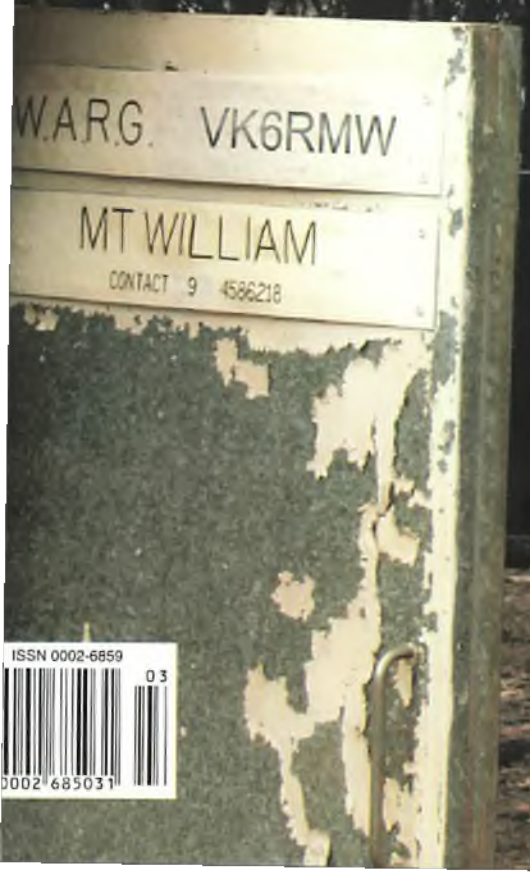
Amateur Radio

Volume 84
Numbers 3
March 2016
Price: $9.70 incl GST
www.wia.org.au

WIRELESS INSTITUTE OF AUSTRALIA

VK6RMW survives



- Build a VFO
- Early battery technology
- WIA and the IARU

ISSN 0002-6859
03
0002 685031

FTM-100DR

C4FM/FM 144/430 MHz DUAL BAND DIGITAL TRANSCEIVER

A Digital Mobile Transceiver for a New Age

Advanced C4FM Technology Makes Possible a Wide Variety of Mobile Operations

- C4FM Digital with FM Friendly AMS
- Easy-to-read graphical interface for user-friendly operation
- Bright multi-colored Mode/Status Indicator to visibly and clearly inform the current state of the transceiver
- Powerful 50 Watts RF output for VHF/UHF Amateur bands
- Supports WIRES-X internet linking and worldwide communication system for amateur radio
- Establish an internet WIRES-X node station (Requires optional HRI-200)

C4FM Clear and Crisp Voice Technology

AMS

WIRES-X

YAESU
The radio

YAESU Authorized Dealer

Andrews Communications Systems
Shop 8, 41-51 Bathurst Street, Greystanes NSW 2145
URL : www.andrewscom.com.au
Tel: +61-2-9636-9060

Strictly HAM Pty. Ltd.
Shop 12B Church Street Bayswater Vic. 3153
URL : www.strictlyham.com.au
Tel: +61-3-9729-7656

YAESU Authorized Service Center

Andrews Communications Systems
Shop 8, 41-51 Bathurst Street, Greystanes NSW 2145
Tel: +61-2-9636-9060, Fax: +61-2-9688-1995
E-mail: radioandrews@hotmail.com

JNB Electronics Pty Ltd
347 Settlement Rd. Thomastown Victoria 3074
Tel: +61-3-9465-9399, Fax: +61-3-8682-8748
E-mail: yaesu@jnb.com.au

Volume 84
Number 3
March 2016
ISSN 0002-6859

Amateur Radio

The Journal of the Wireless Institute of Australia

Registered Office
Unit 20 11-13 Havelock Road
BAYSWATER VIC 3153
Australia
Phone: 03 9729 0400
Fax: 03 9729 7325

Production Deadlines
All articles, columns, hamads and advertising booking by **first day of previous month.**

Technical

General

This month's cover

The Mt William VK6RMW repeater site was devastated by the recent wild fires in southern Western Australia, yet the repeater survived relatively unscathed. Read about the fire impacts in this month's VK6 notes. Photos by Mac (William) McDonald VK6MM.

Columns

Contributions to Amateur Radio

Amateur Radio is a forum for WIA members' amateur radio experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are welcome and will be considered for publication. Articles attached to email are especially welcome. The WIA cannot be responsible for loss or damage to any material. Information on house style is available from the Editor.

Back Issues
Back issues are available directly from the WIA National Office (until stocks are exhausted), at $8.00 each (excluding postage within Australia) to members.

Photostat copies
If back issues are unavailable, photocopies of articles are available to members at $2.50 each (plus an additional $2 for each additional issue in which the article appears).

Disclaimer
The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia
ABN 56 004 920 745
The world's oldest
National Radio Society, founded 1910.

Representing
The Australian Amateur Radio Service
Member of the International Amateur Radio Union

Registered Office of the WIA
Andersson House
Unit 20, 11 Havelock Road
Bayswater, Victoria, 3153
Tel: (03) 9729 0400 Fax (03) 9729 7325
email: *nationaloffice@wia.org.au*
http://www.wia.org.au

All mail to
PO Box 2042 BAYSWATER VIC 3153
Business hours: 10am – 4pm weekdays

National Office

Manager	TBA

Board of Directors

President	Phil Wait	VK2ASD
Vice-President	Fred Swainston	VK3DAC
Directors	Robert Broomhead	VK3DN
	Roger Harrison	VK2ZRH
	Ewan McLeod	VK4ERM
	Paul Simmons	VK5PAS
Secretary	David Williams	VK3RU
Treasurer	Chris Chapman	VK3QB

Coordinators

AMSAT	Paul Paradigm	VK2TXT
ARDF	Jack Bramham	VK3WWW
Australian ARISS	Tony Hutchison	VK5ZAI
Awards	TBA	
Clubs	Ted Thrift	VK2ARA
Contests	Craig Edwards	VK6POX
John Moyle Field Day	Denis Johnstone	VK4AE
Editor 'AR'	Peter Freeman	VK3PF
EMC/EMR	Gilbert Hughes	VK1GH
Standards	Phil Wait	VK2ASD
	Ron Cook	VK3AFW
	Noel Higgins	VK3NH
NTAC	John Martin	VK3KM
Historian	Peter Wolfenden	VK3RV
IARU Region 3 Liaison	Jim Linton	VK3PC
Monitoring Service	Peter Young	VK3MV
ITU Conference & Study Group		
	Brett Dawson	VK2CBD
	Dale Hughes	VK1DSH
QSL Curator	National Office	
Repeater	Peter Mill	VK3ZPP
	Andrew Chapman	VK4QF
Webpage	Robert Broomhead	VK3DN

Editorial

Peter Freeman VK3PF

2016 Annual General Meeting

It seems that some individuals think that my Editorial last month was out of order in that I claimed that some individuals on social media were apparently (in my view) not in possession of some of the facts around the costs of attending the Annual General Meeting (AGM) on Norfolk Island. I claimed *"In reality, the travel costs for anyone to attend the meeting are unlikely to be significantly different from those of attending the meetings held in Perth or Darwin"*.

One particular commentator contends that as I am writing in the official journal of the WIA, I should have justified my comments. As pointed later by WIA President Phil Wait VK2ASD, the Board has given the Editor and the Publications Committee a fairly free reign to produce a magazine that is largely independent. We decide most of the content that will be included in a particular issue, apart from columns such as the President's Comment.

I was considering ignoring the on-line comments, but thought I would justify my comments on this occasion. Let us first acknowledge that for most venues, the WIA will need to meet the costs of hiring the venue. The costs of food will be variable, but these costs are usually passed on to attendees at cost-recovery. So regardless of venue, such costs will be inevitable. So what prices can one find with a quick online search for a package of seven nights plus airfares, departing from Sydney? I acknowledge that some might choose a shorter visit, but it seems to me that a seven night visit is a reasonable stay duration which makes the travel costs reasonable across the trip duration.

For Darwin, prices range from around $900 per person up to just ove $3600. Most prices are in the $1100 - $1700 range. Yes, there may be some cheaper options as well; depending u on the level of accommodation you ar willing to accept.

For a similar trip to Perth, the range is from around $1100 to over $4200, with many choices around the $1300 to $1800 range.

In the case of both Darwin and Perth, the online resource was allowed to select the cheapest air fare available. Such fares may include heavy restrictions on baggage or required additional payments for checked baggage.

Similar packages ex Sydney for Norfolk Island around the time of the AGM range in cost $1100 to around $1600, without doing a comprehensiv search. There are some more costly options available, as with the other destinations examined.

So we can see that the costs to attend the AGM on Norfolk Island are as I contended last month – similar to or cheaper than some mainland destinations.

I do appreciate that some individuals have concerns about the manner in which the organisation is run. In my humble opinion, complaining about their concerns on social media does little to reveal the facts or to alter the manner in which the Institute is run. To have an impact, you need to become actively involved. The challenge for us all is how to effectively engage with the members and utilise the skills that may be available.

Until next month,
Cheers,
Peter VK3PF.

WIA comment

Phil Wait VK2ASD

Innovation: getting a head of STEAM

Innovation is the buzz word for this year. Depending who you subscribe to, the federal government's new innovation policy is either going to "turn fresh ideas into successful products", ensure Australia's place in an uncertain global economy and "drive a new boom to generate jobs and prosperity for all" (*http://www.innovation.gov.au*); or, in the words of *Chris Berg, a senior fellow with the Institute of Public Affairs and author of Liberty, Equality & Democracy and Magna Carta: The Tax Revolt That Gave Us Liberty,* " the only thing governments can do to the 'culture' of innovation is hurt it".

Being the product of an engineering father, and having developed an early interest in electronics and amateur radio leading to a lifelong career in business, electronics and telecommunications, I am a strong supporter of innovation, especially in an era when Australia can no longer rely so heavily on its mining and primary industries.Innovation is nothing new to Australians. The development of Wi-Fi, the Cochlear Implant, the heart pacemaker, and the black-box flight recorder are all Australian inventions - not to mention winged keels on racing yachts and Aussie Rules football. I believe, given the right conditions, regulatory and tax settings, and enough interest from institutional investors, Australia is uniquely placed to be an innovative leader in the new era. The government's new innovation policy may be the right thing at the right time.

So, how does amateur radio and the WIA fit into this?My high school radio club operated in a partitioned-off area in one of the science labs. The school was one of the first to introduce the Rex Black Youth Radio Scheme in the late 1960s and, although more of a social club come extortion racket (Sydney's Oxford Street disposal stores were just around the corner), many of us kids followed through into successful careers in science and technology. I know how a little encouragement early-on can go a long way, and some of those guys are still active radio amateurs.

There is a new initiative in schools across Australia that also has the potential to spark an interest in science and technology amongst our youth, and hopefully provide many of the new innovators as a result. Originally called STEM, for Science Technology Engineering and Mathematics, but more recently called STEAM with the addition of Arts (yes, there is technology in art and even art in technology – think 'design'), and may possibly be expanded into STREAM to include Rocketry (!), STEAM is a curriculum course with each of the modules taught as part of a total package. STEAM is basically about "applying creative thinking to real-world technical and scientific challenges through a more hands-on approach to learning". The hope is that learning outcomes and information retention will be improved through STEAM's experienced-based learning.

It's very early days, but along with other engineering elements, such as computer projects and coding, I think there is a place for students to also learn about wireless technologies, so they can become something more than just consumers of pre-packaged technology.The WIA is interested in exploring the potential. It would not be anything like the old Rex Black Youth Radio Scheme, where the end-game was to acquire an amateur radio licence. The end-game with STEAM is to spark a much wider interest and knowledge in technology, and naturally to meet the relevant curriculum requirements. Maybe some students would be interested in amateur radio, but only as a spin-off, and then probably only if the Foundation licence permitted digital modes and use of self-constructed kits, which took student's learning experiences much further.

What amateur radio may be able to provide is a pre-packaged, simple, out-of-the-box learning resource in wireless technologies, with a very simple hands-on project or two. We may also be able to provide some willing and educationally experienced volunteers to help teachers in the classroom.

These are very early days, and it's not something the WIA has any expertise in itself, but we are looking to get a group of interested and experienced people together to progress this idea. Some members have expressed an interest in forming a group for Youth education and I believe there is an opportunity there. There you go – innovation in action!

Phil Wait
President, WIA.

PS: There's no truth to the rumour that *Amateur Radio* magazine is going to feature each Board member, one by one, on the cover over the year, now that a Board member appeared on the cover of the January/February issue!

WIA news

Overseas qualified radio amateurs

The Australian Communications and Media Authority wants to renew its sun-setting legislative instrument that allows those radio amateurs qualified through an overseas administration, to obtain an equivalent licence in Australia. This however does not affect short-term visitors, who may automatically use their valid home callsign, prefixed with the VK call area in which they are located. That provision, under a free Class Licence follows WIA advocacy, is available for 90-days, which can be suitable for those on a business trip or a holiday.

The ACMA has consulted on its Radiocommunications (Qualified Operators) Determination 2016, to replace its 2005 predecessor on April 1, 2016. The ACMA in a discussion paper considers that the system has operated effectively and efficiently, and is worth renewal. The ACMA says individuals may have existing qualifications obtained overseas, and these will continue to be addressed, but by eliminating any inconsistencies that may have developed.

The WIA has submitted to the ACMA that it supports renewal of the system. The WIA stressed that the qualification held, and not licence conditions, must always be the basis of any determination of equivalency of qualifications gained from an overseas administration. The WIA submission suggested changes to the ACMA, and supports the remake of the Determination incorporating the proposed changes, in particular the equivalency of the US Technician Grade licence. The WIA also flagged the need to review the Philippines Class C (Novice) licence grade, which is more aligned to the Australian Standard grade.

To read more about reciprocal and visitor licences, and option for overseas licensing, visit *http://www.wia.org.au/licenses/licensing/visitorlicence/*

Executive Administrator interviews and appointment

In response to the advertised new senior role of WIA Executive Administrator, there were 43 applications received. These have been short-listed to six, who are now being interviewed. Unsuccessful applicants missed out due to the high calibre of those seeking the position. The WIA Board will receive a report after the six interviews have been held, and expects to be able to make an appointment.

Meantime, the WIA officially has a new Examination Officer, who has been in that role for some months as a temporary through an agency. Petra has performed well to show an understanding of the many facets of the WIA Exam Service. The WIA Board discussed the matter, agreed to offer Petra an appointment, and she has agreed beginning early February.

WIA talk at the Westlakes well received

The Wireless Institute of Australia gave an insight on its operation and the busy agenda, in an address to the Westlakes Amateur Radio Club at Newcastle, New South Wales. WIA President Phil Wait VK2ASD explained the structure and challenges ahead to about 50 who had gathered at the club rooms in Teralba on Saturday, January 30.

He talked mostly about the big-picture items, such as how the current WIA operates, and the need for amateur radio to show it has public value, and therefore better justify its continued access to spectrum. Covered was the WIA response to the Spectrum Review and why it is important for the future of Amateur Radio, and the WIA's suggested changes to the Foundation, Standard and Advanced licences. Phil VK2ASD also emphasised that there was enormous pressure on the spectrum from the new generation of mobile devices and the Internet of Things - all set to grow in coming years.

The WIA Board in all that it does both in membership services and the time-consuming often hard advocacy, had as its first priority, the advancement of Amateur Radio After the presentation the WIA answered about a dozen questions from the floor. These included the cost of WIA membership, with a general idea that halving the subscription rate could more than double the member number. Phil VK2ASD explained that the idea was not new, however it was a pretty dangerous exercise if it didn't work. The potential of a membership fee reduction for a no-paper Amateur Radio magazine was also discussed, but the saving to the individual by introducing such a measure was not large.

There was a question about the choice of Norfolk Island for the WIA annual general meeting in May. Phil VK2ASD replied that it ticked all the boxes, was a majority WIA Board decision, but agreed that some perceived that there could be a problem with the choice.

A positive suggestion arising out of the question and answer session, which the WIA will consider, was a reader feedback form in *Amateur Radio* each year to gauge what people want in the publication. Another was the possible re-introduction of the Conference of Clubs in New South Wales that existed some years ago.

At the end of the afternoon session, which ran about two hours, Phil VK2ASD was thanked for providing the sort of big-picture information that affects all, and mostly not known to the audience previously.

An update on the WIA Inward QSL Operation

After receiving about 6,500 QSL cards at the WIA Inwards QSL Bureau just after the Christmas-New Year closedown, sorting and distribution continues. Several thousand cards have been sent to the State and Territory QSL managers.

The remaining will be sorted over the next two weeks. There are a lot of callsigns receiving QSL cards that are new ones for the bureau.

You must register with your State or Territory QSL manager to receive cards, or get them via a distribution point, usually a local club.

Details on how to be register can be found on the WIA website, at *http://www.wia.org.au/members/qsl/about/*

Wireless Institute of Australia Merit Awards

The WIA Board at its discretion makes awards to members for their contribution to amateur radio. These are announced at WIA's Annual Conference, to be held in May on Norfolk Island.

The Merit Awards are important recognition of the work done within the hobby. When completing a nomination form, you are not required to suggest which award should be made. The Board will assess each nomination, and decide which awards, if any, it will make. To help, please include as much information as you can. Try to keep it in some sort of chronological order. Include any information about other awards the nominee may have received.

Nominations close on March 31. These will be announced and where possible presented, at the WIA's AGM and Conference on Norfolk Island, May 27-29. Nomination forms can be found on the WIA website.

WIA supports move on NBN interference complaints

A technical solution to fix spurious emissions that sometimes come from the National Broadband Network or NBN fixed wireless network has been found. Steen Jensen VK7AP has raised the issue of severe interference to high frequencies, medium wave broadcasts and fire alerts in rural areas of Tasmania.

Chris Holliday VK7JU in Deep Bay Tasmania also reports the same problems, and it may occur elsewhere with a particular brand of fixed wireless network device. Steen VK7AP thanked the WIA for its representations including statements to the ACMA backed up by Standard Australia compliance, and VK7WI broadcast publicity by Justin Giles-Clark VK7TW.

The wireless network on 2300 MHz is acknowledged as being not supposed to result in interference.

Following inquiries and WIA representations, a manufacturer has proposed elimination of the problem caused by an Ethernet controller, through better isolation and the use of higher specification cabling. A close watch is being kept on developments by the WIA and the ACMA, as the NBN continues to roll out its wireless network access fast broadband service.

Silent Key

Paul John Joseph Portelli VK2DNL

With deep regret, we announce the passing of a long term MARIS member Paul (Pablo): Paul John Joseph Portelli VK2DNL.

Born 16 February 1941, died Monday 18 January 2016.

He was 74 years old.

RIP Paul.

Submitted by Alf Portelli VK2GAP.

Silent Key Noel Hill VK2JG

It is with regret that we announce a Silent Key.

Noel passed away in Shoalhaven Hospital on 25 January 2016. He was 95 years old.

Noel was a member of the Mod South Coast Amateur Radio Club for many years and occasionally gave us talks or a lecture. Noel was recently married to Nancy VK2NPG who nursed him through his illness. Noel will be greatly missed by all members of the Club.

Vale Noel Hill VK2JG.

Advised by John VK2ZUH.

Improving primary batteries: William Bleeck

Part One: Experimenting before World War I

Don Marshall VK4AMA

How did experimenters in the early 20th Century approach the coming age of "wireless"?

The article on Walter King (*AR* Nov. 2014) was a reminder of the then rapidly growing new technology and science.

Over the previous half a century the transmission of messages in Morse code had extended along overhead and underground wires and undersea cables to much of the world. This success depended on the making and breaking of electromotive forces supplied by electricity generators or batteries – two or more cells.

Marconi's achievements with "wireless" telegraphy in the 1890s and 1900s also depended on having adequate power supplies.

My grandfather William Alexander Felix Bleeck spent a lifetime seeking to devise and produce a portable, reliable, renewable and cheap source of power such as still desired by amateurs.

William Bleeck, born in London in 1875, came to South Australia with his parents when aged two. His engineer/draftsman father died in 1891, so he had to go to work to help support the family.

William became a telegram delivery boy at the Brunswick (Victoria) Post Office. Here he became familiar with telegraphy. He had no knowledge of chemistry but attended weekly classes on electricity. He made his first cell from water, salt, copper and zinc when 16.

After qualifying examinations in 1895, he was appointed a telegrapher in Western Australia, then in the grip of gold fever. With the telegraph network always expanding, he worked at York, Narrogin, Bulgong (near Kalgoorlie) and the Diorite King goldmine near Leonora before Broome, where a cable was a link to London.

Figure1: Telegrapher/inventor William Bleeck in the 1890s.

Maintaining battery voltage along the lines was an essential part of telegrapher's duties, particularly in the more remote places with few operators.

(Telegraphers at Kalgoorlie went on strike in 1895 when they considered there was insufficient staff to handle the telegram traffic of up to 1000 word perfect messages a day.)

In 1903, William began managing the Post and Telegraph Office at Dromana, south of Melbourne. Duties included cleaning and renewing local and main batteries when necessary ... *"to be carried out in an efficient manner"*. A photograph later showed two tall poles in the yard capable of supporting a long wire. While I've no evidence that William was ever an amateur radio operator, I suspect he built equipment to attempt to receive the new "wireless" transmissions.

Family folklore is that my grandmother Bel Bleeck had to learn Morse code for helping at the Post Office. One weekend she received messages involving a shipping mishap in Port Phillip Bay - that she quickly re-sent them to the Central Telegraph Office while William was away in Melbourne was never publicised.

For two years here, William crystallised ideas for a powerful and constant cell able to produce electric light and power simply and quickly. He experimented day after day with many failures but eventually discovered a combination of chemical substances and water that showed great promise. The Post and Telegraph Office Chief Electrical Engineer found the cell was powerful but not constant enough for practical use.

In Brisbane from 1907 fitting and servicing electric bells, indicators and intercommunication telephones and recharging batteries, he continued experimenting, even using the electric tram service in tests.

Early in 1908, an inspired William hit upon what he then considered to be right ingredients and the proper proportions for his evolving battery for wonderful constancy. His invention was a primary cell, a device generating electrical energy purely by the reactions of chemicals of the plates and the electrolyte

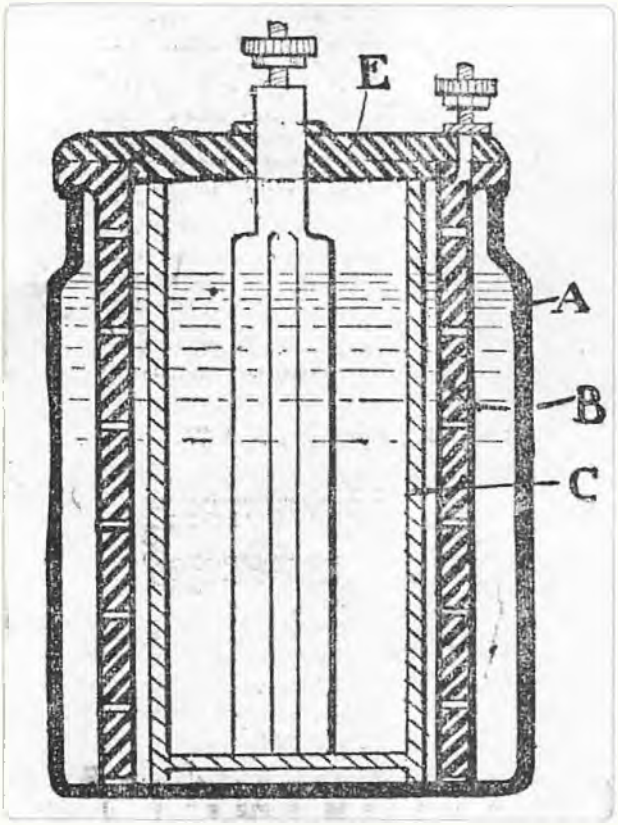


Figure 2: Diagram of the cell in the 1908 patent.

in which they were immersed. In this form of primary cell two fluids were used, separated by a semi-porous container.

A is the container for the depolariser solution, B the carbon cylinder with connector, C the porous pot for the excitant, D (not shown) is the zinc plate with connector, E is the solutions cover.

The first of a series of world patents for "improvement in primary batteries" was taken out in March 1908. Rumours and apparent leaks of information followed. The **Brisbane Courier** (4 August 1908) was the first to announce *"a remarkable invention"* beginning its account of a public demonstration the previous night: *"A battery at once powerful, constant, simple and inexpensive has been the ambition of every distinguished electrical scientist."*

"The cell comprised an ordinary porous pot into which was placed a cylinder of zinc. This was again surrounded by a carbon cover, while the whole was contained in an ordinary glazed jar which acted simply as a container. In the presence of the audience, William quickly filled several jars with 'mystic compounds'. Naturally the ingredients and proportions were not disclosed but apparently were simple and cheap." When the cell life ended, the contents could be emptied and new chemicals and water added with power available within a few minutes. [Details of the water soluble chemicals were given in the patent documents.]

Many similar reports followed in newspapers Australia-wide, particularly of public demonstrations.

A company was formed to produce and sell the Bleeck-Love electric battery. [Love was the surname of an investor partner with business acumen.] Professor TR Lyle of the University of Melbourne summarised his tests: *"The Bleeck-Love cell has the exceptionally high e.m.f. of 2·5–2·7 volts, and under all loads from light, medium to exceptionally heavy ones, has a much larger useful current capacity than of any cell I know."* The internal resistance was low.

While commercial production suffered several setbacks, official approval came after the Easter 1909 camp of the Queensland Naval Forces. For the first time in the history of wireless, telegraphy messages were transmitted with the aid of primary batteries, the Bleeck-Love improved type. When the gunboat **Gayundah** ran 10 miles (16 km) out to sea, there was no difficulty in communicating a lengthy message and there was constant communication. The Commonwealth Naval Forces Director expressed the opinion that the British Admiralty would be very likely to use the batteries if they knew of them.

Naval Commandant Captain J.T. Richardson reported on the experiment: *"The battery was set up on the morning of 8 April and joined up, 9 in series and two in parallel, and gave a combined voltage of 23·3, or a separate voltage of 2.57 per cell. The battery was used with the coil with an average discharge of 6.2 amperes for signalling purposes at intervals of five days. On the sixth day an hour's continuous signalling took place with a discharge of 6.2 amperes. The battery was tested immediately after and gave a combined voltage of 22 or a separate voltage of 2.44 per cell. I consider the Bleeck-Love superior to any used in the service at present, both on account of portability and power, and as it can be recharged it has an obvious advantage over the dry cell which deteriorates rapidly when stored and not in use."*

Figure 3: William Bleeck in 1909 aboard ship to London with wireless apparatus.

In 1909, the company sent William to Berlin to source chemical supplies and to sell rights to the ever-improving and patented invention to the major Silvertown Battery Company in London.

In an unusual twist of fate in retrospect, in March 1910, Brisbane agents Isles, Love and Co. announced that they had instructed their London representative to offer complete portable installations for wireless telegraphy to the Scott, Shackleton and other proposed Antarctic expeditions. *"By using the battery, it has been found possible to cover very large distances with a very small voltage, and six or seven of the No.2 model Bleeck-Love cells have been found to give excellent results."*

"By using a telescopic aluminium mast of light construction, it is estimated that a radius of at least 350 miles (563 km) will be accomplished, and as the weight necessary can easily be drawn by one man or one dog, it is hoped that the invention will enable the explorers to keep constant communication with their base, and may be the means of greatly facilitating the work, as well as of, possibly, saving valuable lives."

A company was formed in Melbourne to better promote the battery to Australia and New Zealand. William was named superintendent but established his own business as an electrician and telephone expert at Bourke Street West.

Of two commercial models then tested, one produced more than 60 Ah and the other 150 Ah. A promotional booklet stated: *"In layman's terms, the cell is a two-fluid type. The inner part comprises a porous pot of excitant and a zinc plate with one brass screw terminal. The outer section of glass or similar material contains the depolariser fluid and a perforated carbon cylinder with the other brass screw terminal. The principle is novel, construction uses cheap and durable materials, and pre-mixed chemicals are supplied in simple form in four containers."*

"It is comparatively much cheaper than any other cell; recharges cost very little; terminals are not fouled; and there is no local action or polarisation or fumes. The carbon is practically everlasting and indestructible, vibration does not impair the action, zinc use is merely nominal, and a cell can be short circuited with impunity for minutes at a time. Taking surface areas of the

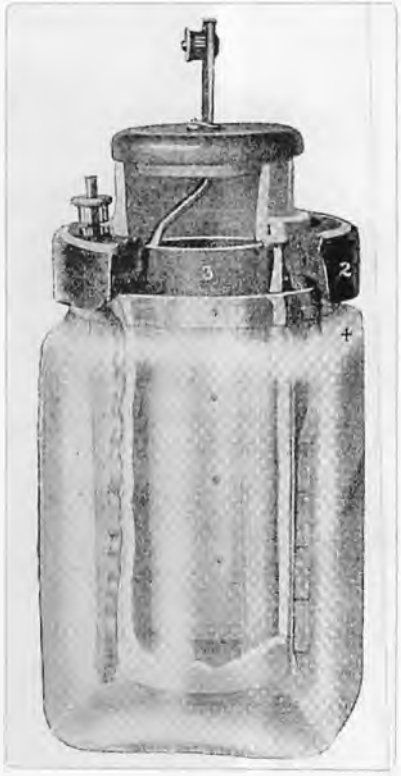


Figure 4: Cutaway drawing of a 60 Ah production model cell.

plates into consideration, its current output are greater in proportion than the [secondary] accumulator."

The booklet detailed how the cells could be used for each of the purposes of telegraphy, telephones, wireless telegraphy, electric lighting, X-rays and surgery, power outputs and electric ignition.

It claimed that a small installation of cells would open up wireless communication for several hundreds of miles, previously not possible where no telegraph or telephone lines existed. 'Wireless' messages could now be within the reach of all who wished to install the necessary apparatus.

With large Bleeck-Love cells then being constructed, telephone exchanges could be operated on the 'common battery' principle and prove to be much cheaper and more effective to run than the present system of expensive dynamos and accumulators with the necessary expert attendance.

The estimated cost free on rail for five cells with a capacity of 13V totalled £4/11/6 ($9.55). A cell was 14/6, each "charge" 2/-, a jar 4/- if returned, and packing 5/-.

In spite of all of the favourable reports and promotions, the commercial Bleeck-Love battery was not successful. There is a distinct absence of newspaper advertising after 1910. The company folded in 1913.

Without any reports including patent use payments, today we only have some notes and family hearsay to indicate the causes of failure.

These included poor quality local chemicals compared with German imports no longer available pre-war, the variability of porous pots, insufficient cells from Silvertown, components relatively fragile to transport, and pre-World War I community opposition to anything German including the German-sounding name of Bleeck.

The course of an experimenter, even with a marvellous invention, was (and is) indeed a very hard one.

Editor's Note: The author would appreciate any further information that readers may have or can obtain.

Figure 5: Beenleigh demonstration advertisement, 1910.

Something New in Electricity.

A Demonstration of the BLEECK Radio Battery for House Lighting will be given by the Inventor, Mr. W. A. Bleeck, on WEDNESDAY, November 4, at the BEENLEIGH SCHOOL OF ARTS.

This Wonderful Battery may be easily charged in one minute, and will work for over 60 hours.

We are Offering the Goods —Come and see for yourself

Make Your Own Electric Light.

(See Dodgers.)

ELECTRICITY! SOMETHING NEW!

THE BLEECK-LOVE BATTERY

is now on the market. This Battery is the ideal one for Lighting your Motor Boat or Car, for a Reading Lamp in your bedroom, a handy little light for your office table. It is also the Best Battery on the market for ignition purposes for all internal combustion engines.

For further particulars apply to

DEAN & COLLIN,

Electrical Suppliers and Machinery Agents,

335 QUEEN STREET.

Electrical and Machinery Installations of all descriptions carried out. Motor Car a Specialty. Your Enquiries are invited

Figure 6: Queensland Country Life newspaper advertisement, September 1910.

The course of an experimenter, even with a marvellous invention, was (and is) indeed a very hard one.

Editor's Note: The author would appreciate any further information that readers may have or can obtain.

IARU Liaison Report

Jim Linton VK3PC
iaru@wia.org.au

WIA International Support

International Amateur Radio Union (IARU) involvement is part of the WIA's extensive advocacy role. It can be a difficult, time consuming, and expensive activity – that often goes unnoticed by WIA members.

The outcome of this most important work benefits all radio amateurs. A small part of the WIA membership subscription goes towards international activities, to support the IARU.

The IARU was founded in 1925, and formally recognised by the **International Telecommunication Union (ITU)** as the representative of amateur radio. It has more than 160 member-societies.

Each WIA member pays a small fee that goes to the IARU Region 3. All member societies in the region pay a similar per-member fee, under a budget set by their representatives every three years.

This funds the many activities of IARU Region 3 Directors, and in turn each of the three IARU Regions pays for, and contributes to, the IARU Administrative Council that sets the overall policy and management.

At the ITU World Radiocommunications Conference in Geneva last November, the IARU had a team of 18 looking after the amateur service and amateur satellite service.

Some were within their country or industry groups, but through the IARU looked after our interests too.

Chairing the ITU Working Group 5 was WIA member Dale Hughes VK1DSH. His reports on the lead up meetings, progress and outcome of WRC-15 are well known.

If fact, the WIA was a founder of the IARU R3, and for many years has been seen as punching above its weight. This included the work of David Wardlaw VK3ADW and Michael Owen VK3KI (SK) - both at different times holding the role of IARU Vice President.

The pair was among the IARU team that helped obtain the so-called WARC Bands at WARC-79. Later, Michael VK3KI did a lot of work for the IARU on the abolition of mandatory Morse code tests.

Carrying on that tradition, WIA representatives continue to play an active part in discussions at international levels to defend the bands we have, as well as advocate for them nationally through the ACMA.

Through the IARU at the WRC-07 it was decided that there be a world-wide secondary allocation at 135.7 to 137.8 kHz, and through the work of the WIA it came into force on January 1, 2009.

The IARU was at the WRC-12 where 472 kHz to 479 kHz (630 metres) was allocated, and the WIA representation saw it become a reality on 1 January 2013.

Even if there are no apparent items of interest, the IARU needs to participate in regional meetings, to ensure awareness of what is happening with spectrum use.

When you pay your WIA subscription, please remember that part of it goes toward international activities, which can determine the future of all amateur radio activity.

Hamads

FOR SALE – ACT

Nally 50' (15.2 m) radio Tower in Perfect Condition. Stored undercover past 20 year and not used. Support Pole cut at base from previous short time install. $500 ONO Purchaser must remove. All excellent condition with no rust. Email *kaz.b@bitek.com.au* VK1KAZ

FOR SALE – VIC

Instruction/Service Manuals for the following 12/13.5 volt powered Yaesu equipment: Yaesu FL-110 100 watt PEP HF linear, Yaesu FT-7 12 watt PEP HF transceiver, and Yaesu FT-7B 50 watt PEP HF transceiver. Each manual $10 posted in Australia. Rodney Champness, QTHR. Tel: 03 5825 1354, *rodlynn6@bigpond.com*

Band Plan Notes

John Martin VK3KM

15 and 10 metres

At its meeting in October 2015, IARU Region III adopted extended band segments for digital modes. They are 21.125 - 21.150 MHz and 28.150 - 28.190 MHz. This brings Region III into line with Regions I and II, which already use these segments for narrow band digital operation. The new segments are recommended for digital stations making DX contacts between regions.

23 cm

As proposed last year, the 23 cm band plan has been updated to include a recommended frequency (1294.700 MHz) for use by information beacons.

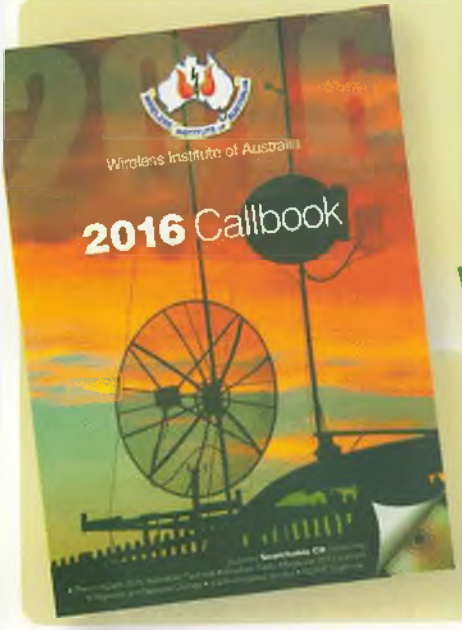
Over to you

Thoughts on Australian Amateur Radio grades and exams

The Foundation grade needs to include digital modes to attract more candidates.
Make Foundation theory, Standard and Advanced training modular with supervised on-line exams at the completion of each module.
At the completion of all modules in a grade, licences can be issued immediately; this may require preregistration so that the ACMA can vet the applicants if they require.
Savings will be made by removing WIA and ACMA paperwork and manual handling.

This alteration is relatively simple and just needs the WIA to get someone to help them set it up.
The new setup will attract more applicants and can be included in school classes.
Many radio clubs would use the modular training and exams as refresher courses with new candidates sitting the exam after each class.
All licence grades to include EMR training, one module for each grade increasing in difficulty.

Alan Wills VK4NA



Mt Fatigue to Mt Tassie

Ron Cook VK3AFW

Mt Fatigue

As I did last year, I prefaced my attendance at GippsTech with an activation of Mt Fatigue and concluded the weekend with an activation of Mt Tassie.

Because I took my YF Ruth with me on the first activation, we included a side trip to Agnes Falls and Port Albert where we visited the Museum.

Mt Tassie is on the southern edge of the forest that the Grand Ridge Road runs through and has a commanding views south towards VK7 and westerly to Wilsons Promontory. Access can be obtained via Boolarra, the Grand Ridge Road and the Gunyah-Toora Road. Alternatively, for a trip mostly on bitumen, go via Mirboo North and Meeniyan to Toora. East of Toora town centre take the Mt Best Road.

The last few kilometres are on unsealed road which gets slippery in the wet and having an AWD or 4WD is then most useful. The summit road has a small signpost. Regrowth on the summit is slowly blocking out the view from the small strategically placed car park on the summit. It is a short walk to a roofed picnic table with seats amongst the bush and barely a metre below the peak. This is where I set up the station. The squid pole was placed between the shelter and the trig point. The ends of the tri-band croc-link dipole were tied off to wattle trees.

Photo 1: Ron well rugged up and ready to go on Mt Fatigue.

Photo 2: The view toward Wilsons Promontory from Mt Fatigue.

This was my first activation with the Mountain Topper Radio, a tri-band CW mini-rig that produces 2.5 to 5 watts depending on battery voltage. It worked very well and I managed to easily work stations not only on 40 m but 30 and 20 m, with the best being to VK6. The weather remained fine if a bit cool through the activation. After seemingly exhausting the queue of chasers, I packed up and we had an early lunch admiring the views.

Agnes Falls

The next destination was Agnes Falls which, with a 59 m drop, is the tallest in VK3. There is a small bushland park attached with farmland immediately adjacent. A pleasant spot for a picnic.

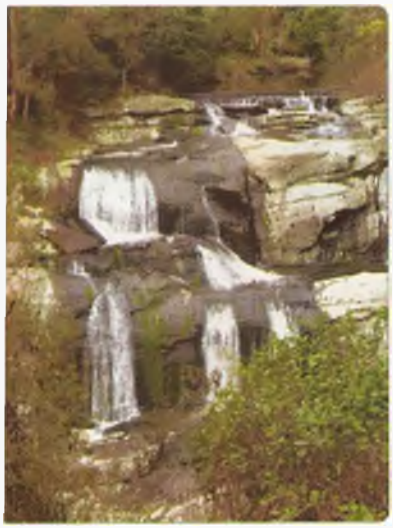


Photo 3: Agnes Fall.

Port Albert

t was an easy drive to Port Albert where we had a coffee and again admired the view from the waterfront of this once thriving port. nitially it was the gateway to east and central Gippsland, then as nome to a fishing fleet. Now it is a :ourist destination, a regional hub and still caters for fisherpersons.

During the heydays of Walhalla and associated Gold Fields, the gold was brought under escort to the bank at Port Albert before shipping off to Melbourne in a strong box. The bank building now serves as the Port Albert Maritime Museum. Inside are relics of the days of sail and from shipwrecks of coastal traders and passenger ships plying between Melbourne and Sydney. A representative example of the radios used by the fishing fleet can be seen along with parts of the once mighty Omega navigation station whose mast sadly was recently removed.

The Omega transmitting station located at Woodside was part of a world-wide navigation system operating at frequencies near 13 kHz. The transmitter had its own sequence of transmission on three frequencies necessitating instant retuning of the antenna. The antenna was 432 m high and the top guys were the radiators and the mast was earthed.

Photo 5: Port Albert Museum in the old bank building.

Photo 7: Omega Station Control Racks.

Port Albert has many things to visit for the tourist who could do well to dally for a day or two rather than an hour or two.

Mt Tassie

After the GippsTech Conference concluded with a pizza lunch, I dropped Ruth back to our motel. We had had some rain and the weather had been threatening. After some humming and haahing, I consulted the BOM RADAR site, looked at the sky and decided to set off for Mt Tassie for a SOTA activation. This peak is at the opposite end of the Strzelecki Ranges. Access is off the Traralgon-Balook Road. The turnoff is easy enough to miss but having been there before only a year earlier, I was prepared. The road is sealed but sprinkled liberally with pot holes.

Photo 4: Wilsons Promontory from Port Albert.

Photo 6: Fishing boats at Port Albert.

There is a T intersection which is just inside the activation zone and so one has a choice of setting up to the left or right on the ridge. Three stations could probably set up sufficiently far apart to have minimal mutual interference.

I set up in a small cleared area alongside the road to the largest towers. There was low cloud and a light breeze. I set up my tepee tent as I did not want to have wet gear if a shower appeared unexpectedly.

Again the MTR was going nicely on 40 m but just when I was thinking about 30 m and 20 m it started to rain. I packed up a wet tent but the gear was kept dry. Having delayed my decision to activate, I was running out of time anyway. I would have liked to try 20 m on Mt Tassie as last year it was buzzing with activity.

Maybe next year.

73

Ron VK3AFW.

Photo 8: Antenna Tuner switching relay.

Photo 9: Converted WW2 WS101 used by fishermen. Capable of around 10 W AM from 2 to 6 MHz. Made for the Australian Army by AWA. Tuning dial obscured by reflection in the glass.

Photo 10: AWA Marine transceiver that replaced the WW2 surplus equipment.

Photo 11: Mt Tassie as seen from Mt Fatigue. The TV towers are marked with asterisks. The small dot in between is a helicopter.

Plan ahead

GippsTech 2016 | 9 & 10 July 2016

A Simple VFO Project

Erich Heinzle VK5HSE

An ongoing project in the shack is a BitX transceiver. The BitX exciter PCB under construction lacks an on board VFO, thereby allowing either a DDS or an analogue VFO to be used. Accordingly, the need arose for a simple **VFO with which to test the BitX.**

The VFO design was based on the BitX VFO, and is **very similar to a simple 80 m band VFO design being used in RSGB intermediate licence examinations. A** PCB was designed using the free and open source gEDA electronic schematic capture and PCB design suite running under the free and open source operating **system GNU/Linux.**

The PCB allows a polyvaricon capacitor such as those commonly available in transistor radios or from **electronic suppliers to be used. Alternatively, or arguably ideally, a constructor can use a larger air spaced variable capacitor if available, as this would reduce VFO drift. The PCB has been designed to allow mounting to a front panel using the lock nuts of the BNC connector and/or potentiometer.**

A polyvaricon footprint was lacking in the gEDA **libraries, so a custom symbol was quickly created in the** PCB editing software. Once the PCB was completed, **Gerber files were exported and sent off for manufacture. If clubs or individuals wish to build the VFO as project,** the Gerber files I have made available are industry **standard and can be sent to any PCB design house that** accepts Gerber files. The PCB was deliberately designed **to fit within a 50 mm x 50 mm area, making it eligible for cheaper pricing from my usual PCB supplier, hackvana. com.**

The prototype was assembled using a polyvaricon from Jaycar electronics, and a spare T-50-2 toroid which had been purchased from *minikits.com.au* The PCB can accommodate the single gang potentiometers **available from Jaycar for fine tuning of the Zener diode being used as a varicap, but builders may prefer a larger potentiometer mounted nearby.**

70 turns of 0.25 mm enamelled wire on the toroid **were found, in combination with the 40 pF trimmer** capacitor and the polyvaricon, to allow tuning from around 4.00 MHz to around 4.15 MHz, making it vaguely alright for the 20 m band on a BitX with a 10 MHz intermediate frequency. The toroid was then glued into position with hot glue to prevent mechanical mishaps.

Builders seeking to use it on other bands will need to vary the inductance and/or capacitance values **accordingly.**

In summary, a simple PCB has been designed allowing a VFO to be quickly and easily built for use in

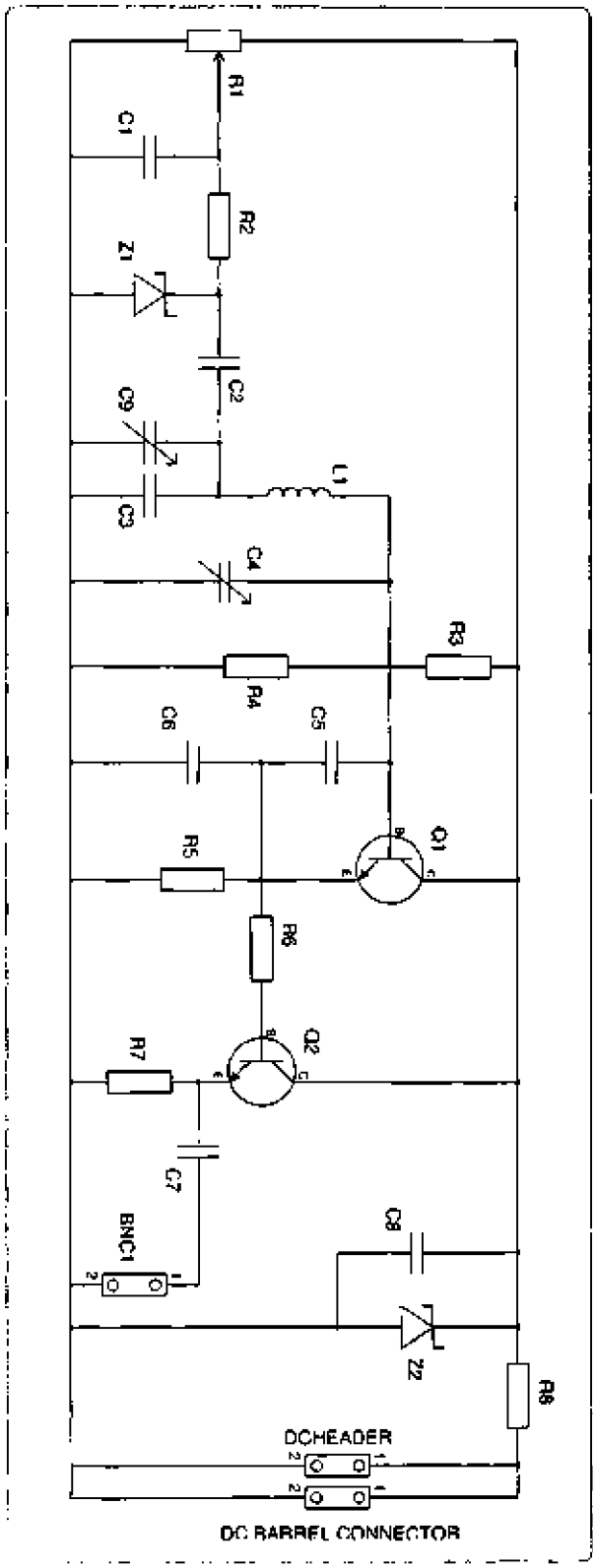


Figure 1: Schematic

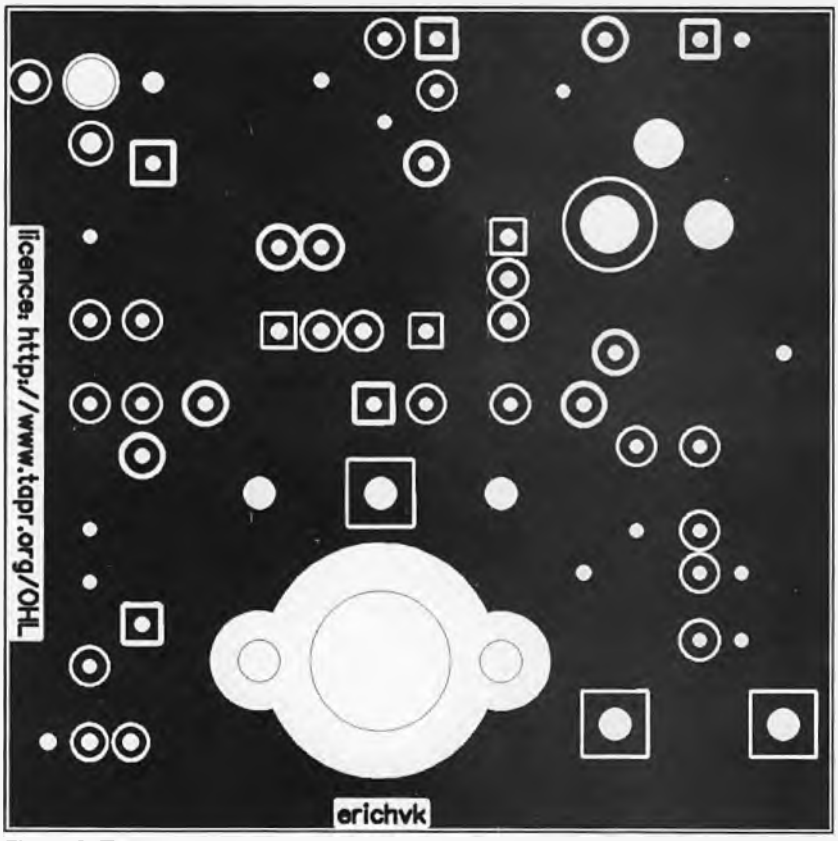


Figure 2: Top copper

the shack with homebrew projects. PCBs are relatively inexpensive if ordered in multiples and the VFO could lend itself to a club project. The PCB design has been released under the TAPR open hardware licence and can be freely used by anyone who wishes to build a VFO.

References

http://www.tapr.org/OHL
http://www.rsgbdata.net/wp-site/booksextra/intermediate/an-alternative-intermediate-vfo.pdf
https://github.com/erichVK5
http://www.minikits.com.au

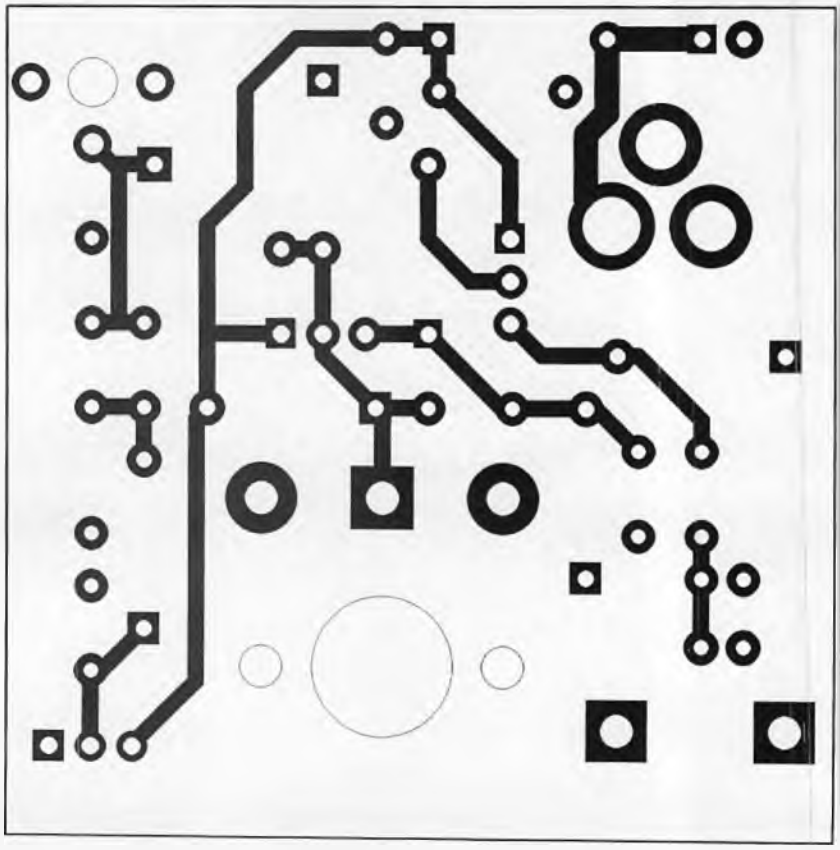


Figure 3: Bottom copper

Parts List

R1: 5k
R2: 220k
R3, R4: 10k
R5: 2k2
R6: 4k7
R7: 1k
R8: 100 R
C1, C7, C8: 100 nF
C2: 10 pF
C3: 56 pF
C4: ~ 220 pF variable capacitor, i.e. polyvaricon or air spaced
C5, C6: 560 pF
C9: 40 pF or 65 pF trimmer capacitor
Z1: 36 volt zener diode
Z2: 9.1 volt zener diode
Q1, Q2: general purpose NPN transistor, i.e. 2N2222 or similar
L1: 60-70 turns of 0.25 mm (~ 36SWG) enamelled wire on a T50-2 toroid, or a suitable air wound coil on a former

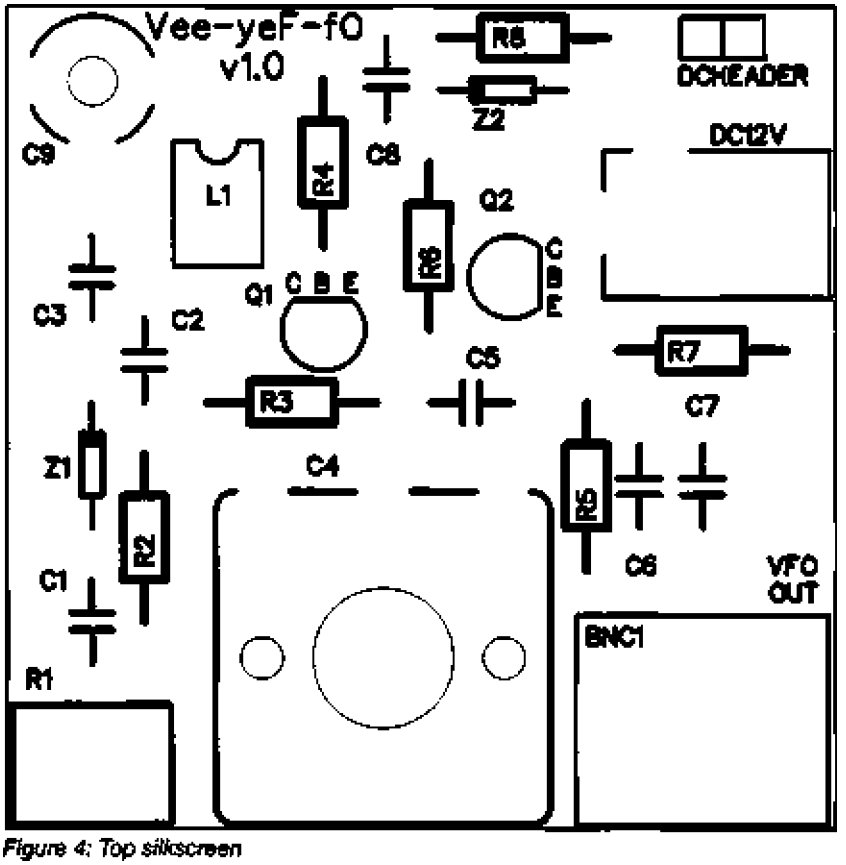


Figure 4: Top silkscreen

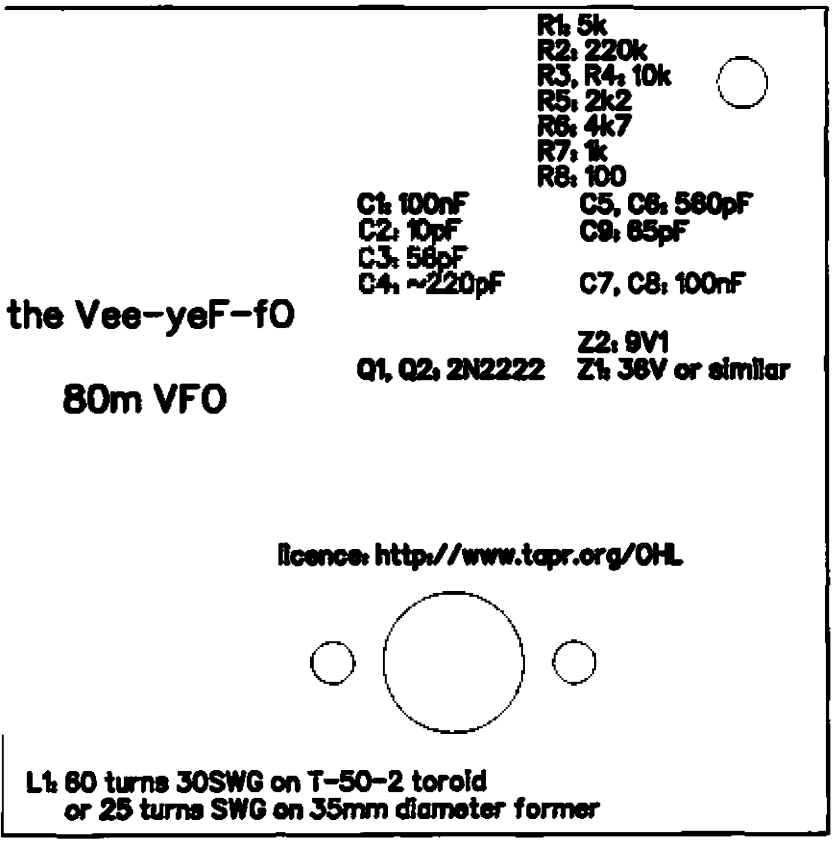


Figure 5: Bottom silkscreen

Building VK3YE's Knobless Wonder the easy way?

Peter McAdam VK2EVB

After reading the article written by VK3YE Peter and his great little "Knobless Wonder" transceiver design published in *Amateur Radio* April 2014, I decided it looked like fun and was just the kind of project I needed to get me back into construction. As usual I stalled for a while thinking about how to build it, trying to solve all the usual problems like what sort of case, would I use prototype board or build dead bug style etc. I envisaged a small transceiver that I could fit into my hand, self-contained with a battery pack and able to go QRP portable easily.

Then it dawned on me that a simple compact way to build is to use a printed circuit board. It seemed like a bit of a challenge too as I hadn't designed a PCB for a few years so that settled it. I have the facilities, a bubble etch tank, laser transfer paper, a laser printer and PCB drill so why not use them to make a nice neat PCB. This I have done in the past using "Protel for DOS", "Eagle" and "Kicad" and more recently 'ExpressPCB" software which has nice drag and drop features. I found it simple to use and easily prints out a good toner transfer page. But while talking to my friend, Arthur VK2AEC (an expert in PCB design), I examined a couple of his professionally manufactured multi-layer boards and was convinced that it was an easier way to go as the quality was superior. Unfortunately "ExpressPCB" software cannot produce Gerber files and no suitable file converter was found, so it was back to the drawing board. Windows software that was drag and drop friendly, and produced Gerber files suitable for the PCB manufacturer was my requirement. Searching the internet and testing various offerings was starting to take the shine off the whole idea but I persisted. Eventually I settled on another free package named "DipTrace" that had the right features and so proceeded to produce a test board. The files were sent away via the internet and a payment made via PayPal.

In due course the trial PCBs arrived in the post. I was very excited and rather pleased as they looked excellent. I began to check the circuit carefully and I noticed was that the legs on a few components where transposed. It also became obvious that the tracks were too fine and the through holes for some components were too small. This was a slight disappoint but the errors were noted down for the next version. The leg transposing would easily be overcome by reversing the relevant part on the test boards but then to my horror, I found that some tracks were totally missing on the top layer The explanation finally became apparent after reviewing my PCB design history (backup files), I had deleted the top layer (and tracks) at one stage to correct an error, but I had failed to re-include them again afterwards. Feeling even more crest fallen, I started to building the next day and inserted a few wire jumpers to replace the missing tracks.

After about a day and a bit, I tested a 7.159 MHz version and found it to be working quite well on receive. On transmit the SSB signal reached the driver but the final output transistor was not working. I soon found another PCB fault, a broad band RF transformer was out of phase. After that was corrected eventually, (a bit of thought was involved) "whack o", away it went. I could hear side band signals from

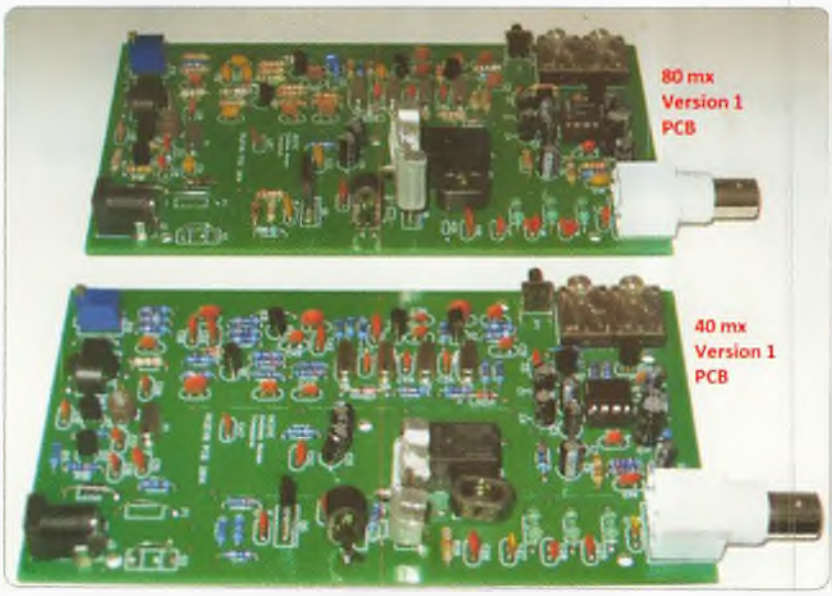


Photo 1: The 80 m and 40 m units built on the version 1 pcb.

7.160 MHz in the receiver and was able to see about a watt of power output on the meter. Unfortunately I was not able to shift the frequency to 7.160 MHz as VK3YE had done, presumably due to the placement of components and the ground plane layer on the PCB. When my friend Gary VK2ZKT, offered a "sked" the next day on 7.159 MHz, I jumped at the chance. I certainly got excited when I received a 5x7 to 5x8 report over the 25 km path while using a dipole. I was able to respond with similar reports by ear and was even able to hear Gary when he reduced power from 100 watts down to 1 watt. This absolutely delighted me and proved the receiver was working. You might say I was ecstatic.

I immediately commenced building a 3.579 MHz version with the appropriate changes to the output filter inductors and capacitors, and wow, it performed okay as well. This simple design with a surprising SSB signal had me hooked and wanting to another band. I had suitable crystals for 20 meters but first I decided to re-design a version two PCB, correcting all the errors and generally tidying up the whole board, checking and double checking the layout before it was sent off to the PCB manufacturer.

Now I tackled the 14.318 MHz version which I felt rather excited about. All went well until I reached the TX filter stage which had me puzzled for a day or so and on the verge of winding up some T-50-2 toroids when I had an idea. The solution for the 0.5 uH inductors using the axial dipped variety from Jaycar was so simple that it didn't occur to me. I decided by applying a bit of parallel component electrical theory (paralleling two 1 uH inductors to halve the value to the required 0.5 uH) I could achieve my goal. To overcome any coupling effects, I deduced that placing one on either side of the PCB with the top layer ground plane between them would be the way

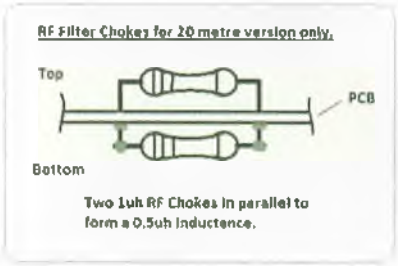
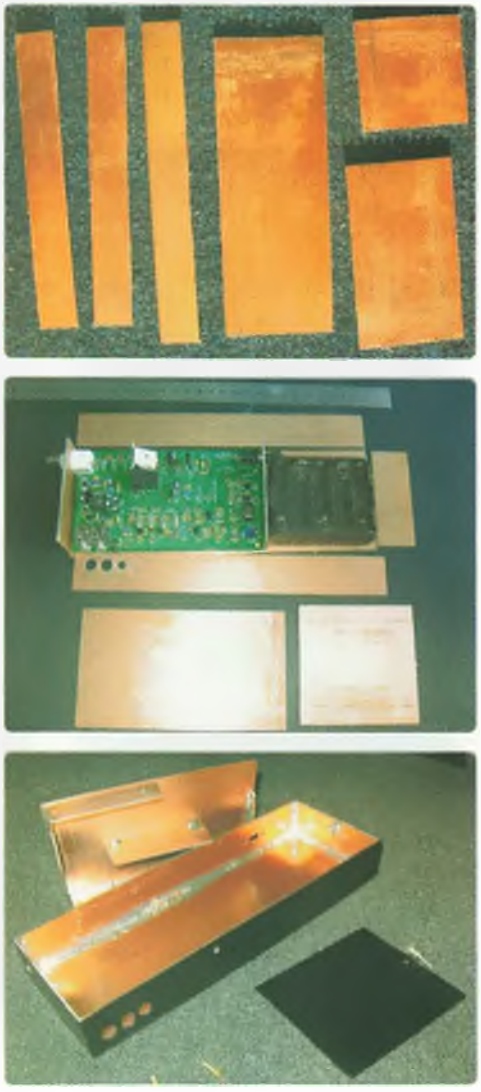


Figure 1: The 0.5 uH filter choke solution for the 20 m version of the transceiver.

to go. This worked a treat showing about 1 watt on my meter and after adjusting the transceiver BFO frequency to achieve USB, I was operational on 14.315 MHz finally. Well as you could imagine I was feeling rather good about my efforts by now and keen to try some more contacts but band conditions appeared dead on that day. The next day I was able to hear some DX stations but very weakly. Checking on my IC-703+ showed them indicating "S2" or less from the USA so no attempts at a contact were made. The sensitivity of the simple receiver as one might expect was down compared with a commercial rig but I still felt it was a promising start deciding in good conditions, contacts could be made.

To ease my disappointment at the propagation being weak, I set about designing and making a case out of double sided PCB material for my 20 metre version with room for a battery pack consisting of eight "AA" cells. The panels were drawn out and cut from the sheet of PCB material. Much effort was expended squaring the ends, filing the edges straight and generally cleaning up the panels after my shaky jig sawing but eventually they fitted together neatly without gaps. (A small, accurate, power saw would have been useful). Holes were drilled for the BNC, other connectors and power switch before starting assembly of the case proper. Modifications to the way the lids were fitted and secured developed along the way after the case was tacked together first with blobs of solder for test purposes. Once aligned properly with everything correct, solder was run around the joints to complete the job. Brass nuts soldered in position mated with countersunk head brass screws to hold the case together. A brass knob secured the battery cover to another soldered brass nut. I sprayed the inside with clear lacquer to keep it clean and the exterior black, hoping it would stay on successfully. Perhaps clear lacquer would have been enough but I like it black.

Photo 2: The pcb case under construction.



Finally the Version 2 PCBs turned up and after a close check I found they were perfect so I was able to start building immediately. I chose 7.200 MHz as had been monitoring that frequency for a few weeks finding it was much quieter and friendlier to QRP. The build went off without a hitch and another "Knobless Wonder" was operational in no time at all. Again successful contacts on 40 metres to further afield produced good results which enthused some close friends who had be following my progress. PCBs and crystals were duly dispatched as promised so we could all try the design. Following the construction of my 80, 40 and 20 metre Version 1 PCBs, and my 40 metre Version 2 PCB as well, I have proved to myself yet again, just how much fun simple transceiver's can be to build and use.

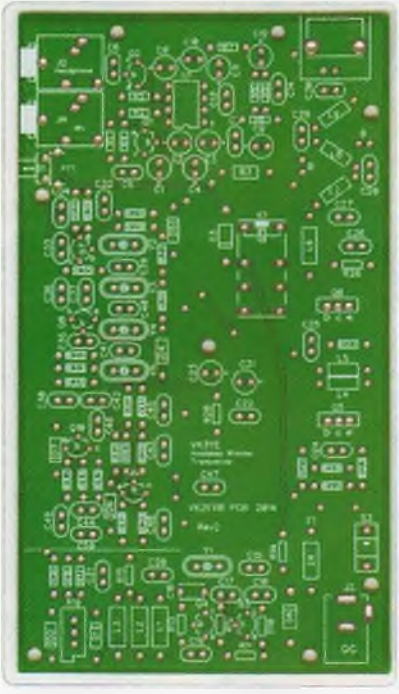


Photo 3: The version 2 pcb prior to loading the components.

This project resulted in an excellent dual layer PCB for the "VK3YE Knobless Wonder", single frequency SSB transceiver. The clearly marked top layer makes for easy parts placement and orientation. This design uses standard through-hole components neatly eliminating the need for jumper wires. Dimensions are 140 mm by 80 mm which allows the builder to adapt the PCB to his or her choice of case, connections and operations style. The two final adjustments are achieved simply by direct comparison with an accurately calibrated receiver or an amateur transceiver thus allowing the constructor to get on air with the minimum of test equipment. A description of building a simple dummy load/RF voltage sensor is described in the manual which when combined with a multimeter produces a sensitive QRP wattmeter. Naturally details of the mathematics involved are included. The minimal tool requirements place it within the scope every ham, allowing them to enjoy and take pride in their achievement. The only other requirements to complete this project are a microphone and earphones, a resonant aerial, 12 volt power source and a case of the builder's choice. Perspex base and top panels would allow the builder to show off their construction skills easily. A computer headset with integrated microphone can be

Photo 4: The built 40 m unit with the version 2 pcb.

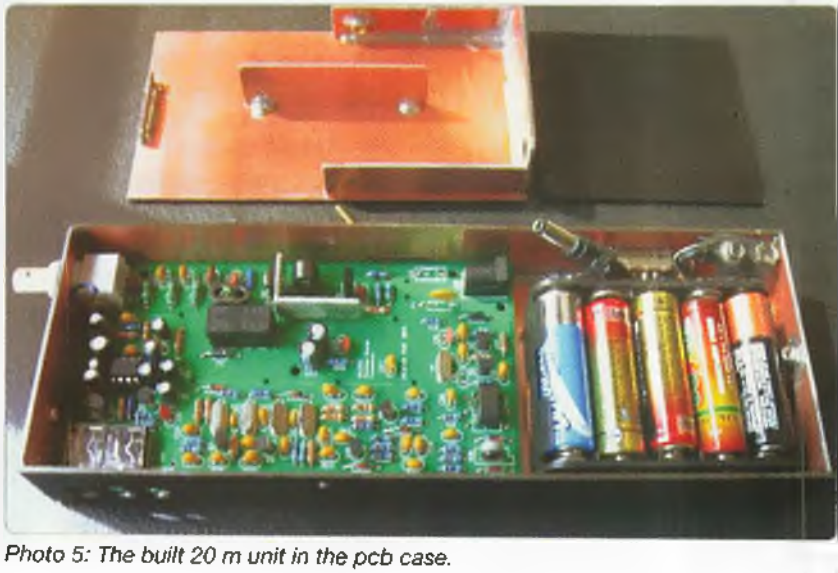


Photo 5: The built 20 m unit in the pcb case.

used but the mic will need a foam wind baffle due to extreme sensitivity. A mobile phone telephone handset responded much better and a DPDT momentary PTT switch fitted to cut the electret mic during receive. These are very effective for QRP projects and look the part too. All other required components can be purchased by the builder from their favourite electronics suppliers. The included Jaycar part number list will help if mail order is required.

This adaption of VK3YE Peter's "Knobless Wonder" design produces a 1 watt PEP output and can easily be run from a battery pack of "AA" cells as the author has done with the 20 metre hand held version. Contacts on a dipole antenna have yielded very good results in good band conditions making it well worth the effort to build.

Some left over "PCB & Crystal" packages are available (first in first served) at $15 each plus $2 postage Australia wide. Email expressions of interest to *vk2evb@yahoo.com.au* indicating frequency preference.

The single RX/TX frequencies available are as follows:

Photo 6: The 20 m complete radio built as a handheld.

7.200 MHz LSB (Recommended), 3.579 MHz LSB, 3.686 MHz LSB, and 14.315 MHz USB.

A complete builder's manual describing construction of this transceiver including the schematics, PCB layout plan, numbered parts list, Jaycar Part numbers, PCB case plan and many diagrams will be emailed to constructors.

Think carefully about the frequency as it can't be changed easily once the transceiver is built but I feel Peter VK3YE is right in saying the 40 metre band conditions make it ideal for QRP contacts especially amongst "Knobless Wonder" users.

As you have gathered I didn't really build it the easy way but the results obtained have been very rewarding. A big thank you goes to Peter VK3YE for stimulating me into building QRP gear once again.

Redcliffe & Districts Radio Club Inc

REDFest 2016 2nd April

The **REDFEST Amateur Radio Convention** will be held on Saturday 2nd April 2016 at St Michael's College as last year. St Michael's College and the Abby Museum is well signposted from the Bribie Island Road, heading toward Bribie Island from the Highway. Look for signs from the Bribie Island Road.

Doors will open at 09:00 and admission will be $5:00.

ICE communications and RF-Solutions have confirmed they will be displaying on the day.

Raffles and door prizes will be running on the day.

Catering facilities will be provided as usual.

A "**Foxhunt for Fun**" event will be run for the kids to try their hands at ARDF. All equipment provided.

Easy and nearby parking is provided.

Want to "**Redistribute some Treasures**"? Book a selling space for just $10/table.

Table Bookings and requests for information can be obtained by e-mailing **Kevin VK4UH** at:

redfest@redclifferadioclub.org.au

Make a note now in the diary for a fun family day out.

H.H. Blackman XOE/VK3HA

Deane Blackman VK3TX

Photo 1: The Blackman family portrait from the 1920s. The author's father is at the left; Bert is marked by the orange balloon.

My uncle Herbert Howberry Blackman was born at the family home (44 Osborne Avenue, Malvern) on 14 May 1887, the second child of a family of nine. He was always called 'Bert'; the family abbreviated all its given names. The name 'Howberry' was in memory of the manor farm near Crayford in Kent whence his parents had come to Australia. The manor house was destroyed by German bombs in 1940. He was a svelte man, 169 cm tall weighing 55 kg – uncannily close to my own description.

He was educated at the local state school and subsequently qualified as a mechanic (of some sort), but had developed a hobby interest in wireless and held the call sign XOE. My father, 15 years his junior, for me recalled as a child watching the erection of aerials and the electrical wonders of his shack. He was an active member of the Wireless Institute of Victoria (formerly the Amateur Wireless Society of Victoria founded in 1911), and gave a lecture to it on Telephony (advanced stuff then) in March 1915. By this time amateur operations had been suppressed as a war time measure, and the institute soon went into hibernation.

In March 1916 he was employed by the Postmaster General (PMG) as a mechanic with a salary of £185 p.a., and sought leave for him to enlist in the armed services. This was (evidently) a formal arrangement which guaranteed him re-employment when he returned from service. On 10 April 1916 he enlisted at the Royal Park centre for service in the army. The paper work was evidently filled in by a clerk; required to record the age of the applicant he got the arithmetic

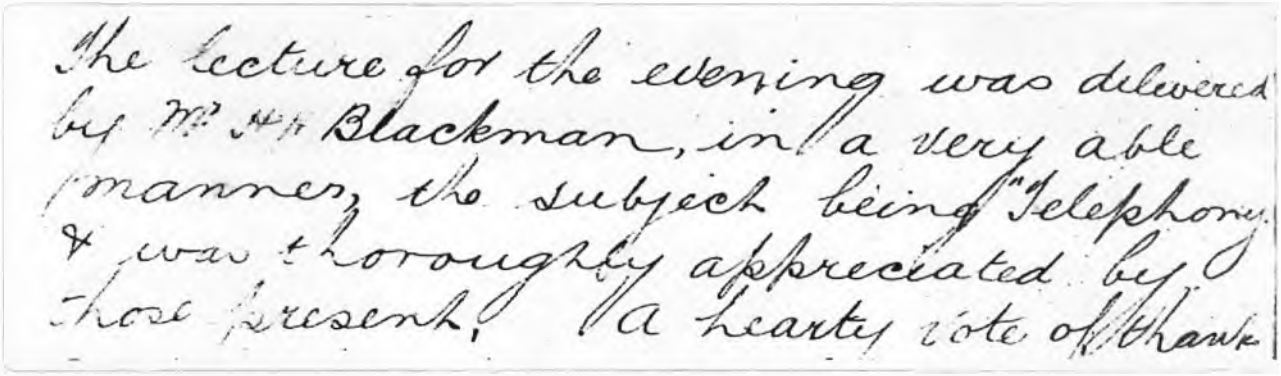

The lecture for the evening was delivered by Mr A.H. Blackman, in a very able manner, the subject being "Telephony" & was thoroughly appreciated by those present. A hearty vote of thanks

Photo 2: An extract from the meeting Minutes describing Bert's lecture to the Wireless Institute of Victoria.

wrong and recorded him as being 29 years and 10 months old. He identified his religion as Baptist; the rest of the family were Methodists. He reported for duty a fortnight later and began initial training. At the beginning of August he was put on the reinforcement list, and finally sailed from Melbourne on September 9 aboard HMAT Shropshire. Two other members of the family served in WW1.

He arrived – two months later – at Plymouth on November 16, and was sent first to Lark Hill and then to Rolleston for further training. Rolleston is a small village in Wiltshire near Salisbury and evidently the site of a signals training camp. I recall a small book at my home about near-by Stone Henge which had come from him and which he had acquired at some leisure moment. Finally, in June 1917, Sapper Blackman was sent to France.

In July he was posted to the 1st ANZAC Wireless Supply Division, then in October to the 22nd Battalion A.I.F. In March 1918 he is back with ANZAC Supply again.

The war over and back in Britain he did not immediately return, but in March 1919 was granted six months on full pay for training with the GPO in London, on telephones. This doubtless was part of a general rehabilitation scheme. He sailed for Australia on a vessel called Euripides on 4 December 1919. In 1921 he was awarded the British Service Medal, and finally got the metal of the medal in Australia in 1923. He had returned to his job with the PMG, in telephones at Windsor, where he was part of the team which set up the first fully automatic exchange in Melbourne.

Amateur wireless was slow to get re-established after the war but in 1926 he held the call sign VK3HA located at the family home. My parents were married in 1926 and he made for them a receiver. Battery powered, it had three valves housed in a splendid wooden case. From my recollection of the tuning coil I think it must have been only a broadcast receiver; I still have the plug from its headphones.

Sometime after 1926 he married Ruth Gilsenan*, and moved to a house in Closter Avenue Ashburton (now Ashwood). Unsurprisingly, there were no children, and I suspect that amateur wireless faded with the arrival of a wife. When as a child I met him he was quite the most interesting of my bewildering army of 17 aunts and uncles. Ruth died (in a nursing home) in 1967. Bert died on 18 March 1970. I managed to obtain permission to visit the house to look for any amateur equipment. The shed at the back of the house which was his workshop contained a lathe and other equipment, all old and long unused. There was little radio material of any value but, as has been told, amid the mountain of paper on the floor I found a 1914 call book and the founding minute book of the AWSV, the keeping of which had surely been entrusted to him when the Institute closed for the duration of the war.

The leading photograph of his family was taken some time in the 20s. My father is at the left, Bert is marked by the orange balloon.

Deane R Blackman VK3TX;
1 June 2014.

**An article I wrote about the AWSV minute book for OTN the magazine of the Old Timers Club wrongly asserted he brought her back from England. I confused him with one of his brothers (Leslie) who did this.*

Contributions to *Amateur Radio*

Amateur Radio is a forum for WIA members' amateur radio experiments, experiences, opinions and news.

Manuscripts with drawings and/or photos are welcome and will be considered for publication.

Articles attached to email are especially welcome. The WIA cannot be responsible for loss or damage to any material. Information on house style is available from the Editor.

GippsTech Review: Australia's premier amateur radio technology conference

Roger Harrison VK2ZRH

The annual Gippsland Technology Conference, GippsTech for short, continues to provide a premium experience for the 100-plus attendees who make the pilgrimage to the rural heartland of eastern Victoria, to the town of Morwell and the event's venue, the Federation University Australia campus at nearby Churchill.

Over the weekend of 11 and 12 July, GippsTech 2015 offered a remarkably wide range of topics from presenters. These ranged from developments in digital voice technology to "war stories" about record DX contacts, from filter design to DIY CNC mill design, antenna aiming to WSJT developments. I have compiled this review in the order that presentations were made, rather than attempting to organise them into some sort of topic order – which made my head spin after 30 minutes of contemplation – too difficult! So, I will begin at the beginning.

At the forefront

The opening presentation on **Advanced VHF Digital Voice using Codec 2**, from David Rowe VK5DGR, easily held the audience's undivided attention for the hour allotted. Codec 2 is an open-source low bit-rate digital speech codec offering communications quality speech at transmission rates between 700 and 3200 bits/s. Its main application is for low-bandwidth HF and VHF transmissions. Codec 2 is released under the GNU Lesser General Public License. This digital development is wholly in the spirit of amateur radio that has prevailed over the past 100-plus years – freely *'share and share alike'*.

David outlined how transceivers are migrating to sophisticated software and simpler hardware – the heart of the software defined radio (SDR) revolution. He advocates pushing software towards the antenna! David and some colleagues have produced the SM1000, a hardware adaptor for use with conventional SSB or FM transceivers. Just 100 x 80 mm with built-in rig interfaces, no PC is required – a plug-and-play digital voice facility. Future developments are to cover VHF operations and hardware, along with the ability to work with very low signal-to-noise ratios for voice, e.g. -10 dB. More info on David's informative blog, here: *http://www.rowetel.com/blog/?p=4279*

On 5 January 2015, Rex Moncur VK7MO in Tasmania contacted Derek Zeck VK6DZ in Western Australia on 10 GHz to establish a new world record for the 3 cm band of 2731.8 km! News of the contact went viral on amateur networks across the globe. It was subsequently reported in *Amateur Radio* magazine, and other publications. The propagation path, via tropospheric ducting, crosses the Great Australian Bight, and was an achievement ten years in the making. In **Crossing the Bight – 10 GHz Terrestrial World Record**, Rex regaled the GippsTech audience with the trials and tribulations experienced by all concerned. A great 'war story'. Totally inspiring. Such achievements happen with PEP – planning, effort and persistence. Out-of-session talk among audience members focused on finding other paths in the Australasian region where the record might be extended, yet again.

One man's junk is another's ... opportunity

The fine tradition of re-purposing unwanted and unloved ex-commercial equipment, founded by perspicacious amateurs in past eras, continues today. Lou Blasco VK3ALB and David Learmonth VK3QM detailed how to rework **3.4 GHz transverters from surplus link gear**. Their local club (Geelong ARC) was donated a flock of 3.5 GHz link transceivers, perhaps saving them from a likely fate as land fill. Lou and David worked out how to adapt them for the 3.4 GHz amateur band, with a 70 cm IF. It takes three units to make two working rigs. Usefully, the units come with an in-built patch antenna. Naturally, Lou and David had a stack of these for sale (buy one, get two free!) during coffee and lunch breaks and did brisk business. Since GippsTech, there are now a bunch of them on the air in VK2, VK3 and VK5.

In mid-2014, Alan Devlin VK3XPD joined with the WIA to promote the GPS-locking of VHF-UHF beacons across Australia through a joint grants scheme. The scheme ended on 1 June 2015 and Alan gave a presentation titled **GPS-locked Beacon Project: an update on outcomes**. The project proved remarkably successful, with some 23 beacons on 2 m, 70 cm, 23 cm, 13 cm and 3 cm becoming GPS-locked, for beacons sited across VK3, VK4, VK5, VK6 and VK7.

Alan followed with an ad-lib travelogue about his visit to the Freidrichshafen hamfest three weeks before GippsTech, in

Rex Moncur VK7MO with his 77 cm 10 GHz dish, dwarfed by the 5 m 1296 MHz system of David Scott VK2JDS (QF46PV, near Bathurst, NSW).

company with a bunch of fellow Australian microwavers, detailing the accompanying microwave DXing exploits they got up to, all illustrated with some impressive pictures. Alan and company made lots of noise on 10, 24, 47, 76 and 122 GHz, along with 144 and 1296 MHz, joining-in on a local field day while they were at it.

To cap off, Alan surprised the audience by launching an eponymous perpetual "Microwave Enthusiast Award", to be presented annually to a deserving nominee advanced by peers, the winner receiving a plaque and nominal cash sum.

Two VHF-UHF Field Day enthusiasts – make that obsessives – Damian Ayres VK3KQ and Ralph Parkhurst VK3LL, took the GippsTech audience through the pitfalls and pratfalls of using technology to aim your antennas when you can't (or don't want to) see them, describing **The LL/KQ electronic compass rotator controller**. This is based on a low-cost TV antenna rotator, an electronic magnetic compass and some smart software. They included a demonstration in the theatre (but, of course!). Cunning stuff, indeed. No doubt next year we'll get to hear how it worked out over VHF-UHF Field Days subsequent to GippsTech 2015.

Richard Gipps VK3ZCL is known around VK for his remarkable software suite, P-Syn. This is a network synthesis program designed to synthesise a raft of useful filter types, including Butterworth, Chebychev, Bessel and Gaussian style filters (high-pass and low-pass), along with ladder-type bandpass and band-stop designs, and more. Richard took the audience through **Band-stop filters with P-Syn**, covering theory and design. He has improved the software functionality over time. P-Syn provides a graphical front end, making it much more intuitive to use. It works under Windows and is available as a free download at: *http://www.gipps.id.au/P-Syn.html*

Australian amateur radio 2015: Challenge and change was the title of a presentation I made covering the threats and opportunities facing the hobby in Australia over 2015-2016. As most amateurs know, last year, the Australian Government launched a review of the Radiocommunications Act and the ACMA. The radiocommunications landscape in Australia has been engulfed by a "perfect storm" of regulatory reform and change. WRC-15 came in the midst of it. Radical reform of radiocommunications licensing is under way, with a single licence type to be introduced – parameters-based licensing. The three types that have prevailed for 20+ years – apparatus, class and spectrum licences – will disappear. All stakeholders in the radiocommunications sector are understandably "on edge", not quite knowing what's coming. It is likely that key aspects of amateur radio licensing and regulation in Australia will change radically. Aside from all that, a few threats loom for some amateur spectrum, but some opportunities may also emerge over coming years.

Ambition to the fore

Some amateur groups take on ambitious projects. It's the same all over the world. Julie Gonzales VK3FOWL and Joe Gonzales VK3YSP detailed their involvement in the **Melbourne Amateur Radio and Technology Group (MARTG) entry into the 2015 Global Space Balloon Challenge (GSBC)**. While they went through the technical aspects of hardware and software development, this was no "thought experiment" presentation; they had the electronics and balloons on demonstration in the show-and-tell area of the venue's tea and coffee room. It seems Julie and Joe may have snagged a few converts from the GippsTech audience.

Every amateur shack-come-workshop could do with a PC-operated milling machine, according to Russell Lemke VK3ZQB. Having presented at previous GippsTechs, Russell is known for his practical, least-cost/best-effect approach

to designing and building things. Russell's **CNC mill construction** presentation was a tour de force, marked with his trademark wry, larrikin humour. He designed and built a "desktop milling machine" from readily available, off-the-shelf mechanical and electronic components and demonstrated his handiwork with printed circuit boards, panels, signs and a little woodwork. Better yet, you don't need to write lots of software or devise special interfaces; much is available ex-China by mail order. Off-the-shelf CAD packages make milling a doddle. We learned that milled PCBs have an advantage over chemically-etched boards as milling obviates under-cutting of tracks, an issue when it comes to microwave striplines.

Strong on weak signal techniques

A strong common thread through GippsTech each year is weak signal communications issues and techniques. Glen English VK1XX gave a closely-followed talk on **SDR technologies and the weak signal user**, detailing the various strengths and weaknesses of the variety of SDRs currently available. We learned about ADC overload (cataclysmic!), quantisation noise and aliasing, and that some PC sound cards have very high performing ADCs. Glen revealed that a pair of SDRs can be used to electronically steer beam patterns (creative thinking!), in addition to warning us to be careful of hyperbolic claims for performance.

Rex Moncur VK7MO entertained the crowd with more 'war stories', this time on **Extreme grids on 10 and 24 GHz**. For more than a decade, Rex has travelled around continental Australia activating rare or unreached grid squares to make contacts. As time progressed, Rex raised the frequency bands he worked on. As our continent is a generally flat, geologically worn-down landscape, this is about the opposite of mountain-topping! For his extreme grid sorties, Rex packs his genteelly-oxidising Prado with rigs, tripods and dishes (the big one on the roof racks), takes the ferry across Bass Strait, from Tasmania to Victoria, and motors off into the wilderness. A very different style of grey nomad tourism!

Doug McArthur VK3UM is widely known among the global EME tribe for his extraordinarily useful software suite. Having updated EMECalc, Doug gave the audience a rundown, with **VK3UM software additional features**. It's a good thing that PC screen resolutions increase year-in, year-out. I never cease to be amazed at how Doug manages to shoehorn yet more features and functions into a single-screen user interface. The GippsTech audience relies on Doug opening with a joke, after which they can concentrate on what follows! In that fine amateur tradition, Doug's software is freely available for download from *www.vk3um.com*

WSJT is firmly embedded in the digital lexicon. The doyen of weak signal digital communications does no stand still, prompting Rex VK7MO to take to the lectern once again for his presentation on **VHF to microwave developments with WSJT-X**. This suite implements JT9 and JT65, the former for use on the LF to HF bands, the latter for VHF-UHF EME, of which I'm sure many readers will be aware. Rex offered a rundown on his experiences using WSJT-X beyond its 'comfort zone' (so to speak).

Humour highlights

For some light relief after the foregoing presentations, I gave one titled **My Name is Roger and I'm a VK Classies-aholic!** This refers to the popular buy-sell-swap website "VK Classifieds" (*www.vkclassifieds.com.au*), and the confession-of-addiction soliloquy. I took the audience through my widely-known background in buying parts, building electronics gear and writing about it in popular magazines, moving through to the last five years in accumulating parts and equipment for my developing ham shack. I confessed my addiction to daily searches of VK Classifieds (rising to thrice-daily!), and my discovery that it's infinitely entertaining. I warned the audience that *there's no known cure!*

Not to be outdone in the humour stakes, Justin Giles-Clark VK7TW presented **A novel Az-El mount**, richly illustrated with cartoons of W. Heath-Robinson constructions and contraptions (*https://en.wikipedia.org/wiki/W._Heath_Robinson*) apposite to his theme, sourced from old radio magazines. Justin deconstructed a washing machine to make an innovative az-el mount for his 10 GHz portable gear. The design and construction of his novel device certainly echoed the themes of Heath-Robinson's existential cartoons. Most amusing – I am now quite unable to look at PowerPoint in the same way as I always have.

To wrap up GippsTech 2015, moonbouncer of note, Chris Skeer VK5MC, gave us a brief update on his **SDR adventures on EME**. Chris has pursued the use of SDR technologies with EME for some years now, turning up at GippsTech every so often to detail both his failures and successes in his laconic farmer style and dry humour. This GippsTech, we learned that Chris is disappointed with the performance and utility of USB RTL dongles of the DVB-T variety.

Always a hearty serve of brain food for the thinking ham. Every GippsTech comes with a side serve of social events – the Friday night get-together at a local pub, the Saturday night dinner and the partners' tours, not to mention lunchtimes and coffee breaks on the campus. Attendees this year came from VK1, VK2, VK3, VK4, VK5, VK7 and ZL3. The continued success of GippsTech is due in no small part to the vision and drive of the convenor, Peter Freeman VK3PF, ably supported by members of the Eastern Zone Amateur Radio Club.

VK5news Adelaide Hills Amateur Radio Society

Christine Taylor VK5CTY

December and January are mostly socialising months for AHARS. In December we had our regular Christmas lunch, this time at the Belair Hotel. Then in January we had a picnic at the Bridgewater Mill. Approximately 50 people joined in these activities. At the Bridgewater Mill park, there are a couple of enormous gum trees, under which there is room to set up tables and chairs, as the photo shows.

It was not all just socialising that day as Barry VK5BW brought along a Codan 6924 which he had running all day.

There was a lot of local noise with few, if any, signals heard. To see if he could improve the reception, Barry ran out a long wire, up into the trees. Unfortunately it didn't make a lot of difference, except to increase the white noise. Nevertheless it was an interesting experiment even though the mill is, of course, in a valley.

Photo 1: Picnic at Bridgewater Mill.

Photo 2: Codan 6924.

AHARS and LMARC

There has been a radio club in Murray Bridge (LMARC) for quite a number of years, with clubrooms at the local football grounds. The clubroom is one of a number of rooms available for local clubs of all interests, provided by the Council. To help finance this and other activities, the members of the clubs are asked to sell some Lions Club raffle tickets each year, which is not a great imposition.

All went well until the cost of an amateur station licence became more than the small membership of LMARC could cover (at the time their numbers had fallen to six, though this number has grown since then). The club requested assistance from AHARS. This was happily given as there were already several dual membership amateurs and others from LMARC were happy to join.

As those that attend meetings know there are several people who participate in all our activities and have done for years.

73

Christine Taylor VK5CTY

Urunga Radio Convention 2016

Ken Golden VK2DGT

Photo 1: Robyn Golden, Gloria Savins, Merv Savins VK2DMS and Ken Golden VK2DGT.

The **2016 Urunga Radio Convention** will be on again this Easter: 26 and 27 March, Saturday and Sunday, with Fox hunts and convention activities on both days, quizzes, raffles, trade tables available, pre loved gear, etc.

Why not make it a break from your busy lifestyle and slow down a bit at quiet restful "Urunga", "where the rivers meet the sea", the longest running "fox hunt convention" in Australia.

The social gathering for the Saturday night dinner at the Bowling Club is always well attended (see Ken VK2DGT at the convention).

The Saturday Night Fox Hunt (Fox O.R. 6 TXs different freq. 2 m) was very popular (safety vests available, may need light).

The 2015 convention went off without a hitch and was well attended, with many Fox hunters competing for **"Arnold Austin Memorial Award"** and the **"Brian Slarke Memorial Award"** overall for two days. Mobile and Pedestrian Hunts.

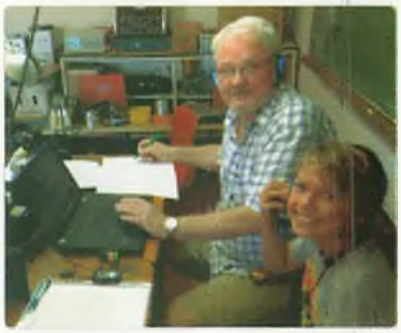


Photo 3: Russell Ashdown VK2VK and Scout working JOTI 2015.

Photo 4: Scouts and Guides found fox.

Venue: the **"Senior Citizens" Hall, Bowra Street, Urunga.**

Ken Golden VK2DGT WIA.Urunga Radio Convention Inc.

Email: *krgolden46@hotmail.com*

Phone: 02 66523177

Web: **Urunga Radio Convention** *http://www4.tpgi.com.au/goldy2/* (or search engine).

Photo 2: JOTA, JOTI, CHADARC and URC members, with Guides and Scouts Coffs Radio Club House, 2015.

Photo 5: In recognition of 30 years Continuous Support as a member of CHADARC and URC. Ken Golden VK2DGT with Toni Nysen at JOTA, held in Coffs Radio Club House 2015.

VK6news

Keith Bainbridge
vk6rk@wia.org.au

Welcome to this bumper edition of VK6 Notes! It seems the rest over Christmas has stimulated the Publicity Officers of our various clubs and groups to get fingers on keyboards.

WAARN

First off this month we have an interesting contribution from WAARN, over to Bob.

WA Amateur Radio News (WAARN) has been busy getting the New Year under way; holding its first Annual General Meeting in January with the sitting office bearers re-elected to office, restructuring the vk6.net website, planning to enter a team for the John Moyle Field Days, and organising our first event for the year, PerthTech.

PerthTech is a one-day seminar with presentations of interest to amateurs. PerthTech is on Saturday 30th April, at the Bayswater Hotel, a venue well known to Western Australian amateurs. The $20 entry fee covers the venue hire, morning and afternoon teas and the best techfest you'll have attended all day.

The WIA President, Phil Wait, has accepted the invitation to talk about the Institute and what they're up to, and to participate in a Q&A. We will also have a talk about SDRs by Phil Harman VK6PH, and a few other interesting subjects will also be in the line-up.

The event is limited to fifty attendees. This is because of the room size. So you do need to book early, and door sales may not be possible. We plan to have a raffle and door prizes, so make sure you bring bucks for the raffle and lunch.

We are taking bookings online at *http://www.trybooking.com/KFJV* Keep an eye on *vk6.net* for programme information and further details as they emerge. And of course we will promote it on NewsWest.

And speaking of NewsWest, we continue to produce a quality news programme for Western Australian amateurs that goes to air on a huge array of frequencies, times and modes. For instance NewsWest, along with the National News is broadcast on Sundays at 0600, 0700, 0800, 0900 and 1900, via no less than 32 on-air transmissions, including the linked repeater network, CB channels 1 and 4 in Perth, and various relays and broadcasts on HF and VHF.

NewsWest is also heard on the VK6RIB information beacon, is available on demand at VK4RDD in Toowoomba, and a repeater in Katherine, NT, as well as being available for download at vk6 dot net, and by podcast. In fact, visit vk6.net/news/broadcasts to see exactly how you can listen to NewsWest.

NewsWest's editorial policy is that if it isn't about amateur radio and relevant to Western Australia, we probably won't use it. We offer Western Australian clubs unlimited access to NewsWest to publicise club activities and events. Please provide your own copy, and we're happy to discuss your requirements. The WAARN NewsWest team can be contacted by email newswest@vk6.net.

WAARN welcomes new members, and to be a member of WAARN you don't have to produce or record items for the news. You can just be a member.

Bob VK6POP
President WAARN.

Thanks Bob, I'm looking forward to attending PerthTech.

Fox Hunting at King's Park

Next I have two reports from Rob VK6LD, firstly wearing his Fox Hunting hat:

Three teams assembled at the Kings Park start point for the January 2016 fox hunt.

The teams were:
VK6FCJB/VK6PII – Carsten & Chris
VK6LD/VK6FJUD – Rob & Jude
VK6VHZ - Steve

The fox for the night were VK6AXB Anthony, VK6SP Barry and VK6MS Trevor. "Basil" AKA the Fox was out and about at Wilson Park in Rivervale, just off Orrong Road. The fox was switched on just after 7.30 pm and the hounds set off.

First hunters to find the fox was the VK6LD/VK6FJUD team arriving around 8.20 pm and were closely followed by the VK6FCJB/VK6PII team around 8.30 pm. VK6VHZ Steve did quite well hunting the fox with his FM handheld and VK6MS Trevor tried his luck with a snoop loop in the park after some period away from fox hunting and showed he hadn't lost his magic touch.

Basil was hidden in a garden bed and tree in the park, with a sneaky 1/4 wave stub attached to a t-piece on the feed line to attenuate the 3rd harmonic on 70 cm. (Hmmmm, might have to amend the fox hunt rules to outlaw 1/4 stubs! :)

Hunters retreated to Bella Rosa Cafe in Carlisle for well-earned refreshments and discussions where travellers on who ended up travelling where.

Next Fox Hunt will be held on Saturday 2 April 2016 and the fox will be Carsten VK6FCJB.

Katanning Ham Feast

Now wearing his Katanning Ham Feast Hat:

Many thanks to everyone who came along to the Katanning Ham Feast – It was great to see everyone and catch up for a chat and some lunch. I think I counted around 34 guests for lunch at the Royal Exchange Hotel for the 7th Katanning Ham Feast.

First prize in the raffle (LED magnifying desk lamp) was won by VK6TY Lee. Thank you to everyone who purchased tickets and proceeds from the raffle go to helping Southern Electronics Group.

The Treasurer Bevan VK6BL also advises that many members also renewed their membership and we also signed up some new members yesterday. Thank you to those who renewed their membership and welcome to the new SEG members.

I spoke with Chris VK6JI this afternoon. He advises me all is well with him after a checkup and he made it back home to Perth yesterday evening with Richard VK6HRC and Ian VK6TWJ. Chris thanks everyone for their assistance yesterday and also said he will be sending me a link shortly to a webpage with the photos he took and his report on the big day out at the Katanning Ham Feast.

The next Ham Feast is planned for Manjimup in mid-2016; exact date is to be advised.

Thanks again all for making it a great day.

You are a busy man Rob! Thanks for the reports.

Fire Report

Now many of you will be aware of the horrendous fire that swept through the south west of the state in January, and our repeater network was put at risk along with those unfortunate folk who lost houses etc. We have a report from Mac VK6MM on the Mt William site and its survival (just).

A fire started on January 6th 2016 caused by a lightning strike about 80 km SSE of Perth.

Photo 1: Looking over the area around the VK6RMW equipment shelter after the fire.

A wide coverage voice repeater, VK6RMW (2 m), is located in the area and it became increasingly obvious that it would be impacted by the fire. The repeater site is in forest and access is via a gravel road. Also on site is an APRS digipeater and the last message sent from the digipeater was at 1211 on 7th January. The voice repeater was no longer responding. The repeater has battery backup fed from mains power. Reports came through that the power line was down and damage at Mt William is severe, with many of the other non-amateur installations at the site damaged. Our repeater is housed in a steel cabinet close to a larger steel shed that houses commercial two way equipment. There are several other installations on the hill, including a large Telstra tower. A visit was possible by Mac VK6MM and Lance VK6LR on 11th January. The site had been devastated with the fire, burning everything it could, as it raced across the hill.

Good luck or good design showed on inspection that our equipment in the steel cabinet had survived. The coaxes from the

Photo 2: The summit area was heavily impacted by the fire.

cabinet to the tower had been badly burnt and this was the cause of the voice repeater and digipeater being off air.

There is a low level standby antenna attached to the cabinet and this was connected to the voice repeater. VK6RMW was back on air until the low voltage cut out kicked in, as without mains power and no solar power, the on-air operation would only be good for a few days with light usage.

The next visit by Mac and Lance took place on 21st January. Loaded up with a solar panel and various other tools and equipment, site access via the gravel road was slow due to a big effort by the power company to replace the burned power poles and restore power to Mt. William. About 1,000 power poles in total were destroyed by the fire along with total devastation of the town of Yarloop.

Once at the top, the solar panel was installed on the roof of the cabinet and coax repair undertaken. This proved difficult, as the coaxes at the bottom of the tower where badly melted and the soldering iron was not up to the job in the windy conditions.

What could be done was done and the site was left to charge up the batteries. The next day - no repeater! A site visit by Trevor VK6MS, who was in the area on work, discovered the solar panel was not connected. It was found that some insulation was between the solar panel terminal and the battery. This was fixed and the coax re-terminated to the original top antenna, the repeater was back in service. The APRS was removed for an upgrade and will return as soon as possible. This was, and continues to be, a great effort by all involved. Even though power has been restored to Mt. William it is unknown when we will be connected. There is a lot of work for other organisations to do and we are last on the list. However it is planned to increase the solar capacity. The repeater being an old FM880, draws only about 120 mA on receive, so the solar option should work well. The repeater site is run by the West Australian Repeater Group WARG.

Thanks Mac and WARG for the interesting report.

Now Mr. Reliable Norm VK6GOM for the Bunbury Radio Club

Bunbury Radio Club

Not much to report this month thanks to the Waroona/Yarloop fire. Some of our member's homes were in the path of the fire and consequently all meetings and activities were postponed or cancelled. Fortunately, the great "DXer in the Sky" smiled and our colleagues managed to survive without catastrophic loss.

The Bunbury Radio Club's "Christmas" party for members and prospective members and spouses is now planned for 12 March, to be held at 21 Halsy Street, Bunbury commencing at 1500. For details contact Dicko VK6VRO. This get together will replace the regular monthly meeting.

The Club's website has been upgraded and moved to *http://www.bunburyradioclub.com* Many thanks go to Jonathon VK6JON for his work in developing and improving the website.

At our December meeting it was agreed to sell one of the club's repeaters to the Southern Electronic Group. It was also agreed that the former "Kellerberrin" repeater be kept in order to install at a suitable site in Collie when such a site be found.

Licence assessments are still planned for 6 February, 2016 at Bunbury. So far, we have seven applicants (five Foundation and two upgrades to Standard level). Anyone interested in sitting for upgrades should contact Norman VK6GOM on 0438 878 582.

Any South West based amateur (or anyone interested in radio or electronics) is more than welcome to join and participate in our activities. Because so many of our members come from near and far we are evolving into a semi "virtual" club. Consequently, regular attendance at meetings is not a requisite for membership. The annual fee is only $25.00. Those wishing to join can contact the Club via our Secretary, Nick Evans on 0429 201 343, or *vk6brc@wia.org.au*

The next monthly meeting of the Bunbury Radio Club will be held on Saturday, February 13 from 2:00 pm. at Manjimup SES HQ. Locations for future meetings are:

- March – Bunbury
- April – Bunbury
- May – Harvey
- June – Bunbury

Now news from HARG, The Hills Amateur Radio Group:

HARG

Some members have been exploring new sites for the upcoming John Moyle Field Day on 19 and 20 March 2016.

John VK6FJON and Jodie his partner found a nice site in the hills just south of Perth. They, along with Alan VK6PWD, did a trial campout. A few other members, Marty VK6RC, Martin VK6ZMS, Ray VK6ZRW with harmonic and Rob VK6AAH with his wife all did day visits and were all impressed with the site's potential as a field day location. Nice and high for VHF and UHF with high trees for Ray's favourite loop, plenty of room for a portable mast and best of all, when Alan VK6PWD put up a loop, there was very little, if any, noise on HF. Another positive according to Marty were the mountain bike trails and he put them to good use, managing to stay on the bike. Look out for VK6AHR/P during the John Moyle Field Day and thanks to Ray VK6ZRW for the information on the new site.

HARG Meetings are held twice a month at the club rooms at the Paxhill Guide Hall near the corner of Brady and Sanderson Roads in Lesmurdie. The Social and Practical meeting is held on the second Saturday of the month and the General Meeting, often with a technical talk, on the last Saturday of the month. Doors open

at 1.00 pm for a barbecue lunch and the meeting starts at 2.00 pm. Everyone is welcome. More information at *www.harg.org.au* The HARG website has recently been revamped by Richard VK6BMW so please have a look.

Cheers from Bill VK6WJ Publicity Manager for HARG.

Thanks Bill, I imagine next month we will be hearing about HARG Fest?

PARG, The Peel Amateur Radio Group has this update.

PARG

PARG is pleased to announce our Swap Meet on Saturday 5th March at Bortolo Pavilion in Mandurah. It is a short walk from the train station. It will run from 9 am to 12 pm with entry for stall set up at 8 am.

Refreshments are available with sausage sizzle.

All welcome to come buy some goodies and sell your previously loved items for a small table fee and entry.

Michelle Walker VK6MLW.

Thanks Michelle I hope to be there.

Finally, as usual, the NCRG update.

NCRG

Well, January has been an eventful month for the club, a major lightning event passed through the club site and caused considerable damage to power supplies, rotator controllers, computers and security equipment. Since then there has been a huge effort to bring everything back on line and all is virtually completed.

We had taken great pains recently to add lightning protection to all the towers and the building, but it seems these mains born strike just beat us with its intensity.

Other than that, a huge new water tank has been installed to give us better drinking water capacity; the shower now has HOT water! and work is progressing well on our remote station project.

Until next time, thanks for reading and please send in your news!

73

Keith *vk6rk@wia.org.au*

PS: It seems my email address above is receiving attention from unwanted sources, so please ask for a return confirmation for your contributions just to be sure I have it.

VK2 news

Tim Mills VK2ZTM
e *vk2ztm@wia.org.au*

On Sunday 6 March ARNSW has planned another in the seminar talk fest series. Topics were not known as these notes were being prepared but by now details will have been given both in the VK2WI News and by email. For catering purposes, advice on your attendance is desirable and can be emailed to *fieldday@arnsw.org.au*

On Monday 7 March, ARNSW commences their upgrade course mainly for those Foundation licensees who wish to move up to Standard or Advanced. The course is conducted each Monday evening, except public holidays, between 7 and 9 pm at the VK2WI Dural site. It concludes in November. Those without a Foundation licence are welcome to attend. More information is available on the ARNSW web site *www.arnsw.org.au* Bookings are required and these can be by email to *education@arnsw.org.au*

Photo 1: L to R Chris, John, Steve, Paul VK2APA Instructor, Rebecca and Danny. All students passed their Foundation assessment.

Still on education the next Foundation weekend provided by ARNSW is on 19 and 20 March. All grade assessments are conducted on Sunday. Again bookings are required by email. The January Foundation course had all five candidates achieve success. The Summerland ARC in northern VK2 have a Standard course planned for 7 to 10 March, followed by a

Foundation course on the weekend of 12 and 13 March. Westlakes ARC have another Morse session on the Saturday afternoons in late February and early March. The next ARNSW Trash & Treasure event is on Easter Sunday at VK2WI. These events are always held on the last Sunday of the odd numbered month, rain, hail, shine or public holiday. In the late morning a BBQ is provided for those remaining and at noon the ARNSW Radio Homebrew and Experimenters Group meet.

Members of ARNSW are advised that the 2016 AGM is scheduled for Saturday morning 30 April 2016 at the VK2WI site. At the AGM a new committee is to be appointed. Nominations are now open for those members who wish to be on the committee for the year 2016 and 2017. Nomination forms can be downloaded from the web site *www.arnsw.org.au* or from the divisional office. Nominations close at midday on Saturday 19 March 2016 at 63 Quarry Road, Dural. – Peter O'Connell VK2EMU, Returning Officer.

In late December ARNSW members and VK2 clubs were sent the 2016 magnetic calenda[illegible] There were only a few returns of those who moved address without notification. It is hoped that they did tell ACMA, otherwise they may find their prized call goes to a new owner. Keep checking the ACMA register just to make sure their computer keeps including your call – sometimes they fall out. Be aware of your renewal date.

Photo 2: L to R Assessors Bob VK2TG, Daniel VK2DC, Peter VK2VG and Carl VK2CRH.

For the past two years ARNSW has provided to some clubs a development fund grant. There will not be one made available this year as a major communication upgrade is planned for the Dural site.

The Easter weekend has the Urunga Convention on the VK2 north coast held at the Senior Citizens hall in Bowra Street, Urunga. It has been held annually since 1949. Gather there on Saturday 26 and Sunday 27. For details contact Ken VK2DGT on 02 6652 3177 *krgolden46@hotmail.com*

Karl VK2KFH, the NSW JOTA / JOTI Coordinator would like to let the Amateur community know that a new web site for Radio scouting and JOTA / JOTI for NSW has been launched. The address is *www.nswjotajoti.org*

It's a few months down the track but keep the June long weekend free for the Oxley Region field day held in Port Macquarie. This year its back at the Tacking Point Surf Club, following last year's renovations to the Surf Club.

The Waverley ARS has an inaugural competition on Sunday the 13 th March. It is with the Sydney ferries over 6 hours with the aim of making as many contacts as possible with and between stations portable on Sydney ferries or wharves. It is a VHF and UHF contest and repeaters are allowed. See the club web site – vk2bv.org - for details or last month's *AR* magazine. You can ride the ferries for the $2.50 fare - all day.

73 – Tim VK2ZTM.

From BACAR to Pico Ballooning - Part 2

Jim Linton VK3PC

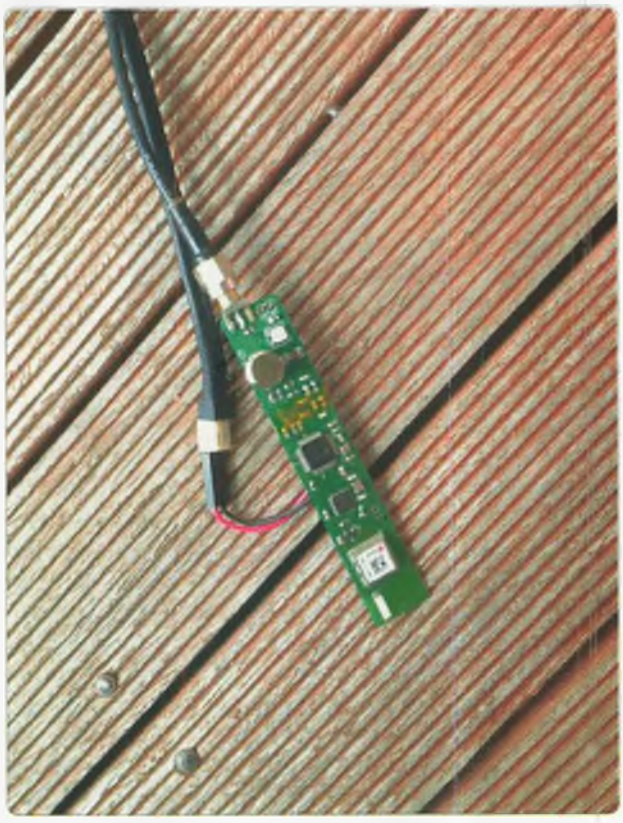


Photo 1: The payload electronics look simple but send vital data.

The first instalment of this two-part series covered some of the varied activity engaged by those in Balloons Carrying Amateur Radio (BACAR) experiments.

This is now the story on the exploits of Andy Nguyen VK3YT, who has learnt a lot about ballooning, airflow, weather systems, used various techniques and had some anxious moments too in the past two years. His achievements at altitudes of more than 9,000 metres include sending a balloon around the Southern Hemisphere more than twice, and launching balloons in the Northern Hemisphere while working a temporary assignment in Silicon Valley at San Jose, California – more on them later.

Andy Nguyen is a network engineer, in his spare time he admits being somewhat into ballooning, the attraction including: *"The challenge of designing and making the electronic parts that work in extreme conditions, and are small and lightweight."*

He explained that at maximum altitude the temperature is between minus 40 and minus 55 degrees and the air is so thin that ultra-violet radiation is a serious consideration.

"Technically it's a huge challenge... you need to build something that can keep functioning in those extreme conditions," said Andy.

His balloons send a signal of a mere 25 milliwatts (some even less), but able to be heard using weak signal modes by trackers from Australia, New Zealand, South America, South Africa, the US, Sweden and Peru.

He launches strong 'Mylar' type party balloons that

Date	Call	Frequency	SNR	Drift	Grid	Power dBm	Power W	Reported by	Reported loc	Distance km	Distance mi
2015-07-17 13:30	VK3YT	14.097183	-23	0	LF22	+10	0.010	ZS6BTY	KG44de	2039	1267
2015-07-17 13:30	VK3YT	14.097177	-20	0	LF22	+10	0.010	ZS5J	KG61bf	1538	956

Photo 2: WSPR provides Grid Squares location data.

Photo 3: A PS-series Pico Balloon with payload tethered below is launched.

are self-sealing, keeping a few ready at home, and if the conditions are right (or maybe not), fits a payload that is solar-powered and insulated with bubble wrap, keeping its weight to about 13 grams, or less than half an ounce.

"The launches and the sites used are chosen depending on the wind speed and direction, to keep the balloon on its expected path," explained Andy. *"These are done very quickly, as any gust of wind could send the balloon crashing down."*

Andy deploys a standard 'Mylar' type balloon used in celebrations or at parties, filled with helium. Tethering its payload consisting of a radio, battery, solar panels and antenna; is a long thin fishing line – that also adds some stability to the flight. He only partially fills a balloon, so it achieves certain free lift, and allows room for expansion at higher altitude.

Pico by definition means 'one trillionth' - and that is what the payload can be, sounding more apt than simply calling it a small balloon flight. Andy's first Pico Balloon was called PS-2. It stayed up for 15 hours and made a distance of under 800 km.

His success with such balloons is in the use of very small electronic components, a small lithium battery and thin wires for the antenna.

During the current flights, every 5.5 minutes, the transmitter pulses a 10 mW APRS signal, and can simply be tracked on the Internet, using the data transmissions. They give such parameters as location, altitude, speed, and on-board conditions like battery voltage and temperature. Each modern flight has been announced to trackers and others interested, usually its 25 mW transmitter is on standard WSPR and JT9 frequencies - dial 10.138700 MHz and 14.095600 MHz. Software is available free to download to decode the transmissions.

The flights mostly follow predicted trajectory paths in a jet stream forecast by the National Oceanic and Atmospheric Administration (NOAA). Depending on air pressure, the balloon usually nestles in the lower jet stream between 6,500 m to 8,500 m in altitude travelling mostly in an easterly direction.

The two different encoding schemes (WSPR and JT9), help track the Pico Balloons by transmitting 25 mW of power a few times an hour, allowing tracking to tease the low, slow signal out from the ambient noise.

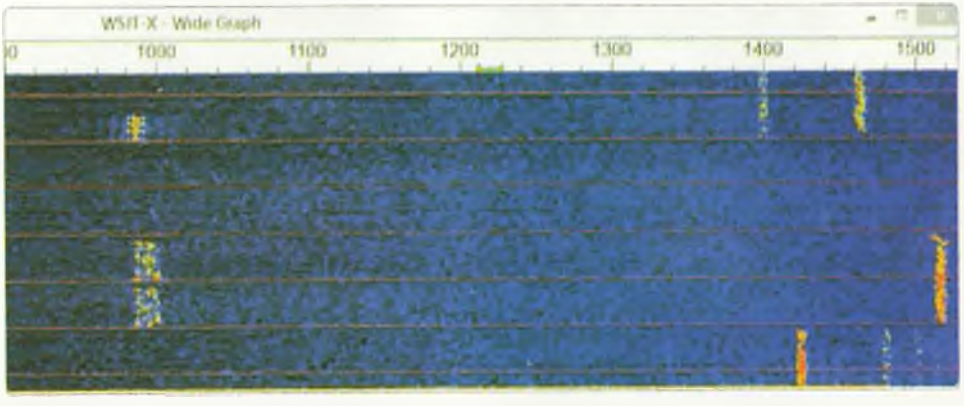


Photo 4: In this waterfall is JT9 (left) to encode telemetry data and WSPR (right) giving the location.

The first Pico Space project launch was a success. The balloon was released from Deniliquin NSW on 8 February 2014, and landed in a paddock 2.5 hours later next to the Riverina Highway near Finley. It gave some good pictures and had huge support from trackers

around New South Wales, Australian Capital Territory and Victoria.

The big breakthrough came in March 2014 with the first Trans-Tasman balloon with its 10 mW transmitter to land in New Zealand. (This was a frequency agile tracker which switched over to the ZL APRS frequency after leaving Australian coastal waters.)

PS-3 was launched on 16 March 2014 described then as a 'long range' flight was supposed to be from Melbourne to Sydney, carrying an APRS beacon with 10 mW on 145.175 MHz.

Not only did it reach Sydney, but exited the coast, with a delighted Andy later reporting: *"The little balloon made it to New Zealand in a few days"*.

Branching out with RTTY and other techniques, more Pico Balloons were launched, and had gathered a strong list of trackers.

PS-7 went up on 11 May 2015, travelled north to NSW, then New Zealand and was thought to have landed – but at sunrise it lifted off again and was soon out of APRS range.

"Looks like the balloon decided it didn't want to stay in New Zealand for too long. It re-launched itself this morning, before hams (and customs) could get to it," Andy added.

If we move forward to PS-13 on 13 July 2014 it was a Pico Balloon with a 10 mW transmitter on APRS 145.175 MHz, THOR8 and OLIVIA 8/250 with RSID on 434.500 MHz.

It was another breakthrough, leaving Australia at the Gold Coast, went across the Pacific and made it to South America. After 8 days and 12 hours a distance of 16,274 km and it was last heard over Brazil.

PS-16 was then released from Melbourne on 12 August, and taking advantage of an unusual wind pattern, took a westerly path towards Adelaide in South Australia.

After a long see-saw path including a loop around Adelaide, it came down, to be retrieved by Bob VK5FO and Ray VK5RR.

Photo 5: PS46 circumnavigates the hemisphere, keeps going to do it again, and nearly for a third time.

Similar looping occurred with PS-18 on 24 August 2014, as it did multiple loops over Tasmania, Victoria and New South Wales – much to the pleasure of the growing list of trackers.

In another flight, on 18 October 2014, PS-23 was tracked to Tamworth, New South Wales, between Sydney and Brisbane.

It was heard on WSPR as far away as the United States. The tracking involved stations in VK1, VK2, VK3, VK5, VK6, VK7 and ZL1 using Olivia and JT65 on 30 m and 20 m.

Andy VK3YT said that PS-23 landed near Tamworth to be recovered by a team of Scouts from the local Jamboree on the Air (JOTA) event, led by Ashley VK2XSO and Ron VK2HRD.

It was launched again, but this time with payload No. 2 using JT9. That flight landed in the Tasman Sea, proving that using a second-hand payload was viable.

Both balloons were tracked all the way to ground level by Richard VK6XT and Bob ZL1RS - many thousands of kilometres away.

PS-25 and PS-26 Pico Balloons were released on 22 November 2014, with Andy explaining that this was to test multiple balloon tracking with JT9 and WSPR.

The two-balloon flight experiment worked well - before PS-26 landed in the Tasman Sea, PS-25 headed for New Zealand.

In late December 2014, balloon PS-30 lasted until January 16 off the east coast of Africa near Madagascar. Many tracked the progress during the 20 day flight.

"There was some bad weather in the region, but speculations also include the possibility it was brought down (attacked) by the naughty penguins on the island," Andy quipped, referring to the 2014 animated movie comedy, *"Penguins of Madagascar"*.

However, the result buoyed optimism that one day a small balloon would go entirely around the southern hemisphere. A few more balloon flights occurred, including an innovation (tested earlier with PS-25 and PS-26) of two at the same time to test dual tracking capabilities.

A few more flights were undertaken, leading to PS-41 in the Easter of 2015, which was the first to circumnavigate the Southern Hemisphere, taking 10 days and three hours.

This balloon was on its second time around when it ended off South America, with Andy thanking everyone who tracked the amazing trip.

"The level of interest from all around the world has been amazing," he said. *"The trip would not have been so successful without the collective effort of the like-*

minded community built up along the way."

Andy improved that global encircling distance and showed it was not a freak occurrence. In worldwide news, PS-46 made two complete trips around the world and was into its third loop before it being forced down in the Indian Ocean by bad weather.

It transmitted WSPR and JT9 signals to be tracked by hams around the world, including at least two in the United States.

Andy VK3YT had launched that Pico Balloon on 23 May 2015 which ended up spending eight weeks travelling the globe at high altitude, clocking up more than 110,800 kilometres.

"I don't think that's been done before with a party balloon," he said. *"They usually do one circumnavigation. Two was a bonus but then this one just kept going."*

While working on a temporary assignment in Silicon Valley (California), Andy could not resist the temptation to put up two of his balloons at San Jose. In doing so, in September 2015, he was the only person to launch such balloons in both the southern and northern hemispheres. Using the non-metallic party balloons, first up was PS-54 that tracked over Kansas, heading east. PS-53 was lost over a desert area in Nevada.

Working for a month at San Jose, the out-of-sequence balloon PS-54 with a solar power APRS payload feeding a 25 mW transmitter, went up to test the local environment.

Andy VK3YT described his debut flight as *"zooming right past the San Francisco Golden Gate Bridge at 8000 m, and spent a whole day bouncing along the west coast of California, right next to some other local up and down balloon launches".*

"The weather was a bit too rough. The tiny balloon took a few dives before gaining altitude again at sunset, then went silent again thought possibly due to antenna damage from the beating it took during the day."

However, good news came when PS-54 popped up again three days later. By this time it had travelled 1800 km, probably doing a loop over the Pacific Ocean out of range, then floating via Los Angeles to Arizona State to the east, and down to Mexico.

By chance it passed right above Andy while he was driving around LA – what a small world. This northern hemisphere APRS-only maiden flight was followed by another.

The out-of-sequence PS-53 was released on 13 September with a payload this time of WSPR and JT9 on HF. It was tracked during a period of good propagation by ZL, VK and local US stations (including VK4RV, VK5BC, ZL1RS, W3BH, WB7ABP, AK4AT, WX4F & K4COD).

On leaving San Jose, it went north to Sacramento, then east across the border to Nevada clocking up 725 km, but seemed to have been lost in desert country due to envelope failure.

His exploits and expertise there have captured the imagination of many US trackers and balloonists, who mainly have latex weather-type balloons floating until they burst and crash to the ground.

Since the first Pico balloon by him in February 2014, a lot of knowledge and skill has developed, not only by Andy, but many who follow the flights.

The experiments that have inspired an enormous interest in amateur radio ballooning will hopefully continue to explore near-space like never before, and using techniques that further push the boundary.

* Image of young balloon launcher supplied by James Alderman KF5WT, with more at: *http://kv5r.com/ham-radio/balloon-repeater/*

Harry Angel Memorial 80m Sprint 2016

Dr. Kevin Johnston VK4UH, Contest Manager

Date: - Saturday May 7th 2016. 1000 UTC - 1146 UTC

The Harry Angel Sprint is an annual 80m contest event, first established in 1999, to commemorate the life of Harry Angel VK4HA who, at the time of his death at the age of 106, was the oldest licensed amateur in Australia. The duration of the contest is 106 minutes in commemoration of Harry's age, one minute for each year of his life.

The "HA" is held on or around the first Saturday in May each year. The contest is open to all grades of license holder and is structured specifically to suit both seasoned contesters and operators new to contesting. The rules for this year's event are essentially unchanged from 2015. Place winners in the Harry Angel Contest are also eligible to claim points for the WIA Contest Champion (Peter Brown) Trophy.

"Harry Angel" Rules

The contest is open to all amateurs, who are licensed to use 80m, including individual operators and those entering on behalf of a licensed club or society.

The aim of the competition is to make as many contacts as possible in the allotted time. Each station may be worked on one occasion only per mode.

This year there will be four sections PHONE, CW and MIXED and SWL (Short Wave Listener - receive only.

Entries may only be made in one section.

Frequencies

CW 3500 - 3535 kHz. Phone 3535 - 3665 kHz

Exchange

RS(T) and serial number commencing at 001.

Scoring

2 points per CW QSO, 1 point per Phone QSO.

Log

Transmitting logs must show Time UTC, Callsign of stations worked, mode, RS (T) sent and received and a serial number commencing at 001.

SWL logs

Listener entries must include Callsign of station heard, callsign of station being worked and the report being given to station being worked, RS (T) and a serial number commencing at 001. Listeners may only log stations actually heard but need not have reception of both stations in order to claim points.

Each entry shall be accompanied by a statement to the effect that "Operation was conducted within the rules and spirit of the competition" – this occurs automatically with entries from the VKCL logging software.

Entries

VK Contest Logger (VKCL) is the recommended logging software

Logs may be submitted via e-mail in electronic format, the preferred method, or by post. To ensure all electronic logs are captured all e-mailed entries must contain the following string in the subject line:

"Harry Angel Log <CONTEST STATION CALLSIGN>"

Entrants are specifically requested not to send more than one e-mailed log file.

Postal entries must be clearly legible and by preference printed in the above VKCL format.

The contest managers request that all logs clearly indicate the callsign of the contest station itself – not the callsign of the operator of person filing the log where this is different.

Hand written and typed entries will still be accepted provided that they are clear and legible and in the same basic format as VKCL.

Entries must be received by last post on Monday 22nd May 2016.

Electronic submission to

harryangel@redclifferadioclub.org.au

To ensure all electronic logs are captured all e-mailed entries must contain the following string in the subject line:

"Harry Angel Log <CONTEST STATION CALLSIGN>" i.e. Harry Angel Log <VK3ABC>

Postal submissions to

Harry Angel Sprint Manager
Redcliffe and District Radio Club
PO Box 20, Woody Point. Qld 4019

All entries must include a return postal address and a current e-mail address. Receipt of all logs will be confirmed by e-mail within two working days.

The managers would also welcome a short note with entries indicating some brief details of the station and antenna used and any comments regarding operating conditions occurring during the contest. (Suitable for printing please)

Results

Results will be announced first on the WIA Sunday Morning News Broadcast and then published within 28 days of the closing date on:

WIA Contest website
Redcliffe and Districts Radio Club website,
Contest Column of *Amateur Radio* Magazine.

Award

Certificates will be awarded at the discretion of the contest manager for the top three entries in each of the transmitting sections and for the top entry in the SWL section.

The Harry Angel Sprint 2016 is being coordinated on behalf of the Redcliffe and Districts Radio Club and the WIA by Contest Managers Kevin Johnston VK4UH and Charlie Strong VK4YZ.

Full information regarding the contest is available on the WIA Contest website *http://www.wia.org.au/members/contests/harryangel/index.php* and R&DRC website: *http://www.redclifferadioclub.org.au*

Result of Harry Angel 2015 "C" denotes certificate winner

Phone		
VK2PR	59	1st C
VK2MT	46	2nd C
VK3VTH	43	3rd C
VK4QH	42	
VK4ADC	37	
VK5TE	36	
VK4ATH	35	
VK7VH	34	
VK3JLS	34	
VK7JGD	27	
VK2BBQ	25	
VK3ADD	22	
VK6QM	21	
VK2DEK	19	
VK4TAA	19	
VK2BEN	18	
VK5DT	16	
VK3SOT	16	
VK5KX	15	
VK4OH	14	
VK4FRDB	12	
VK4PB	12	
VK3OA	12	
VK2XIC	12	
VK4IAA	9	
VK2HHS	7	
VK2CKP	6	
VK4SR	6	
VK3III	4	
Mixed		
VK3MEG	46	1st C
VK3HY	32	2nd C
CW		
VK7CW	32	1st J C
VK5LJ	32	1st J C
VK2GR	32	1st J C
VK2IUW	30	
VK2AOH	28	
VK2KJJ	28	
VK4BZ	24	
VK4BNQ	20	
VK5AV	10	
SWL		
No entries received		
No entries		

VK4news Back to Ceratodus – 50 Years - Easter 2016

Geoff Bonney VK4GI

There will be a Ham Radio Reunion weekend at Ceratodus near Eidsvold in Central Queensland at Easter this year. Fifty years ago, in 1966, a group of hams met at Ceratodus, which resulted in lifelong friendships.

This back to Ceratodus reunion will mainly be on Easter Saturday 26th March 2016, and everyone is welcome to come along, particularly those who were there 50 years ago.

Ceratodus is on the banks of the Burnett River and has a really nice free camp and BBQs and toilets. For those who don't wish to camp, there are motels in Eidsvold, only a few minutes to the south.

Everyone is welcome, whether a radio ham or not, so plan for Ceratodus on Saturday 26th March Easter 2016.

Further details can be obtained from:

Geoff VK4GI: M 0417 634 776

Kev VK4MKB: M 0459 908 828

Brandon VK4VIP: M 0409 259 663

We hope to see you at Ceratodus 50 Year Reunion, to meet some local hams and to have a great time. We will be monitoring 7060 kHz & 146.500 MHz FM.

Spring 2015 VHF-UHF Field Day Results

Roger Harrison VK2ZRH

The springtime it brings on the calling – CQ contest, CQ contest

What a turn-out! In all, 78 logs were submitted. In addition, out of all those who participated, more operators submitted logs. So there's been healthy growth over the field day events since 2014.

The ratio of submitted logs to total participating stations ('participants') increased significantly. For this event, there were 151 participants in all, of which 73 gave out serial numbers but did not submit logs. For the 2014 Spring event, there were 159 participants, but only 54 submitted logs. The table below shows how the ratio has progressed over four contests. All this, despite the earlier event date.

Field Day	Logs submitted	Participants	Ratio
Spring 2014	54	159	34%
Summer 2015	61	201	30.4%
Winter 2015	38	98	38.8%
Spring 2015	78	151	51.7%

Notably, sixteen Foundation licensees took part in this event, from VK1 through VK5; ten from VK5. This is many more than noted for previous events over 2014 – 2015. Of the sixteen Foundation licensee participants, four submitted logs while two were operators with portable multi-operator stations, so ten were making contacts and handing out numbers to other field day stations. This development has to be a good sign.

Felicitations due

Congratulations to all the section / sub-section top scorers in each Division, and – once again – to Damien VK5FDEC, the top-scoring Foundation station, who picked up this spot for Divisions 1 and 2. And welcome back to Philip VK6ZKO and Terry VK6ZLT, who last submitted logs in 2013!

The VK5s came out in their droves, with 30 submitting logs – 23 entering Division 1 and the same number entering Division 2, with seven entering only in Division 1 and eight in Division 2. The VK3s trailed the VK5s, with 25 entering logs – 22 for Division 1 and 13 for Division 2, while 11 entered in Division 1 only and a mere three in Division 2 only.

Single-band operation picked up for this event; curiously, mostly for the microwave bands rather than the lower four bands. Whatever takes your fancy! Maybe they're "saving their firepower" for bigger things to come. No logs for 8-hr Rover operations were submitted, nor for digital operations. Unfortunately, one of the stalwarts of the digital modes, Waldis VK1WJ, became a silent key in the period between the Winter and Spring events.

Photo 1: David VK5KK is organised for rapid setup and rapid pack-up as a lone-man station.

An Ode to the Field Dayer

Behold the field-dayers!
Mighty are their preparations.
They rise early and go forth,
Full of great expectations.
Neither snow nor rain nor heat
nor gloom of night or flat battery
betrays their determinations.
They returneth late,
Babbling about contacts,
And the logs lost to windward.

- after "Behold the Fisherman", author anonymous

About logs and logging

Operators still need to be vigilant with their logging. After all the processing, the ranking of only one station was changed, and that only because VK4IAA lost a lot of points logging VK4WS/P as VK4WSP, such that he lost his second last place in the Home Station 24hr section. VK3ND's log needed to be corrected; although Greg lives in QF22PC and gave that out as his locator, his log had QF21PC as the activated locator. That gave some other logs quite a few extra points, about 1800 for VK3AV, who consequently jumped over VK5DT by about 80 points for first place in the Home Station 24-hr section. That seemed unfair. Otherwise, there was not much change in logging accuracy.

Cross-band contacts are still being logged, including three occasions when Omni-Rig (which reads the transceiver frequency) was supposedly used at both ends. It is often very difficult to judge who is at fault in these cross-band contacts, so most have been

Photo 2: It's obvious what Rex VK4REX is up to, with his 24 GHz and 47 GHz rigs set up at Howell's Knob lookout, near Maleny, inland from Queensland's Sunshine Coast.

allowed. Exchanges that are off by one in the log are still very common; so is variation in the time stamp (up to several hours), although these are usually fairly easy to resolve. No contacts have been disallowed for that reason, so far.

Who's where?

The Contest Radar website (*www.contestradar.com*) is gaining usage among operators across VK1 through VK5. This online application provides 'visibility' of who's where on a map facility. Before an event, enter your planned portable location (4- or 6-character locator), or your home QTH, along with other salient station details, and the website displays your details on a map – along with the flock of other stations doing the same. The website is integrated with the VKCL logging software.

An idea to develop?

Presentation of results in the current long-form, tabulated format requires a lot of work. Time-consuming, tedious work, with considerable checking and re-checking (not always 100% successful!). This has occasioned delays between finalising log submissions and publication of results. Attempts at 'automating' at least part of it have not been fruitful, to date. That doesn't mean to say it can't be done. Work on this aspect of reporting results is continuing.

The fore-shortened period between the November Spring event and the January Summer event, with Christmas in between, further complicates production of results. Mike VK3AVV's log-checking software does a sterling job in producing the initial rankings – tabulated in ASCII text. It creates great 'working' documents that are then used to populate the tables.

Reducing the tables of band-by-band scores for those entering each section, in the style illustrated below, would greatly speed-up the production and publication of results. However, we're aware that operators view the long-form tables as a key performance indicator. The Summaries on page 1 would be retained. Constructive comments would be appreciated, to *vk2zrh@wia.org.au*

Conclusion

It's difficult to thank Mike Subocz VK3AVV enough for his participation in helping to present these results.

Section: Portable, Single Op, 24 hrs, Four-bands

Callsign	Name	Location/s	Score
VK5AKH	Andrew Hall	PF95	1235
VK5KX	Peter Murphy	PF95	659
VK5OQ	Keith Gooley	PF96	497
VK5GK	Giles Kirby	PF95	411
VK3ZAP	Jim Wilson	QF22	358

As many know, Mike is the developer of the free VKCL logging application, and has also developed the Field Day log-checking software. Thanks are also due to Michael Binz VK3ALZ and Colin Hutchesson VK5DK for their work in reviewing the results and in helping with adjudication of problems with entries. OK, apologies to 'anonymous' for the headline, which comes from the title of an old bush song, "Springtime Brings on the Shearing".

These results are also published on the VHF-UHF Field Days website. Visit *www.wia.org.au/members/contests/vhfuhf/* Keep a look out for the discussion paper on the website seeking feedback on the form of field day rules for the future.

Next event

Winter 2016, over Saturday 18 and Sunday 19 June.

Photo 3: The Contest Radar website provides a view of who is where on a map. Clicking on a station in the legend at lower right adds their details to the site location on the map.

CW Today

Louis Szondy VK5EEE
e *vk5eee@wia.org.au*

Photo 1: The "Ultra Pico keyer" and mini paddle "Bulldog".

In the first issue of **CW Today** printed in the October edition of *Amateur Radio* we introduced CW as the most inefficient data mode whilst being at the same time the most efficient non-computer communication mode when decoded by ear. We looked at some of the reasons people are using CW.

In the second issue printed in November we gave encouraging tips to enable newcomers to get on air and for old timers returning to the mode. In the third issue, in December, we revealed some of the little known history of CW and how what we call Morse Code is actually Gerke Code, as well as some further information for those getting (back) on the air on CW and we highly recommended an online reading of **Zen and the Art of Radiotelegraphy** by Carlo IK6YGJ, which is free QSL-ware.

In last month's January-February issue, we looked at a few mechanical Morse straight keys or "pumps". In this issue we will introduce an additional Morse key and keying method, the electronic *keyer* and *paddle*, and in future hope to also cover the mechanical semi-automatic *bug* key and the computer *keyboard* as means of sending CW.

Electronic keyers

While the "pump" generates Morse code upon downward pushing generally on a knob attached to a lever that makes contact on the down and breaks via a spring pushing the lever back up on release, a paddle which can be single or twin paddle, works horizontally. Attached to an electronic keyer (sometimes built in as a single unit) it generates automatic dits and dahs, in perfect ratio. Push it to one side and you get a string of dits perfectly spaced, push it to the other and you get a string of perfectly spaced dahs. On a twin lever paddle if you squeeze

it and the keyer is in "iambic" mode, you get a string of di-dahs or dah-dits depending on which leaver you press first.

Reflexes are all important in the use of electronic keyers, and you can adjust the speed with a knob. Proficient operators can send even 60WPM or more on a keyer – single level non-iambic mode – or up to around 40WPM or so on an iambic twin paddle.

Photo 1 shows the "Ultra Pico keyer" and mini paddle "Bulldog" by K9LU in the foreground, both in use along with a 40 m QRP CW transceiver.

Photo 2 shows the "Ultra Pico keyer" in close up. The keyer in simple kit form and the paddle cost around $30 each from the USA and are an inexpensive way to get on air with a paddle.

Most modern rigs have a keyer already built in, so the keyer wouldn't be required, however external keyers such as this one often have many useful additional features such as beacon mode, contesting features and other memory banks that can be recalled at the push of a button.

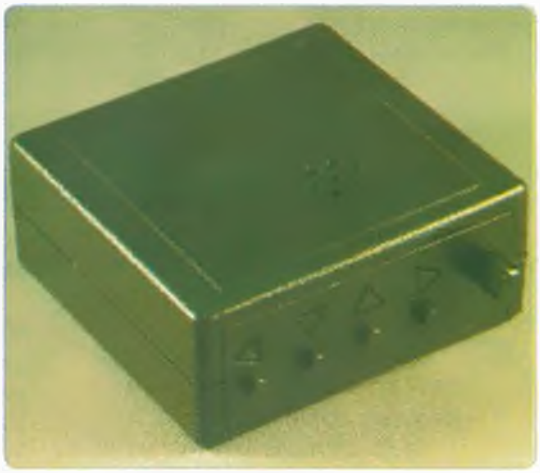


Photo 2: The "Ultra Pico keyer".

Readers' feedback

I have received much positive feedback from readers, who have thanked *Amateur Radio* for publishing this column and told me that they thoroughly enjoy reading it. If you haven't written in yet and have read the first few editions of CW Today, I'd very much welcome your feedback.

Many readers have also voiced concerns highlighting current global CW issues which could benefit from a closer look so that the various users of CW can continue to get the benefits of its use into the future. This includes concerns about requirements for balancing the various needs and aspirations of different aspects of the amateur radio hobby, and how the various types of uses and methods of sending and receiving CW can be protected, and all positively flourish together on the CW bands.

Basic fundamentals

Firstly, before we delve into those areas of global CW concerns highlighted by readers for discussion in upcoming issues that sometimes evoke passion among hobbyists in various camps, activities or usage scenarios and in order to avoid misunderstandings, let us all with the best of intentions toward both amateur radio and fellow radio amateurs, acknowledge the fact that this hobby is diverse and let us believe that we can be united within that diversity, at least around some core principles. If we embrace these before moving on to discuss various problems that arise among different usages of CW within our amateur bands, we are more likely to avoid misunderstandings.

It may help here to draw attention again to the Amateur's Code, which can be found from a search of the web, but in particular these two relating to the relationships between the participants of our diverse hobby: the amateur is *considerate*... (s)he never knowingly operates in such a way as to lessen the pleasure of others; the amateur is *friendly* (s)he operates slowly and patiently when requested; offers friendly advice and counsel to beginners; kind assistance, cooperation and consideration for the interests of others. These are the marks of the amateur spirit.

Further, we should agree to respect the rights of other radio amateurs to have different interests and priorities than we do. Some like *all* the various CW activities, but some like only one or more. Examples include leisurely QSO, DX QSO, random contacts, contesting, award chasing, calling CQ or listening. Without all these activities we wouldn't have so many CW users, so let us agree that all share the right to the use of our CW bands. Then there are those who enjoy perfectly sent CW, and those who are less fussy, those who like to use bug keys, straight keys, electronic paddles, or all three, those who use decoders, keyboards, as well as those who use computers and those who don't.

Friction and conflict

None of us are forced to enjoy all these aspects of CW within amateur radio or to participate in anything other than what we wish to. At the same time, we should ensure that clashes between these various operations are minimised, and highlight those issues which many CW Ops have written about with concern, due to negative impacts experienced when certain conditions are met, such as a band being overcrowded, a major DX activation or several contests being underway.

Before we can address the various problems that arise, we should first take a look at the conditions which generate friction, interference, and/or inability to pursue the hobby as per our various expectations. Readers who agree the above basic fundamentals and who have identified any such global CW issues are invited to write in with comments and suggestions so that we can then take a look at

those issues from our small part of the world CW community and see if we can contribute.

Activity on the CW bands

We appear to be facing a situation never before faced on our bands: at times *higher* activities than we've *ever* experienced on our CW bands, and the rest of the time, *lower* activities than we've *ever* experienced on our CW bands. Our band usage is thus extremely unstable and fluctuates wildly to a degree never seen before in the history of amateur radio.

While everyone should agree that busy amateur bands is a good thing, in order to hopefully provide some guarantee toward us retaining our HF bands into the future, we should also be able to see that extreme fluctuation in our usage from over-crowded one day to under-used the next few days is not a healthy situation. Just as extreme weather fluctuations between heat waves and freezing weather is a sign that something is increasingly wrong where it was not the case in the past. The best scenario for amateur radio activities would be for the bands to be occupied more evenly.

What could we do to achieve more activity on the bands during quiet times, and better sharing of the limited resources during busy times?

I highlight in brief a few activities that have resulted in some increased activity on the bands here in Australia that have been the initiatives of various CW operators.

CW practice nets are experiencing a revival, including one conducted on Monday and Friday evenings at 8 pm by VK2CCW around 7115 LSB helping with on-air practice and allowing for questions and feedback in SSB.

The 7050 calling frequencies as well as centre of activity frequencies used by CW operators looking for QSOs during the day, around 14022.5 and 21022.5 kHz in particular, continue to result in more CQs being answered when the bands are otherwise quiet.

7022.5, 14022.5 and 21022.5 kHz are also being used for the Saturday afternoon 0400UTC 20 WPM CW broadcast by VK4QC repeated Sunday mornings at 2200UTC at 17 WPM. A slow repeat on Monday evenings at 1000UTC at 10-14 WPM on 3522.5, 7022.5 and 14022.5 kHz is also proving popular with listeners.

Generally random CQ contacts have increased; many people at *all* levels are coming back onto CW.

In upcoming issues we may take a look at the positive aspects of DX activations and contests on the activating of the CW bands as well as the problems that sometimes arise from these activities clashing with other DX and CW activities. After receiving your further feedback we can then put forward ideas on how these can be minimised, taking into account readers suggestions.

CW and computers

With the advent of wide spread use of computers and free software, CW is now increasingly used as a digital mode by those who cannot decode it by ear but use a software or hardware "decoder". The reliance primarily upon a decoder to decipher CW is very different in its outcome from a trained CW operator who decodes by brain and ear. Decoders are woefully inferior in anything less than ideal conditions: not only the keying must be accurate but more so there should not be other interfering signals nearby, fading, changes in speed or style. Performance on short CW transmissions on closely related frequencies by multiple stations cannot come even close to the human ear decoder. Use of decoders, *not* the use of keyboards, defines as "Digital CW" (DCW).

We can therefore take a look at the rise of DCW and its impact in activating CW bands, highlight some of the unintended side effects upon traditional CW activities, and then explore ways that both types of use can co-exist and flourish with positive outcomes for all types of CW users.

In summary

We are all stake holders in amateur radio and we often have differing sub-interests within the hobby.

Naturally we cannot right all the problems of CW and the global amateur radio but we can perhaps make our small contributions to finding out common needs and possible solutions to various challenges faced by CW users, so that all aspects of CW use can benefit in the long run.

If you are a CW operator, DCW user, DXer, contester, or enjoy leisurely QSO in CW, and agree with the basic fundamentals highlighted earlier above which are at the heart of the traditions of amateur radio, do write in with your comments and suggestions on any of the above topics of discussion that we may cover in summary in an upcoming edition of CW Today.

CW is the only means I know that allows humans to communicate with each other using only one single hand, while eating a meal with the other, mouth full, burping and letting out gas, without causing offence.

73 ES 77 de Lou VK5EEE.

Silent Key

Gerry Sulzberger, formerly VK7ZA

It is with sadness that I report the loss of Gerry Sulzberger, formerly VK7ZA, who passed away on Christmas Day after a long battle with Huntington's disease.

Gerry would be well known to a number of the longer term VK7 amateurs as he was a very active member of WICEN in past years.

Our deepest sympathy is passed to his son Peter Sulzberger VK7FPWS and family.

Vale Gerry.

(Yvonne VK7FYMX)

SOTA & Park News

Allen Harvie VK3ARH

First congratulations go out to Amanda VK3FQSO and Nev VK5WG who gained Super Sloth status (10k Chaser points) over the Christmas period. Both are consistent chasers and good operators who are a credit to the hobby. Both regularly appear in my log and I am surprised on the infrequent occasions that neither do. I look forward to many more from both in the future.

There are 240 Super Sloths internationally and VK has 8. Also there are 259 Mountain Goats internationally and VK has 10. On the topic of goats, Andrew VK1AD (ex VK1NAM) gained 5000 S2S points reflecting the effort he has put into chasing from a summit. For Summit to Summit contacts, VK has two Activators (VK3PF and VK1AD) in the top 10 and six in the top 30. We are holding our own in VK.

Paul VK5PAS has added the remaining 136 VK5 Conservation parks into the WWFF award scheme. These are existing parks that qualify under the SANPCPA and welcome additions to the WWFF scheme. Remember, for an activation to quality for both WWFF and SANPCPA, it must be portable due to the SANPCPA requirement to be portable. This requires you operate independent of your vehicle. There is nothing a separate battery, table and chair won't fix.

VK7 parks are currently being scrutinized for inclusion in WWFF, so look out for more opportunities there.

The 6 and 10 m SOTA Challenge continues to encouraging the use of these bands. 6 m Yagi antennas are proving neither too big nor heavy and with favourable propagation to provide impressive SOTA contacts. Several operators who participated in recent VHF Field Days did so from a SOTA summit. This combination proves a perfect match. Whilst some don't pursue contests they are interested in the SOTA contact. All contacts add to the activators score which help in the contest. Several VHF operators have made positive comments regarding the number of SOTA folk out and about and the increased contacts as a result.

With JA and ZL SOTA associations coming online, additional opportunities are presenting themselves for chasers. JA is typically 15 m CW whilst ZL WWFF and SOTA activity is increasing on 40 and 20 m. 40 m is not supporting the solid S2S contacts we were hoping for. However, the increased chaser interest is providing opportunities for activators and chasers from both countries a chance to add international contacts to their SOTA logs.

Photo 1: Allen VK3ARH shows evidence of his battle to activate VK3/VT-050.

North Hells Gate (VK3/VT-050)

North Hells Gate is a summit located in the Bunyip State Forest in South Victoria. North Hells Gate is at an altitude of about 693 m so worth 2 SOTA points. As far as a SOTA summit goes whilst a popular site due to close access to city, it is a minor target that is fast gaining a reputation as a challenge.

This summit is proving not to be giving up her points without drawing blood. There is considerable documentation on this summit from experienced activators including Peter VK3ZPF, Wayne VK3WAM, Glenn VK3YY, Allen VK3ARH and Tony VK3CAT describing the perils that await, no not from the Bunyips in the area but a greater adversary awaits, vines and grass.

In 2009, 45 per cent of the Bunyip State Forest, located in central western Gippsland was burnt by wildfire. The fire known

Photo 2: Tony VK3CAT shows similar impacts from the dense vegetation surrounding VK3/VT-050.

as 'The Bunyip-Ridge Track fire' initially burnt through dry and damp undulating eucalypt forest, then across grasslands before finally burning up into wet eucalypt forest on to the hillier North Hells Gate and South Hell Gate. As a result, the forest has grown back with vengeance.

This thick undergrowth has created a situation where poor visibility combined with regrowth is so tightly packed that it is a real squeeze to get through with a backpack on. Combine with grass and vines that will cut any exposed skin and entrap you as you moved forward and you have a challenge. The barely visible fallen slippery timber underfoot provides the only relief as able to use as bridges through the vegetation. Don't forget the leeches.

Photos of recent activators Tony VK3CAT and Allen VK3ARH who dared to challenge this summit show the damage the bush can inflict.

References

http://vk3zpf.com/2013/01/north-hells-gate-sota-activation.html

https://vk3cat.wordpress.com/2016/01/28/tohell-and-back/

https://vk3hra.wordpress.com/2016/01/04/30122015/

Upcoming - "VK3 Show & Tell" Sunday 17 April.

Anyone seeking to get involved in portable activities be it WWFF or SOTA is encouraged to attend and see first-hand the equipment and discuss techniques for operating portable with seasoned operators.

The location of this event will be to the west of Melbourne in the Brisbane Ranges National Park. Commencing at 1000, followed by a free Sausage Sizzle for all attendees at 1200.

The structure of the morning will involve experienced amateurs who will bring along and setup various items of equipment used in portable activities as well as being on hand to answer any questions raised. There will be many variations of radios and antenna available, covering broad interest. This will show you don't need expensive gear or to spend all day travelling to operate portable.

For more information, please email Tony on showntell@parksnpeaks.org with your name and mobile contact details.

Looking forward to many more contacts with new and experienced operators through 2016.

Allen VK3ARH

73 & 44

Congratulations to Allen on his upgrade to Advanced and his new callsign. It has been noted on air that a few operators, Allen included, are having a little difficulty coming to grips with the reversed order of the callsign suffix. Ed.

VHF/UHF - An Expanding World

David K Minchin VK5KK

Introduction

By the time you read this summer will be over.

Just how good was the "DX" season? Whilst we still have a few weeks to go, this month's lead article discusses the season that was with some observations and commentary on the various propagation indicators.

This month also, CW propagation beacons, do we need to bring them into the "Digital" 21st Century? Around the bands including 47 GHz operations in VK3 & VK5 and the collaborative Geelong 3.4 GHz transverter project.

El Nino strikes again!

Mid-2015 and El Nino is back again. The warmer circulating water in both the Central and Eastern reaches of the Pacific Ocean has a direct impact on weather on both sides of the ocean. This El Nino has been reported as the most dramatic since 1997-1998. Certainly across the bottom of Australia we have seen higher than average rainfall from tropical moisture feeds as well as a greater degree of upper level instability. High pressure cells have moved more rapidly between influences not allowing conditions to stabilise. All these factors impact the occurrence and strength of Tropospheric propagation.

The VK to ZL path peaked early with at least five recorded openings on 432 MHz and above from Oct. 15 to Feb. 16, perhaps an El Nino positive? The season opened early and most openings were copy book from coastal VK4 to the ZL1/2. On the same openings 144 MHz propagation extended into VK2/3 closer to Christmas and VK7 in Jan. 16. There were at least two recorded openings with multiple contacts on 1296 MHz (Oct. 15 and Jan. 16) and one occurrence of 2400 MHz. Nothing recorded higher in frequency.

The VK6 to VK3, VK5 & VK7 path had an early season opener in the first week of October. That same system moved into the Tasman Sea a few days later opening the VK4-ZL path. Then there were no further openings till 10 weeks later in the last week in December! The pattern that emerged from that point onwards would suggest the season was running six weeks late. Openings typically only 1 -2 days long with fairly dramatic QSB on the tail end of the opening from an ever present trough at the VK6 end.

Now in early February, we are in the middle of the strongest 144 MHz opening from VK6 to VK3/VK5 so far this season with signals up to 59. Conditions brought about by a relatively high level refractive layer (1300 metres) at the eastern end with a much lower layer evident at the VK6 end.

The season's microwave contacts greater than 500 km are summarised in the table. Other than the January (World Record!) 10 GHz opening, there isn't too much over 500 km this year. Rex VK7MO has certainly been busy though!

Table 1: Tropo Season 2015/16 Microwave contacts greater than 500 km.

Date	Station A + Locator	Station B + Locator	Freq. (MHz)	Mode	Report	Distance (km)
8/1/2016	VK6DZP in OF84KX	>> VK7MO/P in QE49AP	10368.225	JT4	-13	2788
8/1/2016	VK6DZP in OF84KX	>> VK7MO/P in QE49AP	10368.225	JT65	-21	2788
8/1/2016	VK6DEP in OF84KX	>> VK5KK in PF95HB	10368.225	JT4	-18	1980.7
8/1/2016	VK6DEP in OF84KX	>> VK5KK in PF95HB	10368.225	JT65	-11	1980.7
14/12/2015	VK7MO in QE37PC	>> VK3WE in QF32SE	10368.225	JT4	-10	987.6
8/12/2015	VK7MO in QE37PC	>> VK3WE in QF32SE	10368.225	JT4	-12	987.6
13/12/2015	VK7MO in QE37PC	>> VK3WE in QF32SE	10368.225	JT4	-9	987.6
15/12/2015	VK7MO in QE37PC	>> VK3WE in QF32SE	10368.225	JT4	-14	987.6
17/12/2015	VK3WE in QF32SE	>> VK7MO in QE37PC	10368.225	SSB	51	987.6
18/12/2015	VK7MO in QE37PC	>> VK3WE in QF32SE	10368.225	JT4	-15	987.6
18/12/2015	VK3WE in QF32SE	>> VK7MO in QE37PC	10368.225	SSB	53	987.6
24/12/2015	VK3WE in QF32SE	>> VK7MO in QE37PC	10368.225	SSB	57	987.6
27/11/2015	VK7MO in QE37PC	>> VK3DHZ in QF32SE	10368.225	JT4	-11	986.1
28/11/2015	VK7MO in QE37PC	>> VK3DHZ in QF32SE	10368.225	JT4	-18	986.1
4/12/2015	VK7MO in QE37PC	>> VK3DHZ in QF32SE	10368.225	JT4	7	986.1
5/2/2016	VK7MO/P in QE49AP	>> VK3ZQB in QF11CO	10368.225	JT65	-6	668.9
5/2/2016	VK7MO/P in QE49AP	>> VK3ZQB in QF11CO	10368.225	SSB	59	668.9
8/1/2016	VK5DK in QF02JE	>> VK3RGH in QF21IP	2403.434	BCN	529	824.4

Hepburn's service is often described as "2D" in its analysis. Whilst it does relate the refractive gradient (strength) in colours, it shows a duct at 300

Tropospheric prediction indicators

There is no perfect system; at best it is a combination of factors and observations.

We are all familiar with Hepburn's "Worldwide Tropospheric Ducting Forecast" website. To date it remains the most usable indicator, the modelling that has been developed in behind is quite mature and it gets most things right for VHF/UHF paths.

However, this season one Hepburn factor has been the lag evident between the predicted conditions and the actual conditions, especially with erratic or fast moving systems. Perhaps not so hard to understand when you consider that the predictions are only updated once a day and what you are looking in real time is potentially based on 48 hour (or more) old data. Unfortunately many things can change in 24 hours.

metres in the same fashion as one at 1500 metres. It does seem to factor in the effect of the sea i.e. it is a better reflective medium than land. It is most likely these factors are based on VHF experience; at higher frequencies the effect of land masses, heating, etc., is more often different.

The optimum height required for a duct to support propagation above 500 MHz is typically less than 800 metres, often around 550 metres. The most important factor of the duct is the refractive gradient at the boundary height. A minimum of 157 N units is required to refract a signal, more typically it is greater than 300 N units during a good opening >500 MHz opening.

Refractive gradient data is obtained from vertical sounding. Unfortunately in Australia the real time data collected by Radiosondes is becoming less with BOM cutbacks. Radiosonde balloons still go up twice daily at capital city airports but some country sites have dropped to three a week or have stopped completely (Esperance). Still it is the most direct indicator we have, for quick access to vertical sounding data go to *http://slash.dotat.org/cgi-bin/atmos/*. For more detailed upper atmosphere data go to the University of Wyoming resource at *http://weather.uwyo.edu/upperair/* or the BOM website.

BTW: If you would like to look into what is behind the Hepburn predictions there are a couple of sources of information on the web about the GrADS 2.0 software used to analyse metrological data. The NOAA website also has archived a great deal of information from around the world, handy if you want to study other paths. This data is available from their ftp website *ftp://arlftp.arlhq.noaa.gov/*. You may need some advanced studies in meteorology to use some of this data!

47 GHz Operation in VK5

Simon VK5TE has been active on 47 GHz for a while now. He uses an I3OPW doubler mixer with an Elcom LCDFS1201 PLL (11660 MHz) and a 100 mW 12/23 GHz doubler. A 10 MHz OXCO locks the PLL. The measured output power is 0.15 mW (-8.5 dbm) on either sideband, the noise figure of the mixer is in the region of 13 – 14 dB. The antenna is a 300 mm semi offset fed with a small (tiny!) WR19 horn feed.

Photo 1: Simon VK5TE's upgraded 47 GHz transverter with Nurad antenna.

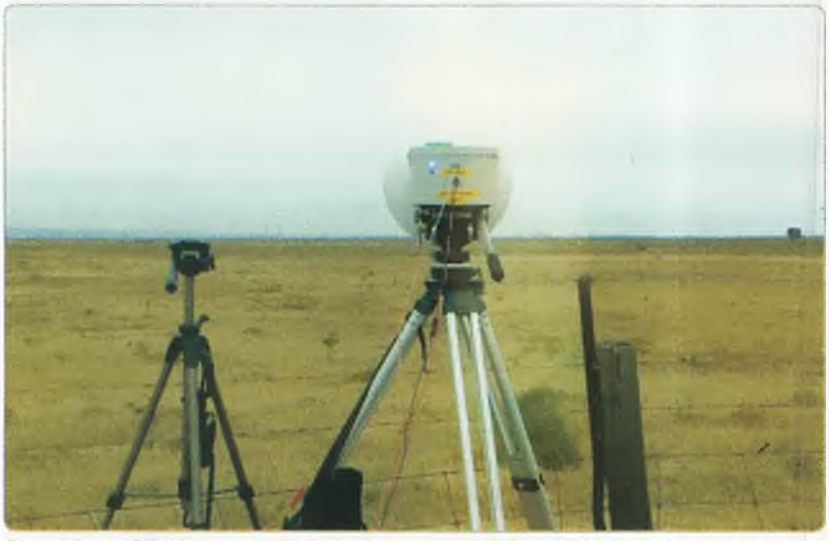


Photo 2: 47 GHz 30 mW system and horizon view at the VK5KK end.

On 26/1/2016 VK5TE and VK5KK decided to just see how far you could go from a hill (PF94gq, 320 m ASL) to flat ground (sea level) with 0.15 mW! Path profiling was done using *www.heywhatsthat.com* to select various paths at 30, 50 and 72 km distance just past the visual horizon. Only the 50 km path had any significant distance over water. Humidity was >50%, enough such that we could not see much further than 30-40 km.

The results were interesting and those over the 72 km path surprising. Initial contact was made on 24 GHz using the same power level into the same size dish as a sighter. Despite the outer harbour buildings in the way and being past the visual horizon signals were at least +20 dB S/N on SSB and full quietening on FM on both bands.

To quote the saying there is still more gas in the tank, our next attempt will be between two hills out past 100 km! The photo shows Simon's rebuilt system using a surplus 300 mm diameter Nurad 30 GHz Cassegrain antenna ready to go!

Bring our Beacons into the 21st Century

Propagation beacons have been with us for a long time, mode = CW. More recently, thanks to Alan VK3XPD's initiative approximately 20 VHF/UHF/SHF beacons now have GPSDOs to accurately lock their frequency.

More recently another "Beacon service" has evolved using WSPR (Weak Signal Propagation Reporter), using a home station in "downtime" on 144 or 432 MHz. VK6DZ operates on WSPR on both frequencies, this has quickly become the best early warning tool for the Great Australian Bight path.

Should we follow European trends and convert some existing and/or establish new beacons on Digital modes? JT65 is becoming one of the default beacon modes and there is plenty of information available to build WSJT beacon drivers using a PIC chip to do the encoding. If you have a GPSDO you will already have the necessary time reference. If you are interested drop me a line, I am already working on one project for a group setting up a microwave beacon. For more information go to *www.g4jnt.com/beacons.htm*

3.4 GHz Panel Project

The Geelong club has sold over 120 VCOM 3.5 GHz transceiver panels in the last year. When converted, the units output around 1 watt into their 16 dBi antenna and have a fairly decent receive noise figure.

With so many people working on these units there has been great progress in understanding how they work. For example, you no longer need to rob filters from a donor panel to shift the receive pass band down to 3400 MHz. You can simply connect the unused TX filter in place of the receiver filter and retune it! This also negates the need to use the original filter in front of the first receiver stage improving the overall noise figure.

The code on the Atmel 8 micro has now been opened up making it possible to shift the first PLL to 1484 MHz so you can use 432 MHz (instead of 444 MHz) as an IF. In fact at least one person is looking at converting a panel to a beacon using the second PLL set to 444.*25 MHz to generate the beacon signal! It is not a difficult project; all the microwave parts are ready to go! For more information on the panel conversion or to buy a set please go to the Geelong AR club website.

In closing

We are still looking for a 50 MHz contributor! Also if you have a club project or proposed activity, please send an email to *david@vk5kk.com* and I'll include it in the column. Next month we will have a quick look at SDR in the technical section, till then.

73

David VK5KK

Meteor Scatter

Dr Kevin Johnston VK4UH

So 2016 is upon us and not the best of starts since, for the first time in three years, I missed the deadline for contributions to the February *AR* magazine. Well into summer as I write, the period normally associated with the best of propagation for all the "VHF" propagation modes, MS activity is at its peak for the year for us in the southern hemisphere. Both hemispheres experience a broad peak in Meteor Scatter propagation each summer and a corresponding lull each winter.

The Geminids Meteor Shower peaked here in VK on 15 December. This shower is normally the biggest and best shower on offer each year for MS stations in both hemispheres. The Geminids shower usually has a broad peak providing enhanced propagation over several days each year. This shower has, in previous years, displayed a Zenith Hourly Rate (ZHR) of 120/hr or more. ZHR is a predicted count of visual meteor sightings from each shower and is a useful comparative index for meteor scatter propagation. The 2015 peak did not come even close to the predicted ZHR of 120 /hr. Radar detection suggested an actual count of closer to 40 /hr but this was still associated with significant propagation enhancement over several days. From this location in QG62kp I completed contacts on 14 December (a midweek morning) with Norm VK3DUT (QF55ar) and Gavin VK3HY (QF22pd), with meteor burns (i.e. long duration reflections) lasting for tens of seconds at +20 dB above noise and pushing the S meter half way up the scale. Also working Darrell VK2BLS (QF55kk) and Mark VK2EMA (QF37qs) on 50 MHz with burns spanning across two or more transmission periods. The "low logbook count" was really a reflection of the number of stations on-air on a midweek morning rather than of the propagation enhancement. On the previous evening Brisbane experienced clear skies and I was fortunate to see four bright visual meteors arising from the centre of the Gemini constellation as it rose, over a period of about ten minutes. There was still evidence of enhanced propagation remaining over the weekend activity session on 18 and 19 December.

Those who follow this column regularly will know that there have been multiple attempts to complete 50 MHz MS QSOs between southern VK4 and ZL. Although possible, the distances involved from these northern latitude places the path at around 2,500 km which is on the theoretical limit for MS propagation alone, due the curvature of the earth and height above ground of the E layer (100 km) where most meteor reflections occur. It's easy from VK1, 2, 3 and 7 but yet to be achieved on 50 MHz from VK4 with "pure" MS. I did report a 2 m MS QSO between here and ZL1TPH/p back in 2014 but on a day when there was concurrent

tropo ducting at both ends of the path. On Christmas Eve morning I observed meteor pings on the ZL2WHO/b high power 6 m beacon on 50.240 MHz. There was little chance of tropo ducting on that day, as judged by the Hepburn charts, but a high probability of Sporadic E (Es) propagation. It is likely that both Es and MS propagation were involved in that path which is well beyond the normal limit for meteor scatter alone. Despite several attempts with two MS stations, in ZL it was not possible to complete a QSO however good evidence that combined propagation modes do occur and could be used to "bridge the gap". Close but no cigar.

My most memorable MS QSO of the year was with Allan VK2EFM (QF56fw) on 6 m on 11 December. The MS QSO was completed with Allan running just 2 watts of FSK441.

Probably the best outcome of 2015, for me at least, was the resurgence of interest in meteor scatter propagation, particularly on 50 MHz, and the number of new callsigns appearing on the bands. A quick scan of the log book includes VK3DUT, VK2EMA, VK2AWD, VK3ZYC, VK2ZIW, VK2FAD, VK2IUW, VK2EFM and VK3XQ amongst others and the return of VK7MO. It became apparent that the learning curve is quite steep for anyone contemplating MS for the first time. There are several practical issues to get across including transmission modes, report formats, operating times and periods and operating protocols. It is particularly daunting as there are many stations all operating simultaneously on the same frequency. Back in 2014, I prepared a short introductory article entitled *"Achieving and Surviving your first MS QSO"*. I offer an updated version here to assist and encourage new and potential new operators to this fascinating mode of communication. It is not intended to be a comprehensive MS operating manual, just enough information to get going and survive that first Meteor Scatter contact. In this context I will be talking about FSK441 digital MS operating on both 144 MHz and 50 MHz.

Firstly – Why Bother? Meteor Scatter propagation will allow contacts to be easily made on 144 MHz out to distances of about 2300 km, way beyond the normal range on 2 m except under the most exceptional conditions. On 50 MHz, where these distances are not exceptional, contacts can still be made even where the band is dead to all other modes of propagation. QSOs are possible therefore between the eastern and southern state capital cities and across to ZL. QSOs can be achieved on almost any day of the week under flat-band conditions.

So what's needed? The basic entry level setup is already to be found in many modest 2 m and 6 m SSB stations. Almost any basic transceiver running about 50 watts or more will suffice. GPS frequency locking is not required, "ordinary" SSB standard of frequency accuracy and stability is adequate. FSK441 mode is designed to allow for a degree of Doppler shift of signals and can decode signals even 200-300 Hz off-frequency, which would render an SSB signal completely unintelligible. Even operating SSB most operators will recognise a small frequency offset between their rigs and the stations they are working. It's easy with a little practice to compensate for this in each particular radio. For an antenna a 6-8 element 2 m Yagi beam above 10 m in height is close to ideal. On 50 MHz even a horizontal dipole will suffice. Antenna elevation control is not required; most signals will be received at low angles. Mast head pre-amplifiers are not required either, since unlike EME communication, signals received by MS are frequently loud, well above the noise floor and are easily heard in the loudspeaker. Received pings are generally strong, they are just very brief. While it is possible to achieve contacts with lower power or even with vertical antennas this is going to be hard and frustrating work at both ends of the QSO.

On the digital side, any station already set up to run any of the computer generated modes will likely already have all the hardware required. These include WSPR, JT65, PSK31, SSTV, RTTY, packet etc. The computing power required to run FSK441 is very modest and easily achievable by most desk or laptops, with just about any OS, likely to be still in use. In common with most computer-generated digital modes FSK441/WSJT is based around audio signals generated and decoded in the computer being transmitted and received via the normal microphone/earphone path of an ordinary SSB transceiver, using only the normal SSB voice bandwidth. As with the other digital modes some form of interface is required to transfer the audio in and out between the transceiver and computer at an appropriate level and without interference from RF, mains hum or other sources. Also the interface has to allow the computer to operate the PTT of the transceiver during transmission. For stations not already set up for digital operation, there are many homebrew and commercially available solutions including off-the-shelf options including the SignaLink and Rigblaster modules.

Software

The WSJT suite of software, written by Prof Joe Taylor K1JT, is available off the net and free of charge for amateur use (1) In general it has proven easy to install and run. It is worth downloading and printing out the comprehensive user manuals for the various modes for future reference, from the same site. Take the time to print out and read the instructions about configuring the software to arrange the audio in and out paths and levels and the PTT control. In my own experience, using the SignaLink type interfaces, which are effectively outboard USB soundcards in their own right, the software configured itself with no user input at all. The only catch was setting the right playback level (to

maximum) in the audio mixer panel on the computer to allow the PTT to operate. It is worth taking the time to familiarise yourself with the various screens and on-screen controls. For most digital modes it is usually possible to try everything out with a local station while you find your way around the various software and hardware. This may not work with FSK441 and it is common to decode either garbage or nothing at all on strong constant signals. Bear in mind FSK441 was designed to decode short bursts of signal and it frequently performs very poorly on local stations.

Next you will need a basic understanding of how a Meteor Scatter QSO runs, what exchanges will occur and what the reports used in FSK441 mean.

The exchanges

As with any other mode, most FSK441 MS QSOs will start with a CQ:

CQ VK4UH

i.e. the string (the transmitted message) "CQ VK4UH" is typed in and is transmitted for 30 seconds out of each minute and will continue for as long as necessary for someone to respond.

To be clear the " " symbols are not typed in the string, they are just here in this article to show the format. When the CQ is received by a distant station, say VK1ABC, he would respond by transmitting:

VK4UH/26 VK1ABC

The report 26 (see reports below) is separated from the destination callsign by the "/" symbol and no spaces. This clearly defines the report 26 as being intended for VK4UH. The callsign of the transmitting station always has a "space" at either end for clarity. This string is again transmitted for 30 seconds out of every minute until it is received.

When decoded by VK4UH, his string would be changed to:

VK1ABC/R26 VK4UH

Again the callsign of the transmitting station, now VK4UH, has a space at either end for clarity and VK1ABC is being sent the report R26 – separated by the "/" symbol. "R" in this context means "Roger – I have received my report- and my report to you is also "26". The report 26 is the equivalent of 5/9 on SSB and is the commonest exchange. This is certainly what you will use as a new user. Again this string is transmitted for as long as necessary until it is received by VK1ABC.

When decoded by VK1ABC, his string would be changed to:

VK4UH/RRR VK1ABC

The same format confirms who is transmitting. "RRR" (Roger Roger Roger) indicates that all required information has been exchanged i.e. both callsigns and reports in both directions. When the RRR string is decoded by VK4UH the QSO is actually complete. However VK1ABC cannot know that and would keep on transmitting the previous report. Once RRR is received by VK4UH he would then, as a curtesy, change his string to:

VK1ABC/73 VK4UH

When VK1ABC sees his 73 report he would go back to CQ or to call another station.

The Report

FSK441 M/S reports consist of a two digit number.

The first digit indicates the length or duration of the ping received:

1 <40 ms
2 40 – 100 ms
3 100 – 1000 ms
4 >1000 ms

The second digit indicates the signal strength:

6 0 – 10 dB (above noise)
7 11 – 16 dB
8 17 – 22 dB
9 >22 dB

As above "26" is the commonest report used and "26 and 27" will account for virtually all reports. Pings with a duration of less than 100 ms (i.e. 0 or 1) rarely give complete decodes.

To make this QSO process simple, the WSJT programme provides six pre-populated transmitting fields (Tx 1 to Tx 6) on the main operating screen. These contain all of the usual steps for both sides of a QSO. Each individual operator needs only to *alternate* down the steps, his starting point determined by which station called CQ. No step is repeated by both stations. The callsign of the station to be called can be manually entered in the "To Radio" box or this will happen automatically if the mouse cursor is clicked over a "clear" callsign on the received data screen. Once the callsign is in the "To radio" the messages are populated by pressing the "GenStdMsgs" (Generate Standard Messages) box.

The report protocol used by VK stations is slightly different (and improved) compared to that used in some other countries. Once the WSJT programme is installed and running for the first time it is recommended that the VK protocol be adopted by modifying the OPTIONS screen. Click "Setup" in the pulldown menu. It will be necessary to insert your own callsign and grid square into "Station Parameters" and it may be necessary to alter the audio and PTT parameters depending on the interface in use. Then

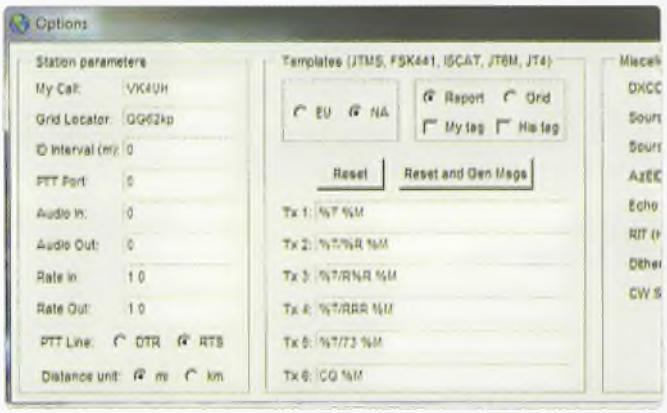


Figure 1: Station parameters are set under the Option menu.

update the message templates for Tx1 to Tx 6 to match those in Figure 1. Ensure that the transcription is exactly as written, especially the positions of the spaces etc. These settings are then held indefinitely.

The When and Where and the Timing – the last few jig-saw puzzle pieces!

Meteor Scatter can be used at any time however in VK there are two regular weekend activity periods on 144 MHz and 50 MHz. These are where most new operators will achieve their first QSO.

The activity periods run early in the mornings on Saturday and Sunday between 0700 and 0900 NSW/VIC clock times (2000 and 2200 UTC in summer) when Meteor activity is most conducive to good propagation. Activity often starts from 1900 in the summer months, as the northern states are already well past dawn by 2000. The 50 MHz session is concurrent, many stations moving down as 2 m activity fades.

The primary MS operating frequencies in VK and ZL are 144.230 MHz and 50.230 MHz with the radio set to USB. To get going FSK441 is selected from the "Mode" box in the pull-down menu. Start with "S" (sensitivity) parameter set at about 2 and the "Tol" (tolerance) set at 400. "S" can be set from -9 to +9. The lower the setting the more on-screen garbage will be seen; higher settings reduce this problem but also block decoding of weaker pings.

Background noise should be seen on the horizontal waterfall display on SpecJT screen and the level bar graph showing around 0 dB on background noise. If not adjust levels appropriately and ensure the "Monitor" bar is on. It is good practice to receive only for the first few complete periods. Received pings are usually clearly heard in the loudspeaker and appear as a coloured area on the SpecJT screen. The software will automatically attempt a decode on received pings at the end of each receiving period. Decodes can be forced on-the-fly however at any time, by clicking the left mouse button with the curser placed over the ping on the SpecJT screen. Multiple decodes can be attempted if required changing the "S" setting to find the best level for your own system.

Which Period for Transmission?

Each minute is divided into two transmitting periods. The First Period runs from the top of the minute (0 seconds) until 30 seconds. The Second Period then runs from 30 seconds back up to 60 seconds. This is selected by the operator by checking or unchecking (ticking) the "TX First" box on the main WSJT screen. Clearly two stations must be transmitting in the opposite periods in order to hear one another and achieve a QSO. To make this work properly the computer clocks at either end of the QSO must be accurately set to within a second or two of

AMSAT-VK

AMSAT Co-ordinator
Paul Paradigm VK2TXT
email: *coordinator@amsat-vk.org*

Group Moderator
Judy Williams VK2TJU
email: *secretary@amsat-vk.org*

Website:
www.amsat-vk.org

Group site:
group.amsat-vk.org

About AMSAT-VK

AMSAT-VK is a group of Australian amateur radio operators who share a common interest in building, launching and communicating with each other through non-commercial amateur radio satellites. Many of our members also have an interest in other space based communications, including listening to and communicating with the International Space Station, Earth-Moon-Earth (EME), monitoring weather (WX) satellites and other spacecraft. AMSAT-VK is the primary point of contact for those interested in becoming involved in amateur radio satellite operations. If you are interested in learning more about satellite operations or just wish to become a member of AMSAT-Australia, please see our website.

AMSAT-VK monthly net

Australian National Satellite net

The net takes place on the 2nd Tuesday of each month at 8.30 pm eastern time, that is 0930 Z or 1030 Z depending on daylight saving. Check-in starts 10 minutes prior to the start time. The AMSAT-VK net has been running for many years with the aim of allowing amateur radio operators who are operating or have an interest in working in the satellite mode, to make contact with others in order to share their experiences and to catch up on pertinent news. The format also facilitates other aspects like making 'skeds' and for a general 'off-bird' chat. In addition to the EchoLink conference, the net will also be available via RF on the following repeaters and links.

In New South Wales
VK2RBM Blue Mountains repeater on 147.050 MHz

In Queensland
VK4RIL Laidley repeater on 147.700 MHz
VK4RRC Redcliffe 146.925 MHz IRLP node 6404, EchoLink node 44666

In South Australia
VK5TRM, Loxton on 147.175 MHz
VK5RSC, Mt Terrible on 439.825 MHz IRLP node 6278,
EchoLink node 399996

In Tasmania
VK7RTV Gawler 6 metre repeater 53.775 MHz IRLP node 6124
VK7RTV Gawler 2 metre repeater 146.775 MHz IRLP node 6616

In the Northern Territory
VK8MA Katherine 146.700 MHz FM

Operators may join the net via the above repeaters or by connecting to EchoLink on either the AMSAT or VK3JED conferences. Past experience has shown that the VK3JED server offers clearer audio. The net is also available via IRLP reflector number 9558. We are keen to have the net carried by other EchoLink or IRLP enabled repeaters and links in order to improve coverage. If you are interested in carrying our net on your system, please contact Paul via email. Frequencies and nodes can change without much notice. Details are put on the AMSAT-VK group site.

Become involved

Amateur satellite operating is one of the most interesting and rewarding modes in our hobby. The birds are relatively easy to access and require very little hardware investment to get started. You can gain access to the FM 'repeaters in the sky' with just a dual band handheld operating on 2 m and 70 cm. These easy-to-use and popular FM satellites will give hams national communications and handheld access into New Zealand at various times through the day and night. Currently only SO-50 is available.

Should you wish to join AMSAT-VK, details are available on the web site or sign-up at our group site as above. Membership is free and you will be made very welcome.

each other. There are many ways this can be achieved, the easiest of which is by the use of internet time servers. There are many applications to achieve this, some automatic, or just a manual time-sync by the operator every 30 mins or so. This needs to be practiced and confirmed in advance of appearing on the air during activity sessions. If not correct then you risk transmitting when your close neighbours are trying to receive and this "isn't popular".

During the normal weekend activity sessions, a convention has evolved in VK to determine the appropriate operating period. Northern stations, i.e. VK4, always transmit 2nd Period and beam south. Southern stations i.e. VK3, VK5 and VK7 always transmit 1st Period and beam north. Stations in the middle i.e. VK2 and VK1 change period depending on the day. On Saturday mornings they will operate 2nd Period and will beam south to work into VK3 and VK5 etc. On Sundays they operate 1st Period and beam north to work into VK4.

Obviously where two stations are in range of each other by tropospheric or other propagation modes then they must be transmitting in the same period otherwise they will cause QRM to each other. This can be a problem for stations operating away from the major capital cities and towards state border lines. In such circumstances the usual Call-Area protocols may have to be reversed. It is best to seek advice from a local and follow what they do. As a general rule when you start out, you should not be hearing loud continuous FSK441 signals while you are receiving. If you can then something is wrong, most likely you are transmitting in the wrong period. Loud signals at the beginning or end of a period suggest that either you or a station local to you have clock timing issues. Remember you will potentially be sharing the single operating frequency with several other operators. Good operating practice requires us all to do everything possible avoid interference to other stations. In general this protocol is strictly adhered to on 2 m but not so on 6 m. I would urge all operators to please follow the rule on both 2 m and 6 m during all activity sessions – just for those few hours a week.

Bear in mind also that when your system is live, any audio from your computer that you would normally hear in the speakers, will key the transmitter and will go to air. During Meteor Scatter activity periods there will be many stations operating on the same frequency, some distant and some local. Any audio unintentionally transmitted out of turn or in the wrong period will deafen you neighbours. Take the time to disable all other computer sounds in the mixer panel and switch off applications such as e-mail or VK-Logger notifications, I-tunes and Skype etc. which will otherwise go to air. Likewise, when operating any digital mode, ensure that the normal station microphone is closed otherwise shack sounds will also go to air during transmission and can corrupt the transmitted signal.

Where to point the antenna

In general you point your antenna in the direction of the stations you are trying to work. In reality however the meteor trails giving rise to pings we hear can occur over a wide arc extending on either side of the direct path. This phenomenon gives rise to two "hot-spots", one on either side of the direct beam heading. Depending on the time of day and season one or other of the hot-spots statistically produces more reflections than the other. This can be the best direction to aim the antenna. The WSJT/FSK441 software provides information for optimum beam heading. When a callsign is placed in the "To radio" box and the "Lookup" button clicked, the software looks in a data base for the grid-square of that station. If the grid square is known then the software calculates the distance, azimuth and the likely elevation of the direct path from your station. In addition the software also indicates which of the two Hotspots (A or B) and the corresponding azimuth (beam heading) likely to be best at that time. Look for this on the main screen. If the grid square is not found in the data base then this can be added manually and saved for another occasion.

Checklist for the first QSO

Install the software, RT-M, set up the radio and interface and get it all working in advance. I recommend users monitor the outgoing "machine-gun" FSK441 audio. This helps you to recognise the incoming pings and frequency offsets etc.

Set up and test computer clock syncing. Insert your callsign and messages into "options".

Set the alarm clock for early and take coffee to the shack by 1930 UTC for one of the weekend activity session. (Allow the rig time to warm up and the frequency to stabilise).

Select 144.230 MHz or 50.230 MHz +/- your own offset. Select USB. Point the beam. Connect to the VKLogger.

Run WSJT software and select FSK441 mode. Ensure "Monitor" is on. "AUTO" off at this stage.

Set basic parameters and audio levels as above. Background noise should be visible on the SpecJT screen, the level set to about 0 dB. Select the period you wish to operate. Check computer clock is synchronised.

Wait and be patient. Meteor pings come in random order. Sometimes there is nothing for several periods followed by multiple pings in the next. As you are not yet transmitting, you will be receiving both periods. Signals from any stations local to you will be heard for the whole of one period, remember you may not be able to decode these.

Listen now for "pings" in the other period. These will give a

"Pzzzzit" sound in the speaker and will leave a coloured trace on SpecJT. Move the cursor onto the coloured area and click the mouse to force a decode. Decoded signals will appear in the text window. If you can identify the source callsign (space at each end) transfer this call to the "To radio" window. It doesn't matter if that station is already in QSO, you can call them. With experience it is possible to be working more than one station at a time – but just try one at a time initially. When ready to transmit select "Auto on" and you are away!

If you are hearing pings but not getting decodes then there are a number of possibilities. The sounds you are hearing may not be FSK441. Maybe static or birdies etc., just keep listening. You may be too far off frequency. In this case the pings will not sound like your transmitted signal and the "DF" indicated in the data screen may give you a clue. If both stations are exactly on the same frequency then DF=0. If the DF is above 200-300 Hz on all the stations heard then decoding may become erratic. Rule of thumb if DF is indicating large negative values move your rig LF in frequency by this amount, if large positive DF values move HF by this amount, and try again. It is worth checking too that your IRT or shift is not turned on.

Hopefully this will have given you enough background information and some advice on the common pitfalls of MS operation for you to confidently attempt your first MS QSO. This article was only intended to get started with this truly fascinating aspect of the hobby. Once you succeed with your first completed QSO you will probably be hooked!

The next expected Major Meteor Shower dates for your diary are the Lyrids expected around 22 April and then Eta Aquarids around 6 May 2016.

Please keep the reports and questions coming.

(1) http://physics.princeton.edu/pulsar/k1jt/

Dr Kevin Johnston VK4UH
Brisbane
vk4uh@wia.org.au

VK3 news Amateur Radio Victoria

Jim Linton VK3PC
e *arv@amateurradio.com.au*
w *www.amateurradio.com.au*

Building on the success of the inaugural 'Show & Tell', another event will be held next month to inspire both new and existing radio amateurs to go portable.

The location is the Brisbane Ranges National Park west of Melbourne, and a site survey is yet to identify the best spot to gather.

Those experienced at going portable will bring various items of gear they use when portable and are on hand to answer any questions or give advice including sharing some of the simple techniques.

An operating station VK3WI on site will allow newcomers to activate and gain a point or two towards the Keith Roget Memorial National Parks Award.

On Sunday 17 April, it starts at 10 am and after a Show and Tell, a free sausage sizzle for all is at midday. All inquiries to Tony Hambling VK3VTH at *vk3vth@amateurradio.com.au* or watch for a further announcement on the website.

Foundation Training Course

The next weekend quality training and assessment session for the entry level Foundation Licence is on 9-10 April, at the Amateur Radio Victoria office 40g Victory Boulevard, Ashburton.

The study and operational practice guide book for the session is available as a mail order for $26 from the Amateur Radio Victoria on-line bookshop.

To enrol please contact Barry Robinson VK3PV *foundation@amateurradio.com.au* or 0428 516 001.

WIA Contest Website

To keep up to date with all of the major Australian contests, including rules and results, at the WIA Contest Website at:

www.wia.org.au/members/contests/about

VK3 news Geelong Amateur Radio Club

Tony Collis VK3JGC

Summer VHF / UHF Field Day

he Summer VHF / UHF Field Day s experienced by Team VK3ALB, ed by the GARC President Lou K3ALB.

Team VK3ALB ventured out the field on January 9 &10 to articipate in the Summer VHF/UHF eld day - a WIA sponsored event.

The team consisted of Lou K3ALB, Jenni VK3FJEN, Nik K3BA and Barry VK3BJM and ey took out gear for all bands om 50 MHz through to 47 GHz. nlike previous years, the weather recast was excellent predicting a igh pressure system over the Bight uring the contest.

Many contestants in the outhern states of Australia ere aware that the high might bring extraordinary tropospheric propagation and everyone was hoping for the best. The bands were very active from the start and it seemed busier than in previous years.

The first few hours of the contest were very hectic and the team averaged a contact every three minutes for the first six hours of the event. This may seem a little "slow" to HF contesters but the directional nature of high band contacts means peaking and aligning dishes as well as liaison activities as the frequency gets higher. There's not much relaxation time during these activities.

Late on Saturday evening the team started hearing comments on the air about VK6LD being active on 70 cm, so Lou and Barry set out to search for Rob VK6LD. It wasn't long before he was found working a small pileup of VK3s and VK5s and Lou was able to work Rob on both 2 m and 70 cm. The signal strength of the contact was an amazing S9 for both bands and the 2,333 km contacts were duly entered in the log.

Other notable contacts for the team were:

- Colin VK5DK at 267 km on 1296, 2.4 GHz and 10 GHz all S9+,
- Ralph VK3WRE, very strong signals, at 240 km, on all bands to 10 GHz,
- Nick VK3VFO at 233 km on 2 m through 2.4 GHz,
- two great 1,000 km+ contacts to VK2BOR and VK4AMG on 6 m.

he VK3ALB Summer VHF / UHF Field Day camp site.

Throughout Saturday morning there were rumours that various VK7 operators had been worked from VK3. About mid-afternoon, Rex VK7MO was heard battling through a pile-up on 70 cm calling VK3ALB. This eventuated in solid contacts through to 23 cm, but 10 GHz proved more of an obstacle. This was due to the locations of the two groups as the path to VK7MO from VK3ALB was through a caravan, some cars, a concrete equipment bunker, a slight rise in the terrain in the local area and the Otway Ranges to the south. In spite of this, Rex had a WSJT signal beaming towards VK3.

It wasn't long before a trace was seen quite clearly on the Spectran Audio Analyser "Water Fall" and the VK7MO CW identifier was heard at the end of the transmission. Moments later Rex copied VK3ALB's signal report, via SSB, and gave the team R3 and S1, all details confirmed. This was a 461 km contact.

Of course no field day is complete without a little fun in the camp and this Summer the team had a belated Christmas with VK3BA supplying a live tree along with lights and sound system to spruce up the site.

The team would like to thank all those that made an effort to go out and operate in the field and all thos that took the time to make contact with them.

VK4news BARC

Les Neilson VK4FAEB

2015 was an interesting year for our club, with some time spent resetting our priorities which realised some real momentum during the last three months of 2015 and finishing the year on a high. The important part is that we are moving ahead into another exciting year with different challenges and events for members that will make our club that much better for it.

Project Saturday afternoons were established on a monthly basis for the first time and for those who attended it was very rewarding afternoon getting assistance with their radio hardware, while others worked on amateur computer software, some explored the capabilities of the club's transceivers and even our library got a makeover and refresh. These afternoons provide us with around four hours of time to utilise and get assistance on our personal or club projects such as "**Active Antenna**" and "**Electret Microphone**". For our members who were away on early holidays and regretted missing the opportunity, we will begin again on 30 January 2016, to start the year on a positive note.

BARC Hut relocation and refurbishment

Our radio shack has taken a back burner the last few months but we have been offered a new location by the Rochedale Scouts which is closer to the main hall and the best of all result is that we will not have to construct massive amounts of footpaths and ramps. Plans are to construct a front landing and to install the capability to have outside field stations that plug into the hut that could be utilised for JOTA etc. We are also planning the installation of our antennas near or onto the hut and our 70 cm repeater relocated into the building which will be the first priority together with the new 10 m input. There is plenty of excitement and anticipation for the hut's completion later in the year.

BARC Fest planning has begun with a return to the Mt Gravatt showgrounds for 2016 with a new date of 4 June. This will give us plenty of time to plan to make this Fest a memorable one. A committee will be formed in the New Year to start the process and ensure a successful outcome.

Foundation and Standard licence training plans are underway for 2016 with a welcome increase of WIA Accredited Examiners from within our membership, now we will be able to manage training and exams in house on a more permanent basis. We are starting to get more potentia members requesting assistance to gain a Foundation license. This will be a welcome addition to our membership and more amateur radio enthusiasts joining our fascinating hobby.

BARC Xmas party, last but not least, was held on Sunday 13 December beginning at 12 noon. It soon became a roaring success for around 25 members and family. We sumptuously dined on Gary's VK4FGZA exemplary food skills, with far too much to eat, but leaving us more than satisfied. It was great to see some faces that we only hea on air and to catch up on a year's activities.

Have a great Day
Les Neilson VK4FAEB
Rochedale Sth Qld
BARC President

Participate

John Moyle Field Day | 19 - 20 March 2016

VK7news

Justin Giles-Clark VK7TW
e *vk7tw@wia.org.au*
w *groups.yahoo.com/group/vk7regionalnews/*

Congratulations

First felicitation to Rex VK7MO and Derek VK6DZ for extending both the 10 GHz Terrestrial World Record to 2793 km and the 432 MHz VK Terrestrial record over the same path. Some great data was gathered about signal spreading and the use of more sensitive WSJT modes during the contact. Congratulations guys. The second felicitation goes to Steve VK7CW who topped the WIA DX Leader Board in 2015 with a whopping 431 points – topping the CW section. Great work Steve!

Repeater News

VK7RMD is back on the air as a 70 cm repeater - 438.600 MHz on Mt Duncan – NW VK7. The 70 cm antennas consist of an array of eight dipoles and signal reports to date are encouraging. Thanks to Dick VK7DIK and Vernon VK7VF for the info.

Tony VK7AX reports that the 70 cm Repeater VK7RDR, located on the Dazzler Range – NW VK7 is performing well and providing coverage across the top of VK7. Frequency is 439.775 MHz with a CTCSS tone of 91.5 Hz. This repeater is also linked to the 2 m Repeater VK7RTV at Stowport and the 70 cm Repeater VK7RAK, 438.700 MHz in Southern Tasmania, with CTCSS tone of 141.3 Hz all via the VK7 link Network.

By the time this goes to print, VK7RAA will be operating from its new home on Mt Arthur (VK7/NE-008). A huge effort by David VK7JD who carried each of the six 30 kg batteries to the site and the remaining two batteries had some help from Peter VK7ZPE and Colin VK7ZCF. This huge effort was followed a few weeks later with the project team carrying up and installing the solar panels. This has been a mammoth effort by the NTARC project team and they are to be congratulated on a fantastic effort.

Photo 1: Solar panels being mounted on Mt Arthur. LtoR: Rosco VK7RC, Colin VK7ZCF, Ross VK7ALH, Peter VK7ZPE and David VK7JD. (Photo courtesy of VK7ADQ.)

Photo 2: Joe VK7JG receiving his life membership from Marlene VK7FX. (Photo courtesy of VK7ADQ.)

Cradle Coast Amateur Radio Club

Life Membership was conferred on Joe Gelston VK7JG by CCARC for his lifetime of serving the amateur radio community. The certificate was presented to Joe by Marlene VK7FX who is CCARC Vice-President at a BBQ lunch at the NTARC clubrooms.

Northern Tasmanian Amateur Radio Club

NTARC held their first BBQ meeting of 2016 on 9 January

Photo 3: Completed and tuned 23 cm Yagi. (Photo courtesy of Justin VK7TW.)

and big thank you to chefs Idris VK7ZIR, Andre VK7ZAB and Alvin VK7ADQ. The BBQ was followed by a general meeting and then into the show and tell session with Trevor VK7TB showing his ex-microwave oven power supply for his linear amp, Bill VK7MX showing his Mega328 LCR and semiconductor tester, his sub-$100 Chinese 25 watt VHF/ 20 watt UHF mobile rig and his VK5DGR SM-1000 DV Microphone box. Norm VK7KTN showed his 8 watt Baofeng handheld. Afternoon tea did not disappoint!

Radio and Electronics Association of Southern Tasmania

Rex VK7MO has been very busy encouraging the usage of 23 cm in and around Hobart and beyond. After the VK7 Regional News broadcast each Sunday, Rex has been running a 23 cm QSO party to test and baseline 23 cm comms around Hobart. To further improve participation Rex designed using the VK5DJ Yagi designer – a 23 cm 18 element portable Yagi and has been running workshops to build and tune them. The boom uses a fibreglass electric fence post. To date, ten Yagis have been built.

Each weekly QSO party has seen more and more participation and we have to date about 12 amateurs transmitting and three amateurs receive only. Hobart's geology presents a wonderful feature with the Dolerite Organ Pipes on Mt Wellington making for a wonderful high altitude passive RF reflector. The QSO party finishes up with WSJT contacts with Joe VK7JG in Launceston, thanks Joe and Rex.

The DATV Experimenter's nights have continued to be a huge night of experimentation and video with us covering topics including: OB - VK7BEN's portable mast and car based operating position – thanks Ben; Joey - harmonic of Warren VK7WN - showing off his Quadcopter with camera – thanks Joey; 23 cm Yagi development; regular Pico balloon updates; SOTA activations; Greg VK7FGGT's homebrewed 40 m magnetic loop antenna - thanks Greg; RGB LED strip lighting; very simple permanent magnet DC motors; Schools Amateur Radio Club (SARCnet.org) – thanks Joe VK3YSP and Julie VK3FOWL; world and VK records – thanks Rex; Intel Compute sticks and RTL dongle convertors – thanks Steve VK7OO; video convertors and miniaturisation using the chip built into your credit card powered by inductive coupler coil. Our videos included RSGB AR and VK7 promos, TX Factor, Ham Sandwich, Project Diana, Auroras, High voltages and light and kinetic sculptures videos.

Photo 4: Panorama on Mt Rufus (VK7/CH-020) looking at Mt Hugel through West Coast bushfire smoke. (Photo courtesy of Justin VK7TW.)

ALARA

Christine Taylor VK5CTY – Publicity Officer

Photo 1: BYLARA flyer.

THE YL International is happening this year

These meets are only held every two years; the last one was in Iceland. This year it is to be in the UK. BYLARA has never hosted an International before so many 'regular' International YLs are keen to participate.

An interesting program has been arranged with visits to Woburn Abbey and to Bletchley Park to precede the official meet. We will also have the opportunity to attend the AGM of the RSGB if we wish.

The activities start on 3 October 2016 in Milton Keynes. A hotel has been selected and rooms booked for us. All we have to do is be there.

The YL International Meets are enormous fun. Although many of the people there only see each other every couple of years, they are really good friends and greet each other with hugs and smiles. We also get to hear about all the interesting activities some of us have enjoyed since we last met.

The schedule and additional information is available through Facebook. Look for the "YLs in the world" on the left hand side of the screen. That will open up to tell you all about it and to show you some of the YLs who have responded to the information.

The people to contact and their email addresses are *Judith.brooks@ntlworld.com* or *carolhodges1@btinternet.com* or you can find out more through *www.facebook/groups/bylara.org.uk*

As someone who has travelled to other YL International Meets, I can tell you that it is a good idea to plan to do and see more than just the Meet. A tour either before or after is a great idea. The Meet is the excuse to travel across the world, the tour gives you more memories to bring back to Australia.

Because of the late-in-the-season date for this Meet I would advise choosing a tour to do before 3 October; in fact one finishing within a day or so of that date would be perfect. If you are thinking of going now is the time to book so you get some of the 'early bird' prices.

VK5 luncheons

These are a moveable feast at the moment as we travel to different suburbs each month instead of just meeting in the city. If you are in Adelaide for the second Friday of the month please contact Jean VK5TSX or Tina VK5TMC to find out where we are meeting this month. Also remember that because Adelaide is a relatively small city we can often arrange a meeting quickly. We would love to meet you.

VK3 News

ALARA Lunch 30th January 2016

The first of our regular bi-monthly lunches was held at the Grand Hotel in Yarra Glen.

The Ryrie brothers (William, James and Donald) were the first Europeans to settle in the area, when they established the 17,000 hectare (43,000 acre) Yering run in 1837 after droving their cattle to the area from NSW. The brothers planted the first grape vines in the Yarra Valley in 1838 and produced their first wine in 1845. Joseph Furphy, often regarded as the father of the Australian novel, was born on the station in 1843.

The Post Office opened on 11 January 1861 as Yarra Flats and was renamed Yarra Glen in 1889 when the railway arrived. The now

Photo 2: The Grand Hotel in Yarra Glen.

Photo 3: ALARA members attending lunch at Yarra Glen. (Back row left to right): Diane VK3FDMP, Naree ALARA member, Judy VK3FJAG, Margaret VK3FMAB, Donna VK3FRET and Susan VK3FZZY. (Front row left to right): Marian [Margaret's daughter], Pat VK3OZ, Cheryl VK3FCYL, Mum Elsie, Kaye VK3FKDW, Robyn VK3WX, Christine VK5CTY and Jean VK3VIP.

National Trust-listed Yarra Glen Grand Hotel was established in 1888. Its four-storey Italianate tower was added subsequent to the construction of the original hotel building.

The Black Friday fires of 1939 badly damaged the area around Yarra Glen, as did the fires of 2009.

A large group of 27 arrived for lunch and settled in on a long table in the dining room. A little unusually for our functions, it was decided that our OMs would not be segregated so the party was of a mixed nature. Conversation flowed with drinks from the bar and a very convivial and long lunch ensued.

Thanks to Diane VK3FDMP for suggesting the venue.

33

Jean VK3VIP

News from Jenny VK3WQ/ VK5ANW

Amateur gathering in Murray Bridge - 31/12/15

On the last day of 2015, with the weather forecast to get to 39° C, a group of radio amateurs met in Murray Bridge, about 80 km east of Adelaide.

What had started as a suggestion for a couple of members of the Lower Murray ARC to finally meet face to face over a cup of coffee, suddenly "Grew like Topsy" and before we knew it there were ten of us.

Finding a venue that was open between Christmas and New Year, was quiet enough to have a conversation, and could seat ten of us at one table, was not without its problems, but we finally succeeded.

Jenny VK3WQ/VK5ANW and Peter VK3RV, who are members of the Lower Murray ARC, were holidaying in Murray Bridge, and Rob VK3RG travelled from Adelaide with John VK3IC/VK5DM, who was also holidaying in South Australia. What started as morning tea eventually "morphed" into lunch. The noise ratio went down several decibels when we finally departed the venue.

Jennifer Wardrop VK5ANW/VK3WQ.

WARO News from Margaret VK3FMAB

WARO: New Zealand Women Amateur Radio Operators

ALARA and WARO maintain a close relationship as organisations and between individual members, with many WARO members sponsored by ALARA members.

Excerpts from their September 2015 Bulletin

Recent Events

The AGM was held in May 2015 and has very similar Executive, Committee and Appointed Officers. They are looking for a Contest Manager too. It was very interesting that the issue of 80 m was raised and 40 m was suggested and not

Photo 4: The Murray Bridge gathering. In the photograph from left to right, are Meg VK5YG, Wendy XYL of Geoff VK5HEL, Geoff VK5HEL, John VK5IC/VK5DM; Jenny VK3WQ/VK5ANW, Rob VK5RG, Peter VK3RV, Michael VK5HM, Jeff VK5IU and David VK5DB.

passed as some did not have the equipment or the antenna for this band. This affected who took up positions on the Committee.

SYLRA Meeting in 2015 in Iceland attended by 25 YLs and 12 OMs from 11 Countries.

Who do you know? The QSL Card is shown. Their next meeting is in 2017.

For more information contact ALARA Publicity Officer Christine Taylor VK5CTY, who has a copy of the WARO Bulletin.

ALARA 40th Birthday Celebrations –

Congratulations from all WARO members – All ALARA Newsletter recipients know the story and the photos!

USA visit by Topsy ZL2LS and Debbie ZL2DL in July and August 2015 to San Francisco, Dallas, Memphis, the Grand Canyon and

Photo 5: The QSL card from the SYLRA event.

then to Los Angeles. This is very interesting and I am sure that Topsy will have lots of travelling tips for anyone going to the USA.

WARO has a web page and holds their meetings on air. They have had a very diverse year and I am sure that it would be very interesting to have a NZ sponsor.

Courtesy of Joline Beale ZL1UJB and Margaret VK3FMAB.

VK2news Fishers Ghost Amateur Radio Club

David Uzzell VK2HDM

#VI2AJ2016 – Not just a hashtag!

The 24th Australian Scout Jamboree was held at Cataract Scout Park just south of Campbelltown in Sydney NSW Australia. Fishers Ghost Amateur Radio Club Inc. manages the permanent amateur radio facility, allowing Scouts and other groups an insight into amateur radio year round, assisted the Jamboree in running this year's Amateur Radio Base.

The activity is as relevant as it has always been yet most people do not realise it. Innovation and advancement have come from the amateur radio experimenters for more than 100 years.

Today this continues with amateur radio operators at the forefront of satellite advanced communication experiments, satellite propagation experiments, voice codec advancements for

Photo 1: Scouts at AJ2016 had the chance to discover what it takes to find a hidden transmitter called a Fox Hunt. They could call home, such as Darcy VK6FDAM, a Scout attending the Jamboree, did with his father Chris VK6BP in Broome WA.

RF and Internet based VoIP technologies and many other areas of analogue and digital experimentation involving Voice and Data on RF as well as online.

Amateur radio operators are the biggest group around the world of makers - constructing their own antennas, kits and communication devices, before computers and now with computer integration. A small but important fact: Amateur radio came before computers or the Internet, and still innovates with technology today as in the past.

The base at AJ2016 was a place for the Scouting youth from around Australia and internationally to visit and potentially experience hands-on some of this new and revolutionary technologies that amateur radio operators get to have fun with on a regular basis.

Onsite operators had FUN cube receivers in operation where

they could see reception of FUN cube satellites that are not much bigger than your average school lunch box floating in orbit around the Earth.

The radio operators could communicate through amateur radio satellites like AO-85 with other operators in range. They could also see a picture sent around the world by SSTV (Slow Scan TV) using only the amateur radio transceiver.

Scouting operators communicated globally using IRLP (Internet Repeater Linking Project). The IRLP helps reliably and inexpensively link amateur radio systems without the use of RF links, leased lines, or satellites.

The IRLP uses Voice-Over-IP (VoIP) custom software and hardware. Coupled with the power of the Internet, IRLP links a repeater site or simplex station to the world in a simple and cost effective way.

AJ2016's Radio Base had a special event on the amateur radio calendar with a special event call sign of **VI2AJ2016**, operated from 3 to 13 January 2016 and production of a special QSL Card that amateur operators around the world collect. A QSL card is a written confirmation between two radio operators that they have spoken to each other. The cards have been around long before the internet came into existence (circa 1969) and confirm amateur radio operators shared and enjoyed tracking each other's calls and keeping records of who they spoke with and getting a glimpse into the world that others may never get to see.

Amateur radio was the first social media network that started more than 100 years ago. It shared information about people, places and events similar to today's Facebook and Twitter.

Amateur radio enthusiasts argue that they invented social media, well before any of us were even born, with our parents, grandparents and great grandparents all without a computer.

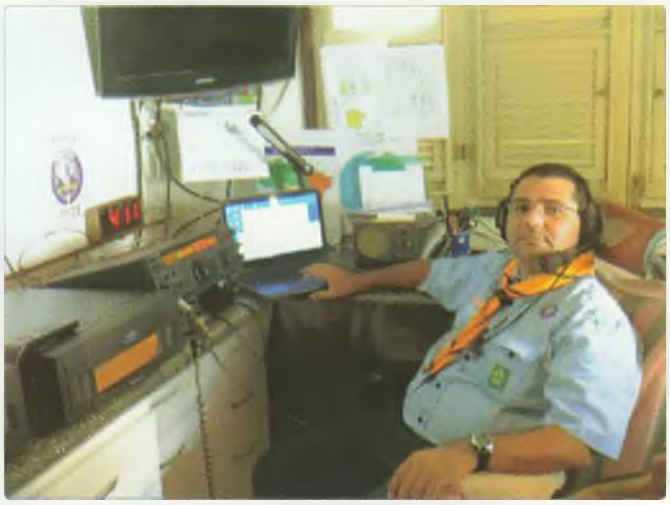


Photo 2: The best contact for me personally during AJ2016 was to talk with Marcus PU7MCV from Fortaleza, Brazil.

VI2AJ2016 was able to communicate with a host of countries globally and numerous amateur radio operators - many of whom have been or are still involved in Scouting both in Australia and around the world.

During the Jamboree, when I was operating the station, I spoke with Marcus PU7MCV from Fortaleza, Brazil.

Marcus is involved in Scouting and runs their Radio Activity and JOTA. For everyone there is something new and exciting in amateur radio that will interest him or her. They just need to discover it and become involved.

Amateur radio as a hobby, an experiment, as an outlet for the youth of today and just a whole load of fun is still as relevant as it has always been.

Amateur radio operators need to understand it is their obligation to make amateur radio relevant and available for today's youth to discover.

The 24th Australian Scout Jamboree was such an opportunity that Fishers Ghost Amateur Radio Club Inc accepted the challenge and worked hard to make as successful as possible for all involved.

Photo 3: Jamboree Certificate of Appreciation Presented to Frank VK2FRW Fishers Ghost Amateur Radio Club President by Brian Davison Jamboree Activities Director. With them is Louis VK2JCP.

Contributions to *Amateur Radio*

AR is a forum for WIA members' amateur radio experiments, experiences, opinions and news.

Your contribution and feedback is welcomed.

Guidelines for contributors can be found in the AR section of the WIA website, at *http://www.wia.org.au/members/armag/contributing/*

Email the Editor: *editor@wia.org.au*

About Hamads

- Submit by **email (MUCH PREFERRED)** or if written and mailed please print carefully and clearly, use upper AND lower case.
- Deceased estates Hamads will be published in full, even if some items are not radio equipment.
- WIA policy recommends that the serial number of all equipment for sale should be included.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from those who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising on these pages Contact admanager@wia.org.au
- Copy to be received by the deadlines on page 1 of each issue of Amateur Radio.
- Separate forms for For Sale and Wanted items. Include name, address STD telephone number and WIA membership number.

'Hamads'
PO Box 2042
BAYSWATER VIC 3153
hamads@wia.org.au

ADVERTISERS INDEX

WIA Functional Committees

The WIA is a membership organisation with a very wide range of complex functions and member services. Core functions and services are administrative in nature (general administrative functions, membership services, examination and callsign management, financial etc…) and are performed by salaried staff.

Volunteers perform a diverse range of highly specialist functions (ACMA liaison, Frequency Co-ordination, Standards liaison, Interference issues, technical support and training and assessment etc.). These volunteers provide the majority of member services, however they have been loosely organised and often overstretched.

The new committee system attempts to structure the WIA's non-core activities into 10 broad functional areas, each comprising a team of volunteers under the direction of the WIA Board. This structure is intended to spread the workload on our volunteers, improve communications between members and the WIA Board, improve services to members, and encourage more people to become involved in the WIA.

WIA Committee Charters

Spectrum Committee

(Regulatory, ACMA, ITU, IARU, Repeaters & Beacons, Standards, Interference & EME, Monitoring Service)

Andrew VK4QF, Brian VK3MI, Dale VK1DSH, Gilbert VK1GH, Jim VK3PC, Noel VK3NH, Peter VK3APO, Peter VK3MV, Phil VK2ASD, Richard VK2AAH, Rob VK1KRM, Roger VK2ZRH, Ron VK3AFW.

- Perform all ITU and IARU liaison activities.
- Liaise with, and act as the 1st point of contact for, the ACMA.
- Advise the Board, and enact Board policy in relation to all radio communications regulatory issues and the LCD.
- Represent the WIA to State and Local Government
- Represent the WIA to Standards Australia
- Provide specialist technical advice and coordinate repeater and beacon licence applications and frequency allocation.
- Develop responses to significant and prolonged harmful interference issues affecting amateur radio operations.
- Provide an information resource for EMC/EMR issues.
- Administer the IARU Monitoring Service in Australia
- Provide a technical resource to other committees and the WIA Office.

Technical Advisory sub-Committee (Tech support, Band plans etc.)

Amanda VK1WX, Barry VK2AAB, Bill VK4XZ, Doug VK3UM, Eddie VK6ZSE, John VK3KM (Co-ordinator), Paul VK2TXT, Pau VK5BX, Peter VK3APO, Peter VK3BFG, Peter VK3JFK, Peter VK3PF, Rex VK7MO, Tim VK2ZTM, Walter VK6KZ

General Committee

Executive Administrtator TBA, President (Phil, VK2ASD), Vice President (Fred, VK3DAC), Treasurer (Chris,VK3QB), WIA Secretary (David, VK3RU)

- Responsible for the efficient and correct operation of the WIA office.
- Responsible for staffing and workplace safety.
- Provide a specialist administrative resource to the WIA office as required.
- Manage contractual agreements.
- Manage business relationships.
- Ensure compliance with the ACMA Business Rules
- Prepare yearly budgets
- Prepare quarterly financial reports for the Board
- Prepare independently reviewed YE financial reports and balance sheets for circulation to the membership prior to each Annual General Meeting.
- Manage insurances and to be responsible for currency of insurance policies.
- Maintain a complaints register.
- Ensure complaints are handled in accordance with WIA policy and any contractual agreements.

Communications, Media and Events Committee

Jim VK3PC, Phil VK2ASD, Robert VK3DN, Roger VK2ZRH

- Communication with members and the public:
- Communicate with the membership.
- Publicise WIA activities and initiatives.
- Develop strategies and resources for the promotion of Amateur radio to the public.
- Develop strategies and resources for the promotion of WIA membership to the Amateur community.
- Supervise and/or perform promotional activities.
- Co-ordinate the yearly AGM activities

Education Committee

Fred VK3DAC, Ron VK2DQ, WIA Executive Administrator TBA

- In association with the WIA's RTO and affiliated clubs offering training services, develop and administer the WIA's training and assessment systems.
- In association with the Spectrum Strategy Committee, develop and maintain the various licence syllabi and associated question banks.
- In association with the Community Support Committee and the RTO, develop and maintain the Emergency Communications Operator scheme.
- Ensure the confidentiality and security of all personal information, question banks and examination papers.

Grants Committee

Drew VK3XU, Gary VK2KYP, Peter VK3PF (Coordinator), Peter VK3PH, Scott VK3CZ

Radio Activities Committee

WIA Director TBA

Contests sub-Committee

Alan VK4SN, Colin VK5DK, Denis VK4AE / VK3ZUX, James Fleming VK4TJF, John VK3KM, Kevin VK4UH, Tony VK3TZ

Operating Awards sub-Committee

Bob VK3SX (Coordinator), Alan VK2CA, Alek VK6APK, David VK3EW, Laurie VK7ZE, Marc VK3OHM, Paul VK5PAS

ARDF

Jack VK3WWW (Co-ordinator)

ARISS

Tony VK5ZAI (Co-ordinator)

- All activities associated with actual radio operation, such as: contests, awards, distance records, QSL services, ARISS, AMSAT, ARDF etc.

QSL Card sub-Committee

Alek VK6APK, Alex VK2ZM (Outwards Manager), John VK1CJ, John VK7RT, June VK4SJ, Max VK3WT, Stephan VK5RZ, WIA Office (Inwards Manager)

Historical and Archive Committee

David VK3ADW, Drew VK3XU, Ian VK3IFM, Jenny VK3WQ, Linda VK7QP, Martin VK7GN, Peter VK3RV (Coordinator), Will VK6UU

- Develop, maintain and preserve the WIA's historical and archive collection
- Encourage access to the collection by WIA members and those seeking historical material for publication.

IT Services

Robert VK3DN, Marc Hillman VK3OHM, Tim VK3KTB

- Provide an IT resource to other committees and the WIA Board.
- Be responsible for the off-site data back-up of all IT systems information.
- To update and maintain the WIA website as required.
- Advise the Administrative / Financial committee in relation to the MEMNET Cloud Service contract.

Community Service Committee

Fred VK3DAC (Director), Greg VK2SM (Assistant Treasurer), Ewan VK4ERM (Director), Paul VK5PH

- Develop, promote and co-ordinate all WIA community support activities

New Initiatives

Phil VK2ASD (Director), Robert VK3DN (Director), Roger VK2ZRH (Director), David VK3RU (Company Secretary)

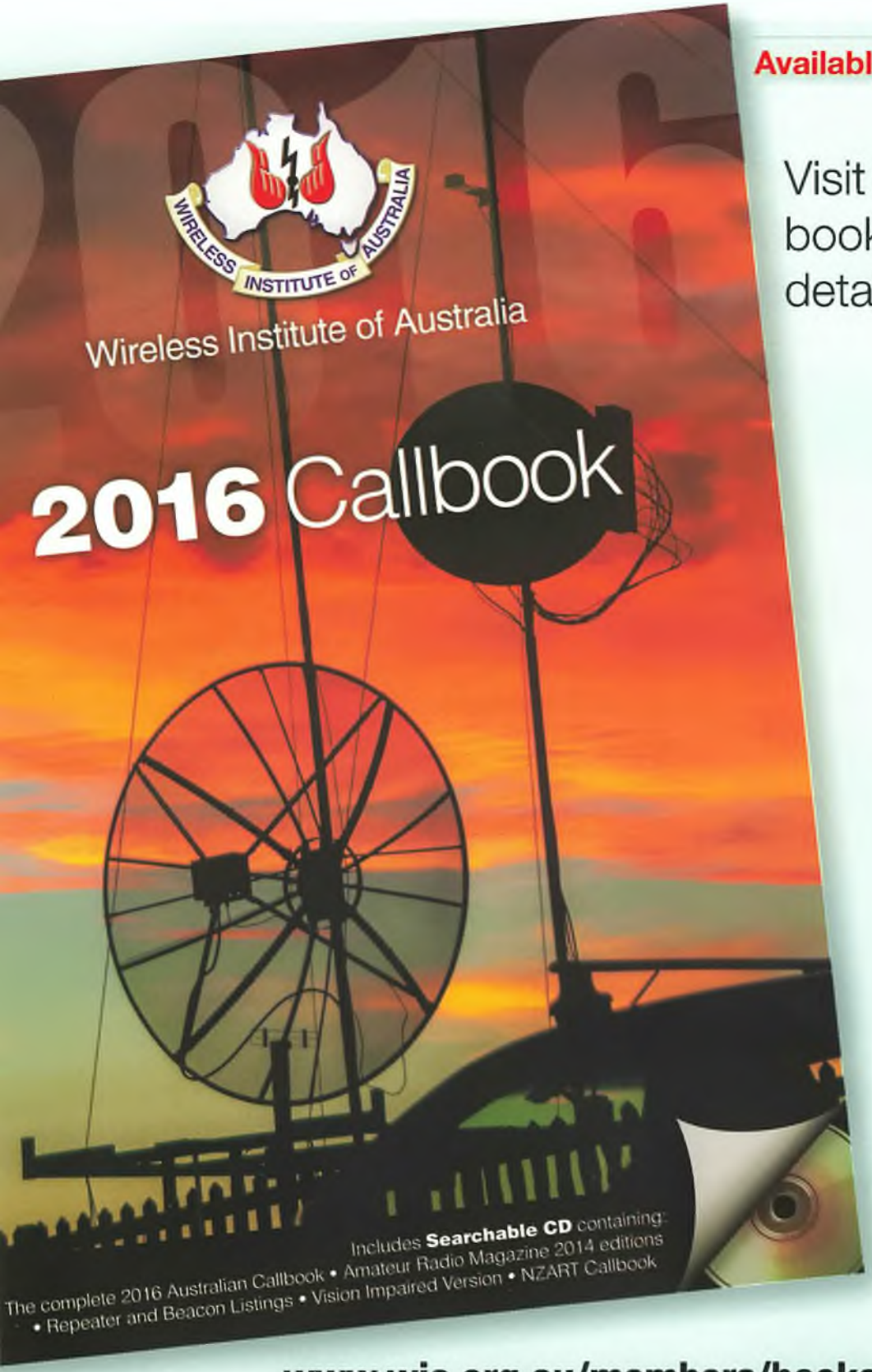
- Think-tank ideas and initiatives to advance amateur radio and WIA membership.
- On approval by the Board, run proof of concept trials.

Affiliated Clubs Committee

Ted Thrift VK2ARA, President (Phil Wait VK2ASD), Vice President (Fred VK3DAC)

- Manage all arrangements between the WIA and WIA Affiliated Clubs
- In cooperation with the Administrative / Financial committee, manage the Club Insurance Scheme
- Encourage stronger relationships and communications flow between the WIA and WIA Affiliated Clubs
- Encourage increasing WIA membership ratios in Affiliated Clubs
- Manage the Club Grants Scheme
- Identify and bring regional Affiliated Club issues to the attention of the WIA Board.

WIA **2016** Callbook



Available now

Visit our online bookshop for details.

www.wia.org.au/members/bookshop/about/

ICOM

THE INNOVATIVE COMPACT HF/50MHZ TRANSCEIVER

COMING SOON

Introducing the IC-7300 Transceiver.

The unit features a high quality real-time spectrum scope and features top level performance in resolution, sweep speed and dynamic range. The IC-7300 is fitted with a new RF direct sampling system, the latest high performance technology seen in Software Defined Radios.

To find out more about Icom's Amateur products email sales@icom.net.au

WWW.ICOM.NET.AU