Direct Antenna Modulation (DAM). The Chu limit is defined by energy storage, e.g. loading coil. We can discharge the stored energy! Using 1 or more switches to short the antenna and produce a pulse. The antenna has the switches as part of it. It's only usable for digital modulation because of the gaps. Performance depends on how good the switch is, and on how well the stored energy can be discharged. Having digital voice transmission is obviously possible, which solves the gaps problem.

The performance limit shifts from the Chu-limit to semiconductors. Semiconductor performance is always improving. Switching 100's of volts in nanoseconds is now possible. Not enough research done to know how much the antenna size can be reduced. The example below shows a patch antenna because the stored energy is easy to discharge. Further research to be done into suitable antenna types for DAM.

Next, a controversial idea - the capacitive antenna. For details, it would be best to do an internet search for the authors of the paper, Landstorfer & Meinke (1973). Rob has made the antenna described there, and it works well. More testing to be done. Spacing graph indicates escape zone gets small as the length of the whole antenna gets small. So make the escape zone of the antenna bigger - with a plate. Spacing graph indicates the plate must be $>0.05\lambda$ away from ground. But for low frequencies still a large antenna! Increasing the voltage on the plate gives a higher electric field...So using a step-up coil feed enhances the effect.



Another controversial antenna is the EH Antenna . Based on the Crossed field antenna (CFA) - Maurice Hatley, G3HAT (1990). Successor to CFA is the EH Antenna - Ted Hart, W5JQR. Theory is synthesis of electromagnetic wave with no near fields, highly questionable! Poynting vector is probably not real, power flow concept only. Difficulty of measurement to prove it really works. Problem of common mode current, never addressed. Consists of a step-up transformer feeding two cylinders (plates). Tapping at the correct position gives an SWR dip. Rob brought along one he'd made for the 20m band. Poynting Vector Antenna (PVA) suggests a shaped "dipole" has a radiation resistance of $\sim 12\Omega$. Book published in 2016 by Hart/Birke (VE3PVB). Results presented in the book are not peer reviewed. Rob made one and found it very "dead". The EH and PVA can both be adjusted to give an SWR dip, and therefore accept power. Narrow bandwidth and poor effectiveness suggests they are only radiating tuned circuits. Rob suggests that you make one and judge for yourself? Please see Rob M0RZF at the club or contact him via rob (at) m0rzf.co.uk if you would more detail.

Photo by G3LIK; text by GØFYX

SHIPWRECKS OF THE SOUTH COAST

At the club meeting on May 21st, we had a visit and a presentation by Mark Beattie-Edwards the CEO of the Nautical Archaeology Society (NAS).

NAS is based at Fort Cumberland, Portsmouth.

The NAS is a non-government organisation and registered charity. It aims to further research in nautical archaeology and publish the results of such research. It also aims to advance education and training in techniques pertaining to the study of nautical archaeology for the benefit of the public. The NAS Mission: To enhance involvement, skills and knowledge to encourage a greater respect, better access and understanding of the maritime cultural heritage of the world.



Mark showed a detailed map of England, produced by Historic England (formerly English Heritage), categorising known wrecks into 5 groups. These are Protected Wrecks - Protection of Wrecks Act 1973 section 1 (Historic), Protected Wrecks - Protection of Wrecks Act 1973 section 2 (Dangerous), Scheduled Ships and Wrecks - Ancient Monuments and Archaeological Areas Act 1979, Military Wrecks - Protection of Military Remains Act 1986, and finally, Listed ships and wrecks - Planning (Listed Buildings and Conservation Areas) Act 1990.

Currently, of particular interest to Mark's team, is the Holland 5 submarine, which is located on the sea bed off the coast of Pevensy, in Kent.

A total of 5 Holland Class submarines were ordered for the Royal Navy. They were designed by John Phillip Holland, and built by Vickers at Barrow-in-Furness. The 5 were built using one set of engineers drawings, although there are some differences in the actual ones finally built. Holland 5 was the first to be launched in 1902,



and cost £35,000 to build. Built of 'S' grade steel, it was 63' long, with a beam of 11' 10". It had a single bow torpedo tube, and could carry 3-5 torpedoes. It had a test depth of 100', and had a crew of 8. She was equipped with one of the very first periscopes to be fitted.

By the time she was launched she was already considered obsolete and thirteen A class submarines had already been ordered. In 1910, Holland 5 ran aground off Fort Blockhouse, the location of HMS Dolphin and the home of the Royal Navy Submarine Service. By 1912, the decision was made to scrap the Holland class vessels. The submarine foundered in the English Channel off Beachy Head, Sussex, on 8 August 1912, when she was under tow on the way to being scrapped at Sheerness. It was not clear why she sank, but a theory is that the torpedo tube hatch was left open, causing the boat to take on water. In September 2000, the wreck of submarine Holland 5 was discovered at a depth of 98'(30m) about 6 miles (9.7km) off the British coast near Eastbourne. In April 2001, the Archaeological Diving Unit conducted a sonar scan and confirmed the identity of the wreck. The boat sits upright on the seabed. In 2005 the wreck was designated under the Protection of Wrecks Act. This makes trophy hunting and vandalism of the site a criminal offence. Following further dives in June 2010 and August 2010, it was discovered that at some point divers had stolen the torpedo tube hatch off the wreck. It was determined that the item would have no monetary value and would have gone into a private collection. Holland 5 remains the only submarine of her class on the seabed. Holland 1, the only other boat of her class remaining, is on show at the Royal Navy Submarine Museum in Gosport. Mark showed us photos taken of the sub during his many dives there.

Another protected wreck that Mark is investigating, is called the 'Norman's Bay' wreck, and I'll explain why. It hasn't yet been identified, although there are several possibilities. Norman's Bay is again off the coast of Pevensey, in Kent. The wreck lies in quite shallow water, about 6-8m depth, about 1.7 nautical miles off-shore. The site consists of a cluster of nearly 50 iron guns, timber hull structure, an anchor and other artefacts. There has been some speculation that the site may be the wreck of the Resolution, a 70-gun Third Rate that sank during the Great Storm of 1703, although limited documentary research indicates that there are at least several other recorded losses within the Bay that might relate to the remains including a number of Dutch men of war lost in 1690 at the Battle of Beachy Head in 1690. Based on the preliminary dendrochronological results (of the timber), the timber probably came from Germany or the Netherlands, and the timber was felled sometime between 1591 and 1659. It now seems less likely that the vessel is the Resolution, and more possible that it is one of the Dutch warships lost during the Battle of Beachy Head.

Mark's hope is that enough money can be raised (about £20,000) to enable one of the guns to be brought ashore, cleaned up, and then a more positive ID of the ship could be made.

For more information about the Nautical Archaeology Society, please have a look at their website <http://www.nauticalarchaeologysociety.org>
Text by G0FYX

PARAPROSDOKIANS

Paraprosdokians are figures of speech in which the latter part of a sentence is unexpected.

Winston Churchill loved them.

Some examples:

1. Where there's a will, I want to be in it.
2. Since light travels faster than sound, some people appear bright until you hear them speak.
3. If I agreed with you, we'd both be wrong.
4. War does not determine who is right - only who is left.
5. Knowledge is knowing a tomato is a fruit. Wisdom is not putting it in a fruit salad.
6. They begin the evening news with 'Good Evening,' then proceed to tell you why it isn't.
7. To steal ideas from someone is plagiarism. To steal from many is called research.
8. In filling in an application, where it says, 'In case of emergency' - notify: I put 'DOCTOR.'
9. I didn't say it was your fault, I said I was blaming you.
10. Women will never be equal to men until they can walk down the street with a bald head and a beer gut, and still think they look sexy.
11. Behind every successful man is his woman. Behind the fall of a successful man is usually another woman.
12. A clear conscience is the sign of a bad memory.
13. I used to be indecisive. Now I'm not so sure.
14. Nostalgia isn't what it used to be. Nor is there any future in it.
15. Change is inevitable, except from a vending machine.
16. Going to church doesn't make you a Christian any more than standing in your garage makes you a car.
17. I'm supposed to respect my elders, but it's getting harder and harder for me to find one now.
18. I am not arguing with you, I am explaining why you are wrong.

CHRISTMAS DINNER 2017

The club's annual Christmas dinner has been booked for Friday December the 8th, 19.30hrs for 20.00hrs. We will be for the fourth year running at Southwick Park Golf Club.

I have no food options or costs available yet but as soon as I get the information details will be given out.

The reason for this early memo is for two reasons.

1. I need full commitment from those wishing to attend and will be asking for a deposit per person to confirm their place/s as the club has to give a booking fee deposit this year. This information should be enough time for you to consult your diaries now and pencil in. Please e-mail me ASAP if you will be attending so I can gather numbers and advise the management. My e-mail address is juliatrube@ntlworld.com

The management needs to know sooner rather than later whether or not to double book/share the venue based on my predicted numbers.

2. The Golf Club has recently undergone new management and a new catering team, one of the criteria for marketing is to ensure they give the venue their full advertising so it can be used for special occasions throughout the year. I have therefore been informed if the HDARC wish to have the Christmas Dinner as a sole user as we have had in the past, I must ideally have 35-40 people attending. If this number is less than these figures (under 35) then a double booking/share of venue is a strong possibility.

The building can actually cater for up to 150 or a bit more but we have been really privileged to have the function to ourselves and get spread out nicely over a large area for comfort. I would not therefore personally like to be cramped in comparison, what about you!!!

In the past we have held Christmas functions in pubs/restaurants where an area has been hived off, but we still share with sometimes other noisy function bookings. At least parking at the Golf Club is vast with a few disabled bays close by. The service and quality of food is first class and we do get waited on as a sole group. My worries are as for any other venue if we have to share, is the waiting time for service may be slower. Knowing we do a raffle and Chairman's speech I would not like this to disturb another booked group? I have pointed all this out to the management so at the end of the day it is your choice.

I have made other venue enquiries on dates available in December but none are available. A large majority of places get booked a year or more in advance by regular users. We would however if we went this route be sharing anyway.

The Christmas social is open to family and friends to enjoy; it is not just for members.

I will e-mail a message out to those who normally attend.

Thank You

Julia GOIUY

Hon. Social Secretary

**“LIFE ISN'T ABOUT WAITING FOR THE
STORM TO PASS. ITS ABOUT LEARNING
HOW TO DANCE IN THE RAIN”
- VIVIAN GREENE**

Astronomy - Are we alone?

At the club meeting on June 16th, club chairman Ken Lindsay GØJWL gave us a talk on one of his other hobbies, astronomy. The actual title of the talk was 'Are We Alone? Stuart GØFYX has written up the talk here.

Ken started by outlining Einstein's Theory of Relativity, and introduced the equation of mass-energy equivalence $E = mc^2$.

Ken then moved on to telescopes. Astronomers use a variety of telescopes to look at the universe. They need many different types of telescopes to look at space because each telescope shows them different things. Light comes in wavelengths from short to long. Visible light, the light we humans see, is in the middle of the range. Short wavelengths include gamma rays and X-rays. Longer wavelengths include microwaves and radio waves. Most amateur astronomers use optical telescopes, either reflectors or refractors (diascopic) that use light in the visible wave range to show objects. (Galileo pioneered the refractor telescope).

However, most astronomical research is done on telescopes that look at other wavelengths of light, because each wavelength shows something different about the universe. A radio telescope is a specialised antenna and radio receiver used to receive radio waves from astronomical radio sources in the sky. This is radio astronomy. Radio telescopes are the main observing instrument used in radio astronomy, and study the radio frequency portion of the electromagnetic spectrum emitted by astronomical objects. This is what is used at Jodrell Bank.

Visible light makes up only a tiny part of the spectrum, but it is the part that is most important to us. It ranges from red light (longest wavelength) through yellow, green and blue to violet (shortest wavelength). Visible light is not blocked by the Earth's atmosphere, although clouds and dust can scatter some of the light back. However, the clarity of any image can be affected by atmospheric factors such as turbulence, city lights and pollution. As such, Earth-based telescopes are situated in high, dry places to minimise the effects of the Earth's atmosphere. The largest telescope in operation today is the 10m Keck telescope at Mauna Kea in Hawaii. However, telescopes placed



in space eliminate atmospheric interference completely, as well as any problems caused by bad weather. The most famous orbiting telescope, the Hubble Space Telescope has been used to observe storms on the outer planets, volcanoes on Io, new planetary systems forming and galaxy formation during the early universe. The Hubble Space Telescope also operates in the near infra-red and the near ultra-violet.

Ken then put into perspective, the vastness of space. The distance across the Milky Way galaxy is about 100,000 Light Years. Each light year is about 63,241 Astronomical Units. An Astronomical unit is the average distance between the Sun and the Earth, or about 93 million miles, which gives you some idea of how big the Milky Way actually is.

To get to the closest galaxy to ours, the Canis Major, a Dwarf galaxy, it would take approximately 749,000,000 years at Voyager's speed to travel the distance of 25,000 light years!

However, that aside there are billions of other galaxies in the Universe. Only three galaxies outside our own Milky Way Galaxy can be seen without a telescope, and appear as fuzzy patches in the sky with the naked eye. The closest galaxies that we can see without a telescope are the Large and Small Magellanic Clouds. These satellite galaxies of the Milky Way can be seen from the southern hemisphere. Even they are about 160,000 light years from us. The Andromeda Galaxy is a larger galaxy that can be seen from the northern hemisphere (with good eyesight and a very dark sky). It is about 2.5 million light years away from us, but it's getting closer, and researchers predict that in about 4 billion years it will collide with the Milky Way. The other galaxies are even further away from us and can only be seen through telescopes.

Epsilon Eridani is 10.5 light-years away, and is one of the closest stars to Earth that is of a similar type as Earth's sun. It's a little smaller and a little dimmer, but is comparable in terms of temperature, luminosity and mass. It was discovered by astronomers on Sofia (Stratospheric Observatory For Infrared Astronomy). SOFIA is an 80/20 joint venture between NASA and the German Aerospace Centre (DLR), and is based on a Boeing 747SP wide-body aircraft that has been modified to include a large door in the aft fuselage that can be opened in flight to allow a 2.5(8.2) diameter reflecting telescope access to the sky.

Ken then spoke about the 'Trappist-1' system. The Spitzer space telescope in conjunction with the Allen ground-based telescope arrays, had been looking for signs of extra-terrestrial activities within the Trappist-1 system. However, no signals were heard. That said, the Spitzer space telescope did confirm that there were seven planets of which perhaps D-E & F are seen to be likely candidates singled out for special interest by scientist searching for extra-terrestrial life.

SETI is an acronym for the Search for Extra-terrestrial Intelligence. It is the science of using telescopes, radio and optical, to search the skies for signals from alien civilizations. The idea of SETI began in 1959 with the publication of a paper in the British journal Nature by Giuseppe Cocconi and Philip Morrison. The paper discussed the possibility of the existence of alien civilizations and how we might be able to detect them. Their conclusion was that the easiest method of detection would be radio waves.

Radio waves were chosen because they are capable of travelling the vast distances between stars and can be generated with reasonable amounts of power. We have been sending radio waves out into space for more than sixty years. All of our radio, TV, satellite, and radar signals are currently spreading out throughout the galaxy. Perhaps they've already been detected by someone.

At the same time as Cocconi and Morrison's paper was published, a young astronomer named Frank Drake was putting together plans for the first search. The search, named Project Ozma, was conducted in 1960. Over a two week period, the stars Tau Ceti and Epsilon Eridani were scanned for alien signals. No signals were found but the search had begun.

In the 30 years since the initial Ozma search, many others have been carried out with more sensitive equipment, over much longer time frames, observing thousands of other stars. So far no alien signals have been detected but we've really only begun to scratch the surface. There are an estimated 100 billion stars in the Milky Way galaxy alone. To complicate matters further there are millions of frequencies that a signal could be received on. It may be that we just haven't looked in the right place at the right time yet.

CONCLUSIONS

No scientifically recorded contacts have ever been made regarding intelligent life outside of our own solar system.

There are many trillion galaxies within the universe, it is possible there is intelligent life.

For intelligent life to flourish conditions must be perfect (Goldilocks zone). The definition of the "Goldilocks zone" or "Habitable Zone" is "a region of space where stellar conditions are favourable for life as it is found on Earth". The habitable zone is not to be confused with the planetary habitability.

Worm holes at present are merely a hypothesis as are many other suggestions regarding travelling outside of our own galaxy to others.

GB2FN

The following article and photos have been kindly compiled by Julia G0IUY on behalf of Chris M0KTT the club's station manager. Chris has been, due to circumstances beyond his control, involved with family commitments etc.

A few weeks prior to the special event station at Fort Nelson Chris M0KTT, Stuart G0FYX and Julia G0IUY went along to Fort Nelson and met up with Nigel Hosier who is the events manager to discuss the facilities and location for the club to pitch the gazebo and antennas. It was a very positive outcome and on behalf of the HDARC Chris and the committee thank Fort Nelson for their help and support throughout. Whilst we were there it was an ideal time to have a look around the museum and a photo was taken of Stuart flying the Semaphore Flags. (Photo included, see front cover!). Now for the actual special event article.

GB2FN

Over the weekend of the 24th and 25th June the HDARC ran a special event station from the parade ground situated within Fort Nelson the Royal Armouries Museum on the top of Portsdown Hill. The special call GB2FN was to represent the International Museums On Air, hence FN (Fort Nelson).

The main equipment needed to prepare the weekend activity was collected from the store on Thursday afternoon by Chris with the help of Julia who was already working at the club's site painting the shed.

FRIDAY

The plan was to have a team at Fort Nelson between 10.00hrs and 10.30hrs on Friday morning to help as there was a lot to do and all the manpower we could muster was vital. Due to unforeseen circumstance we couldn't join Chris until 13.00hrs and was saddened upon our arrival to see that Chris had been working hard at the fort all morning on his own and struggling. The curator helped Chris by deploying some bodies to help erect the gazebo with roof covering, as this is really more than a one person job as was erecting and guying masts etc later. The portable masts and antennas were taken up the steep steps to the top of the ramparts which overlook the front of the fort. This section is fenced off and not accessible to members of the public. By 14.30hrs it was agreed enough had been done till the Saturday morning when permission had been granted for access to site at 09.00hrs. Equipment was then shut away in a secure location overnight.

SATURDAY

We arrived on site around 09.00hrs and met up with Chris who was already on the rampart trying to erect the antennas and guys. Julia was fighting a never ending battle with the wind and rain to get the gazebo panels up to protect the equipment that was stored under the roof canopy.

Soon after the gazebo was deemed safe and weather tight the radios etc were brought out of storage which Chris had collected the day before from Stuart. We had a problem with the rain and strong wind to get the VHF guyed up satisfactorily so decided to wait till additional help arrived on site. Soon after 10.00hrs Russ G4SAQ and Roger M0KWN arrived and setting up the HF station didn't take too long. A few contacts were made despite noise so at least the callsign was being activated successfully. Our son and his partner arrived to help put the VHF guys etc up, but it had just been successfully erected with the help of Russ and Roger. Julia G0IUJ made several contacts on VHF with good signal reports. Jean-Paul 2E0UKB, one of our members, arrived with some audio equipment which he was going to use later on and agreed to carry on operating the VHF station so we could take a break in the café with our family.

Upon our return it was busy on HF with Roger doing Morse Appreciation with young people and their families. This was proving to be a welcome part of the visitor's tour round the museum throughout the whole weekend. Throughout the day we battled with the wind and rain which was a shame, but the curators and staff working at the Fort looked after us very well. They provided an extension lead for power which we had access to the whole weekend, some water filled containers to place around the legs of the gazebo to help hold them in place; this worked well until the gusts of wind got under and lifted the whole gazebo in the air about a foot, and it was really scary. The tables and chairs were also on loan for the duration by the Fort so we thank them profusely.

Doug G4BEQ arrived after lunch for about an hour to see the club station and had to leave to return home to his XYL who hasn't been very well for some time. By the time 16.00hrs arrived we were all exhausted and worried for the following day as the weather was still predicted as windy with less rain. Not knowing what to do with the gazebo overnight if we left it at low mast the curator kindly helped us to walk it complete into a safe hanger on the parade ground with the rest of the club's gear and locked it up overnight so it was dry and secure. I am sure with the strong winds still predicted overnight the gazebo would not have been in place next day!!

SUNDAY

We agreed to meet up again at 09.00hrs to reproduce the day before but with one small change. The gazebo was placed closer to the museum entrance which did give a little more protection but not total. It was easy to move the co-axial cables across the grass rampart and re-connect. Sadly Russ could not return on Sunday but Roger arrived nice and early to help set up and was soon followed by Bill 2E0WGK. Once the radios were in full operation Bill made a few contacts on HF whilst Julia was busy on VHF. Good strong signal reports were given on VHF throughout the day with two special contacts for Julia being Stonehenge with 5/9 and the Guernsey Radio Club operating from the bunker with a 5/7 signal.



During the course of the day other club members arrived; these were Rob 2E0OCS who brought along one of the projects he has been building to demonstrate its use. Doug G4BEQ, John M0HTE, Stuart G0FYX and Rob M0RZF. Doug and John brought their own Morse keys along; visitors close to the gazebo looking at exhibits from the museum were amazed at the sounds of Morse being echoed and came inside with their children to listen. The children were keen to get on the key with Roger and have a go. Many of the children asked their dad's to do it as well which was nice to hear and see. The club banner was erected outside of the gazebo which played a vital role in getting the public across to see what we were doing.

The wind was a little stronger in the afternoon and a couple of times the gazebo lifted on all four legs about a foot which was scary for those inside operating. Around 15.30hrs a visit to the shop area by the main entrance revealed that they had received a lot of positive feedback from the public to our being there and demonstrating Morse code, explaining the hobby of Amateur Radio etc. We asked what time the museum was closing to the public and informed 17.00hrs. The info was relayed back to Chris the station manager and other group members still in attendance who were overwhelmed at the generosity of help and support the HDARC had received all weekend, together with the thoughts that Morse Code is still recognised and respected by a varied age range.

We decided as there was a lot of equipment to take down and clear away, to start dismantling at 15.45hrs. Several trips to cars parked outside the museum were made easier by the use of one of the museums sack carts. The final removal of gear took place just after the museum had closed so we had timed that well. Bill kindly returned the trolley to the museum whilst Chris, Stuart and Julia returned to the club's station at Fort Widley to off-load the gear into storage.

Chris would like to thank everyone for their help and support and most importantly requires more volunteers to help set up on Friday 21st July ready for the "Artillery On Parade" event over the weekend of 22nd & 23rd July. The club's NOV for this event is GB4FN. Operators are needed together with members who are happy to do PR for the club. We plan to introduce a little bit more hands on for children together with other items that are still under discussion. Watch this space!!! Please, contact Chris the Station Manager ASAP if you can spare some time to help. See committee page for his contact details.

The museum are looking forward to our attendance at this event and although the main museum is free entry, the actual Artillery on Parade is by ticket entry only. For more details of events and costs for all ages visit their website www.royalarmouries.org

Thank You,

Photos with this article supplied by Julia G0IUY.

MUSEUMS AT NIGHT

It was my birthday in May and as a treat had a very enjoyable night of activities at Fort Nelson. As part of the National Museums by Night, Fort Nelson opened its doors to the public between 18.00hrs and 21.00hrs. The venue was restricted to ticket entry only, and our youngest son and his partner joined us together with some close friends which helped make the evening extra special.

The 32 pound Smooth Bore Breech-Loading gun in the North Caponier was fired by a uniformed detachment from the Portsdown Artillery Volunteers at set times throughout the night with a set number of people per group being allocated a time slot. There was a special treat on the parade ground with WW2 enactments and the sound of the Sexton, a 25pr self-propelled field gun being fired, a little later the tank-like vehicle which dates to the D-Day landings was a favourite with all and we watched it fire its gun at intervals too.

A few other club members attended with family and friends and wandered off to visit other parts of the Fort.

The café remained open for hot drinks throughout. Downstairs in one of the exhibit areas, there were people in costume giving talks, The Lady with the Lamp, (Florence Nightingale) was in the hospital gallery explaining how soldiers were looked after at the Fort, what medicines were used and how the wounds were dressed. Victorian life in the kitchen discovered what it was like looking after the Fort's soldiers in the 1890's.

Daisy the ATS girl was in the guns gallery below explaining the Fort's role in protecting the Solent during the war and the roles of the women on the home front. An extra special treat of the evening was a chance to wander the West Demi-Caponier which was eerie; it's rarely opened to the public. This one was used in the main as an overflow barracks during the First World War to sleep the occupants of the Fort; there are firing windows here at low and high levels as there are all around the moated area of the fort, which formed a vital part of the Fort's artillery defence should an attack from the enemy happen.

The overall site covers 19 acres.

I have attached some pictures with this article to show a selection of the areas visited. It was a great night weather wise with a beautiful sunset to end the evening.

Julia G0IU Y



Horndean & District A.R.C Information.



Club Call signs *G4FBS (Held by MØKTT); G6RST (Held by G4WQZ)*

Club Website <http://www.hdarc.co.uk>
(Maintained by Neil M6LPI)

Club Yahoo Group *Administrator is Stuart GØFYX*

Club Meetings *Held at Deverell Hall, 84 London Rd, Purbrook,
Waterlooville, Hants. PO7 5JU, on the 1st and
3rd Friday of each month. Commencing at 1930.*

Club Nets *All times are local and frequencies plus/minus QRM.*

Sunday *0900 CW until about 0930 then SSB on 1950 kHz.
Net controller:- Stuart GØFYX*

*2000 FM 433.450 MHz
Net controller:- John G4WQZ*

Monday *1930 SSB 1950kHz
Net controller:- Stuart GØFYX*

Wednesday *1930 FM 145.375 MHz
Net controller:- John G4WQZ*

Club Membership

Joining fee £2 . Annual fee £26. Those aged 10-18 pay half this rate, and under 10's have free junior membership. For Europe and rest of the World fees please contact the Membership Secretary. All annual fees payable on November 1st. If fees not paid by the following January 31st, membership is ended.

Club Awards

Full details from Stuart GØFYX (details on committee page).



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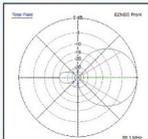
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Boom Dia: 32mm
Length: 2.1m



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