

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 5th December 2019

Christmas Social

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

See the last page for local training courses and club contact information

Dear Reader

Future 2019 Club Meetings and Events

06 Dec	M	Christmas Social
03 Jan 20	M	Video Evening
07 Feb 20	M	Annual General Meeting'
06 Mar 20	M	Practical Fault Finding by Martin Butler M1MRB
03 Apr 20	M	DMR Hotspots by Damien 2E0EUI
01 May 20	M	S Parameters, SmithCharts and a cheap Vector Network Analyser by Alan G8NKM

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

06 Dec - Christmas Social

The next club meeting will be our Christmas Social at which we plan to have a buffet table of food. Please bring along a contribution, sufficient for yourself and any accompanying friends. If we have sufficient time and assistance we will put the club station on the air.

Recent Event News

01 Nov 2019 - The Gliwice Radio Tower Incident by Phil Tate M1GWZ

Phil presented an illustrated talk on this incident which started just before the beginning of WWII. Phil worked as a Senior Scientist at Plessey Research (Caswell) Ltd; a Research Assistant at the University of Kent Chemical Laboratory in Canterbury; Senior Lecturer in Physical Chemistry at Kingston University UK and acquired a PhD and a PGCHE along the way. He is also Hon Sec of Echelford Amateur Radio Society.

Prior to WWII Silesia was part of Germany. The station was originally conceived as a 680KHz 1.5KW AM transmitter using a

vertical aerial supported between two masts. However, local Silesian engineers suggested that a single tower constructed from Larch would provide an adequate support. As no metal was to be used, the local engineers proposed the use of bolts made from local stone.

The photo on the right is a recent shot of the 387 foot tall Gliwice Radio Tower which is located in Silesia and was built in 1925, entirely of wood (Larch) and regularly treated with a type of wood preservative that soaked in



and solidified. A 365 rung step ladder is used to reach the top.

The station was upgraded to 8KW and ran from 1935 to 1939 for conventional AM medium wave broadcasting.

Hitler needed an excuse to invade Poland so a plot was hatched on 10 August 1939 to arrange an attack on the radio station and use it to broadcast anti-German messages, making it look as though the perpetrators were Polish dissidents / anarchists. The task was given to Himmler and then delegated several times down the command structure to a Major who was somewhat less than proficient. The attack was arranged for 8pm on the 31 August 1939 but this Major had not known that the station was not only shut down for maintenance on this date but the transmitter could not easily be driven by a local microphone as it received all of its programming from a studio some 4Km distant which was also shut down.

The attackers demanded that the transmitter be modified to use a local microphone by threatening the station staff so the Senior Engineer hatched a very fast plan with his staff to connect a microphone (very inefficiently) to the transmitter but also managed to detune the transmitter so that its output power was significantly reduced. Apparently the resulting poor transmission was only heard by one local who had a receiver left on frequency.

After the event the local press were invited to inspect the site but they were extremely sceptical to say the least.

The attack was a complete failure and sadly a number of innocent lives were lost but Berlin still decided to broadcast a message about the 'successful' attack and used it as a very flimsy excuse to invade Poland. The Nazis subsequently used the station to broadcast war propaganda.



[Some of the more gory details have been omitted - Ed]

In 1955 the Russians used the site as a jamming transmitter.

Although the station is now a museum and receives some of its funding from the EU the tower is still used for an FM radio transmission and mobile phone operation.

Most of the original control and transmission equipment is still on display as shown to the right. The control desk has meters for displaying outside temperature, PA voltage (0-15KV), PA current and aerial current.



Only two of the original many stone bolts survived over the years with the outside temperature range of -20C to +40C and these are held locally but not in the museum. All of the stone bolts were replaced with new ones made from brass which, despite earlier concerns, had no effect on the transmissions.

At the end of his talk Phil mentioned that Poland has the largest accumulation of inland deposited sand left over from the last ice age. This has an area of about 12 square miles and is about 130 feet deep. It was used by the Germans during WWII for desert training by Rommel and the Afrika Corps. In the 1980s geologists excavating the area discovered discarded military vehicle parts and armaments which were made safe and removed. The EU pays for its maintenance and an on-site visitor centre to encourage tourism.

Crossing the Sun by 'Theorist'

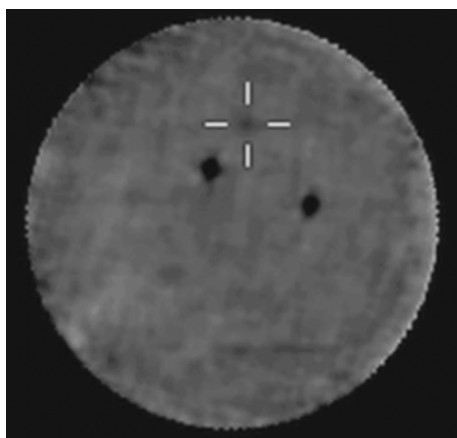
Rare astronomical events usually attract a fair amount of media coverage, but for some reason not even the Sky at Night programme broadcast on Sunday 10th November mentioned the transit of Mercury that occurred the next day on Monday 11th November. I failed to see anything on the BBC as well. Although not especially rare the next transit won't occur for 13 years, in 2032, so I did expect some sort of coverage.

A transit of Mercury or Venus means that the planet crosses the face of the Sun, but they are not visible everywhere; it depends on your location. Transits of Venus occur in pairs 8 years apart, with a gap between pairs of over a century. There was a pair of transits of Venus in 2004 and 2012, the first of which I saw by setting up my birdwatching telescope and projecting the image onto a sheet of paper, but I missed the second. If you missed both of these you will have to wait until 2117 or 2125 for the next opportunity(!)

Perhaps one reason for the lack of media coverage for this month's transit is that there are about 13 or 14 every century, with the last occurring only three years ago in 2016. Another reason may have been that you do need a virtually cloudless sky to see a transit, and the weather

on the 11th was not initially expected to be good.

Remarkably in 2013 a transit not visible from Earth was observed by the Curiosity Rover on Mars. The white lines on the picture nearby - which came from Curiosity - indicate Mercury, while the two larger dark blobs are sunspots.



Anyway, I had never seen Mercury which is difficult to see in part because of its very small size and closeness to the Sun, so I went to Greenwich where the Flamsteed

Astronomical Society had set up two instruments specifically designed to watch the event. The main instrument (shown nearby) was a Coronado SolarMax Hydrogen-alpha telescope designed specifically to observe one specific line, designated H α , in the Hydrogen spectrum. This is in the red/crimson part of the visible range and is widely used in astronomy for detecting clouds of Hydrogen gas in nebulae



since this particular line is easily excited in Hydrogen. It is also invaluable for solar work such as watching sunspots and solar flares. Incidentally the box visible on the ground was part of the power/motor drive chain, since the tripod platform rotated very slowly to automatically track the Sun.

Fortunately there were enough regular breaks in the clouds to get a good view of the planet. Looking through the eyepiece you could see a bright crimson disk with a tiny black dot - Mercury - clearly visible. It took me some time to find it since nobody had told me that it was an inverting telescope, i.e. that left and right were reversed, so I was looking in exactly the diametrically wrong area. What was also interesting was that even the faintest of clouds would affect the view dramatically.

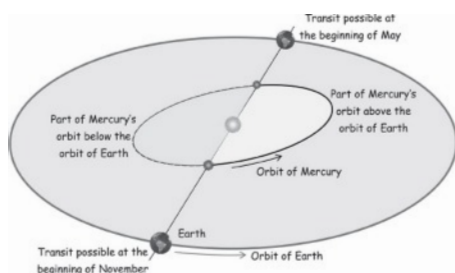
Very low-tech but just as interesting was a 'solarscope' projector. This consisted of a front lens with a collimating tube visible at the 'back' of the box in the photo, focussing on a special mirror (which looks like two silver rings) which reflected the image back to a white screen. You can see the Sun's image



partially obscured by clouds. Alignment was simply to move the box about! What nobody told me this time was that this not only inverted left and right but also top and bottom, so I was again looking in exactly the wrong place. However eventually I realised and I got a good cloudless view and even managed to take a photo, which there is no point showing as the tiny dot would not show up unless the picture occupied a whole page.

A good question is why these transits are so rare, since if Mercury orbits in just 88 days why don't we get more opportunities?

The answer is that its orbital plane is inclined by 7 degrees from that of the Earth, so that we can only see it cross the face of the sun when Mercury is in our orbital plane and the Earth is in the right position, as the diagram indicates. As the diagram also implies the orbits of Earth and Mercury are synchronised so that transits occur near the start of May or November every 13 or 33 years.



Somebody had also taken the trouble to make a 3D printed model of the planet – I have now seen all the planets except for Neptune, but Mercury is the only one I have held in my hand as the photo shows.



Member News

a) Our Chairman Damien 2E0EUI has been busy building (see further on) and promoting DMR with his recent talk to Bromley Club on DMR Hotspots - An Introduction. This talk will be given to us next year.

b) Your scribe has been busy building a new multi-level power supply which will provide four separate voltage rails of 13.5V at 40A, 28V at 20A, 40V at 18A and 50V at 16A. The first three are regulated and the 50V rail is not regulated. All rails may be used together as long as the total output power does not exceed 720W.

The plan is to use this unit to power an HF rig and to experiment with LDMOS power amplifiers which do not function well on low voltage supplies like 13.5V.

Club News

a) CATS Bazaar on 24th November:

We booked two tables with mains power for this event as seen in the adjacent photo with (l-r) Damien,



Alan and Mike.

The event was well attended and a fair amount of the donated club equipment was sold. This included the extremely heavy LF Analyser (on the right hand end of the left hand table) and the (faulty) Drake TR-7 transceiver that Damien had been storing. One fully working TR-7 and its matching power supply remain to be sold - price in the region of £300 - so contact Damien if you are interested otherwise it will be advertised on eBay.

Your scribe managed to sell his desktop computer, one laptop computer, some new painted project boxes, a mobile phone and a number of prototype modules.

Opposite our stand was one with a collection of WWII units in varying states of (dis)repair including an HRO, CR100, BC342 and a TU-8 tuning unit, some on offer as low as £25.



A view from the entrance doors an hour after opening:



This event has produced a welcome addition to club funds which helps to keep down cost increases from members. Thank you to all those people who helped man our stand. The results will be shown in the audited 2019 accounts at the AGM.

b) Newsletter Editor: The club committee has been looking at possible options for producing the club newsletter commencing February 2020 and will be asking members for their help otherwise there may not be a future newsletter.

There are a number of discrete processes that could easily be shared by several individual members with one person pulling it all together prior to publication. Currently, five copies of the newsletter are printed and posted to members and the rest are emailed to members and associates. The publication is currently produced in Serif Word Plus X8 but a separate template has been developed for Libre Office Word (free) and Microsoft Office Word 97 onwards.

My last newsletter will be the one immediately preceding the AGM on 07 February so if you can help with the newsletter production please contact a committee member otherwise there will not be a newsletter from February onwards.

Technical Snippets

a) Army battery Box Project

For some time now I have been thinking of building a portable battery / go box as a portable power source.

I first thought of this as purely for radio type operations but of course this could also be used for other outdoors operations.

I decided, after looking at a few options for an enclosure, to go for an ammo can style design. I was at the War and Peace show this summer and I was luck enough to have plenty to choose from and selected the ammo can on the right priced at £7.00.

This was a German part which I cleaned with white spirit to remove any markings and stickers.

I then set about marking out where I would drill my holes for the various switches and ports that I was going to use (purchased on Ebay).

As you can see from the surface scratching by the first hole my hole saw's pilot drill snapped but I managed to catch it in time. I then set about fitting and wiring my sockets, fuse board and switches.

The sockets I fitted where 2 x usb, 1 x voltage display, 1 x cigarette 12V(10A) and 1 x powerpole (for solar input only) and of course an on/off switch.

I fitted a 30000 mAh Li-ion battery to make this a



useful battery that could run a radio like the Yaesu FT817 for a good few hours at 5w.

I also fitted a small solar charge controller designed to work with Li-ion batteries as a regular solar charge controller will not work with this type of battery.



6V to 12V PWM Solar Charge Controller Support for Lithium and Ni-Mh Batteries, DC12V 2000-20000mAh Rechargeable Li-ion Lithium Battery Pack + Charger UK PLUG

The ammo can battery box was fun to build and is a useful bit of kit which I have used on several occasions now with great success.

The overall build cost came in at around £60 which is great value and you will not get anything near it off the shelf for that price,

73 Damien 2E0EUI



b) Mercury Arc Rectifier

In 1922 Peter Cooper Hewitt discovered that a diode consisting of a metal anode and a cathode made from a pool of mercury, all held in an evacuated glass container, would pass current only in one direction i.e. it would rectify. To get the process started an arc has to be struck with a separate excitation electrode. The entire structure runs hot and also generates electromagnetic radiation including some UV output for which care is needed in screening. To prevent the arc failing with glitches in the supply another excitation anode was provided with its own high voltage source.

They were primarily used in high power high voltage applications and have since been replaced with high power semiconductor rectifiers which are more reliable and require less maintenance.

You can see two in operation on "steaming days" at the Kempton Steam Museum.

See <https://www.kemptonsteam.org/>



b) 4CM500000G High Power Tetrode

This is a seriously high powered valve, way outside the power ratings of amateur radio so only of academic interest. It is cooled by the circulation of high pressure water (54 gallons per minute) and rated at 500KW output up to 30MHz. Its heater requires 23v at 500A (11.5KW) and the working anode voltage is 12.5KV at 54A. In class C it requires a control grid current of 5A which equates to 3KW of drive power. Dimensions are 12.55" wide by 25.71" high.



Weight unknown but designers would usually allow for a small crane and related lifting gear to be installed above the PA compartment. The data sheet is available on the Internet via Google.

c) RF Amplifier Website: if you are interested in RF amplifier and aerial design then you should visit the website of Serbian amateur YU1AW. His latest creation is a 144MHz linear amplifier capable of running 20KW input power and 15KW output power. He had a special three phase mains supply installed to provide power for this amplifier.

See <https://www.qsl.net/yu1aw/> for more information.

Miscellaneous

a) The World Radio Conference 2019 in Egypt has concluded and perhaps the biggest news is that the conference has approved an allocation in the 50MHz band for amateurs in Region 1. The Amateur Service now has a baseline Secondary allocation of 50-52MHz in the main ITU Allocation Table for Region 1. A total of 44 named Region 1 countries will now have a Primary allocation in all or part of the 50-54MHz band.

You can find full details on this, and all of the WRC-19 outcomes that affect amateur radio, at:

www.rsgb.org/wrc-19 and on the RSGB social media channels. [Source: RSGB web site.]

b) For something completely different try a visit to:

i) The Sir John Soane museum: 12-14 Lincoln's Inn Fields, Holborn, London, WC2A 3BP. He was a very successful neo classical architect and a massive collector of antiques and paintings. He became extremely skilled at finding / creating surfaces on which to display his collection of "stuff" (completely bonkers was my first thought). A very interesting but eccentric display.

The museum is currently hosting an exhibition of Hogarth paintings entitled 'Place and Progress' which is due to end on 5th January 2020. Entry is free but you must book a time slot. See <https://www.soane.org/>.

ii) Crossness Pumping Station: Built by Sir Joseph Bazalgette for London's sewage system and opened in 1865, Crossness Pumping Station in London SE2 9AQ is a Grade 1 Listed building and features some of the most spectacular ornamental Victorian cast ironwork found in the world today. Events and open day details on the website at <http://www.crossness.org.uk/>

c) The FCC in the States has announced a notice of proposed rule making to clear the 3.3-3.55 GHz band of existing non-federal users by removing the non-federal secondary radiolocation and amateur allocations in the 3.3-3.55 GHz band. [Source: Southgate news site]

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.

For Sale

a) 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.



b) Fujitsu-Siemens Amilo Pro Laptop running Windows XP Pro, Intel dual core 1.7GHz CPU, 1GB RAM, 80GB hard drive, 15inch LCD, USB, CD/DVD, VGA, WiFi, battery charger, carrying bag, AVG, Office97, Libre Office and assorted utilities, no diskette drive, £35 ono.

D-Link DSL-3680 N150 ADSL+ Wireless router with two Ethernet ports and mains PSU, £10 ono.

Contact Bob on 01737 552170 or G30OU(at)aol.com.

c) 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 G30OU(at)aol.com.

All offerings on a first come first served basis.

73



G30OU

Diary of External Events

02 Feb 2020 - South Essex ARS 36th Canvey Radio & Electronics Rally

Cornelius Vermuyden School, Dinant Avenue, Canvey Island, Essex SS8 9QS. Talk in 145.550MHz. Free car

parking, two large halls. Opens 10am, disabled visitors 9.45am. Entry £3, children under 10 free. Tea, coffee, soft drinks and bacon butties will be available. Radio, computing and electronics traders. Details from Tony, G0JYI via tony@tonystreet.net.

09 Feb 2020 - Harwell Radio and Electronics Rally

Didcot Leisure Centre, Mereland Road, Didcot, Oxon, OX11 8AY (3 miles from A34 Milton Interchange). Open 10am to 3pm, entry £3 (under 12s free). Free car parking, disabled parking and facilities. Talk in 145.550MHz (G3PIA). Traders, SIGs and RSGB Bookstand. Home-made refreshments. Details from rally@g3pia.net or 01235 816379 [www.g3pia.net].

20 Feb 2020 - Rainham Radio Rally

The Victory Academy, Magpie Hall Road, Chatham, Kent, ME4 5JB. Open 10am to 3pm, local and national Traders, BRATS Kitchen, Interactive Zone for Kids and Junk, Talk in on 145.550MHz using GB4RRR. Contact 07825 838 877 or rally-coordinator@brats-qth.org

29 Mar 2020 - Hamzilla Radio Fest 2020

Discovery Science Park, Gateway House, Ramsgate Road, Sandwich, Kent CT13 9FF. Open 9.30am for early bird admission £5, 10am for general and disabled access £3, under 16 and disabled carer free. There will be trade stands, exams available on the day and hot and cold refreshments. www.hamzilla.uk

14 APRIL 2020 - West London Radio & Electronics Show (Kempton Rally)

Kempton Park Racecourse, Staines Road East, Sunbury on Thames, TW16 5AQ. Talk-in station, free car parking, opens at 10am with disabled visitors gaining access 10 minutes earlier. Trade stands, Bring & Buy, special interest groups and lectures. Catering is available on site. More details from Paul, M0CJX on 08451 650 351, info@radiofairs.co.uk or www.radiofairs.co.uk.

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/>

28 Nov Club Night at the Shack
12 Dec Christmas Party

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](mailto:enquiries(at)bdars.co.uk). Web: www.bdars.co.uk
17 Dec Quiz and Mince Pies
21 Jan 20 AGM and 2020 Programme Planning

Chelmsford Amateur Radio Society (CARS)

Meets at 19:30 on the first Tuesday of each month at Oaklands Museum, Moulsham Street, Chelmsford, Essex, CM2 9AQ. Contact: [secretary\(at\)g0mwt.org.uk](mailto:secretary(at)g0mwt.org.uk)
Web: www.g0mwt.org.uk
03 Dec MincePies, Quiz and a short talk

Couldson Amateur Transmitting Society (CATS)

8:15pm on 2nd Monday each month. Contact: Andy Briers G0KZT on 07729 866600 or [secretary\(at\)catsradio.org](mailto:secretary(at)catsradio.org). Web site: <http://www.catsradio.org/>
09 Dec CATS AGM
05 Jan 20 CATS Annual Dinner
10 Feb 20 Practical Evening, Fix-its, Electronics Play, Social
09 Mar 20 Surplus Sale/Auction

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](mailto:secretary(at)carc.org.uk) or Web: <http://www.carc.org.uk/>
06 Dec Annual Dinner at Heathy Farm

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](mailto:secretary[at]cvrs.org). Web www.cvrs.org
05 Dec Christmas Dinner: Kieran G8CHB
19 Dec Christmas buffet: Bob M0MCV

Dorking & District Radio Society

Meetings at 7.45pm. Contact: David Browning (M6DJB) at [djb.abraxas\(at\)btinternet.com](mailto:djb.abraxas(at)btinternet.com). Web site: <http://www.ddrs.org.uk>
13 Dec Christmas Dinner

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](mailto:M1GWZ(at)icloud(dot)com). Web site: <http://www.qsl.net/g3ues/index.htm>
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](mailto:sionet3344(at)hotmail.co.uk)
Web: <http://herc-hastings.org.uk/>
27 Nov Video Presentation
December No meeting

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 Dec AGM
07 Dec HARC Christmas Bash
19 Dec Social

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

29 Nov Christmas Dinner
20 Dec Christmas Quiz - Sue G6YPY

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 Dec Christmas EGM & Photographic Contest
14 Jan 20 Curry Night (not a regular club night)
21 Jan 20 Frank G3WMR on Jersey
18 Feb 20 Bring a Thing Night

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 Dec Christmas Social
14 Jan 20 Canvey Rally Preparations
11 Feb 20 Rally summary and recap

10 Mar 20 Nigel Newman M0ICH a talk about his time in the Royal Signals

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 Dec Construction Contest
16 Dec Pre-Christmas Social

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.

12 Dec Christmas social and friendly quiz

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

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 the new syllabus is now in operation.					
Full	07 Oct - 30 Nov	Eltham, SE9 2SD	Cray Valley RS	2 eve (Mon), 4 days (Sat) + exam (Sat)	www.cvrs.org
Foundation	1 & 8 Feb 2020	Eltham, SE9 2SD	Cray Valley	Two Saturdays	www.cvrs.org
Intermediate	05 Apr - 07 May 2020	Bromley BR2 7NH	Bromley & District ARS	Three Sundays	www.bdars.co.uk
Foundation	04 Oct - 18 Oct 2020	Bromley BR2 7NH	Bromley & District ARS	Two Sundays	www.bdars.co.uk
Intermediate	14, 21, 28 November 2020	Eltham, SE9 2SD	Cray Valley	Three Saturdays	www.cvrs.org
	= course commenced				

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.

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	