

The newsletter of the
Crystal Palace Radio & Electronics Club

Affiliated to the Radio Society of Great Britain
Established January 1956

Meetings are held on the first Friday of each month.
The room opens at 7:30pm for an 8pm start at:
All Saints Parish Church,
Beulah Hill, London, SE19 3LG
(opposite the junction with Grange Road).
Visitors are always welcome.

Web sites:	Club Admin: http://cprec.btck.co.uk/
	Club Technical: http://cprec.btck.co.uk/OurTechnicalSite
Email:	cprec.g2lw@gmail.com
Club Net:	Each Wednesday at 20:00 on FM on 145.525MHz (S21) ± QRM Experimental net each Saturday at 20:00 on FM on 51.55MHz
Twitter	@BobFBurns or www.twitter.com/bobfburns

Next meeting: Friday 6th September 2019

How to Specify a Power Transformer *by Paul Dyer M6OPY*

In this issue: *Future Meetings & Events, Recent Event News, Turing and the Bottleneck by 'Theorist', Technical Snippets, Members News, Miscellaneous, Noticeboard, Diary of External Events, News from other Clubs, Local Training Courses and Club Contact Information.*

Dear Reader

Future 2019 Club Meetings and Events

06 Sep	M	How to Specify a Power Transformer by Paul Dyer
04 Oct	M	Emergency Service Communication by Steve Shorey G3ZPS
01 Nov	M	The Gliwice Radio Tower Incident by Phil Tate M1GWZ
24 Nov	E	CATS Bazaar
06 Dec	M	Christmas Social
03 Jan 20	M	Video Evening
07 Feb 20	M	Annual General Meeting

C = Contest, CM = Committee meeting, E = External event, M = club meeting, R = Rally, T = Training course, V = Visit.

06 Sep 2019 - How to Specify a Power Transformer by Paul Dyer M6OPY

Paul writes: 'I will explain why the specification of a transformer has to be correctly formulated to suit the surrounding network and the consequences of an incorrect specification. The various documents that are required will be discussed.'

Recent Event News

02 Aug 2019 - Summer Social, Pixie Completion and On the Air

Thank you to all those members who contributed food to this event and to Jim's XYL Doris who brought along a large bowl of excellent trifle.

Alan G8NKM managed a Pixie engineering table helping constructors to finish off their individual projects.

The club VHF station was set up with the colinear propped up in a tree and stations were worked as far away as Guildford.

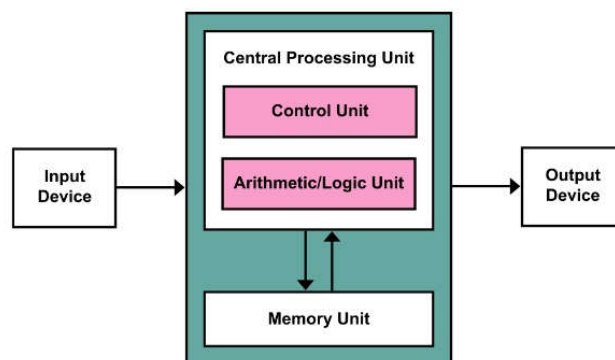
We were unable to gain access to the club cupboard at the start of the evening due to the nursery group equipment being incorrectly stored in the side room and this issue has been raised with the church committee. Both light switches were completely obscured as well. A meeting is planned with the church committee to look for an alternative location for our cupboard.

Turing and the Bottleneck by 'Theorist'

You may not have heard of the mathematician and sometime physicist John von Neumann (he worked on the Manhattan project) unless you have a background in those areas, or a detailed knowledge of computers. If you have heard of him it might be because of his co-authorship of a book that established *game theory* as a new branch of mathematics, or because you have heard of something called von Neumann architecture (VNA) applied to computers. While it can be argued that game theory did not live up to its early promise, there is no doubt that the VNA has had a big role in the development of computers. In fact, as the man himself would have acknowledged, it should really be called the 'Turing architecture', after Alan Turing who came up with the

basic framework in a famous ground breaking paper published in 1936 [ref 1], although some of Turing's ideas were anticipated by others - something was in the air in the 1930s...

von Neumann Architecture



Turing was interested in a famous mathematical problem in logic called the *Entscheidungsproblem* (decision problem). This was to do with deciding if the truth or falsity of statements in logical systems could always be determined by using a defined mathematical procedure. Unlike Turing, in the 1930s very few people realised that by using a valve as a switch you might be able to make some sort of electronic binary processing machine or computer, or with the concept that such a device might be programmable. Yet Turing realised that the *Entscheidungsproblem* was equivalent to the following computational problem: can you have a program P1 that could take any other program P2 as its input and decide in a finite time whether or not that program would ever halt? This is known as the *Halting problem*. Note that P2 might have the ability to take different sets of its own input data, so you would need to specify what set you were using when analysing P2. Anyway it seems incredible that anybody could be thinking about this sort of thing before any computer had been built, or a proper program written.

Because he was rephrasing the original logic problem in terms of what we would call computers, and hardly anybody had any idea what one might look like or even that one could be built, Turing had to demonstrate a possible design that a simple Turing Machine (as they became known) might look like.

Hence there is a long explanation of a possible design in the paper – these days you would just say 'take your laptop and look at the memory chips' or something like that, and everybody would know what you meant. One of Turing's key concepts was the idea of a *stored-program* device in which the instructions (i.e. the program) and the data are held in a common storage area or *common memory unit*. In his paper he envisaged a long paper tape divided into squares where each square had either a 1 or a 0 written on it. For simplicity one length of tape would have the program on it as a string of 1s and 0s, and another length would have the data, also in binary form, although the data and the instructions could in principle be interlaced.

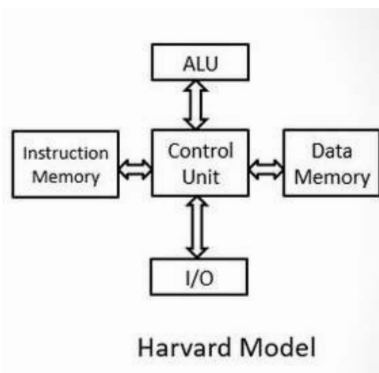
Another part of the computer/Turing machine would then be an *instruction processor* (i.e. a CPU), capable of reading the instructions coded on the tape in an

instruction set of 1s and 0s and acting on them. Using the data on the tape if required it could then change 1s and 0s somewhere on the tape, including changing the data or the program itself (!), until a length of the tape had the answer to whatever problem was being computed and could be printed out. In the paper all the possible complications of his device were looked at and examined, but all this was purely for purposes of convincing his readers that the basic idea of an electronic computing device was possible, not intending his paper tape reader to be a practical working device.

Holding data and instructions in the same memory unit avoids the problem of having to make a separate machine for each problem that needs to be solved. It also means that, as already indicated, code that modifies itself is possible, and it also allows for the possibility of programs that write other programs, and the computer languages that allow that to happen.

Yet there is a problem with the VNA in that there is only one bus or communications channel between the processor and the single memory unit which holds both the data and the instructions. The single bus can therefore *either* be getting an instruction, *or* reading/writing data, but not both at the same time since data and instructions share the same bus. This limits performance, and is known as the *von Neumann bottleneck*, although it should perhaps be known as the Turing bottleneck.

An obvious solution is to have separate instruction memory, and separate data memory, each with their own separate buses accessible to the processor. In this case they need not be the same type of memory, or even utilise the same number of bits. For example the instruction memory might be 64 bit flash memory, but the data memory 32 bit and held on an HDD. Instruction memory could even be read-only for a specific machine, such as for a dedicated 1980s word processor for example. At the same time data memory could be read-write. The point is that there are two separate memory buses which the processor can use simultaneously. This type of arrangement is generally known as the *Harvard architecture*. In the figure ALU means 'arithmetic logic unit'.



However (and there is always a however) processor speeds are increasing at a greater rate than memory speeds, and more and more applications need to work with very large data sets. If most or all instructions result in a data access you do not get the benefit from a faster processor, since the memory cannot supply the data quickly enough as it is comparatively slow compared to the speed the processor can operate. This is known as the *memory bound problem*, and also affects the VNA.

To partially alleviate this there is another design called the *modified Harvard architecture*, and this is where

things get awkward since there is no general agreement on the precise terminology or what it means. The general idea though is that the strict distinction the Harvard architecture makes between instructions and data memory is relaxed in various ways. Whatever the precise definition some sort of this type of architecture is used in most (all?) modern PCs and mobile phones.

The most important relaxation is in using combined memory caches. The idea of a cache is to have the most frequently used data and/or instructions held in readiness in a separate memory unit. In the terminology they are *pre-fetched*. All modern processors have at least one cache as memory built into the processor itself, which also speeds things up by reducing the connection lengths between the processor and cache memory. As far as I can make out the first Intel processor to use a cache was the original Pentium processor of 1993, which had an 8 kB instruction cache and an 8kB data cache *in the same memory unit*. In other words the cache was a von Neumann architecture. Modern processors develop this idea with at least one VNA cache but otherwise use Harvard style separate instruction and data memory units. Hence a modified Harvard design. There is a lot more that can be talked about here but that is as far as I intend to go, for now at least.

Turing's paper proved that it was not possible to have a program that could invariably tell if another program would ever halt or not, and hence that a general solution to the *Entscheidungsproblem* was not possible. He also showed, almost as a by-product, that the overwhelming majority of numbers are not computable in the sense that there is no algorithm that would give one of those numbers as its output. Why though is the original architecture called von Neumann rather than Turing? One answer is that von Neumann published a paper in 1945 specifically concerned with the design of a digital electronic computer and had a wide audience of engineers, whereas Turing's 1936 paper was really concerned with the *Entscheidungsproblem* and had a much more restricted mathematical audience.

[1] "On Computable Numbers, with an Application to the Entscheidungsproblem", Turing 1936. You can download a copy from various sites – just google it - but it is very hard going and not for the faint-hearted!

Club News

a) CATS Bazaar on 24th November: We have booked two tables with power at the CATS Bazaar to sell off the donated equipment for club funds. If you can spare an hour or two to assist please contact a committee member. There will probably be some spare space on the tables if you have any items to sell.

b) The technical web site has been updated with some additional ancient technology (pre-semiconductor) information and test results.

Members News

As part of his remote aerial matching unit project Alan G8NKM has developed a small PC board for a 1.8-52MHz SWR bridge and has given me a production version on which to do some RF measurements using my spectrum analyser and tracking generator. Alan used

Kikad to design the board layout which was then manufactured in China.

Miscellaneous

a) GX3WIM Wimbledon & District ARS Summer Camp 2019 by John G8MNY

I got there at 08:00 on a wet Saturday morning after a week of assembling kit and careful packing the tons of kit in my old Van. Andy G4ADM was already there in his caravan, I did not disturb him. As usual I found my parking spot by laying out the 80m dipole and leveled up the van. I then, still in the wet, set about unpacking and setting up the Van awning and aerials, laid the 2 carpets, put in the heavy 120AH 12V battery for the PA and placed the operating table and cooking table stack in place with its minimum shack footprint - see below. Once the 1st level of kit was wired up 6m 4CX250B PA, FT690R Rig, BHI loudspeaker and pre-driver PA, HF PSU, IC735 and small ATU, Autocaller, BHI loudspeaker. Then the shelf went in with a bendy Lamp, loudspeaker, ATU, and Rotator controller.

When Steve M0PEL and Damiem 2E0EUI arrived and it was a bit drier so we put out the 44ft mast with a 26ft gin pole, and erected it OK.

Then lowered it onto an A frame and added the up-rated Mosley TH33 HF Tribander, a 6el 5m beam, a VHF Triband colinear, all with UR67/WF102 coax, not forgetting the two halyards for the HF wires. The aerials were RF tested on the ground with a MFJ analyser.

[Note the crystal set on top of the ATU - Ed]

The three aerials and coax load being quite heavy to lift with the gin pole and a pulley, was quite stable. The last few feet of the back guys were manually payed out, to reduce mast shock when it all went vertical. The mast was then lifted onto the rotator and direction calibrated. So time to break for lunch and liquid refreshment on this damp day.

Next came the three catapult jobs for 80m dipole at 45ft for BT net >10:00AM Sunday, the 40m dipole at 30ft was thrown up as hight was lower for its best match. A long wire (50m) at 50ft for the sunday morning 160m SRCC net at 9:30.



At 17:30 I started preparing a well deserved evening dinner and then some HF working and VHF FM 3 band shack set up with Steve's Wouxun rig in the centre of my Van. At the rear of the Van (see right) was my QRP 2m packet system running into the van's passenger side 7/8λ aerial.



All the sunday nets went well with a really low noise floor.

On the Monday when the wind was low, we set up the 2m SSB aerial mast a 9el Tonna at 54ft on my light weight "String Wonder" mast with its 12V rotator. Rig was old TS700G and 200W 12V TONO PA. all in the middle of the Van with the FM.

I used three petrol generators, a small 500W 4 stroke Honda, a 1kW 4 stoke and my old 2.3kW 4 stroke, for when I was running multiband. We used 19 gals in all. As planned the small gennies would each run the T500M 400W transistor 12V HF amp (75A) OK, with rig all on 120AH floated battery.

Damien 2E0EUI (shown right with the hat) camped all week except one day when he had family commitments. Kim G6JXA (lower right) camped several nights. Messing awning and bench camp seats set up.



Clark army 10m mast had 4m colinear and 80/40m trapped inverted V. 20m and 40m ¼ waves verticals withe radials. 4M rig was an 30W Ascom in the rear of the Van.

Gareth G4XAT showed up with his "new" old camper and tested Osca 100 and made some HF aerials. Switching options was set up between 80m, 40m and 20m aerials and proved quite interesting with the larger aerials winning on most QSOs. As usual the site's HF noise floor was very low and a preamp could be used on 80m to give only S2 level!



Shack, van, and shower with a separate loo - all mod cons on site!

Wx was wet and windy Tuesday, but often warm sunny most of the week. I left



the site by 16:30 Sunday, after the site take down and van pack, and home I had Sunday roast dinner and well needed bath! My SUSY RADIO went off air on the first day but was sorted by others with just phone calls (power on?).

Operating was done by G8MNY, G6JXA, M0PEL, 2E0EUI, G4ADM, G0KRT, G4WNT, and G6DTW often till 02:00hrs! With our QRO and special event club station, long pile ups are normal, most nights were good for stateside on 20m and one night was huge on 80m. In all there were 9 members and 15 visitors visited at the camp. From the logs:

160m with 30W/400W had 19 contacts with Dx to CT DL EA,

80m with 400W saw 232 with Dx to DL EI F GM GD GI I PA OE OM R SA SP OZ VO Canada, Moscow and a/mm (aeronautical / maritime mobile).

40m saw 133 Dx 4X 9A 9H CT DL EA EI F GI GM I LB LX OE OH OK ON OZ PA R SA SP TM UY VK.
[Australia was an excellent result - Ed]

20m saw 376 Dx 4X 7X 9H 9Z 5C A CN CT EA EI ER ES DL F HA HZ I K LA LY LZ N OD OE OH OM OZ PA R S51 S53 SA SM SP SV SX TK UR VE W XE XQ YO YT YU Z35 Z62

10m saw 9 contacts Dx E7 EA I

6m with 250W we had 3 contacts 1 sporadic E event Dx to HA,

4m with 25W end fed dipole at 10m saw 7 G QSOs.

2m with 50W FM to colinear at 14m / 200W SSB to 9el at 54' saw 21 G QSOs.

70cms 40W FM Just 2 QSOs.

73 de John G8MNY

b) The new £50 note: Written on the banknote are the numbers '101011111110010110011000', which is a binary code that can be converted into ordinary decimal numbers to reveal Turing's birthday – 23061912 or June 23, 1912.

Read more at <https://metro.co.uk/2019/07/16/new-50-alan-turing-banknote-contains-secret-message-binary-code-10360170/?ito=cbshare>

[Source: Metro News]

c) Mean Well Power Supplies: A number of users have recommended this range of switched mode power supplies (SMPS) as being electrically very quiet. The company manufactures an extremely wide range of open and enclosed power supplies in the 1W to 3000W range. UK outlets include Mean Well Direct and RS Components - Google for more information.

d) The first Drake TR-7 transceiver has now been cleaned, re-aligned and is now fully operational with its matching power supply. If you are interested in making an offer for this equipment please contact our Chairman Damien 2E0EUI otherwise it will be sold at the CATS Bazaar. The second unit is now under investigation on my test bench.

e) ICQ Podcast 300th Show: Back in 2008, a father and son team decided to experiment with a new publishing

technology - podcasting. They committed to publishing ten shows and see if anyone was listening. Since that decision eleven years ago, the show has gone from strength to strength. With listeners in over 120 countries enjoying the fortnightly published show along with accompanying website (<http://www.icqpodcast.com>) and YouTube videos (<http://www.youtube.com/icqpodcast>).

The team has grown too, joining the pair, a team passionate amateurs across Europe and 'over the pond' from North America, one thing that has been core to the show's success is a friendly, radio club feel about the topics discussed and the technical knowledge sharing.

"It is amazing the amount of technical and operating knowledge there is between the presenting team" comments Technical Editor Martin Butler M1MRB. *"As I learn something each episode, I'm sure our listeners also gain a technical nugget or two along with the banter and enjoyment of being at a virtual radio club"*

2019 has been a busy year, with attendance planned at UK Hamfest and HF Convention along with attending Ham Radio 2019 and Hamvention in Ohio USA.

"We are always on the lookout for new stories, it's great to hear about what other amateurs are achieving in the hobby," says Founding Editor Colin Butler M6BOY. *"If you would like to promote yourselves, let us know"*

More Information and to download the latest show – <http://www.icqpodcast.com>

ICQPodcast YouTube Channel – <http://www.youtube.com/ICQPodcast>

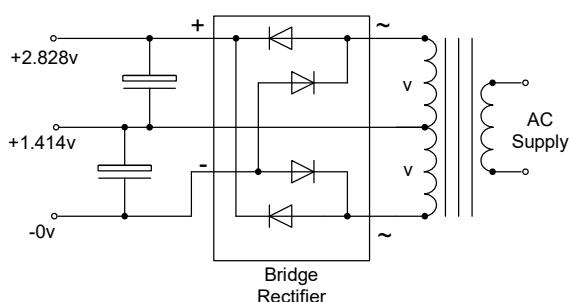
f) 12 September 2019 Spitfire: The Kenley Revival Project presents the (PG) story of this iconic plane at the David Lean Cinema at Croydon Clocktower. The documentary combines aerial footage, digitally remastered archive film and testimony of former Spitfire pilots. All tickets £5. <http://www.davidleancinema.org.uk/>

Technical Snippets

a) Linux Mint v19.1: I had ongoing problems with a number of Linux distros with installation of the drivers for my new PC NVidia graphics card but this recent version of Mint seems to have resolved the issues. It offered me the option of either the open source driver or the NVidia specific driver - the latter installed with no errors and enabled the correct identification of my current monitor and operation at its maximum resolution.

Mint is derived from Ubuntu which had also posed driver problems during installation.

b) Transformer Specification: I am looking forward to this talk as it takes me back to a time when I wrote a specification for a mains transformer which the manufacturer managed to misinterpret. I ended up with a



toroidal transformer with twice the current rating that was required and twice the physical size (and weight!).

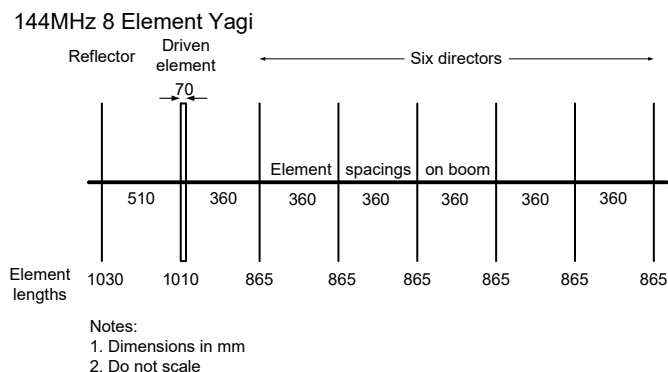
The finished product is a transformer with an 18-0-18v secondary at 40A (instead of 20A). The centre tap is extremely useful as it allows a bridge rectifier to produce, in this example, both 25v and 50v (off load) DC supplies to drive power regulators for 13.5v and 28v respectively as shown.

Capacitor values and diode ratings will depend on the application and 'v' is the rms voltage of one half of the secondary winding, not the symbol for volts in this example. You can expect full load DC voltages of between $0.9 \times v$ and $1.1 \times v$ depending on the diodes used and the transformer winding resistances - Schottky diodes have a lower voltage drop than conventional silicon power diodes so will run cooler but cost more.

The bridge rectifier or separate rectifier diodes must be mounted on a good sink for adequate cooling - the bridge rectifier is easier to use as the internal diodes will be insulated from the mounting arrangement. At the above currents the heat sink(s) for both sets of regulator transistors and rectifiers will almost certainly need to be thermostatically fan cooled. See the technical web site for examples and more details.

With a dual output voltage power supply, both supplies may be used at the same time as long as the total power rating for the transformer is not exceeded. The long term plan is to use the 13.5v supply for a transceiver and the 28v supply for a linear amplifier where the higher voltage will provide better linearity.

c) J-Beam Dimensions: Following Gareth's request for aerial information, I climbed up on my roof and measured my 144MHz 8 element J-Beam yagi which has the following dimensions:



The original black plastic cable termination boxes have been replaced on both my 144MHz and 432MHz yagis as the material had degraded in sunlight over many years and let the water in, requiring both lengths of coaxial cable to also be replaced. The aluminium driven element and reflector on the 432MHz aerial have also been replaced with 8mm microbore copper pipe and soldered corner fittings which were then treated with a cold curing acid etch primer and top coats of oil based paint.

More information on the technical website.

d) RF Measurements: As I now have the required communications software installed on my new PC I can capture measurement results from the Rigol spectrum analyser and store them on the PC. These take the form

of screen captures with the signal plots, scales and settings.

Notice Board – Wanted and For Sale

The Notice Board is for all club members to use so if you have one or more items that you wish to buy or sell then please send in the details. Some of the current list of items may be viewed at:

<http://cprec.btck.co.uk/SaleofClubEquipment>

All excl P&P.

Wanted:

I have a big bundle of J-Beam elements for 2M, and a folded dipole in their style. The elements have end-caps in white (maybe yellow once upon a time), brown and black – three different lengths. As I'm missing any boom I wonder if anyone has stashed away assembly instructions for any of their 2M aerials from which I could try and replicate whatever it was, presumably 4 elements upwards. There are many multiples of each colour, but just one folded dipole. An email scan would be great or even brief details of spacing and element lengths. I have some tubing that will do for the boom, I just need to know where to drill it! Thanks. Gareth, G4XAT, g4xat@ntlworld.com.

For Sale

Two AVO 8 Mk VI test meters: One has a broken terminal the other is fine. Both working but no leather carrying cases. £55 each ono. Contact Noel Brown on 0208 761 5883.



PC with 2.8GHz quad core AMD Athlon processor, heat pipe cooling, 600W PSU, 4GB of RAM, 1TB and 0.5TB hard drives, CD/DVD RW drive, BluRay BD-RE (25GB) drive, Windows 7 professional 64bit operating system, digital TV and FM radio card, dual monitor graphics card, Ethernet network port, 6 USB ports, legacy parallel and serial port card, 3.5inch diskette drive and all driver software. No mouse, keyboard or monitor. Offers to Bob on 01737 552170 or g3oou@atol.com

CPREC has a large bank of fundamental and overtone quartz crystals, from 1.0 – 99.91MHz and the list is on the club website as a downloadable PDF file. Prices are £1 each to club members and £2 each to non members, excluding P&P. Contact Bob on 01737 552170 or g3oou@atol.com.

73

G3OOU

Diary of External Events

25 Aug 2019 - Milton Keynes ARS Rally

Irish Centre, Manor Fields, Watling Street, Bletchley MK2 2HX. Entrance £3. Trader options available with extra indoor pitches available for 2019. Free parking and on-site catering. Open to traders 7am, public from 9am. Additional information at www.mkars.org.uk/rally or

contact Francis Hennigan, M0UKF rally@mkars.org.uk or 07563 498 156

27-28 Sep 2019 - 11th National Hamfest

Newark & Nottinghamshire Showground, Lincoln Road, Winthorpe, Newark, Nottinghamshire NG24 2NY.

Free parking. Nearest rail station is Newark where taxis are available. For more information including the flea market, bring & buy and trader list see:

<http://www.nationalhamfest.org.uk/>

11-13 Oct 2019 - RSGB Convention

Kent's Hill Park Training and Conference Centre, Swallow House, Timbold Drive, Kent's Hill Park, Milton Keynes, Buckinghamshire MK7 6BZ.

19 Oct 2019 - CW Convention and CW Boot Camp

3rd Witham Scout & Guide HQ, Rear of Spring Lodge Community Centre, Powers Hall End, Witham, Essex CM8 2HE. Registration at 8.30am, start 9am. Finish at around 4.30pm. Pre-register as places are limited to G0IBN: g0ibn1@yahoo.com or 0745 342 60 87 Previous events have welcomed visitors from all over the UK.

24 Nov 2019 - CATS Bazaar

The 2019 bazaar (the 42nd) will take place on Sunday 24th November 2019 at the Oasis Academy, Homefield Road, Old Coulsdon, Surrey CR5 1ES. Features include: secondhand equipment, flea market, traders' stalls, new equipment, refreshments, disabled access / toilet, free parking. Admission £1.50 includes a free cup of tea or coffee and entry to the prize draw. Three bus routes: 466, 404 and 60. Doors open 10:00 hrs and expected to finish at around 13:00. More information from bazaar@catsradio.org

News from other Clubs

Club Secretaries – please ensure that your future meeting details are present in your newsletters, on your websites or sent to our newsletter editor Bob G3OOU. Palace Pulse is published about ten days before our club meeting which is on the first Friday of each month and closes for editorial contributions a few days before publication. Due to differing publication dates and short lead times it is getting increasingly difficult to include other clubs' events although we will endeavor to do so if advised in time. **If we are regularly unable to obtain the information then that club entry will be removed from this newsletter.**

Readers - If you plan to visit one of these club meetings please check with the club concerned in case of any last minute changes.

Bredhurst Receiving and Transmitting Society

Meet on Thursday night from 8:30pm at the Parkwood Community Centre, Long Catlis Road, Rainham, Kent, ME8 9PN. Contact secretary@brats-qth.org or <http://www.brats-qth.org/brats/>

26 Sep The GB3VHF and GB3UHF Story by Chris G0FDZ

Bromley & District Amateur Radio Society

Meets at 19:30 on the third Tuesday of each month at the Victory Social Club, Kechill Gardens, Hayes, Bromley, BR2 7NH. Contact Andy G4WGZ on 01689 878089 or enquiries(at)bdars.co.uk. Web: www.bdars.co.uk

17 Sep Millimetric Microwaves by G0FDZ
15 Oct DMR Hotspots - An Introduction by Damien 2E0EUI
19 Nov The 'Nicky' TRF by M0YRG
17 Dec Quiz and Mince Pies

Chelmsford Amateur Radio Society (CARS)

19:30 on the first Tuesday of each month at Oaklands Museum, Moulsham Street, Chelmsford, Essex, CM2 9AQ. Contact: secretary(at)g0mwt.org.uk Web:

www.g0mwt.org.uk

03 Sep Life as a Radio Officer by Dave Ellis G4AJY
01 Oct CARS AGM

Coulsdon Amateur Transmitting Society (CATS)

8:15pm on 2nd Monday each month. Contact: Andy Briers G0KZT on 07729 866600 or secretary(at)catsradio.org. Web site:

<http://www.catsradio.org/>

09 Sep Construction evening and general chat night
Oct Vintage Wireless Museum in Dulwich - date TBC

Nov Inter club quiz - date TBC

24 Nov CATS Bazaar

09 Dec CATS AGM

Crawley Amateur Radio Club (CARC)

Every Wednesday 20:00 – 22:00, every Sunday 11:00 – 13:00. Formal events are on the fourth Wednesday of the month, 7-30pm for 8pm. Phil M0TZZ on 07557 735265 or secretary(at)carc.org.uk or Web: <http://www.carc.org.uk/>

28 Aug Dayton & Friedrichshafen Report by Stewart G3YSX

25 Sep Plastics in Amateur Radio - TBC

Cray Valley Radio Society (CVRS)

Meets at 8pm on the 1st and 3rd Thursday of each month at 1st Royal Eltham Scouts HQ, Rear of 61 - 71 Southend Crescent, Eltham, London, SE9 2SD. Contact:

Richard on secretary[at]cvrs.org .Web www.cvrs.org

05 Sep Dayton 2019 Highlights

Dorking & District Radio Society

Meetings at 7.45pm. Contact: David Browning (M6DJB) at djb.abraxas@btinternet.com. Web site:

<http://www.ddrs.org.uk>

24 Sep Small loop antennas by Colin Berry

22 Oct Hermes Lite SDR by Alan Hopper

26 Nov AGM and film

Echelford Amateur Radio Society

Meetings on 2nd and 4th Wednesdays of each month at new venue: St. Hilda's Church Hall, Stanwell Road, Ashford, TW15 3QL. Enquiries to Phil at m1gwz(at)icloud(dot)com. Web site:

<http://www.qsl.net/g3ues/index.htm>

09 Oct Aerials, Feeders and ATUs by Bob G3OOU

13 Nov TBA

11 Dec Christmas Party

Hastings Electronics & Radio Club

Meetings held at the Taplin Centre, Upper Maze Hill, St Leonards on sea, TN38 0LQ, 7pm for 7:30 on the fourth Wednesday of each month. Information from Gordon Sweet M3YXH on 01424 431909, email: sionet3344(at)hotmail.co.uk

Web: <http://herc-hastings.org.uk/>

28 Aug Construction Contest

25 Sep Photos Presentation by Alan Harding

27 Nov Video Presentation

Horsham Amateur Radio Club

meets on the first Thursday of each month at the Guide Hall, 20 Denne Road, Horsham, West Sussex, RH12 1JF. NRQ TQ172304 at 20.00hrs local time. Contact Alister Watt G3ZBU at [g3zbu\(at\)hotmail.com](mailto:g3zbu(at)hotmail.com) or <http://www.harc.org.uk/>

05 Sep Life with Auntie by Richard G3ZIY
20 Sep HARC Weekend - South Devon
03 Oct Junk Sale

Mid-Sussex Amateur Radio Society (MSARS)

Meet most Fridays in the Millfield Suite, Cyprus Hall, Burgess Hill, RH15 8DX from 7.30pm till 10.00. Contact Stella on 01273 844511, [M6ZRJ\(at\)msars.org.uk](mailto:M6ZRJ(at)msars.org.uk) or www.msars.org.uk

13 Sep Air Ambulance Presentation
04 Oct Talk by Chris Saunders
18 Oct Where is Radio Going by Phil Godbold

North Kent Radio Society

Meets at the Hurst Community Centre, Room 15, Hurst Place, Bexley, Kent, DA5 3LH. Doors open at 8PM. More information from Stephen G8JZT on secretary@nkrs.info or 07985 753370 evenings or weekends.

Web: <http://www.nkrs.org.uk/>

17 Sep Members talk about their favourite software
05 Nov Florida Part 2 by Dave
19 Nov AOR AR-DV1 by Ian
03 Dec Possible Morse night
17 Dec Christmas EGM

South East Essex Amateur Radio Society (SEARS)

Contact Mark Callow 2E0RMT on 07842 336444 or [secretary\(at\)southessex-ars.co.uk](mailto:secretary(at)southessex-ars.co.uk) or <http://www.southessex-ars.co.uk/>
Meetings: 7pm 2nd Tuesday each month at The White House, Kiln Road, Benfleet, Essex, SS7 1BU.
10 Sep Radio Control Helicopters by Tony G0JYI

Surrey Radio Contact Club (SRCC)

7.30 for 7.45pm on 1st. and 3rd. Mondays every Month. Contact John Kennedy G3MCX on 020 8688 3322 or [secretary\(at\)g3src.org.uk](mailto:secretary(at)g3src.org.uk). Web: <http://g3src.org.uk/>
02 Sep Software Defined Radio - TBC
07 Oct Autumn Surplus Equipment Sale
04 Nov Inter-Club Quiz: SRCC / CATS / S&CRS
02 Dec Construction Contest

Sutton & Cheam Radio Society

8pm on 3rd Thursday every month. Contact Chris Howard at [info\(at\)scrs.org.uk](mailto:info(at)scrs.org.uk) Web: <http://scrs.org.uk/>. SCRS run a practical group most Monday evenings at the Bandstead Scout Hut.
19 Sep TBC
17 Oct HMS Belfast Radio Volunteers, Jorgen Faxholm, M0AXP
21 Nov Receiving Es'hail2 by Paul Kenny 2E0PCK
12 Dec Christmas social and friendly quiz

Please replace the (at) with @ when using any email addresses shown in this newsletter.

Palace Pulse is published ten days before each meeting and closes for contributions five days before the publication date. Please send contributions to the newsletter editor shown below.

Local Training Courses

Crystal Palace Radio & Electronics Club is a member of the South East Tutors training group.

Licence Level	Dates	Location	Club Provider	Format	Further details
Please note that a new syllabus will apply for all exams from July 2019.					
Foundation	22 Sep - 6 Oct	Bromley BR2 7NH	Bromley & District ARS	2 days (Sun)	www.bdars.org
Full	07 Oct - 30 Nov	Eltham, SE9 2SD	Cray Valley RS	TBA	www.cvr.org
Intermediate	Feb or Mar 2020 - TBC	Bromley BR2 7NH	Bromley & District ARS	Three Sundays	www.bdars.org
	= course commenced				

CPREC Committee Information

Officers:		
Chairman:	Secretary:	Treasurer:
Damien Nolan 2E0EUI	Alan O'Donovan G8NKM	Ian Skeggs M6FZC
E: cprec.g2lw(at)gmail.com	E: cprec.g2lw(at)gmail.com	E: cprec.g2lw(at)gmail.com
Committee Members:		
Bob Burns G3OOU	Newsletter Editor	T: 01737 552170 E: g3oou(at)aol.com
Nick Stapley	Web Manager	