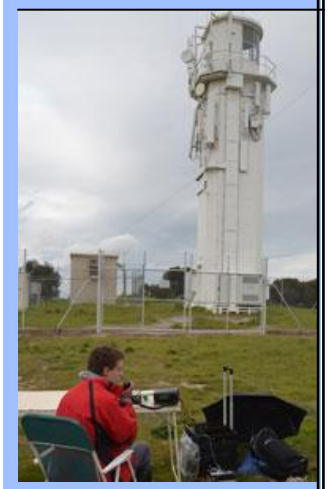
Adelaide Hills Amateur Radio Society Inc

September 2014 Newsletter

VK5BAR

Contents



Patrick, VK5MPJ, at Marino Rocks Lighthouse. See page 3.

PRESIDENT'S COLUMN

The last months have been a very busy time for AHARS, with varied activities both at meetings and at the shack.

June was "Back to Basics" month at the shack. Every weekend a session was conducted on various aspects of electronics Amateur Radio. All these seminars and workshops were extremely well attended, with at times a capacity crowd, a big thank you to those who organized or conducted a session. Additionally the tech mornings have been very successful with some fantastic presenters. We are again proving that the strength of our hobby is in the diversity, knowledge and skill of our members, who can make some of the best speakers. This was demonstrated by the quality and quantity of speakers at our recent club "show and tell". Our August meeting guest speaker Dr David Wescombe-Down on "The negative impacts of the digital technology revolution on humans - including Amateur Radio operators!" was a clear indication of the quality of speakers we have at the meetings.

A diverse range of activities are planned for the remainder of the year.

JOTA is fast approaching, the third weekend in October. AHARS has made a commitment to be of assistance to the scouts, and we plan on hosting at the shack. There will be a requirement of assistance from members, so any offers of assistance would be appreciated. This is an excellent opportunity for us to link with the local community, and potentially attract younger members to our hobby.

Our annual Buy and Sell is coming up in 2nd November. There will be the usual mix of club, individual, and commercial sellers. If you are having that big clean up, consider having a sales table this year. It is planned that the Buy and Sell will prove to be the usual success.

Our licence training team has been busy, with a course conducted in August, and we welcome 8 new members to our hobby. Thank you to our training team for their fantastic work.

Our mid year dinner was attended by around 30 members. It was a great function, with all those attending having a great time.

I look forward to coming months at AHARS.

Cheers, and 73 from Tony, VK5KAT

EDITORIAL

Newsletter Survey: Many thanks to those who replied to my request for feedback on the Newsletter. The replies were helpful and positive, and has given me good reason to continue to enjoy putting this little publication together.

Earthing: There are several items about Earthing in this issue - and I commend them to your perusal.

Tales from The Dawn of Time: Some of our members have memories of events that go back a long way. In this issue we have an encounter with a strange earthing situation which arose many decades ago (see article "WHEN EARTH IS NOT AN EARTH ..."). The article is not free from some reminiscing, but the Editor was in a good mood, and allowed it to be published!

ILLW: August 16-17 was the ILLW weekend, and three indefatigable AHARS members climbed the steep, lofty slopes of Marino Rocks to join in.....
See pages 3, 9, and 10.

BUY and SELL. **SUNDAY November 2.** See Page 2 (Club Program).

WELCOME TO AMATEUR RADIO DAY is **SUNDAY 23rd November 2014**.
See Page 2 for more information.

John, VK5EMI, Editor. ***(--... ...--!)***

SEPTEMBER Thursday 18th	**2014** 7.30pm	Monthly Meeting "Cell phone network from a generic viewpoint" by Grant Willis Blackwood Community Centre (BCC) - Young Street.
Friday 26th	Noon	Blackwood RSL AHARS Members And Friends Luncheon (All Welcome)
Saturday 27th	9.00am 11.00am	The Shack : *"Satellite Communications for Hams."* By Damian VK5FDEC. **WORKING BEE,** with sausage sizzle. RSVP to Roy. at vk5nrg@wia.org.au by Thursday Night (25th).
OCTOBER Friday 10th	Noon	Blackwood RSL AHARS Members And Friends Luncheon (All Welcome)
Friday 10th	Noon	Cafe Di Mare - Currie St, Adelaide ALARA Ladies Luncheon (All Welcome)
Saturday 11th	9.00am	The Shack Coffee and chat morning.
Thursday 16th	7.30pm	Monthly Meeting Aspects of Telegraphy, by Ian Redding.
Sat 18 & Sun 19	9.00am	**JOTA.** At the Shack. Please register your interest with Tony, VK5KAT.
Friday 24th	Noon	Blackwood RSL AHARS Members And Friends Luncheon (All Welcome)
Saturday 25th	9.00am	The Shack . *TV Dongles in Amateur Radio & the Writing of software to suit - Bill Cowley.*
NOVEMBER Sunday 2nd - 9.00am.		**Annual BUY & SELL. Goodwood Community Centre, Rosa Street Tables c/- Roy, VK5NRG**
Saturday 8 & 9th	9.00 am	The Shack : *Foundation Training and Assessment . C/- Sasi, VK5SN.* email
Friday 14th	Noon	AHARS Members And Friends Luncheon (All Welcome). Blackwood RSL
Friday 14th	Noon	ALARA Ladies Luncheon (All Welcome). Cafe Di Mare - Currie St, Adelaide
Thursday 20th	7.30pm	Monthly Meeting : BCC. Construction Night with Graham Dicker (VK5ZFZ).
Friday 28th	Noon	Blackwood RSL AHARS Members And Friends Luncheon (All Welcome)
Saturday 23rd	9.00am	**SYMPOSIUM: WELCOME TO AMATEUR RADIO DAY Blackwood Community Centre - Young Street ... C/- Paul, VK5PAS**
Saturday 30th	8.30am	The Shack AHARS Members And Friends Breakfast
DECEMBER		Sunday 7th. AHARS Christmas Luncheon. Venue TBA.

WELCOME TO AMATEUR RADIO DAY
SUNDAY 23rd November 2014.

Entry: $5. Morning and afternoon tea, and lunch, supplied.
Topics covered include: History; QRZ.com; APRS; Bloggs, etc; QRP; SOTA; Jargon; Electronic logging software; Awards—SOTA, CP's, WWFF, etc; CW; and more.
Times: 08:45 am, to 16:05 pm.

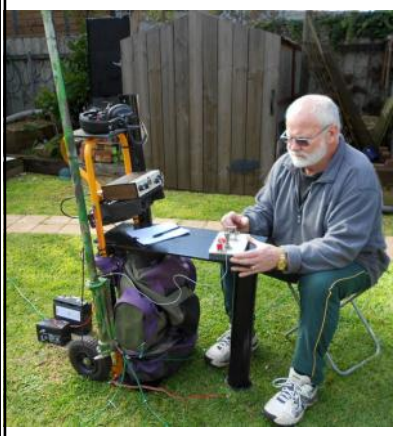
AN INTERNET SCAM Abridged version of the attempted scam: (from QRZ.COM).
Maybe you know someone who's had a bad experience when buying radio gear online from a private party, The story is always the same, a user answers an ad posted on QRZ (or VKHam, here) and contacts the seller. Usually, the radio is fairly expensive but being offered at a great price. The buyer then sends the money to the seller, and never receives the goods:
Points to check with on-line selling:

1. There should be an image or two of the item. Check that it's not just copied from another site.
2. Sometimes the scammer will make use of a callsign that is not active, or registered on the website.
3. Don't send funds to a third party. The name of the account should match the name given by the "seller"
4. Beware of any seller who will not talk to you on the phone.
5. Never send money via bank transfer. Never send money via Western Union. Paypal is best.

For full details of the story behind this, please go to the Internet, and follow this link.
http://forums.qrz.com/showthread.php?447305-Anatomy-of-an-Internet-Scam-at-QRZ
From QRZ.com via Robin DeVore, VK5ATT. *(Thanks, Robin - Ed.)*

VK5BAR on the INTERNATIONAL LIGHTHOUSE AND LIGHTSHIP WEEKEND (ILLW), August 16.

Thanks to Doc, VK5BUG, who did the groundwork for this event.
VK5BAR operated adjacent to the Marino Rocks Lighthouse (AU0118), within the Marino Conservation Park.
Those who contacted us can get points towards their CP award, as well as a VK5BAR QSL card for the ILLW.
For we three indefatigable amateurs (Doc, VK5BUG; Patrick, VK5MPJ; and myself, VK5EMI), this was our first attempt at either a Lighthouse weekend, or a conservation park activation.
The path from the carpark up to the transmitting point was rather long and steep, outlining the need to travel light in such circumstances. Doc's all-in-one trolley performed well in this regard.
Unfortunately, the ILLW Weekend coincided with the RD contest, as it often does, and there were more operators out for scoring in that than chasing lighthouses or conservation parks, so we had to compete with those.
Doc's setup was: a trolley, with rigs, radials and a adjustable vertical antenna: Here is The Doc's description:
"The ground-mounted vertical provides a lower take-off angle than the horizontal or V wire aerials, & 5/8 or 1/2 wave verticals also introduce gain (3dBd in the case of the 5/8). From many years experience, these are essential for QRP DX work I was very pleased with the operation for the shakedown cruise over the weekend & have gained some important insight for improving my set-up ."
Doc had built an adjustable alloy tubing vertical, to act as an 5/8 wave @ 10m, or 1/2 wave @ 15m, or quarter wave @ 30m. The antenna is just dropped into the trolley-mounted base. His plan was just to activate 10m CW as his portable txcvr is a 10m monobander 5W/25W. There are 3 sets each of 4 radials for bands 10, 15 & 20m - the other sets will also come later. The trolley has a slide –out operating desk for seated use, as well as capacity for stand-up operation & logging.
On the Saturday, the 40m inverted V system made a total of 26 SSB contacts, 8 of those to other lighthouses. Doc, operating QRP, had big troubles with local noise, but on the Sunday, made 10 contacts on CW. *(More info & photos on pp 9 and 10. Ed.)*
All in all, although the scoring and weather wasn't superb, we all enjoyed the challenge, and will try again next year.



VK5BUG testing his portable trolley/base station at home.

Patrick and The Doc at the entrance to the conservation park.
Both looking fresh before the trudge up the long path to the lighthouse.

John running on 40m, with a view of the gulf behind.

AN (ALMOST) UNKNOWN SOUTH AUSTRALIAN

Edward Thomas Both (1908–1987) was an Australian inventor credited with the development of a number of medical, military and general-purpose inventions. These included a low-cost "iron lung", ahumidicrib, the first portable electrocardiograph and the "visitel" – a forerunner to the modern faxmachine. His inventions gained him an OBE in 1940, and his work led to Both being given the moniker of the "Edison of Australia"
Edward Both was born ... in the town of Caltowie, (near Jamestown). He was schooled in the local area, attending Caltowie Public and Jamestown High schools, and proved to be a good student
.....when he was sixteen Both began studying at the Physics Department at the University of Adelaide.

(Below) Both Cabinet Respirator in WWII ("Iron Lung")

There he caught the attention of Kerr Grant, a physics professor, who subsequently appointed him as his personal assistant. *The above from Wikipedia. Original article from SALIFE magazine. If you'd like to know more about this rather unknown but prolific inventor, try Wikipedia, or see The Editor for a printed article.*

As amateurs, we all know something about Earthing (thank goodness!)
Still, a little more knowledge will do no harm.....Here are three articles which may be of interest.

1. WHEN EARTH IS NOT AN EARTH, and BROADCAST INTERFERENCE (BCI), from Steve, VK5AIM.

This incident happened about 64 years ago. I was an electrical apprentice at a small electrical contracting business in the western suburbs of Adelaide.

Back then Adelaide had the old 210 volt AC mains based on the Adelaide Electric Supply Co., Adelaide Delta distribution system. The whole system was in the process of changing over to the 240 volt AC Star distribution system. At the same time the authorities were introducing the new 3 Pin 240 volt Power outlet socket with the now familiar, 3rd Earth Pin, as against the old 2 Pin round wall socket.

It was a new Post World War ll safety measure so that any fault current went to Earth and not through the user. All new installations had to be made with these new power sockets.

We, my boss and business owner, had a few months earlier rewired and installed new power circuits and power points in a very nice house located in Woodville. It was a lovely old house built in the 1920's.

Upon arriving at work this morning my boss Lou, told me that the lady of the said house had complained of crackling noises on her wireless set not long after we had completed the new wiring. She had contacted the electrical authorities, the AESCo (Adelaide Electric Supply Company) installation inspectors and the Radio Interference Inspector (RI) of the PMG. Lou and I were to meet the inspectors at the house at 1 :30 today to try and solve the problem. The house was located alongside the Adelaide to Port Adelaide railway line. The lady explained that the crackling noise only occurred when a steam train travelled down the line past the house.

The noise on the wireless had only commenced a short time after the new electrical installation.

The lady showed us her 3 Band, Broadcast and 2 short wave bands wireless along with an electric turntable and gramophone pickup, the forerunner to the Radiogram. She switched it on and after a few seconds the local radio station was heard. Someone had wisely obtained a train timetable; this enabled us to have some idea as to when trains would come by.

The Radio Inspector then tuned the wireless off the station and up came the noise as the AGC allowed the set to run at maximum gain. "That is not the crackling noise we hear" the lady said. "We will hear it better without the music and the speech" said the inspector.-

The radio stations were not that far away; 10 miles at the most. Radio 5AD, 5DN, and 5KA with their towers on buildings in The City, and 5CL near the current airport. Most parts of Adelaide and Suburbs had a good signal level from these transmitters.

Before WWII a lot of wirelesses were simple two valve and rectifier, Regenerative sets from the 1920's. They required reasonably good signal strength. (Superheterodynes only became popular in the late 1930's.)

To help increase the signal strength against the interference the Radio Inspector on a previous visit had suggested a better aerial and earth to the wireless, better than the bundle of wire down the back of the set. The lady had employed someone to fit an external earth wire and aerial for the set.

The earth wire went from the back of the set to a good water pipe connection outside. The AESCo Inspector and the Radio Inspector had checked this out and was OK. The aerial wire was internal, about 8 metres long.

The Rl said it made a big difference in the signal level.

The lady said that they could even hear interstate stations some evenings. One night her husband had even switched the set to the short wave bands. Tuning around they could hear music and some foreign voices. Consulting the time table the AESC inspector said," come on let's concentrate, we have a train coming!"

We could hear the steam train coming and sure enough as it passed the house up came the crackling noise. "That is it ", said the lady . We all agreed it was quite loud. "There is another train coming the other way in a few minutes, let's tune the wireless to a station and see how bad it is" said the RI. The RI tuned the set to a station and we waited. We did not have long to wait. As the train went by up came the noise almost drowning out the wireless programme.

Turning down volume, the Rl said, " I think it is a loose connection in the new wiring". The AESC inspector -agreed, "Maybe one of the screws in a new fitting is just enough to move with the vibration caused by the passing train."

He suggested that Lou and Steve go around and tighten up every screw all the newly installed circuits. Lou and I proceeded to do this to all the new power outlets. None of these were loose.

We had all the screws checked by the time the next train came along. Unfortunately the noise was still there. With more discussion the AESC inspector suggested that it might be loose screws in connectors in a junction box in the roof wiring. In those days all electrical wiring was done in metal conduit. It was called split or close joint conduit, and was *5/8th* inch in diameter. All joints, joiners, elbows, tee joints and junction boxes had a clamping section held by small screws. Was one of these screws not tight enough on the conduit connection?

A ladder was brought in and I went up into the ceiling space with a torch and a screw driver. I crawled around the roof and proceeded to check and tighten every screw in every elbow, tee and junction box. I stayed in the roof till the next train came by. "It is still there came a shout up through the ceiling trapdoor. "Is there a junction box in the power circuit" asked the AESC inspector"? "Yes "I replied back down the trapdoor." Take the lid off and move the wires and connectors" This I did. 'No that's not it," came the reply from down in the house. "You had better come down now ", said Lou.

As I was crawling across the joists to come down I nudged the earth wire. Next second a chorus of shouts carne up through the trapdoor opening." What did you do, Steve':' That's it, that's it! "I just nudged the earth wire". In those days the earth wire was bare, not insulated with a yellow 'and green plastic coating. "Do it again" was the call this I did. "That is it" came the shout again. "Follow the earth wire back across the ceiling and see what metal it touches". It crossed one of the conduits. I moved it slightly. "No that's not it ", came the reply. I followed the earth wire across the joists till I was crawling on my tummy as the space between the ceiling and the roof got smaller then in the torch light I could see the electrical earth wire cross the PMG telephone earth wire. Back then when telephone wires were all airborne they had some form of lightning protection in a junction box where the wire came into the house. This required its own earth wire from the junction box to its own earth connection, which was usually the same metal water pipe as the electrical earth, but often to a different piece of pipe around the house.

Flat out on my tummy I moved the electrical earth wire so that it rubbed on the other wire. Up came the shout from below. "That's it, can you manage to lift it up off the other wire. There is a train coming in a few minutes". I lay there with my finger between the two wires. I guessed my finger was a good enough insulator. The train rumbled past. Up went the voices from below. "Good on you Steve you have found the fault. Come over to the hatch and get some insulation tape". This I did and proceeded to crawl back to the wire junction and wrap insulation tape around the wires. I came down from the ceiling all dusty with cobwebs on me. The lady of the house took pity on me and took me to the bath room. "Take your dusty and dirty overalls off and have a hot wash". Luckily I was wearing shorts and a cotton shirt underneath the overalls. I returned to the group much cleaner and refreshed to hear a train go by with no noises in the wireless.

The AESC Inspector suggested that we raise the mains earth wire with a couple of small blocks of wood so that the wires were clear of each other by an inch or so. I did this at a later date as a more permanent cure.

On their reports the Radio Inspector and AESC Inspector wrote, "Wireless interference caused by difference of potential of system earth wires:"

We celebrated our success with a cuppa and biscuits.

Steve Mahony. VK5AIM.

Sometimes it pays to be a crawler!
We can all be glad of the improvements
in electrical safety since the "good old days"!
(Ed.)

2. A WELL-GROUNDED EARTH!! > > > > >

From http://i.imgur.com/lyQ6SUc.jpg
Thanks to James Elliott for his observation skills.
(Ed.)

3. From David, VK5AAH.

"A fair few amateurs have an earth wire connected to the chassis of the radio (home base set up) to its own separate earth stake outside somewhere, separate to the antenna earth. But is there another use for this connection when not using the radio?

Well there might just be another use: Firstly the wire must be disconnected from the radio and reconnected to a metal rack, serving tray or similar. It is then possible to sit on a chair (possibly whilst using the computer placing your bare feet on the tray, earthing your body.

The theory is the earth has an abundance of free electrons which are channelled to the body via the feet to neutralize positively charged free radicals in the body. These can cause inflammation and damage to our bodies. This earthing helps by thinning the human blood similar to aspirin and can be used for drug free pain relief. Once you have finished your treatment the earth wire can be reconnected back to the radio.

The same thing can be achieved by walking, sitting or lying on grass or paddling on a beach. For further information you can look at www.barefoothealing.com.au "

REPORTS ON RECENT AHARS MEETINGS

August Presentation:

Amateur Radio Ergonomics: *"Negative impacts of the digital technology revolution on humans - including Amateur Radio operators!!"*

Presented by A/Professor David Wescombe-Down (VK5BUG).

Abstract: Nothing has more positively impacted modern society, across all sectors and levels of work and recreation, than the proliferation of digital technology. Ironically, nothing may also be more negatively impacting on the participants themselves.

In addition to EMR considerations, Amateur Radio operators have two other personal hazards with which to contend, based on the amount of time they spend

- In a seated position during any, and all 24-hour period(s)
- Operating screen-based equipment, desktop and hand-held, at work and at home

During the last decade there has been a progressive increase in diverse personal injury issues arising from chronic postural demands due to people's physical inactivity levels, excessive pre-occupation with, addiction to or interface with various forms of digital technology.

For example: an increased risk of some cancer types; obesity and morbid obesity; repetitive strain injury (RSI); psychological disorders, addictions and mental stress; musculo-skeletal damage; visual impairments

Professor Wescombe-Down conducted mixed methods research between 2008 and 2012 in several States of Australia including accessing injury claims data, and has made certain transitional recommendations including limiting digital technology interaction sessions to 20 minutes before taking an ergonomic break, and not more than four hours per day in total (work and recreation combined). His research has been presented internationally as well as nationally, and passed along to Flinders University and The Baker Institute in Victoria for incorporation as background material for their own dedicated research projects in the field. Individual apathy and social stigma arising from the Australian "She'll be right, mate!" attitude have been identified as barriers to ameliorating the alarming and very real injury situation.

Editor's Footnotes: Remember, the body needs regular movement, to ease locked muscles, and to get fluids moving through joints, etc. Leaving your work station to focus on different distances will ease visual strain . Regular stretches are beneficial to everyone, too, irrespective of age or occupation.

Further References: David has some handouts, or you can contact me for obtaining one by email. *Ed*
Contact David on d.wd@bigpond.com if you wish to follow this up further.
Also, there's a lot of important information available on The Web from John Coveney of Flinders University.

June TOPIC:

The Great Train Robbery, presented by Brian Hearne, with an introduction by Dennis,VK5HH.

Brian was a police officer in Buckinghamshire, where the Great Train Robbery took place in 1963. Being close to the action, as he was, his talk was most interesting arresting...

For those who don't remember this great event, the robbery netted the gang about £2.6 million (about $45 million in current value.)

The train was the Royal Mail train from Glasgow to London. It had 12 carriages, and carried 72 Post Office workers.

The gang stopped, then boarded the train, gaining entry to the carriage that carried the money, then dropping the bags of money down to a truck waiting just below the bridge where the train had been stopped.

The gang very nearly got clean away with the proceeds, but a few minor errors, including errors of character, eventually led to them all being captured. Infamous gang member Ronald Biggs escaped later from jail, and even spent some time in Adelaide, whilst on the run.

At that time, the only communications were from a nearby railway siding, by railway telephone, and that had been disabled. Although the talk wasn't primarily about communications, one could see the benefit to British Railway and the Post Office if the train had been fitted with radio. *(Ed.)*

SOLDERING ALUMINIUM

From Leigh (VK5KLT), via Jim (VK5TR).

G'Day Jim,

In relation to your upcoming soldering techniques workshop at the club Shack, I was sent this interesting piece about soldering aluminium by a UK experimenter and antenna company owner; although I've not tried it myself, it sounds plausible? If the technique works as claimed the piece below may be a good item for inclusion in the club newsletter under a practical tips and hints heading?

Cheers, Leigh

As some are building the antennas again, here is some small advice I haven't seen around before: "Don't shy away from aluminium sheets in the belief they cannot be soldered. Rubbish, you can solder alu with standard solder but you need a bit more heating power in the iron. Take your alu part. COVER it with motor oil. Use a transparent oil for visibility. Use an abrasive on the surfaces you want to solder but NEVER remove it from the oil bath/cover. The trick is to keep the air away (oxygen) from the highly reactive Al metal once it is cleaned of the otherwise solder inhibiting surface oxides. While keeping the shiny cleaned areas/parts covered with oil, use a high power soldering iron and standard solder with flux. Cover the alu areas - or rather tin the areas where the later easy soldering is desired. As alu spreads heat, you need to use a big boy soldering iron like the ones you use on cars, fenders and stuff or tin filling, plumbing jobs, etc.

After the alu sheeting cools off, remove from oil and clean it. Now that it is tinned you can then easily solder it without the oil layer. No special flux or solder, just some old oil (veg oil for food and salads is OK too). I use some cheap and nasty SAE 20 motor oil. The important part is that it protects the alu from oxidizing again.

Tinned aluminium can be stored for later use.

Dan, M0DFI"

(Thanks to Leigh and Jim - Ed.)

NB: In the next Newsletter issue will be a report on the Soldering Training session at The Shack back in June.

LITHIUM BATTERIES

A GPS, left exposed to the sun behind a car windscreen, exploded and started a fire in the car. I bet this also applies to Cell phones, tablets, digital cameras, and other devices that use lithium batteries.
You think this may be a reason why the Postal Service will not ship electronic devices that contain lithium batteries any longer?
The battery overheated and exploded !
Look at the damage !
(Thanks to David, VK5NU, for this important warning.)

FOR SALE

HF vertical whip antenna.

(See photo ▶).

Tunes most of HF band with an ATU. Fibreglass, professionally made. $200.

Bushcomm HiGain HF mobile whip with heavy duty spring base. [illegible]nds. $250.

All items in good condition.

The Editor can supply photos showing details of the units.

Contact The Editor,

or Greg Heneker, VK5FJRH,

(ph 0466 998 611) for more details.

SOLD

WANTED

"With garden model railways being one of my other major interests, I wonder if any AHARS members have model steam locomotives sitting in cupboards?? I am after one, probably an entry-level UK Mamod or MSS live steamer in 32mm gauge & have a linear amplifier to swap for it.
At the moment I am renovating our garden railway line & making some more locos & rolling stock - very therapeutic. We have rail pickup & battery powered items at the moment & I would like to add a live steamer for a bit of fun."
Contact David (The Doc, VK5BUG) on
8271 3066 or via email on d.wd@bigpond.com

Adelaide Hills Amateur Radio Society Inc

GENERAL INFORMATION, NOTICES & CLUB CONTACTS

Club Projects

Antennalyser kits.
Saturday morning technical talks.
Details from Roy Gabriel, VK5NRG. Ph 8278 2522.

Amateur Radio Licence
Study Courses and Examinations
Foundation, Standard and Advanced Licences.
Please See Club Program For Dates
Location: The Shack, Blackwood.
Contact Sasi Nayar VK5SN
0417 858 547 or email vk5sn@wia.org.au

Club Weekly Net on VK5RAD
Listen to or join in on Monday nights
from 8 pm to about 9:30 pm local time.
Receive frequency is 147.00 MHz, with -600 KHz offset.
Net Controller: Jim (VK5TR);
Dean (VK5LB); or Barry (VK5BW)
All licensed amateurs are welcome.

VK5RAD
(Crafers Repeater)
The Repeater Controller is Barry Williams.
All enquiries, including requests for access, etc,
are to be made through him.
Phone 8339 5683 or email vk5bw@wia.org.au

Australian Ladies Amateur Radio Association (ALARA)

http:/www.alara.org.au/

State Representative: Jean VK5TSX
Phone: 08 8322 0066

Encouraging women's interest and active participation in Amateur Radio.

ALARA was formed in 1975 by a small group of Australian ladies interested in Amateur Radio. Membership has now grown to over 200, with many Australian members sponsoring overseas YLs into ALARA.

The term "YL" stands for "Young Lady" regardless of age.

The SA group meets at 12.00pm
on the 2nd Friday of each month
in the Grand Chancellor Hotel, 18 Currie St, Adelaide.

They have a net on 80 metres on Mondays at 1000 UTC in winter and 1030 UTC during summer (day light savings time) at 3.570 MHhz.
There are also EchoLink skeds.

CLUB CONTACTS

Club President VK5KAT	Tony Hughes 08 8270 3097
Vice President VK5BW	Barry Williams 08 8339 5683
Secretary VK5TSX	Jean Kopp 08 8322 0066
Treasurer VK5APR	Peter Reichelt 08 8352 5904
Licence Training VK5SN	Sasi Nayar See Opposite

Meetings & Venue

AHARS meets on the third Thursday of each month, commencing at 7:30 pm, at the Blackwood Community Centre, Young Street, Blackwood.)

Postal Address

A.H.A.R.S P.O. Box 401, Blackwood, 5051.

Website Address & On-Line Newsletter

The address for our website is:
www.ahars.com.au
Thanks to Kim Hawtin, our very able web-master.

Articles For The Club Newsletter

Projects, anecdotes, experiences, ideas, advice, etc, all make interesting and useful reading, and will be much appreciated.
Please forward directly to the
Editor- John Elliott VK5EMI
phone 8278 1269 or by email (best)
to vk5emi@wia.org.au
Publishers-
Michael & Kaye Roden VK5FMTR
email - visit01@bigpond.net.au

The Next Newsletter Will Be Published In December 2014

CONTENTS:

1. VK5BAR ACTIVE ON ILLW WEEKEND (Continued):

1. Doc's Trolley. This now famous device had a lot of work and thought put into it.
After being thoroughly ground/sea-tested (on the lawn at home), it performed well in the field. With its large, pneumatic wheels, it was as good as one could get for transporting gear along the long, and somewhat rough path up to the summit.
2. Wheelie Hard Work: On the other hand, the Editor (VK5EMI) was not as well equipped for challenging perambulations, and had more difficulty in transporting his gear uphill.
His Inverted V was easily carried, but, lacking a light-weight battery meant that his 3 tonne SLA thumper had to be pushed and pulled uphill on its own trolley. The wheels on his trolley were pretty good, but wider wheels would have helped! The battery worked extra well, of course, with plenty of juice left at the end of the day.
I will now consider whether to spend the money on a lighter weight power unit for next time, as I now intend to return to Marino next year. (I also now have a much better trolley for my ancillary gear.)
What a pity Marino doesn't quite rate for SOTA!
3. Details of Gear Used.

	VK5BUG	VK5EMI
Rig	Realistic HTX-100 28MHz SSB/ CW 5/25W monobander	IC 706 IIg
Coupler	MFJ 941B	Kenwood AT-130
Radials	4 x 28MHz	None
Batteries	17 & 7.2aH gel cells	1 90 AH SLA (33 Kgs!)
Aerial	5/8 wave vertical	Full size 40m Inverted V. 1:1 balun
Power used	QRP (2 Watts)	20—30 Watts

4. Summary of Contacts Made:
40 metres (SSB): Total 30 QSO's. 8 to Light houses.
40 metres (CW). Total 10 QSO's.
See next page for the full log.

Rear view of the trolley undergoing ground/sea-testing at home.

Patrick and Doc dragging the radio gear up The Kokoda Trail to the lighthouse.

Doc chatting with visitor Chubba (VK5FCLK) at the lighthouse.

VK5BAR LOG for ILLW, Conservation Park Activation and RD Contest.

16/08/2014 and 17/08/2014

Marino Rocks Lighthouse : AU0118, 35.0537°S, 138.5117°E

Compiled by John, VK5EMI.

Callsign	DATE	Timeon	Freq	Op	QTH	Mode	TXPwr	Ant	Rig	Comment
VK5CRC/P	16/08/14	02:52	7.094	Phil	Kudla	SSB	20	Inv V	IC 706 IIg	NERC Portable in paddock
VK2GCC	16/08/14	03:03	7.079	Matt	Hunter Valley	SSB	20	Inv V	IC 706 IIg	
VK2BJ	16/08/14	03:21	7.115			SSB	20	Inv V	IC 706 IIg	
VK3ANR	16/08/14	03:29	7.065	Barry	Port Henry LH	SSB	20	Inv V	IC 706 IIg	**ANR. AU0084**
VK2AWJ/5	16/08/14	03:38	7.088	John	Point Malcolm LH	SSB	20	Inv V	IC 706 IIg	**AU0029**
VK3IH	16/08/14	03:38	7.088	Paul	Liptrap LH	SSB	20	Inv V	IC 706 IIg	**AU0037.** 100W, 1/3WAVE,IC706
VK5AR	16/08/14	03:42	7.088	Jenny	Cape Jervis LH	SSB	20	Inv V	IC 706 IIg	**AU0094.** (& Allen)
VK5XY	16/08/14	03:46	7.088	Colin	Wattle Park	SSB	20	Inv V	IC 706 IIg	
VK5ZGY/M	16/08/14	03:48	7.088	Greg	Mt Gambier	SSB	20	Inv V	IC 706 IIg	Noted us CP
VK5HOG	16/08/14	03:50	7.088	Deano	Melrose Park	SSB	20	Inv V	IC 706 IIg	
VK5ZAT/P	16/08/14	03:52	7.088	Nic	Mt Pleasant	SSB	20	Inv V	IC 706 IIg	& chat re ROSA (WICEN)
VK5ZAT/P	16/08/14	03:56	7.088	Nic	Mt Pleasant	SSB	20	Inv V	IC 706 IIg	
VK5FDEC/Q	16/08/14	04:06	7.09	Damien	/h	SSB	20	Inv V	IC 706 IIg	AHARS member. 22.6C in shack
VK5NRG	16/08/14	04:10	7.09	Roy	/h	SSB	20	Inv V	IC 706 IIg	
VK5LOL	16/08/14	04:11	7.09	Lesley	/h Hallett Cove	SSB	20	Inv V	IC 706 IIg	
VK5BWR	16/08/14	04:45	7.095	Pat	Whyalla LH	SSB	20	Inv V	IC 706 IIg	**AU0021**. OCF Dipole.
VK5BWR	16/08/14	04:47	7.095	Pat	Whyalla	SSB	20	Inv V	IC 706 IIg	
VK4WIL	16/08/14	04:56	7.12	Ken	Lockyer Valley	SSB	20	Inv V	IC 706 IIg	60 Kms W of Brisbane
VK4WIL	16/08/14	04:56	7.12	Ken	Lockyer Valley	SSB	20	Inv V	IC 706 IIg	
VK4HH	16/08/14	05:11	7.132	Bill		SSB	20	Inv V	IC 706 IIg	
VK4HH	16/08/14	05:11	7.132	Bill		SSB	20	Inv V	IC 706 IIg	
VK3OLS	16/08/14	05:14	7.14	Bryce	Cape Otway LH	SSB	20	Inv V	IC 706 IIg	**AU0011.** FT101E. OCFD
VK7VTX/3	16/08/14	05:17	7.14	Gavin	Mornington Pen	SSB	20	Inv V	IC 706 IIg	
VK2PR	16/08/14	05:28	7.12			SSB	20	Inv V	IC 706 IIg	
VK5ARC	16/08/14	05:33	7.14	Barry (KBJ)	Pt Malcolm/ Narrung LH	SSB	20	Inv V	IC 706 IIg	**AU0029**. Same LH, diff callsign
VK5CJ	16/08/14	05:36	7.14	Andrew	Cape Jaffa LH	SSB	20	Inv V	IC 706 IIg	**AU007**
VK3AVV	16/08/14	05:40	7.145	Mike		SSB	20	Inv V	IC 706 IIg	
VK3AVV	16/08/14	05:41	7.145	Mike		SSB	20	Inv V	IC 706 IIg	
VK3ER	16/08/14	05:48	7.115	Peter		SSB	20	Inv V	IC 706 IIg	EMDRC
VK3VIN/Q	16/08/14	05:48	7.1	Ian		SSB	20	Inv V	IC 706 IIg	
VK3ZH	16/08/14	05:48	7.1			SSB	20	Inv V	IC 706 IIg	
VK5UM	17/08/14	00:56	7			CW	2	GMV	HTX-100	Op = VK5BUG
VK5LJ	17/08/14	01:05	7			CW	2	GMV	HTX-100	Op = VK5BUG
VK7AD	17/08/14	01:13	7			CW	2	GMV	HTX-100	Op = VK5BUG
VK2BJT	17/08/14	01:33	7			CW	2	GMV	HTX-100	Op = VK5BUG
VK2GR	17/08/14	01:54	7			CW	2	GMV	HTX-100	Op = VK5BUG
VK2BJ	17/08/14	01:57	7			CW	2	GMV	HTX-100	Op = VK5BUG
VK2AWK/P	17/08/14	02:03	7			CW	2	GMV	HTX-100	Op = VK5BUG
VK5DC	17/08/14	02:10	7			CW	2	GMV	HTX-100	Op = VK5BUG
VK3AUQ	17/08/14	02:35	7			CW	2	GMV	HTX-100	Op = VK5BUG
VK2IO	17/08/14	02:41	7			CW	2	GMV	HTX-100	Op = VK5BUG

Introduction

The helix is well accepted in amateur circles: the VHF/UHF 'rubber ducky' for example. At lower frequencies, the primary reason for using a helical aerial on is to achieve low height and a specific frequency of operation. Helical aerials are narrow bandwidth, single frequency devices, and my experience has shown that an MF/HF helix needs to be ground mat (radial system) dependent, self-supporting and robust. Helix length: diameter appears best when in a 20:1 range.

Turns need to be wound typically at wire thickness spacing, although the accompanying photo shows two that I have wound from 5mm aluminium wire for portable experiments on MF and low HF frequencies. Even spacing distribution may be achieved through co-winding a cord of equal diameter along with the wire. Enamel copper wire is preferred and the helical inductor must be capable of dissipating its share of applied power, noting that when we move down into the MF range, this is much more significant that at 28MHz for example.

An unfortunate fact of 'helical life' is that at 1.8MHz, 475 or 136KHz, a helical vertical aerial will always have enough loss to dissipate a fair percentage of the applied RF power.

If spaced bare copper wire is used because of high power application, the turns ratio needs to be 0.71, deduced from:

$$\frac{\text{Wire diameter}}{\text{Winding pitch}}$$

Winding many turns is always a tedious process unless a convenient coil winder is at hand. I have a large (for the suburbs) 11m tall MF vertical that includes a 1000-turn @ 50mm diameter helix as the upper part of its radiator, and it took me about three months to wind it: my forearms were like cartoon Popeye's every winding session!!

When high power (whatever that is, but you will soon find out if you are running it!!) is used, ionization will occur at the top of the aerial and precautions need to be taken to eliminate destructive corona discharge. All of the better aerial reference material will refer to 'corona discharge' in detail, and the reader is invited to research that topic to gain a better understanding of the hazard.

Most of the transmitted power will be dissipated in the helix due to low efficiency. While a helix is an MF or HF Tesla inductor, its resonant frequency will be sensitive to the difficult-to-control diameter. Inductor Q will be high, so it may be necessary to prune helix height/length AFTER deliberately making it over-length.

For example, to change the Fr of a 1.8MHz aerial with a 3dB bandwidth of 7KHz by 3KHz, only 2 turns may need to be removed from a total winding of 1160 turns. If using 12AWG wire, work on 460 turns per metre, and if 14AWG wire is your selection, 580 turns per metre as a guide. When length is 100 times diameter, the helix may be over-length and not self-supporting when airwound. Helix diameter is the winding former diameter plus twice the wire diameter. Wind from bottom to top and use tape to hold at regular distances when applying paint/marine varnish of several coats. Cable ties are also useful at this stage.

Technical considerations
Base design frequency of 1810KHz
Wavelength of 165.75m (538' 6")
¼ wavelength is 41.45m (134'8")
Height (degrees) = Height/984 x f (MHz) x 360degrees = 19.865 or 20 degrees (rounded)

Radiation resistance (Rr) is directly related to the height.

Rr = 160 x pi2 (H/2 divided by wavelength)2
= 160 x 9.86(15/538.5)2
= 12.24 ohms

Aerial efficiency (from ARRL Handbook for short aerials – any edition)

An = Rr/(Rr + Rt) x 100 = 67%

Power radiated – Input 400W x 67% = 268 Watts (remainder lost due to low Rr)

Practical 1.8MHz examples:
KY3F (1990s) 2 x 3m sections of 100mm PVC as formers.
2 x 43m (140') AWG18 wire @ one turn per 2.54cm (1") over each PVC section & joined at the centre.
Top/capacity 'hat' of 12mm (1/2") mesh screen wire 30cm (11.8") diameter.

VK5BUG (2012) 6m (19' 6") @ 290mm per turn length
fr = 1825KHz
L = 468/fr = 468/1.825 = 78.92m (256' 5")

(Cont ..▼..)

Typical initial measurements

The fr was actually 1790KHz and with 400W applied showed a 50KHz bandwidth @ 2:1 SWR The radiator was then base tuned for fr of 1825KHz. A gate dip meter or aerial analyser may be used to determine the correct number of turns required on the helix, and fine tuning may be achieved by adding or trimming the capacity hat, and/or installing a variometer in any base loading inductor that may have been included in someone's installation.

This article is by no means a 'how-to guide' but rather a sharing of experience (ongoing, I might add!). Good performance is to be had from using a long helix as a radiator, obviously being better with a low-loss former. I do not suggest that PVC pipe is in that category, but I happened to have it at hand and my hobby is not wallet-driven.

The photos

I currently have a number of large helices with which to play, and this is just one of them:

Photo 4180 shows a modified Hy-Gain 18AVT base mounting section, the internal transformer having been removed and the base modified to accept balance feedline (dual-RG58 taped together). The large connector shown was only to keep paint and marine varnish out of the active connector during the painting process, and the large SS bolt visible is for attaching a set of radials.

Photo 4181 is the top of the helix showing the flattened section of aluminium wire used for capacity hat connection.

Photo 4182 shows part of the actual helix, a 3.75m length of 50mm PVC pipe wound with 43 turns of 4mm aluminium wire spaced 50mm apart.

I have elected to fabricate different aerial sections as above, including various sets of radials, simply so that I am able to swap into different configurations for testing and operation. Although time consuming and overtly 'fiddly' to some no doubt, I find that I learn more and enjoy my aerial farm work as a consequence.

Summary

The larger the capacity hat, generally the better performance may be expected since fewer turns will be required in the helix for a specific frequency. That then means lower AC resistance. However, site mechanical and physical stability requirements need to be considered so that an unwieldy top mass is not created. Should the large helix require guying, try heavy duty nylon fishing line or thin UV-stabilised polypropylene cords.

I have used various base insulators over the years: ceramic floor tile, ex-ETSA ceramic insulator, marine varnished Ironbark timber block, glass bottle and currently have the radiator mounted on a painted/varnished timber mast with slices of PVC piping and silicone sealant as both spacing and adhesive for the helix to the mast, secured also by a number of HD cable ties.

(Thanks Doc, for the details, and particularly the illuminating theory—Ed.)

◄ Photo 4180

Photo 4181 ►

◄ Photo 4182