Illawarra Amateur Radio Society

Propagator September 2021

Upcoming "ON AIR" meeting 14th Setember 2021

Due to current Covid lockdown restrictions for the Wollongong there is no meeting planned for the Blue Scope Steel visitors

Our last meeting 10th AUGUST 2021

146.850 & 146.675MHz, VK2MT-R & VK2BGL-R Echolink

On Air meeting due to Covid lockdown restrictions

Review:
There was a very good response with many members, guests and listeners joining in. This was our second on air meeting since the lockdown and most probably won't be the last on air meeting for a while.

The reading of minutes, sharing of financials and general business was aired, meeting presented by Rob VK2MT club president.

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After call ins we had a few members share some stories with everyone including Rob VK2MT who reminded us, that no matter how hard you may prepare for a contest, if Murphy pays you a visit, ITS OVER, pack up and pull the switch 😊

IARS on AIR "MINI" presentations

- Dan VK2FDSD , Train hobby.
  Dan shared his other hobby about model trains. It was interesting to see modern technology with regards digital controls operating todays model trains. Thank you, Dan

- Simon VK2KU, Shack update. Simon shared his current projects in which one is building up his new shack. Simon also updated on the Noise canceller and crowbar PCB. Thanks Simon.

- Keith VK2KQB, BNC patch panels. Keith shared his experience with using BNC connectors and patch panels top interconnect all his radios, antennas and equipment using BNC patches instead of switches.

- Rob VK2MT Contests, Rod discussed the recent challenges and dates with Murphy he recently encountered getting ready for the Trans-Tasman contest. Thanks Rob

General business Rob VK2MT

- Reminder of the upcoming RD contest and lighthouse weekend contest.
- MSCARC and IARS will not be participating together at the proposed lighthouse due to covid lockdowns.
- Picnic and further outings on hold until further notice on covid lockdowns
- Please send in pictures of your shack if you want them to be published in the next propagator

Stations that called into the meeting, excludes listeners

Apologies from Mal VK2DXM and Wayne (Listener)

VK2TS – All good, very informative meeting, thank you

VK2XIC – Good evening everyone, Dan done a great job, thank you Dan. Club needs a good look at the future with projects and how we move forward with covid. Looking forward to Simon VK2KU new shack, thanks for the great meeting.

VK2XGJ – Stuck cant go anywhere, good to talk on the radio, thank you

VK2FDSD – Enjoyed the talk. Off work now due to covid. Girls doing their home schooling. Wishing everyone stays safe and looking forward to the meetings at Blue scope again.

VK2EJL – Hoping that his signals are getting out ok, using a portable. Thanks for the meeting, good presentations.

VK2XQX – Thanks for the meeting and for everyone who's antennas survived the big wind storm, see you on 3.666MHz after the meeting

VK2ARY – Ray noted he was over 94 years old and blind but can still operate and use his radios. He used to work for many years at the post office with telegraphy. Thanks for the good meeting

VK2ZIA – Calling form Kiama Heads, thanks for the effort the club makes for the meetings. Glad he remembered this one as he was disappointed, he missed the last one. Looking at joining the Saturday morning net with Steve VK2BGL

VK2KU- Thanks to all, good to hear Ray VK2ARY on air and always good to have a chat.

VK2KBI – Had some issues with Echolink at the last meeting, could hear everyone but could not TX. Doing some work with acrylic. When he was in WA he used a 857 which was repaired (Crystal filter replacements) but still seemed faulty. Could not hear anyone radio seems deaf.

VK2BBI – Nice to hear everybody, thanks for the meeting. Busy cleaning the house nothing much else to do.

VK2BGL – Thanks for the meeting, BNC connectors can take a N type connector as they are from the same family, you can just push the N connector on to the BNC. Steve advised Ian VK2ZIA that he should join the Saturday morning NET on Echolink. Steve noted that he will be participating in the RD contest on the weekend.

VK2HCO – Not much happening, interested in the crowbar circuit. Currently working in a situation where he has to be tested for covid every week. Looking to buy more toobs, his favourite snack hoping they don't disappear again

VK2CPH – Good evening to everyone, good meeting. Working on UTE's , bikes and enjoying retirement.

VK2MT – 3 weeks away from retirement , looking forward to getting way from it all

NEXT MEETING ……. 14th September 2021

146.850 & 146.675MHz, VK2MT-R & VK2BGL-R Echolink

Surprise "Covid discussion free" meeting have to tune in to find out more !

President Rob VK2MT

Vice President Rob VK2XIC

Treasurer John VK2EJL

Secretary Keith VK2KQB

Committee member Simon VK2XQX

Committee member Simon VK2KU

Committee member Shane VK2HCO

Committee member Malcom VK2DXM

Sadly, due to the Covid restrictions on meetings the Snowball raffle has been put on hold

Don't forget the two weekly IARS nets as below

TUNE IN **to the IARS NETS**

Echolink

IARS Tuesday evening weekly 80m NET on 3.666MHz at 8.30pm hosted by Mal VK2DXM and Rob VK2MT

Don't forget to join us every Tuesday evening, *expect the second Tuesday of the month* for a great get together on 80m. Signal reports, news and general discussions are the agenda. All you need is 1 x HF rig, Piece of wire + tuner, good cuppa and good chair.
There have been some really good conversations so if you are bored on Tuesday evenings, pop in for a chat.

Saturday Morning EAST COAST NET hosted by Steve VK2BGL

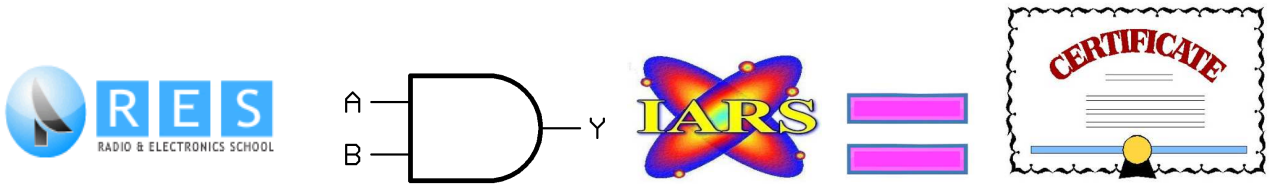
You are invited to join Steve every **Saturday at 9.30am** on our **146.850MHz** repeater (linked to 146.675MHz) or **VK2BGL-R** on Echolink for a very enjoyable morning of general discussions from amateurs who log in from all over the world. This is a great net which is growing in popularity due to the wide range of subjects that get discussed. Solutions to problems from computers, radios, internet and even plumbing is just some of the information shared on this easy going net.
This NET is linked to multiple repeater systems including VK2RFS south coast. Join Steve and everyone for a very enjoyable 2 hours on Saturday morning

Looking to Upgrade to Standard or advanced and even obtaining your Foundation license during Covid lockdowns

The IARS can help with obtaining your Foundation, upgrading to Standard or Advanced from *the comfort of your own home.*

We have approved AMC accessors that can offer remote assessments for the AMC. Please contact Keith VK2KQB at iars.keithb@gamil.com for further information. Your society supports further learning, please find out more on how we can help you.

AMC website is Australian Maritime College - Australian Maritime College | University of Tasmania (amc.edu.au)



The RES is a non-for-profit school helping amateurs obtain their licences and has been assisting for many years

Membership fees

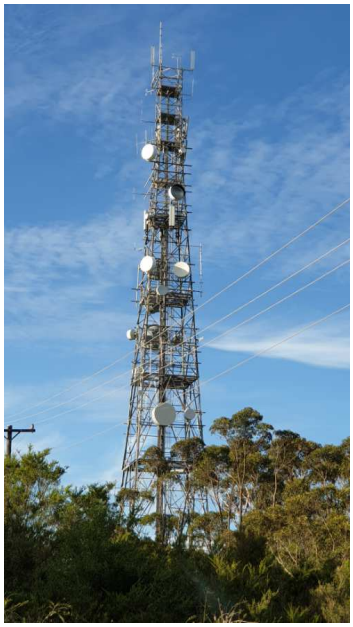
THANK YOU !!! to all the members for their renewals, there are still some memberships outstanding, please ensure your membership is up to date.

All monies from our interest on investment, donations and membership fees goes to support the club.

To make payments please use the bank account due to face to face meeting not happening, please add your call sign or name with the payment, thank you.

Bank: IMB Wollongong
Account name: Illawarra Amateur Radio Society
BSB: 641800
Account number: 100023291

REPEATERS



VK2RUW (Knights Hill) **VK2RMP (Maddens Plains)**

STATUS

- **438.225 with a - 5MHz offset.** **Currently off air due to local interference at the repeater site, working on a solution**
- **146.975 with a -600kHz offset NO CTCSS, C4FM enabled OK**
- **146.850 with a – 600kHz offset (linked to 146.675) NO CTCSS OK**
- **146.675 with a – 600kHz offset (linked to 146.850) NO CTCSS OK**
- **53.650Mhz with a – 1Mhz offset 123Hz CTCSS (or key PTT 5 times to open squelch) OK**
- **438.725Mhz with a -5mHZ offset DMR only OFF AIR due to upgrades and improvements**
- **1296.850Mhz Beacon with simplex repeater function – OK**

We have had some very good feedback on our 23cm simplex beacon/repeater from users all over the Sydney area. Not everyone realised that the repeater can be used for work in SSTV and telemetry.

Brett VK2KYB sent the IARS a short note to advise that he had recently been sending and receiving SSTV pictures to and from Darrell VK2BLS, he wanted to thank the club for the work put into the repeater and advised that it " Works Well"

VK2BLS picture received by VK2KYB through the 23cm beacon repeater

Thank you Brett VK2KYB for sharing this with us.

The IARS welcomes any feedback on our repeater systems.

Please send all your feedback to iars.keithb@gmail.com and it will be passed on to our repeater team.

Any donations to help us maintain our great repeater system will be greatly appreciated. Please check our banking details on our website at www.iars.org.au under the Contact details page.

As reference of the donation please add your Call sign and the words "Repeater Donation"

LOOKING FOR SOMETHING to SWAP, BUY, SELL, an OLD PART

Parts you may need for repairs or some radio gear you no longer need that could go to a new home.....?

Email secretary@iars.org.au or iars.keithb@gmail.com

Disposables Donation Table (on hold during COVID)

Each meeting we have the disposables table with items donated to the club.

Please keep the support for this going and bring oddities in and take some home for a small donation to the IARS.

With the next meeting please bring along an donate those old items that you no longer use and may even have thought about throwing it in the bin, someone else may be looking for that very part.

Wire, pieces of coax, old parts, plug packs, power supplies, capacitors, resistors, coils, tubes, knobs, anything that someone can use.



got an idea — Tech corner

Share it with us, this could be suggestions, technical ideas, circuit diagrams, IARS community projects, pictures of your latest shack project, in fact ANYTHING of interest

Let us know by return email or secretary@iars.org.au

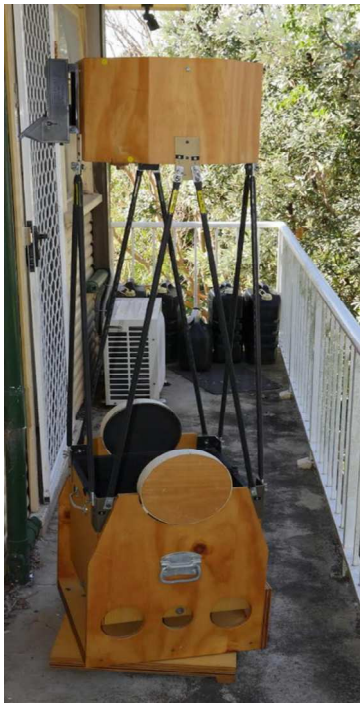
Also, if you have some IARS related pictures or information that we can put on the IARS website, please let us know and we can get that happening.

Ned, VK2AGV, My other hobby (out of the 100's he has)

After catching up with Ned VK2AGV and Simon VK2XQX one morning on 146.850MHz, we got talking about our vast universe and the interesting link between the optical and radio side of astronomy. Ned is a very keen astronomer and after hearing about his setup with a home built telescope, I asked Ned if he wouldn't mind sharing this with us. Over to Ned …….

Attached are some photos of my Dobsonian Telescope. I bought this about ten years ago from one of my student pilots. It is a good high-contrast 'scope with a very good primary-mirror so I got quite a bargain.

It has a 12" diameter primary mirror (D) with a focal-length of 60" (F),so it has an F:D ratio of 5, making it an "f5" 'scope. This is pretty average for a 12-inch. There are "faster" scopes of f3, but making a mirror for a shorter focal-length (to make the aperture larger) is extremely demanding and thus expensive



A faster 'scope gathers more light as the optical path is shorter, and the length of the telescope is also shorter which is handy - but you do pay for this convenience!
Dobsonian telescopes come in sizes ranging from 8" all the way to 60",the larger 'scopes having some pretty serious weight issues for manhandling them around. (A 60"-diameter glass mirror is extremely heavy!)

My telescope is a "truss-tube Dobsonian" and was home-made,using a commercially-made primary and secondary mirror and secondary-mirror holder (called a "spider")and focusser but all the other components were made by the builder. The Dobsonian Telescope (named after John Dobson) is an excellent 'scope for beginning astronomers and consists of:-

- Rocker-Box (the base in which the telescope rests, with the altitude-bearings built into the top for the telescope to pivot in the vertical axis),
- Mirror-Box (containing the primary mirror and fitted with matching altitude-bearings so they fit into the rocker-box),
- Truss-Tubes, and an Upper Tube Assembly (UTA) which contains the secondary mirror, focuser and eyepiece, as well as a finder-scope or some sort of device for aiming the telescope. If a single tube is used for the entire telescope (quite common for home-made Dobsonians) then the truss-tubes are not required.

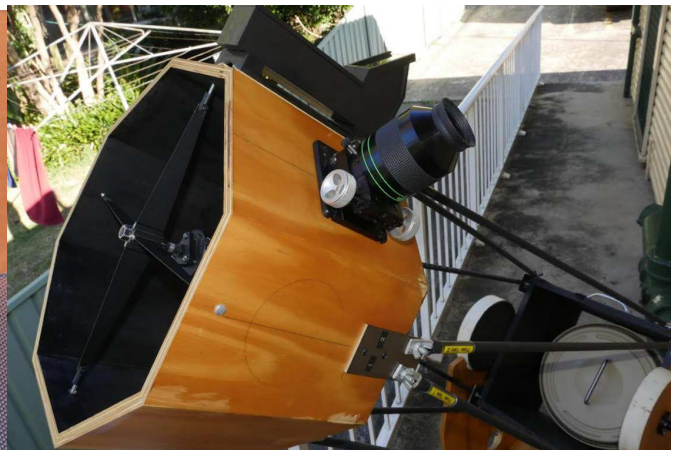
I use a finder called a Telrad, which operates on the same principle as the reflecting gunsight in a fighter aircraft, but small low-magnification finder-scopes can also be used. High-intensity green lasers can also be used, but these are restricted items and only available to bona fide members of astronomy clubs etc as they exceed the maximum power permitted for laser-devices available to the public.

The telescope can be broken down into the four sub-assemblies for transport, the re-erected and set up (including collimating the optical-path) in about twenty minutes.

One of the photos shows the telescope rigged on my balcony, but the primary mirror is covered with a plastic dish with a handle on it. The primary mirror surface is extremely delicate (it is a parabolic reflector which is surface-aluminised), and whilst the 'scope is cooling down, a wise owner keeps the primary covered until observations commence.
The handle and dish came from Bunnings, and in fact all the wood and aluminium to build a Dobsonian can be found in any Bunnings store. Specialist telescope-suppliers have the mirrors, secondary-mirror holder or "Spider", focusers and finders, eyepieces etc, as well as small Teflon-pads for the altitude bearings, all available via the Internet.

Additional to the telescope are the eyepieces (photo attached next page). These are fitted into the focuser, and commonly come in two diameters, 1.25" and 2". Focusers are designed to accept both sizes, and eyepieces vary considerably in size, weight and cost! The eyepieces come in different focal-lengths, the longer focal-length ones (50mm - 30mm) giving wider fields of view but less magnification, whereas shorter focal-length eyepieces (20mm - 4mm or shorter) give a narrower field-of-view but greater magnification - and some of them can cost hundreds of dollars (way more than the rest of the whole telescope) if they are short focal-length with a wide field-of-view. Such eyepieces require a lot of very specialised lenses inside them.

As eyepieces last just about forever and can be used in a multitude of 'scopes, enthusiasts may have a few small suitcases filled with eyepieces packed in foam-rubber,
representing thousands of dollars invested in optical equipment. Older designs (the humble but excellent Plossl, for example), can cost $70 or less, and give fine views for not much outlay of money - we are all on a budget!
Different eyepieces suit different observing tasks. Seekers of faint nebulae or faint objects in general will favour wider field-of-view eyepieces which have a bright image, and these are around the 45-30mm
focal lengths. They let plenty of light into your eye but don't have huge magnification. Planetary observers looking for fine details will favour shorter focal-lengths, sacrificing brightness for magnification
and resolving-power. Specialist eyepieces have evolved for specific tasks, as have cameras which fit into the focuser for imaging. Digital imaging has transformed observational astronomy, but there is still a
place for highly-sensitive film as well - film does not accumulate digital noise whereas most digital cameras do to a greater or lesser degree.



Everyone is obsessed (at first) with magnification, but how do you work out the magnification of your telescope? Simple! The magnification of just about any telescope is the focal length of the telescope tube (about 60" or 1524mm for my 'scope), divided by the focal-length of the eyepiece. Shorter eyepieces give high magnification but reduced brightness and a have a small field-of-view, requiring frequent re-positioning of the 'scope to keep the image in the eyepiece since stars etc move 15-degrees from east to west in one hour. The Dobsonian
is a non-tracking 'scope - it stays looking at one spot in the sky until you re-position it.

As you can see in the photos, space on my balcony is extremely limited, meaning I can only observe when objects are high enough to be visible in the 'scope. Lately I have been observing Saturn and Jupiter in the north-eastern sky, and have managed to resolve (i.e. see clearly) the Cassini Division in the rings of Saturn, and resolve its six largest moons (Rhea, Dione, Mimas, Titan, Enceladus and Tethys). The light from Saturn takes one hour and fourteen minutes to reach the mirror.

Light travels about twelve inches in one nanosecond, so it takes a further five nanoseconds to travel from the mirror to my eye! Jupiter appears later in the evening, and the four Galilean moons (the ones Galileo saw through his primitive telescope and which got him into as lot of trouble with the Catholic church!) namely Io, Europa, Ganymede and Callisto) are easy to see, although one or two may be hiding behind the planet. The coloured bands on Jupiter can usually be seen, but I gave yet to see the Great Red Spot. From time to time a bright little star will move through the field-of-view - these are low earth-orbit satellites. If they flash ('scintillation") then they are rotating and the sun is reflecting off their solar-arrays.

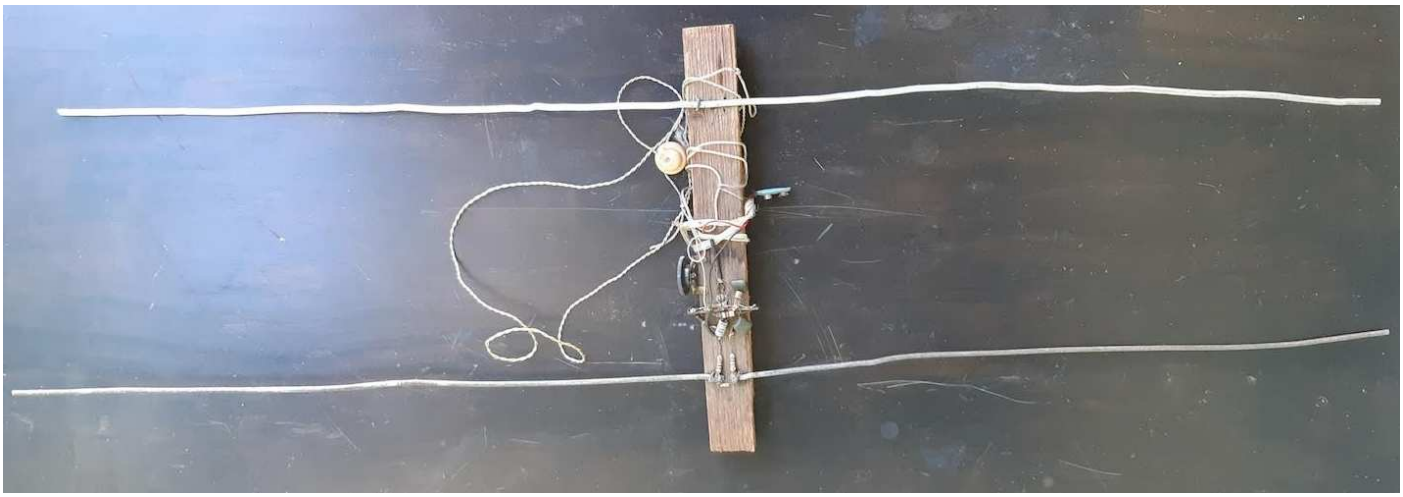
In my view the 12-inch Dobsonian makes the ideal first telescope for someone interested in getting into astronomy on a budget. A good second-hand one, properly collimated, will give breathtaking views of what was just "the pointy-headed rocket-science" stuff they tried to teach us in high school. With a 12-inch Dob, the sky is the limit - literally!

We Thank Ned VK2AGV for sharing this very interesting project with us, if you would like more information, please send your details to iars.keithb@gamil.com and I will pass this on to Ned, or, you can catch Ned most mornings at 07H00 on 146.850MHz for a chat 😊

The COVID Chronicles – tales from the shack of Arthur, VK2BBI

There is nothing like the house arrest of a good pandemic to force a domestic clean-up and, in the process, unearth some long-lost construction sins committed in the name of our hobby. I describe two surviving examples from a childhood misspent in the Westlakes Radio Club at Teralba, near Newcastle. These projects date from the mid-sixties.

Project #1: The runs-on-air two metre racing sniffer



This project was constructed at zero expense using 100% recycled components. The beam elements comprise strands of aluminium wire obtained from a high voltage power transmission line found 'lying about in the bush'.

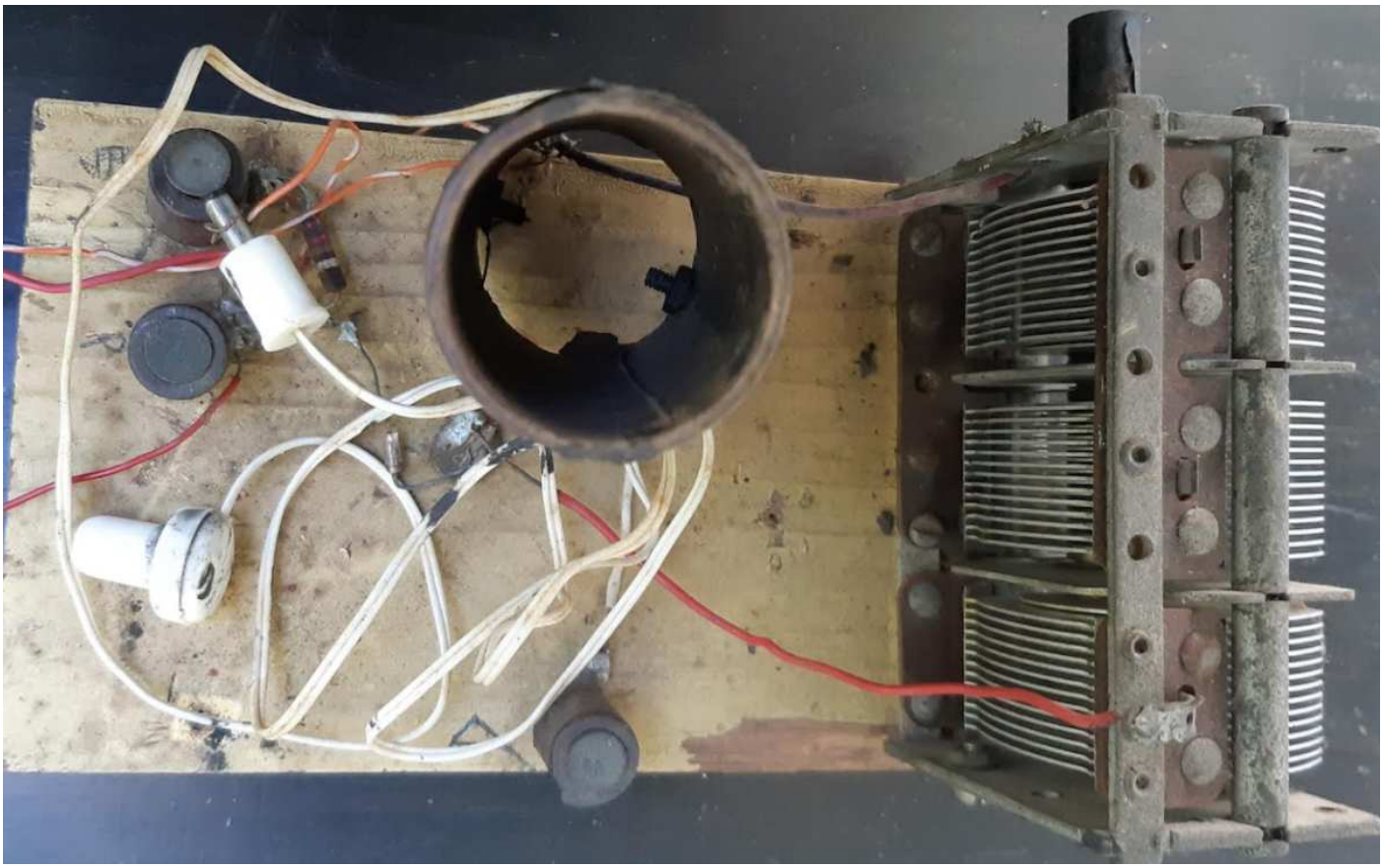
The second photograph illustrates the informal construction style typical of the era. Not so much a 'breadboard' design but more a 'random-piece-of-wood' form of component support. The beam elements are mounted using U-shaped nails of the sort otherwise seen fastening down chicken wire. The rest of the components were scavenged from old radios and TV sets liberated from the nearby Spears Point Garbage Tip.

Note the valiant attempts at soldering to aluminium…. The design is a basic one. RF rectification is achieved using an OA91 mounted directly across the driven elements of the beam. The resulting audio has been judiciously directly coupled to a high input impedance amplifier. The input was carefully balanced so as not to destabilise the operation of the all-important OA91. The amplifier was constructed around a single TT641 transistor whose heightened audio output was harvested and converted into human-readable form using a crystal earpiece. Everything was powered by a single nine-volt battery.

The KISS design principle made this sniffer a highly competitive piece of kit for its time.

Project #2: A self-powering zero emissions broadcast receiver

The third photograph shows an innovative single-stage passive receiving device powered entirely from free energy. Its power is collected via induction into a simple long-wire antenna. The provenance of the components is similar to that for Project #1 – i.e., junk from the tip. While the 'front end' might resemble the tuned circuit from a late fifties 'valve job', this is merely a coincidence. The frequency-filtered RF from the tuned circuit is rectified into audio through an OA91 and converted directly into sound via a crystal earpiece. The receiver was good for all the local MW broadcast stations and was safe to operate – so long as there were no thunderstorms brewing in the vicinity.

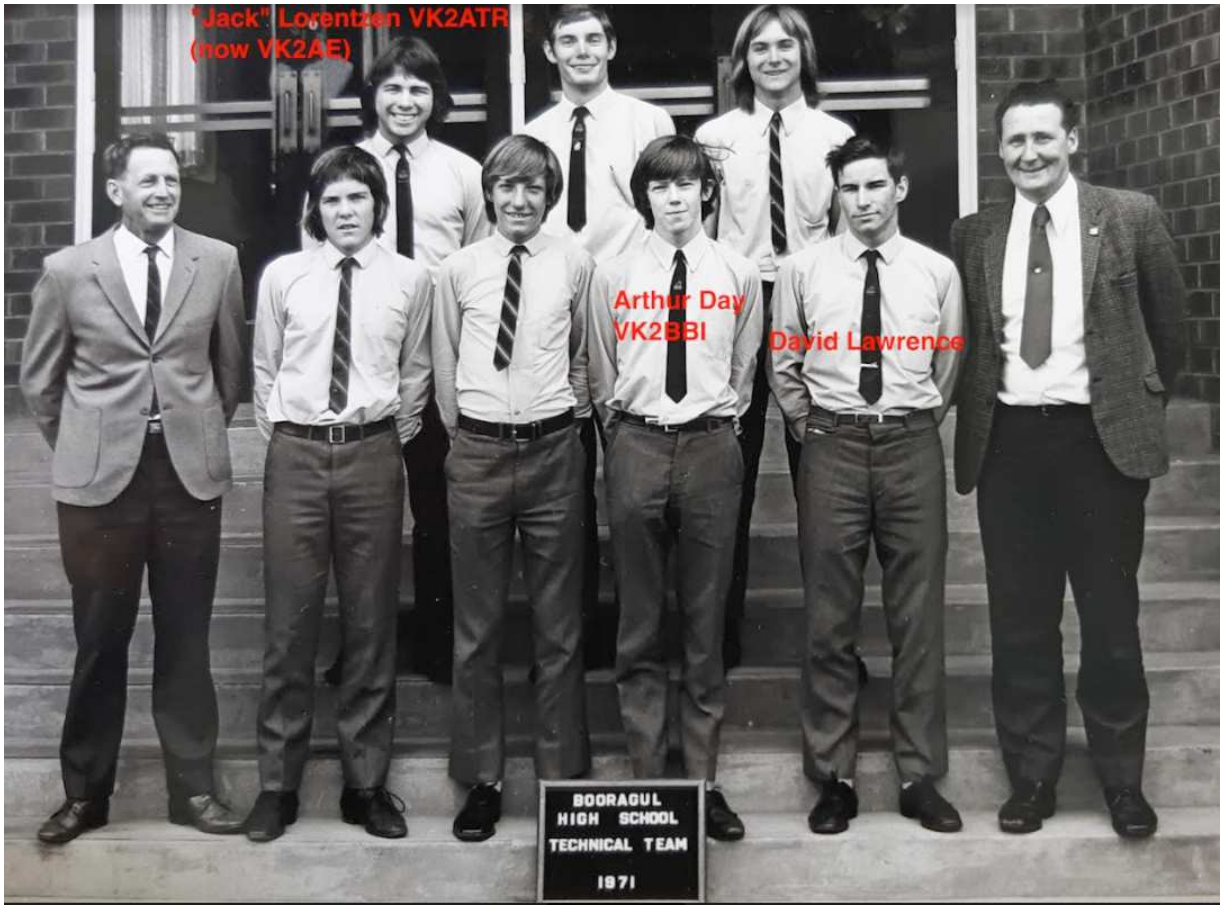


As an aside, the local garbage tip was a key resource for many 12- to 13-year-old electronics enthusiasts at the time. My accomplice on the tip raids was David Lawrence who to this day still attends Westlakes every Saturday afternoon. He is the club's longest continuously serving member and remains an avid collector of vintage radios. Our enterprise was not without its risks. Aside from the occasional snake, the tip was under constant surveillance by an angry old tip troll who carried a big stick. But we had getaway vehicles – our bicycles.

That tip is now a sports field. If only the players knew of the countless unexploded picture tubes lurking beneath. Someone asked if I had schematics for these projects. Such documents would imply that some kind of formal construction plan was involved, but this was the swinging sixties. Schematics were for squares, man!

Several years later……..

The final photograph commemorates an achievement in our senior high school days when the Westlakes team was co-opted to construct a home brew PA system and install it in the ceiling of the Booragul High School assembly hall. This was done under the capable leadership of my mate "Jack", VK2ATR. The output was a pair of 6L6s lashed together in one of those symbiotic embraces illustrated in the text books but, alas, any other details have been lost in the mists of time.



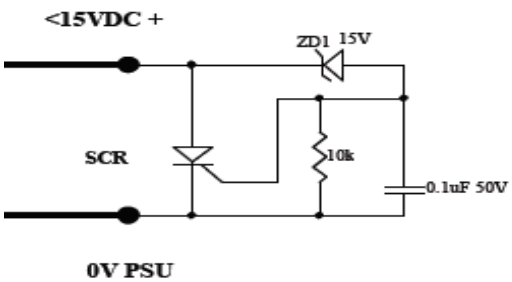
'Booragul High' had a chequered history. After we left it was re-named 'Lake Macquarie High' due to reputational issues…. Would anyone ever be allowed to do today what we got away with back then?
Arthur VK2BBI
(Lockdown month #3: September 2021)

We Thank Arthur VK2BBI for this awesome blast from the past and makes us remember the TRUE meaning of amateur radio "Build and experiment with your own gear" those fun days seem to be sadly fading away…….. time to change it 😊

Thanks Arthur

CROWBAR Circuit UPDATE (error correction)

Please note the circuit supplied in the last propagator has an error on it, the SCR is connected the incorrect way around. Please see revised connection.



Revised with SCR connected correctly

Upcoming events ……

Joint Picnic 25th September 2021
Cancelled due to Lockdown uncertainty ☹

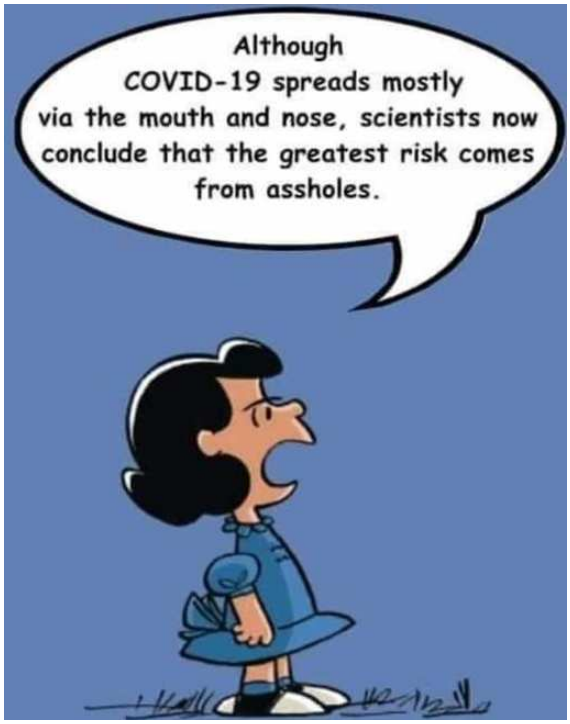
(Will advise once lockdowns are gone !)

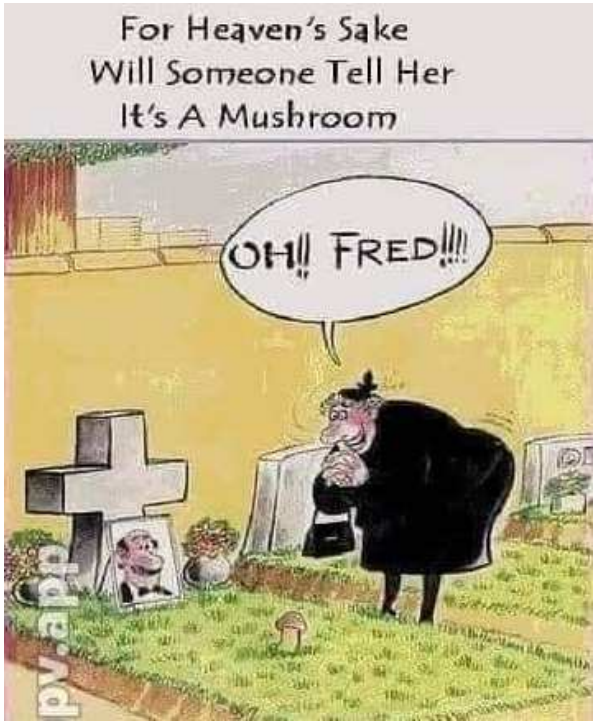
Upcoming meeting presentations ……

- **September 2021 : Surprise on air meeting**
- **October 2021 : SDR presentation (Covid lockdown restrictions dependant)**
- **Novemebr 2021 :** The famous IARS auction night with our host Simon VK2XQX, letting us get away with some great bargains.
- **December 2021 :** Pizza night dinner with a show and tell, perhaps a surprise this year ☺

Fun Corner

Please send in your funnies to iars.keithb@gmail.com





Thank you Rob & Pete

That's all for now, hopefully catch you all on 146.850MHz, 14th September 2021
Stay Safe

73's
Keith VK2KQB
IARS Secretary

IARS, Amateur Radio in the Illawarra since 1948