Adelaide Hills Amateur Radio Society Inc
December 2014 Newsletter

Contents

Stolen from David, VK5LSB

PRESIDENT'S COLUMN

As the end of 2014 rapidly approaches, it is a great time to reflect on the AHARS year.

It is clear that the strength of our club is the members. Besides having a membership of almost 200, we posses a diverse demographic, with members bringing a variety of specialties, skills, and talents to the club.

Our meetings have been very well attended. We have had quite a range of guest speaker topics and activities. This has included a recent Graham Dicker construction night, with members building a 70cm antenna. The members' show and tell night earlier in the year demonstrated the diversity of members' interests.

The annual Buy and Sell was its usual success, with both sellers and buyers enjoying a rewarding day. Additionally it was great to see those once a year catch ups. A big Thank You to all those who helped on the day, and in the planning of this wonderful function.

The recent Welcome to Amateur Radio symposium proved to be a very successful day, and it is great to see hams sharing their knowledge and experience. This reinforces the concept that the strength of our wonderful hobby is the wide variety of expertise we have. A big thank you to Paul VK5PAS and his team for the hard work in planning and running such a rewarding event. We will certainly look at doing similar functions in the future.

Our training team have been working hard, and from the last training course we welcome 10 new F calls, and congratulate 1 licence upgrade. The club is purchasing an SDR for the shack. This provides a great tool to use in the promotion of our hobby to a younger demographic. It is something new, exciting, high tech, dynamic! It is planned that a function to officially unveil the new SDR will be conducted in the New Year.

A group of AHARS members made the trip to Murray Bridge to support the lower Murray club at their end of year dinner and AGM. The lower Murray members are additionally members of AHARS, so we look forward to the ongoing working relationship between the clubs.

Our AGM is coming up in February. If you would like to join the committee please nominate for a position. It would be great to have some new talent on the committee with some fresh new ideas.

I would like to wish everyone all the best for the festive season, and hope you have a prosperous new year. Cheers, 73 from Tony VK5KAT

EDITORIAL

Serious Club Project: I have recently asked our project guru, Jim, VK5TR, to put his energies into a really useful project - a Tardis. The value of such a device will be immediately obvious to all amateurs - Time Travel (so that one can get all those projects completed on time) and limitless space (so that we can store all of our treasures without cluttering up our homes). Go to it, James! NB: I have all the blank PCB you need.

Personal Achievement: One of our youngest members, Patrick (VK5MPJ) recently received his Queen's Scout Award. Part of the project towards his award was the achievement of contacting 50 entities (countries). I am very pleased that I was part of that. Thanks also to Lesley (VK5LOL) for being part of this exercise.

Our Publishers: Many thanks to Kaye and Michael Roden (VK5FMTR) for their support during the past year. They turn my rough copy into a work of art, print out the hard copies, and even proof-read my work (and just as well, even though I rarely make mistooks).

Christmas: Again, the year has turned full circle. Those of us who are not so young are wondering (once again) how the year went so quickly.

The reason is - "we keeping busy" - making, mending, learning, and helping. Our hobby encompasses all of those worthy aspects of life. We should be grateful, as we go on into 2015, that we have such a great hobby, and the wonderful community of AHARS, to enrich our lives. John, VK5EMI, Editor. **(--... ...--!)**

Adelaide Hills Amateur Radio Society Inc
Club Program

DECEMBER	**2014**	TBA	The Shack
Sunday 7th	Noon	**CHRISTMAS LUNCHEON** Marion Sports & Community Club. Sturt Road, Marion	
Friday 12th	Noon	Blackwood RSL	AHARS Members And Friends Luncheon (All Welcome)
Friday 12th	Noon	ALARA luncheon	Cafe Di Mare. Currie St, City
JANUARY	**2015**	TBA	The Shack
Friday 9th	Noon	Blackwood RSL	AHARS Members And Friends Luncheon (All Welcome)
Friday 9th	Noon	ALARA luncheon	Cafe Di Mare. Currie St, City
Sunday 18th	Noon-ish	**CLUB PICNIC**	Please BYO food, drinks, etc. (No club BBQ this time). Lions Club grounds at Bridgewater.
Friday 23rd	Noon	Blackwood RSL	AHARS Members And Friends Luncheon (All Welcome)
FEBRUARY	**2015**	TBA	The Shack
Friday 13th	Noon	Blackwood RSL	AHARS Members And Friends Luncheon (All Welcome)
Friday 13th	Noon	ALARA luncheon	Cafe Di Mare. Currie St, City
Thursday 19th	7.30pm	**ANNUAL GENERAL MEETING**	Blackwood Community Centre
Friday 27th	Noon	Blackwood RSL	AHARS Members And Friends Luncheon (All Welcome)

NOTICE TO MEMBERS OF

ANNUAL GENERAL MEETING

OF THE ADELAIDE HILLS AMATEUR RADIO SOCIETY INC

To be held on THURSDAY 19th FEBRUARY 2015

AT THE BLACKWOOD COMMUNITY CENTRE YOUNG STREET, BLACKWOOD

AT 7.30 PM

SILENT KEY: Ronald Andrews, VK5RA

Ronald wasn't well-known to many AHARS members, but he'd been a member for 10 Years.

Ronald usually helped at our Buy and Sell. His experience at such events was much appreciated by those of us with less expertise in selling goods.

Ronald lived at the far end of Coromandel Valley, in the former service station/shop. He was the famous (infamous?) gent who would wave to all passers by. No doubt many thought him a little eccentric. Perhaps that explains why I got on so well with him!

Ronald used to help regularly at the Lions Club Bargain Centre on Shepherd Hill Road.

There, besides selling goods, he checked out and repaired electrical goods left there for re-sale. At his own premises, he had a big tower with a large HF Yagi, which he regularly used for contact with his old friends back in The U.K.

Ronald died on Saturday, October 4th, and his funeral was on the 13th.

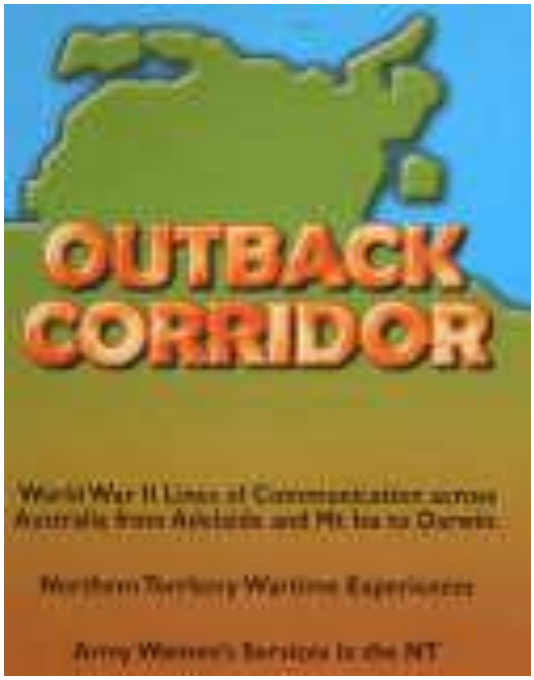
Three AHARS members attended—Tony, VK5KAT, Phil, VK5QT, and myself. Thanks to Phil Day, VK5QT, for alerting me to his passing. Ron was also well-known by neighbour Graham Dicker, VK5ZFZ. Ron is survived by his wife, Gwendolyn, his large and very friendly German Shepherd, Nina, his children and grandchildren, and the legacy of pleasant memories of times spent with him. (Ed).

WHAT IS IT?

I discovered two of these at The Shack in early October.
I got a bit excited, as - although I'd read about them,
I'd never seen one in the flesh before.
Can you guess what it is?
Note: there are two possible answers- one is close, and one is spot-on.
NOTE: *(No cheating allowed - Ed.)*

"WARTIME ADVENTURES"

"Outback Corridor : World War II Lines of Communication across Australia from Adelaide to Darwin and Mt Isa ". 2002. Illustrated edition.
Northern Territory wartime experiences :



A large history of 386 larger format pages of stories facts, servicemen, civilians of the transport corridors to Darwin during WW2. Also has extensive nominal rolls including, Central Australian Railwaymen, Personnel who worked on the OTL 1941 -61, Post Office Staff as at 19/2/42 (Bombing Date), Png Line Personnel Alice Springs to Darwin, Members 7MD Signals Darwin, Members? NO17 Lof C Signals Awas, 109 AGH Australian General Hospital, Electoral Roll Northern Territory 1940, Telephone Directory Alice Springs Tennant Creek, Members? of 14AA Bty Darwin 13th December 1940.

A detailed text supported with numerous photographs and facts on the bombing before after and during. From Adelaide and Mt. Isa to Darwin, Northern Territory Wartime Experiences, and Army Women's Services in the NT, by Alan Smith. Outback Corridor tells how hundreds of thousands of men and women made contact with Outback Australia by being part of the vital World War II Lines of Communication across the Continent from Adelaide and Mt. Isa to Darwin - by the old Central Australia Railway, by convoys on the old North/south road, and by the old Northern Australia Railway.
The making of the North/South and East/West roads by AWC, CCC and State Highway workers, and the essential cartage of troops and supplies by convoys of Army Transport units.
The historic upgrading of the Overland Telegraph Line by the PMG men and Army Signals to meet the Defence build up.
American Army transportation from Mt. Isa and other involvements on the NT. The vital services of Army Women, Nurses, AAMWS and AWAS. A range of writers tell wartime stories of experiences in the NT including the bombing of Darwin in 1942. With over three hundred historic photos.
Code No. 010025, 387 pages, ISBN 0958163901, $47.50
Thanks to Rob Gurr (VK5RG) for providing an insight into this interesting book.)

Adelaide Hills Amateur Radio Society Inc
WELCOME TO AMATUER RADIO SYMPOSISM

PICTORIAL REPORT

The Symposium, held on Sunday November 23, was a great day for Amateur Radio. A big pat on the back for Paul, Simmonds VK5PAS, for organising it. Thanks also to the helpers - Larry, VK5LY (managing the PC's for presentations), David VK5KC, (catering, kitchen, cleanup), Roy ,VK5NRG (door), Barry VK5BW (general help), and others.
The format was of 16 presentations of 20 minutes each,
keeping the presenters and listeners on
their toes. It was a great day, well-conceived and managed.

David, KC, spoke on QRP ops.

Doc spoke on Morse Code, and how to learn it.

Lunchtime. Lots of good tucker disappeared in a trice.

◄ WRAP-UP
Presenters lined up out front for final Question Time, and the formal closing of the event.
About 80 people attended the event.

FOOTNOTES (see opposite:)

(1). vk5bje@wia.org.au or http://vk5bje.com/
(2). See http://vk5.akh.id.au/contesting-and-awards/ for his presentation and http://wp.me/p3p2Jq-4p for his slides.
(3). vk5emi@wia.org.au
(4). vk5bje@wia.org.au or Vk5bje.com

Adelaide Hills Amateur Radio Society Inc
WELCOME TO AMATUER RADIO SYMPOSISM

TOPIC & PRESENTER - OUTLINE OF PRESENTATION

Welcome - Tony VK5KAT	President, AHARS
Introduction - Paul VK5PAS	Symposium Convenor
History of ham radio. Trevor Quick, VK5ATQ	From early communications by horses and ships, to telegraph with poles and wires, by 1900 we found ways to communicate without wires. Experimenters conducted tests and by 1920 we had crystal sets to receive early radio stations. Just 50 years on we had transistors and Integrated circuits. The spiral had begun. Amateur Radio Operators continue the experiments today to drive this progress.
Operating legally & the 'model' QSO. John VK5BJE	Ensure proper identification, (both ways) use of phonetics, listening before transmitting, (= not tuning up on an in-use frequency, etc), good on-air manners, appropriate subjects for discussion. (See FOOTNOTES (1)).
DX Code of Conduct. David, VK5LSB	Our hobby is bound by a set of self-governing rules and good manners under which we should all operate - The DX Code of Conduct. David mentioned those annoying people who continually tune up on the frequency while a QSO is occurring, and also those who try to jump the queue in a pile-up. These are not in the true spirit of A.R.
Ham Jargon. Nigel, VK5NIG	Our mysterious jargon, with a liberal topping of CB jargon! Don't over-use jargon.
QRZ.com Stuart, VK5STU	Every ham should have a spot on this website. It's very useful to others, and it's free. Have a look, and then add your entry. http://www.qrz.com/
APRS. Larry, VK5LY	Software and hardware to set up your APRS system. Its Uses and limitations. Larry also has an HF implementation.
DX Cluster Chris, VK4FR/5	How to make good use of it. Rules. Helpful to all if used as intended. Various sites including http://www.dxwatch.com/
Contesting & Chasing Awards. Andy, VK5AKH	Types of contests - HF DX big guns, HF VK, Oceania, etc. Walk before you can run. Listen first. Try easier contests. Read the rules! Adhere to operating etiquette. (2).
QSL Cards. John. VK5EMI	The pleasure of hard-copy QSL cards. Cards travel slowly. Faster by eQSL.com which gives a virtual QSL card. How to make your own cards, or get them printed. Use of a manual log. (3).
Electronic Logging Programs. Stuart, VK5STU	Manual logging in diminishing use. Many good, free, software packages, including Log4OM, Logger32, VKCL, etc. Use "Fast Log Entry" to enter manually recorded QSO's into a data file for electronic logging software. Remember to have backups of your logs!
Antenna Basics . John, VK5BJE	Description of an antenna (transducer); resonance = efficiency, use of couplers (= tuners to some!) (4).
Blogs/Wordpress/You Tube. Paul VK5PAS	Ham Radio information is mostly on-line now, with a bewildering amount of information to help you get started, have your say, etc. A user can use, eg, Wordpress, (a Web content management system), to create their own blog, etc. Display your activities via Youtube, etc.
Demystifying the Learning of Morse Code. Doc, VK5BUG	Learn it because you want to. Ignore the "speed barrier". It's a sound thing, with a musical (rhythm and timing) aspect. Better 5 minutes of practice every day, than 30 or 40 minutes once a week.
More Morse Code thoughts. Paul Hoffmann, VK5PH.	Paul is trying to get more people interested. It's important to have a relaxed learning atmosphere. Table-top gatherings are a good way to learn. See http://www.mrx.com.au/
Summits on the Air (SOTA). Ian, VK5CZ	Ian is from Clare in the Mid-North. He's climbed most summits up thataway. He showed some photos of the magnificent vistas that he's had whilst operating from summits. There are currently 346 summits in Australia, so plenty more challenges remain.
Operating QRP. David, VK5KC	Equates to lightweight rigs and batteries. Works fine in a quiet environment.
VK5 National & Conservation Parks Award & World Wide Flora Fauna program. Larry, VK5LY	Mostly managed on-line. Many sites available for learning, posting, activation alerts, etc. To check out the many wwff sites on the web, just type in vk5parks, or wwff, or wwffaustralia, etc, into your web browser to get plenty of links.

OUT AND ABOUT

OPERATING PORTABLE: Pedestrian, Golf Buggy, Mower, Kyak.

New Project: electric power assisted pedestrian portable trolley (ex-golf bag buggy)

Had a couple of good scores @ the local fortnightly auction today (*Now some weeks ago! - Ed*) pictures are of a NSW-built 12V electric-assisted, belt drive golf bag cart that I will turn into another pedestrian portable trolley.

For $20, it came with a high-performance Century NS40Z lead acid battery (9.77Kg & retails for $110), spring-loaded padded seat/storage compartment, golf tee storage rack which will become connecting leads rack, brilliant balance/weight distribution & touch-easy steering, wire aerial (once coiled up) storage pod, chrome plating, large wheels for cross-country terrain, knock-down (2 x large knurled plastic knobs) for car or caravan transportation, & the overall physical design dimensions provide for a very stable base upon which to mount a squid pole, alloy vertical aerial or PVC mast etc. I have a 20W solar battery charger for it already. Also in the picture is a 100m roll of insulated 2.5mm^2 wire for aerials or radials - $12. Doc (VK5BUG) *(Now we know where all the bargains go to……..Ed.)*

Mixing Work and Play

Roger, VK5NWE at Booleroo Centre, has adapted a John Deere ride-on mower for HF work & now has a rotatable 2m 10 element yagi mounted on it as well. He is making regular contacts up that way: Red Hill, Crystal Brook etc Email message from Roger to Doc: "More fun with the portable work today. It probably defies all text book logic but it works, Had good 40m contact with Nev (WG) using 4w for a 5x7, also a good 2m simplex horizontal contact as well. Easy to rotate the beam too. 73, de VK5NWE".

Three views of Roger's unique portable station.
The centre photo shows the end-fed HF lead-in to his rig on the handlebars.
The wire has been coloured red to make it more visible in the photo.
The other end of the HF antenna is hung over a nearby tree branch, using a mediaeval method, I am told.

←Another mode of transport for operating portable.

Operator Andy (VK5AKH), assisted by Bob, VK5FO, kyakked to Torrens Island to do some Dx in April.

➔A truly excellent earth for good Dx-salty mangrove flats on the island. From http://vk5.akh.id.au/2014/11/

Thanks to Andy for his agreement to use his material… (Ed.)

PATRICK MORGAN, VK5MPJ, QUEEN'S SCOUT.

Patrick, one of our young members, recently had the honour of receiving the Queen's Scout Award. The ceremony was conducted at the Eden Hills Scout Hall.

In attendance were various Scouting officials, parents, and a good-size group of scouts (both young ladies and young men), who supported Patrick both at the ceremony, and along the way.

Patrick with his parents, Megan (at left) and Russell. Venturer Leader (at right) is Marian.

Patrick with sister Catherine (note the familial similarity!), and Mitcham Mayor Michael Picton.

Flanked by two famous amateurs, past AHARS presidents John (VK5EMI), and David (VK5KC).

To gain his award, Patrick had to satisfactorily carry out the following projects:
Attend a Unit Management course; report on the organisation of the Wireless Institute of Australia
Attend a Leadership course. Participate in Outdoor activities - camping and hiking, and some caving (accompanied by either mud or dust!) He organised a team which did geocache location, finding 70 (!) *(I've found only one so far - and that was enough for one day! Ed.)*
In personal growth, he attended an Ideals retreat, which included researching drug use, orienteering, and stage production. Community Involvement, which included learning local history (eg, Colebrook), local government matters, First Aid, and participating in local cleanups.
In The WIA DXCC Award, he managed to get 70 countries (entities) confirmed - a big achievement for such a short time. *(I had the pleasure of being involved in the confirmation of those contacts - Ed.)*
Good on you Patrick, and to your folks for supporting you. You make the rest of us look a bit on the lazy side!

WHAT IT IS ?

(From page 3) It's a radio Goniometer. For this answer, graciously accept 9 out of 10.

These were used for determining the direction from which a radio signal was coming. Definition: *"A **goniometer** is an instrument that either measures an angle or allows an object to be rotated to a precise angular position."* They were used a great deal in World War II to locate enemy ships and aircraft. Note that there are two coils - each coil is connected to one of two antennas, which are placed at right angles to each other. With 2 of these units, each connected to antennas, spaced a good distance apart, the location of the source of the signal is obtained. Best accuracy of direction is about 2°.These days Doppler direction-finding is mostly used.

For more information, consult Wikipedia:
http://en.wikipedia.org/wiki/Bellini-Tosi_direction_finder

If you can give a more accurate name to this device (= 10/10), please email the Editor with your answer.

Another view of the Goniometer. The arrow indicates the internal coil. ▶

On The Air

◀ **I'm sure I spoke to this gent late one night. *(Ed.)***

From KH6JRM. http://kh6jrm.com/

CQ CQ - Merry Christmas ▶

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
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to vk5emi@wia.org.au

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Michael & Kaye Roden VK5FMTR
email - visit01@bigpond.net.au

Our Next Newsletter Will Be Published In March 2015

On-line Supplement

Getting a vertical aerial to 'go'!

by 'Doc' Wescombe-Down VK5BUG

21 years ago, I wrote a three-part series for AR magazine, called 'Getting a Multiband HF Vertical to "Go"!' (Wescombe-Down, 1993) and since nothing experiential has changed over time in that department, I thought it worth revisiting in part while on the subject of urban myths, fallacies and misrepresentations. From my hands-on experience there appear to be at least six fallacies regarding HF vertical radiators in an amateur radio context, irrespective of what any theory or manufacturer might claim. The following has been paraphrased from Part One of that article series:

Fallacy One: vertical aerials are space saving and ideal for small suburban lots. Yes, that is what manufacturers would have us believe but nothing could actually be further from the truth if an optimal performing installation is to be had. Verticals of proper proportion take up more space than dipoles, G5RV, Zepps, beams or quads. A good ground system for a short vertical (less than 7/16 wavelengths long) takes more space than a dipole for the same frequency, unless installed over salt water.

All of the literature confirms that the quality of a reflecting ground system, as previously stated, needs to be up to half a wavelength from the aerial base. Radials and counterpoises serve to collect return currents from the vertical radiators. The *Brewster angle will be affected by the ground quality for more than half a wavelength from the radiator base when ground-mounted. A good ground for a long distance from the aerial will facilitate a low Brewster angle which is more likely to result in a lower wave take-off angle with respect to the horizon: ground conductivity as far out as 100 wavelengths will affect radiation angle!!

Fallacy Two: Manufacturers' instructions would have us believe that two or four radials per band are what might be required. Adding radials from a basic four to ninety six may improve a signal by 3dB over poor ground, 3dB over average ground and about 1dB over salt water. Many long radials will improve the radiated wave angle and Devoldere ON4UN (1987) stated that a lowering of up to 10 degrees can be achieved with 120 radials each 0.5 to 0.6 wavelengths long. When I originally wrote the article, December 1993, I lived on a mountain top farm 975m above sea level and had just finished installing 120 half wave radials for EACH of 80, 40 and 20m, a process that took me 9 months to complete. Two different antennae were used over the radials at different times: a full quarter wave vertical for the CW end of 80m and a multiband 10m length of 50mm alloy irrigation pipe, both fed with open wire line via a coupler. There was never any doubt in anyone's mind that it was a potent setup for a zero-gain monopole.

Installing strips of chicken wire in different directions on top of the ground has also been shown to help reduce ground losses, as will a $3m^2$ metal plate beneath the aerial base (aluminium, brass or copper is preferred).

(*cont next page…)*

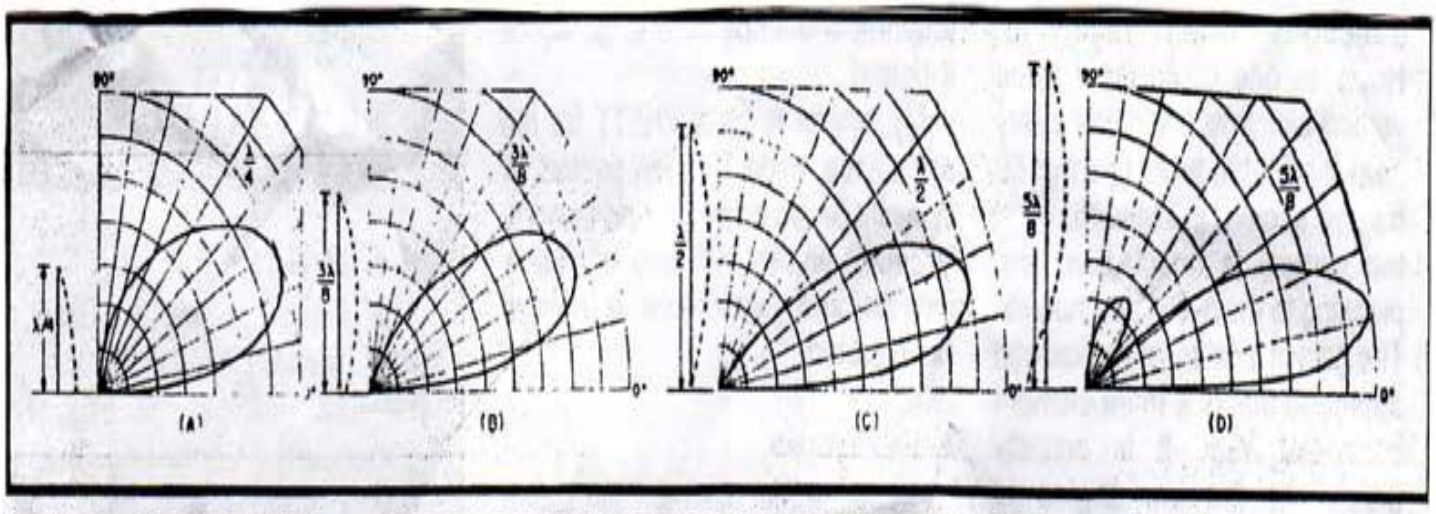


Figure 2 — Vertical radiation patterns for vertical antennas from quarter to five eighths wavelengths long.

Above diagram from Doc's article in AR, Jan 1994.

Fallacy Three: the diameter of radial wires is not important. With a small number of wires (e.g. eight per band) the heavier the gauge used, the better. If many wires are used, the return current is able to be spread over many more paths and so wire gauge becomes less important. I have between 60 and 70 radials of different sizes and types under my homebrew 5-band vertical, including stainless steel sailing yacht cables. Lengths are from 10 to 46m and they are not all laid out in nice straight lines: some were installed in garden beds, others under weed-mat and path pavers, and still others on top of the ground and woven along fence lines.

Fallacy Four: ground rods are necessary at the aerial base and end of each radial wire. Ground rods are necessary for a good DC earth but may be almost non-contributory as RF grounds. They would, however, constitute a minimum RF ground zone for terminating certain types of wire receiving aerials (e.g. Beverage), or when highly conductive soil exists.

What I believe is more important is 'common point grounding' in which ALL radials and earthing busbars are connected together: just as in circuit construction wiring.

Fallacy Five: burying the radials is preferable. In fact, research has shown that elevated radial wires make a better ground system than buried wires in most applications. This is because the return currents do not have to negotiate the higher soil resistance when the wires are elevated. Next best is to use insulated wires on the ground surface. If they must be buried, try to locate them in the top 50mm of soil. Cut the grass or weeds really short at the end of the growing season in your area and lay the radials flat on the ground, anchored as appropriate with small tent pegs or homebrew thick wire loops. By next growing season the grass ought to have completely covered the wires and normal traffic and/or mowing operations will be possible.

How many radials to use? Aim to have the tips of adjacent radials (for the same band) separated by a distance no greater than half the height of the radial system above the ground.

Fallacy Six: burying chicken wire or fencing wire mesh offcuts will assist the radial system. I knew of an operator who buried some derelict old car bodies using a Bobcat and connected his radial 'farm' to them. Creative thinking BUT any ferrous metal, even if galvanised, will last only a short time in the ground, depending on soil pH, content, moisture levels and other factors. Corrosion acts very quickly, and once an item is buried it is very difficult to monitor its condition and ongoing usefulness for RF pathways.

References:

Devoldere, J. (1987). *Low Band DXing.* Newington, CT: ARRL Publications

Knight, D. (2013, August). The SGC 'Smartuner' ™ and its use in a balanced antenna configuration. Retrieved from http://www.g3yah.info/atu/sgc230.html

Wescombe-Down, D. (1993, December). Getting a multiband HF vertical to Go! (Part 1). *Amateur Radio,* 6-9.

VERTICAL RADIATION ANGLE ABOVE HORIZON vs DISTANCE TO FIRST REFLECTION. See previous page for relevance of this chart. ►

***Brewster's angle** (also known as the **polarization angle**) is an angle of incidence at which a (radio) wave with a particular polarization is perfectly transmitted through a transparent dielectric surface (ie, air), with no reflection.*
When unpolarized light is incident at this angle, the light that is reflected from the surface is therefore perfectly polarized. (Adapted from Wikipedia).

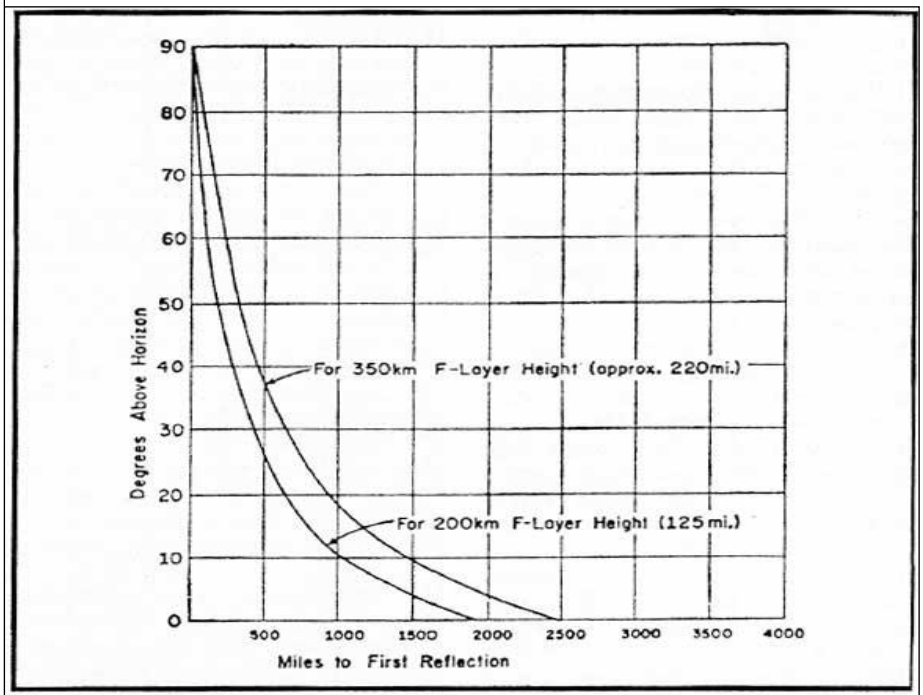


Figure 1 — Vertical radiation angle above horizon vs distance to first reflection.

W-D in AR Jan 1994 p. 5

MEETING REPORT.

A bit late, but I deem the reports here to be still worthwhile to publish—Ed.

JULY: Show and Tell. By Christine, VK5CTY, with editfications (sic) by The Editor.

This is always a good night because of the variety of items members display for our edification.

This evening started with a pair of very old instruments that Lyle VK5WL, who is associated with at the ETSA (Electricity Trust of SA) Museum, demonstrated: The Lord Kelvin Electrostatic Meter was a device of great interest. It measured either AC or DC voltages with very high accuracy. Lyle also showed us a standard cell, used for calibration of electrical measuring devices.

Steve, VK5AIM had some very simple but useful aerials he had made for National Park operations. Basically he had a full wave 80 metre aerial (including balun!) in a jam jar. To measure the lengths of the wire he had bought a standard measuring wheel (a hodometer) from the local hardware store.

Garry VK5PCM showed his 80 metre DSB 10 watt transceiver, which is based on the original ZL2BMI version. Historically this design has been around since the early 1980's. Like most aspects of scratch-building the project does not always conform to what is on hand, available, desired or wanted. Therefore the end product resulted in a different vox, audio amp, mike amp and RF amp. The final results to date remain just an interesting experimental project, due to the most expensive part, realestate.

Darryl VK5JDS showed us his version of a TV RTL USB Dongle SDR Receiver, using a R820T based tuner, plus home-made HF to VHF UpConverter for LF to HF reception. Based on the 'Silicon Chip SiDRADIO' project, but using Low passband filtering for the converter. Diode Ring Mixer and 50MHz TCXO module, Input Attenuator and no RF pre-amp used. Built in a recycled metal case.

Norm VK5GI with two beautifully made transceiver kits, one for 40 metres and one for 80 metres.

Paul VL5JD who showed and explained his electronic logging system.

George VK5IT, lives in a very lossy area so has had problems. One of the ways he has solved the problems is by using a choke in the circuit—a monster choke of heavy duty coax wound on a large diameter plastic pipe.

Mark VK5AVQ had been to Gibbstech recently so he brought along his State of the Art spectrum analyser he had bought there (from Aztronics) for us to see.

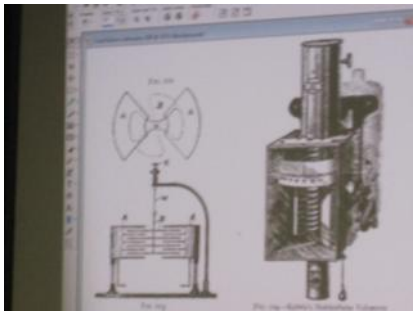
Jim VK5JT brought along and outlined the design philosophy of his new Antenna analyser. This unit can be used up to 2 metres. It is not yet ready for publication or sale but watch this space.

Eric, VK5HSE outlined crystal filter designs (by G3UUR) and some of the properties of crystals.

Paul, VK5PS explained the requirements for elevated radials for 1.8 MHz.

Andrew, VK5CV demonstrated a tiny field-strength meter for 475kHz.

Iain VK5ZD. Showed an Interface to VKCL (the VK Contest Logging program) from an FT 817. It uses a Pickaxe CPU, and is for 3.4 GHz Tx.



Lord Kelvin Electrostatic Meter. Demonstrated by Lyle.

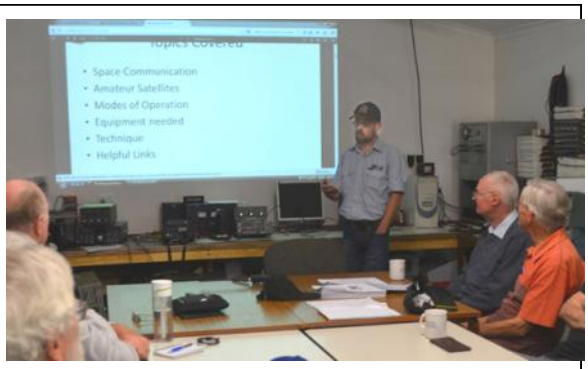
Garry VK5PCM's 80 metre DSB 10 watt transceiver.

Andrew, VK5CV's field-strength meter for 475 KHz.

Mark VK5AVQ's Rigol spectrum analyiser from Gippstech.

Steve', AIM's Portable Operation setup. The hodometer, and in the jar, the complete antenna..

REPORT FROM THE SHACK.



SATELLITE COMMUNICATIONS — 22-September-2014.
Illustrated talk by : Damien, VK5FDEC
Getting Started: Sat Comms is not overly hard to get into, but you need to do some reading up.
Satellite Orbits: LEO—Low Earth orbit (< 1200 miles (ie, > 1920 Kms) : MEO—Mid Earth Orbit (>1200 miles and < 22000 miles. (ie >1920 and <35200 Kms) : GEOS—Geostationary Orbit. Remains above fixed point on The Earth. 22,200 miles (35520 Kms) HEO—High Earth Orbit. > GEOS.
Equipment needed : A Handheld with a reasonable antenna, and/or
A purpose-built rig—eg, FT 847, Kenwood TS-2000 or TM-941, Icom IC-910H, Alinco DR610T, etc.
See http://herrons.com/satellite-radios/
For most satellite comms, you need to be able to work both 70 cms and 2 metres.
Where the bird/s are: The positions of satellites in their orbits are expressed in Keplerian values. These are available from the web, software, AMSAT, etc, links.
Software—Examples are SatPC32, and Orbitron. Support: The best is AMSAT.
LINKS: http://www.amsat.org/ http://www.amsat-vk.org

AHARS MYSTERIES!

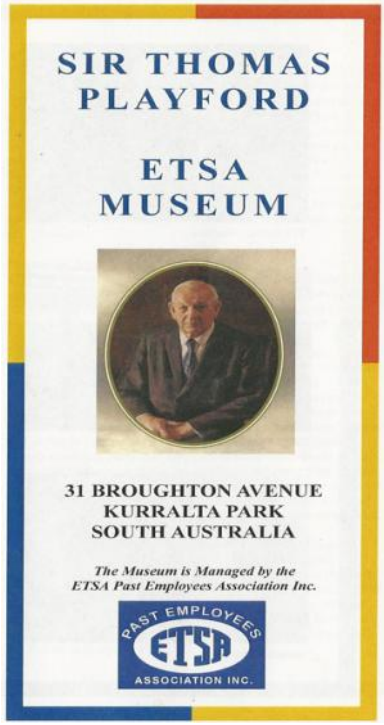
1. Does any member know the LOGIN for eQSL for VK5BAR, or who created the account with eQSL?

2. JMMFD LOGS—MISSING, but not with the WIA. Does any member have any, or even copies of them?

If you can help, please contact

The Editor.

The ETSA Sir Thomas Playford Museum is definitely worth a visit.
Phone 8292 0271.
AHARS visited this most interesting facility some years ago.



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