

# OXTALES

First published 1980

Newsletter of the Oxley Region Amateur Radio Club Inc.

PO Box 712 Port Macquarie 2444

Club e-mail address: vk2bor@orarc.org

Club Website: www.orarc.org

ORARC's Forty-first Anniversary Year

Club Nets on VK2RPM  
146.700MHz  
(CTCSS 91.5Hz)  
Every Sunday at 0830  
Every Thursday at 1930

## September 2012

Compiled by VK2TT & VK2AYQ

PRESIDENT: Henry Lundell VK2ZHE 6582.0534  
VICE PRES: Bruce Walker VK2HOT 6583.8360  
TREASURER: Keith Anderson VKFKJA 6586.3988  
SECRETARY: Henry Lundell VK2ZHE (Acting)

### President's Report

It is indeed an honour to serve another term as President as well as having been elected Secretary at the AGM held in August. All the other positions were filled at the AGM. Congratulations to Keith Anderson VK2FKJA on being re-elected as Treasurer and Public Officer. Congratulations to the new Life Members, Stan Ellis VK2DDL, Trevor Thatcher VK2TT and Charles Edmondson VK2KCE.



The Oxley Region Amateur Radio Club has always encouraged members to also be members of the Wireless Institute of Australia (WIA). The WIA is the national body representing Amateur Radio in Australia and is a member society of the International Amateur Radio Union (IARU). Internationally the IARU is divided into Regions. Australia is part of Region 3.

The WIA is the voice of Amateur Radio in dealings with the Australian Communications and Media Authority (ACMA). It is the result of negotiation by the WIA on behalf of all Radio Amateurs that the generous conditions of the Amateur Service are not only maintained but are improved. A recent example is the option for Amateurs to apply for a permit to operate at high power on the HF bands.

(Continued on page 5)

### ORARC VHF/UHF Repeaters

#### MIDDLE BROTHER

VK2RPM 2 metre (Voice - CTCSS 91.5Hz)  
O/P 146.700MHz -I/P 146.100MHz

VK2RPM 70 cm (Voice - CTCSS 123Hz)  
O/P 438.525MHz -I/P 433.525MHz

VK2RPM-1 (APRS Digipeater)  
SX 145.175MHz 1200bps

#### TELEGRAPH POINT

VK2RCN 2 metre (Voice)  
O/P 147.000 MHz - I/P 146.400 MHz

VK2RCN 70 cm (Voice - CTCSS 123 Hz)  
O/P 438.425MHz - I/P 433.425MHz

VK2RCN-1 (APRS Digipeater)  
SX 145.175MHz 1200bps

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## Down The Coax

Monthly meetings held in the S.E.S. Building  
Central Road, Port Macquarie.

September Friday Night Get-together  
Friday 21st September 2012 7.00pm

October Monthly Meeting,  
Saturday 6th October 2012 2.00pm

October Friday Night Get-together  
Friday 19th October 2012 7.00pm

55th Annual JOTA 2012  
October Sat/Sun 20th & 21st 2012  
Sea Scout Hall Port Macquarie  
And Scout Hall Wauchope

November Monthly Meeting,  
Saturday 3 November 2012 2.00pm

November Friday Night Get-together  
Friday 16th November 2012 7.00pm

## Net Controllers' Roster

Nets on Voice Repeater VK2RPM 146.700 MHz

### Sundays

(0830 Local)

### Thursdays

(1930 Local)

#### Sep 2012

VK2TT	Sep - 02	VK2ZHE	Sep - 06
VK2OA	Sep - 09	VK2EM	Sep - 13
VK2CHC	Sep - 16	VK2ATM	Sep - 20
VK2TT	Sep - 23	VK2ZHE	Sep - 27
VK2OA	Sep - 30		

#### Oct 2012

VK2CHC	Oct - 07	VK2EM	Oct - 04
VK2TT	Oct - 14	VK2ATM	Oct - 11
VK2OA	Oct - 21	VK2ZHE	Oct - 18
VK2CHC	Oct - 28	VK2EM	Oct - 25

#### Nov 2012

VK2TT	Nov - 04	VK2ATM	Nov - 01
VK2OA	Nov - 11	VK2ZHE	Nov - 08
VK2CHC	Nov - 18	VK2EM	Nov - 15
VK2TT	Nov - 25	VK2ATM	Nov - 22
		VK2ZHE	Nov - 29

## e-mail Directory

*Reflects ALL changes notified up to*

*28th August 2012 for Financial Members at that date*

VK2AG	LEWIS	lewisgreen@bigpond.com
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VK2VV	GRAHAM	vk2vv@wia.org.au
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## ORARC's 2012 AGM

ORARC's 2012 AGM, held on Sat. August 4th at the SES HQ, attracted a roll-up of 21 members and two visitors. Twenty-seven apologies for absence were received.

Congratulations to Henry (VK2ZHE) and Keith (VK2FKJA) on being re-elected for further terms of office as our President and Treasurer, respectively. There were no other nominations for these posts. Thanks and appreciation are extended to Henry for volunteering to stand in for the position of Secretary until it is filled. John, (VK2KC), the retiring Secretary, was unable to accept nomination for a further term in the position due to other commitments. The membership sincerely thanks John for his dedicated service over the years that he has held office as Secretary and Treasurer of ORARC(Inc).

The club can, once again, confidently look forward to another successful year under the guidance of the elected office bearers, all of whom bring valuable and proven experience in their specific roles.

Here is the line-up of office bearers that emerged from the AGM's elections, conducted under strict control by Returning Officer, Jim (VK2VIV):

<b>President</b>	<b>Henry Lundell</b>	<b>VK2ZHE</b>
<b>Vice President</b>	<b>Bruce Walker</b>	<b>VK2HOT</b>
<b>Secretary (Yet to be filled)</b>	<b>Henry Lundell</b>	<b>VK2ZHE</b>
	<b>(Temporarily filling this role)</b>	
<b>Treasurer</b>	<b>Keith Anderson</b>	<b>VK2FKJA</b>
<b>Committee Member 1</b>	<b>Bill Sinclair</b>	<b>VK2ZCV</b>
<b>Committee Member 2</b>	<b>Arthur Monck</b>	<b>VK2ATM</b>
<b>Committee Member 3</b>	<b>Larry Lindsay</b>	<b>VK2CLL</b>
<b>Public Officer</b>	<b>Keith Anderson</b>	<b>VK2FKJA</b>
<b>Repeater Chairman</b>	<b>Henry Lundell</b>	<b>VK2ZHE</b>
<b>Oxtales Editors</b>	<b>Trevor Thatcher</b>	<b>VK2TT</b>
	<b>John Hansen</b>	<b>VK2AYQ</b>
<b>VK2BOR Station Managers</b>	<b>Henry Lundell</b>	<b>VK2ZHE</b>
	<b>Bruce Walker</b>	<b>VK2HOT</b>
<b>Welfare Officer</b>	<b>John McLean</b>	<b>VK2KC</b>
<b>Publicity Officers</b>	<b>John McLean</b>	<b>VK2KC</b>
	<b>Henry Lundell</b>	<b>VK2ZHE</b>
<b>Education Officer</b>	<b>Larry Lindsay</b>	<b>VK2CLL</b>
<b>Club Historian</b>	<b>John Bailey</b>	<b>VK2KHB</b>
<b>Social Director</b>	<b>Barry Gilson</b>	<b>VK2FBRG</b>
<b>WIA Liaison Delegate</b>	<b>Henry Lundell</b>	<b>VK2ZHE</b>
<b>Member Liaison Officer</b>	<b>Bill Sinclair</b>	<b>VK2ZCV</b>

### Awards Presented at 2012

#### AGM

Two members of the ORARC were recipients of awards presented by President Henry (VK2ZHE) at our recent AGM.

Life Membership Certificates were presented to Charles Edmondson (VK2KCE) and Trevor Thatcher (VK2TT), on achieving 85 years of age and having been club members for ten or more years. (See pix on page 5). Stan Ellis (VK2DDL) of Tuncurry was a nominated recipient of the Life membership award, but was unable to attend the presentation due to a temporary health issue. Stan was later presented with his badge and

certificate at his home in Tuncurry. (See item on Page 4)

John Bailey (VK2KHB) was honoured by being the nominated recipient of the club's prestigious award, "Club Member of the Year" for 2012. John was unable to attend the meeting for the presentation, but at a later gathering was presented with his badge and certificate. (See Item on page 4). Congratulations John... well deserved!

Thanks is due to Bill (VK2ZCW) for the design & production of the certificates, & to Henry (VK2ZHE) for the frames in which they were presented to the recipients.

(See pictures of presentations  
on next page)

## Clubman of the Year Award to John Bailey (VK2KHB)



Long-time member of ORARC, John Bailey, VK2KHB, is well known for his participation in all club activities, ranging from working bees as a competent “handyman” and in club events, where he excels as a BBQ chef and catering steward. His contributions to the club were recognised by being awarded the Clubman of the Year certificate at badge at the August AGM. Congratulations John!

Above (right) is John, pictured receiving his award being presented by Henry (VK2ZHE) President. At left is a snapshot of John’s most recent item of handiwork, a pair of removable entry steps with hand-rail, to provide convenient and safer entry/exit to/from the club’s communications caravan. This facility was fabricated by John following some “whinging” from some “oldies” who found difficulties in getting into and out of the van via a “fold-away” step. Well done John! It does the job beautifully.

### Belated Presentation of Life Membership to Stan (VK2DDL)

Oops! Because of vital details of things like Date of Birth of our club members not appearing on our early application forms, a recent “age audit” disclosed that we had missed the fact that almost five years ago, Stan Ellis, VK2DDL had qualified for the Life Membership award.! Shame be upon us! Further, because Stan was unable to attend the presentation ceremony at our recent AGM, due to his recovery process from a bout of “poorliness”, it was considered fitting that a small delegation would visit his home QTH, at Tuncurry, and make a belated presentation.

President Henry, (VK2ZHE), Bill (VK2ZCV) Member Liaison Officer, and Trevor (VK2TT), OXTALES “Hack”, made a quick trip to Tuncurry on August 9th, where they visited Stan and XYL,



Betty, to make the presentation.

Betty treated them to a most enjoyable afternoon-tea, and Stan gave an extremely interesting résumé of his many years in Maritime Radio communications.

Pictured, above is Stan, receiving his Life Membership Certificate and badge from ORARC’s President, Henry (VK2ZHE).

## Life Membership Awards at the 2012 AGM

As reported elsewhere in this issue, Charles, VK2KCE (right) and Trevor VK2TT (Below) receiving their Certificates and badges from President Henry, VK2ZHE.



Sincere thanks to members John McLean David Pilley David Newey, Henry Lundell who contributed items and photographs for inclusion in this issue of **OXTALES**

### *President's Report (Cont'd from P 1)*

The WIA sends a delegation to each World Radiocommunications Conference (WRC) run by the International Telecommunications Union (ITU). These conferences were previously called the World Administrative Radio Conference (WARC), and are still colloquially referred to as WARC. The most recent one was World Radiocommunication Conference 2012 (WRC-12) held in Geneva, Switzerland earlier this year over the period 23rd January to 17th February 2012. It is at these conferences that the fate of the Amateur Bands are determined. There are many demands by a multitude of users on the finite amount of radio spectrum which exists. Without a strong representation at these conferences the Amateur MF, HF, VHF, UHF and microwave frequencies would soon be lost to other users. Indeed the IARU

representatives not only argue to retain the existing frequency allocations but also negotiate for additional allocations, Hence the "WARC bands", and more recently the MF and 60 metre allocations. Of course, the WIA then has to negotiate with the ACMA for Australian Radio Amateurs to access any new allocations permitted in our part of ITU Region 3. An example stemming from WRC-07 is the allocation of 135.7 to 137.8 kHz as a secondary service to Advanced License amateurs in the Australia RF Spectrum Plan which came into force on 1st January 2009.

Most of the work done for the Amateur Radio Service by the WIA is done behind the scenes and attracts very little notice on a day-to-day basis.

The WIA supports affiliated clubs such as ORARC in many ways. An example that we are all familiar with is the WIA Club Grant Scheme. ORARC gained  
*(Continued on P 7)*

## Remembrance Day Sat/Sun 11/12th August 2012

The ever-popular venue for ORARC events, the home QTH of Henry (VK2ZHE) saw a pleasing gathering of club members who came to participate and/or socialise in another successful and enjoyable RD contest.

Fine, but chilly weather prevailed, and operating conditions permitted a sizeable contact score for those who shared the operating. We managed 145 contacts in the contest, working all VK states except VK0, VK8 and VK9 but we did have contacts with five different ZL stations. Total point score was 149.

( See President's Report in this issue for further detailed coverage)

Those who attended the event, to either share in the operating or to socialise and give moral support, were:

### Saturday

VK2ATM Arthur Monck  
VK2CHC Richard  
VK2CRF Rob Frost  
VK2FCVI Lyle Smith  
VK2KHB John Bailey  
VK2TT Trevor Thatcher  
VK2VIV Jim Neil  
VK2VQT Col Terry  
VK2ZCV Bill Sinclair  
VK2ZCW Bill Brooke  
VK2ZHE Henry Lundell  
Keith Bayliss  
Sam Bayliss

### Sunday

VK2EM Bruce Ekert  
VK2FBRG Barrie Gilson  
VK2FCVI Lyle Smith  
VK2KHB John Bailey  
VK2VQT Col Terry  
VK2ZHE Henry Lundell  
Keith Bayliss  
Sam Baylis

See Next page for more  
RD contest Pix



Master Chef, Col (VK2VQT), watched by salivating hoards, L to R VK2CHC, VK2ATM, VK2ZCV, VK2FCVI & VK2VIV.



## Remembrance Day Contest Pix

**RD Contest Operator Rob,  
(VK2CRF) searching for yet  
another contact to be logged by  
Bill (VK2ZCW) below.**



*(President's Report Cont'd from P 5)*  
a grant of \$1,500 from this scheme last year for upgrading the suspension of the club's communications caravan and sign writing. Despite a very impressive detailed application which satisfied all the grant criteria, ORARC almost missed out on this grant as our percentage of WIA members within the club was marginal. The club intends to apply for another grant this year. It would be a pity to miss out if we do not satisfy the WIA membership percentage criterion.

The new WIA brochure and membership application forms are available at club meetings or by email. If you are not already a WIA member please consider joining the WIA. The WIA is conducting a membership drive so now is a good time to join.

The 145.175 MHz VK2RCN-1 APRS digipeater, which was installed at the club's Telegraph Point repeater site on the

20th of June 2012, is providing excellent APRS coverage in the Port Macquarie and Wauchope areas. The very significant reduction in APRS coverage for the short time in mid August, when VK2RCN-1 was out of service due to a blown fuse, demonstrated just how important this digipeater is.

The Remembrance Day contest this year was a great success despite the cold wet weather. The club station VK2BOR operated from the club's communications caravan at the QTH of VK2ZHE. The earlier starting time of 1pm local time on Saturday the 11th of August meant that the operation started with a sausage sizzle lunch. Master chef Col Terry VK2VQT worked wonders at the barbeque in difficult conditions to produce a delicious lunch, dinner and then breakfast and another lunch over the two days. There was a good roll up of members and the hot

*(Continued on P 11)*

## When Murphy Ruined My Swansong!

(By David, VK2AYD)

After 65 years of HF contesting I decided this would be my "Swansong" year and the RD Contest would be my farewell. Time to down size and kiss the FT-1000 and FL-7000 goodbye.

The morning of the RD Contest I checked the station out. We had just suffered a severe gale, so damage could have occurred to the L.F. antennas. All was well. Halyards were tight and the SWR was showing good. I down loaded the latest up-date for logging. I was all set with the intent "I'm in it to win it".

I decided CW ONLY, that's my first love. A check on the bands showed 20 and 15 were literally alive with Europeans. Of course, it's the WAE Contest and they were in full chorus. So the rig was set for 40 metres. 0900z came. Interesting, just a few CW stations, has the language died! Another note. On 20 the contesters keying speeds were in excess of 35 wpm. On 40 they were slow down to 10 to 20 wpm.

Definitely no 3 QSO's a minute occurring here! In this contest I had time to say hello to old friends – a real social event.

Whatever. I really got stuck into the RD Test switching between 40, 80 and 160. I was using a different logging programme designed specifically for the RD test, rather than my old faithful "CT" logger. I kept at it up until about half past midnight. The bands were quiet so time to take a short nap.

That's when Murphy struck! With most programmes when you click on that little red 'X' a message comes up and asks if you want to 'save or quit'. I clicked on the 'X' and my entire log disappeared. Gone. Evaporated.

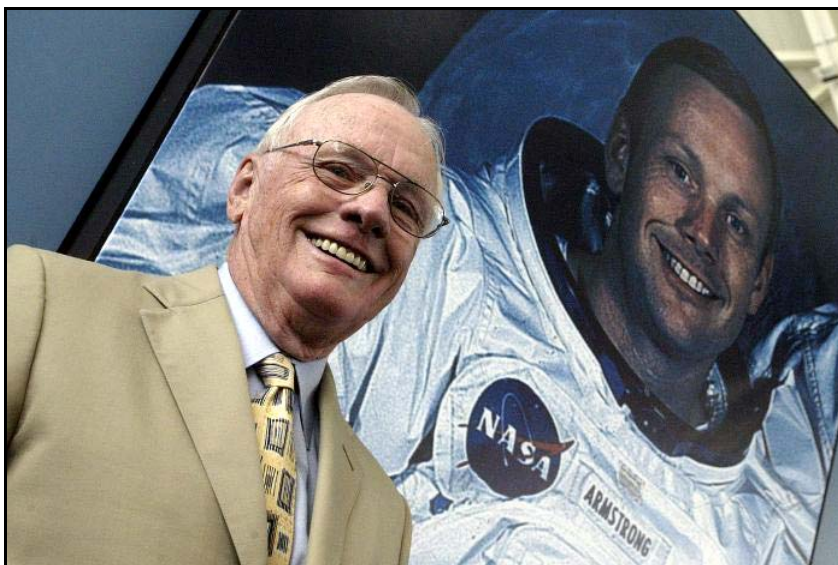
I was totally devastated. I sat staring at the monitor for a full minute in total silence. This was my 'Swansong' and 'puff' it disappeared. I went to bed saddened. My last contest a total failure.

Well, maybe. Maybe next year I'll go /PQRP and take a pencil and paper with me. Don't count me out yet!

73 David VK2AYD

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## Vale Neil Armstrong



From: news.com.au August 26, 2012  
5:03AM.

Neil Armstrong, the first man to set foot on the moon, has died aged 82 from complications after heart surgery.

Armstrong was a quiet self-described nerdy engineer who became a global hero when as a steely-nerved pilot he made "one giant leap for mankind" with a small step on to the moon. The modest man who had people on Earth entranced and awed from almost a quarter million miles away has died. He was 82.

Armstrong died following

complications resulting from cardiovascular procedures, a statement on Saturday from his family said. It didn't say where he died.

Armstrong commanded the Apollo 11 spacecraft that landed on the moon July 20, 1969, capping the most daring of the 20th century's scientific expeditions. His first words after setting foot on the surface are etched in history books and the memories of those who heard them in a live broadcast.

"That's one small step for man, one giant leap for mankind," Armstrong said.



## Will the REAL PL-259 Connector Please Stand Up?

(By John McLean VK2KC)

After being caught out on more than one occasion regarding the incompatibility of the called PL-259 & SO-239 threads on connectors and equipment from Asian suppliers, there must be an underlying reason behind the seemingly lookalike threads, but how did the Asians get it so wrong?

Extensive research on the subject of the incompatible threads has shown that Comet for one in Japan for their local and Asian market specify the MJ thread, which is a "newer" type thread utilised initially in the Aerospace industry. The accuracy of screw type fasteners demanded by that industry was a deciding factor in formulating another thread instead of using the standard that the aviation industry were already using. The aviation industry uses a closer nut to thread tolerance, and being US based, fractions of an inch are their sizing standard.

Somewhere along the line the standard of the MJ thread was adopted by Comet and I might add the majority of Chinese coax connector manufacturers, and the old standard PL-259 thread which is 5/8" dia x 24 threads per inch was not used. This thread is called UNEF (Unified National Extra Fine Thread)

The size and pitch of the MJ thread used by Japanese and Chinese manufacturers is 16mm diameter x 1mm pitch.

The reason why the thread pitch is incompatible is easy to understand when you convert the 1mm pitch thread (MJ thread) to imperial threads per inch.

1mm pitch = 25.4 threads per inch, so 24 threads per inch (UNEF) will screw on for about 2 to 3 turns, depending on the quality of the fitting, if it is force screwed on to say 12mm at that point the thread is almost 1/2 of one thread out and this misalignment will strip the thread.

Ahh! you say, but my experience shows that the MJ thread it will screw on to an SO-239 connector and this is true in some cases, but the Asians being very a resourceful race have worked out that if you make the female thread larger (sloppier) it will screw on!

The only problem with that fix is that the male/female thread flank contact is less than 50%, (75% is considered minimum) making a very weak connection, and in some cases it will work, but when one is using the Comet AD-35M PL-259 to 3/8"

adaptor to mount a 80m whip, it's a recipe for disaster.

It's interesting that the Chinese refer to the real version of the PL-259 as the "British Thread" but the Japanese call it the "International Standard Thread."

Here is a copy of an email from Comet in Japan after I took delivery of a CAA-500 Antenna Analyser from USA, when contact was made with the USA supplier to advise him of the SO239 thread incompatibility after finding that none of my PL-259 connectors would screw on to the SO-239 connector, his terse comment was and I quote "we have supplied over 20 of these units to the local market no-one has complained so far."

That response led me to take up the matter with Comet in Japan and here is their response:

*Hello Mr. John McLean,  
Thank you very much for purchasing our  
CAA-500.*

*The CAA-500 first lot does not have  
international standard connector.*

*From the second lot, which will be  
released on NOVEMBER 2011, we*

*change the CAA-500 connector so that  
PL-259 connector will screw onto the  
CAA-500 M-J connector completely.*

*Would you please so kind as to send your  
CAA-500 back to us?*

*I will send you the new one with  
international standard connector, then.*

*We deeply apologize for the  
inconvenience we have caused you.*

*We hope that you will continue to choose  
COMET products.*

*Sincerely,*

*Mika Yagishita*

*COMET Co. Ltd.*

*TEL: 81-(0)48-839-3131*

*FAX: 81-(0)48-839-3136*

*m\_yagishita@comet-ant.co.jp*

*<http://www.comet-ant.co.jp/english/index.html>*

73

John McLean

VK2KC

## International Lighthouse and Lightship Weekend Tacking Point Lighthouse

On Saturday the 18th of August, 2012, the VK2BOR Club Station participation in the event was conducted from the ORARC Communications Caravan at Tacking Point.

The overall operation was a great success with a good attendance of members, in absolutely glorious weather. A pleasing result of twenty-five lighthouses and sixteen other participating stations were contacted over our operational period which extended from 0000UTC until 0512UTC. All states, except VK0, VK8 and VK9 were contacted.

The bands worked were 40 Metres and 20 Metres.

( See President's Report in this issue for further detailed coverage)

Those attending included:

Barry Gilson VK2FBRG  
David Newey VK2DFN  
Bob Brodie VK2EJK  
Richard Court VK2CHC  
Bruce Walker VK2HOT  
John Bailey VK2HB  
John McLean VK2KC  
Neil Sandford VK2EI  
Verena Sandford  
Henry Lundell VK2ZHE

Lyle Smith VK2FCVI  
Jim Neil VK2VIV  
Ross Boyd VK2RR  
Bill Brooke VK2ZCW  
Ailsa Brooke VK2FABJ  
Rob Frost VK2CRF  
Mark McGuire VK2FMGM  
Des Thompson VK9FLHI  
Arthur Monck VK2ATM  
Paul Romaine VK2UPR



Right: Group at Tacking Point. L to R: VK2HOT, VK2VIV, VK9FLHI, VK2FCVI, VK2RR, VK2ATM, VK2FMGM



*(President's Report Cont'd from Page 7)*  
food was very popular indeed. New member Keith Bayliss and his son Samuel were particularly keen participants over both days. They hail from Moorland and stayed the night. Keith is waiting to do his Foundation Licence assessment. Hopefully, Samuel has now been bitten by the bug as well. The new steps made for safe access to the caravan in the wet and slippery conditions.

VK2BOR made 149 points this year. The simplification of the rules which permitted contacts to be made with stations in the same call area helped to keep the bands busy. The incentive of double points per contacts on 160 metres helped to boost the score. The effort to re rig the 160 metre dipole at the working bee prior to the RD contest paid off! Read the full report on the RD contest in this issue of Oxtales.

On the weekend after the RD contest, the club's communications caravan was set up at the Tacking Point Lighthouse in perfect weather on Saturday the 18th of August so that VK2BOR could participate in the 2012 International Lighthouse and Lightship Weekend. Thank you to Barry Gilson VK2FBRG for towing the caravan to the lighthouse very early in the morning and claiming the perfect location for the caravan as close as possible to the lighthouse building. By the time members began arriving Barry already had the HF antenna erected and the station ready to operate. It was very pleasant to start the day with a hot cup of coffee. Special thanks to Ailsa Brooke VK2FABJ for the delicious morning tea. Ailsa must have been up baking very early indeed! The hot dog lunch was very popular. The record consumption of cold soft drinks from the refrigerator is a good indicator of the

perfect weather. It was a little windy in the afternoon but the temperature remained warm throughout the day. Despite some troublesome QRN earlier in the day the HF bands were very busy with lighthouse stations all day. VK2BOR worked most of them. Thank you to everyone who participated and made the day a great success. Read the full report in this issue of Oxtales.

The next VK2BOR operation will be the 55th annual Jamboree on the Air over the weekend of the 20th and 21st of October 2012. This year VK2BOR will operate as usual from the club's Communications Caravan which will be set up in front of the Port Macquarie Sea Scout Hall in Buller Street. The club will also run a second JOTA station at the Scout Hall in Wauchope. Thank you to Lyle Smith VK2FCVI for co-ordinating the planning for the Wauchope station.

The 2013 Field Day is only 9 months away. It will be held at the same venue as this year's Field Day, the Tacking Point Surf Life Saving Club Hall. The dates are Saturday and Sunday the 8th and 9th of June of the 2013 Queens Birthday Holiday long weekend.

Congratulations to Ross Boyd VK2RR on gaining his accreditation as a WIA Assessor. Together with Nominated WIA Assessor Larry Lindsay VK2CLL this means that the club is again able to run training and assessments in-house.

Thank you to all members for renewing their memberships this year. Welcome to the new members who have recently joined. The result is that we have an all time record number of members, a total of 67.

Henry Lundell VK2ZHE  
President



## ... Another Lighthouse group at Tacking Point



**L to R : John (VK2HKB, in shadows!), Neil (VK2EI), Verena (Neil's XYL), Rob (VK2RR), John (VK2KC).**

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### Tech-Talk Parts 1 - 3 of 12

*John, VK2KC has submitted this multi-part Tech Talk feature from John Bee's webpage <http://www.qsradio.com/>*

*We have John's (NIGNV) permission to reproduce the series in any format we wish, for Amateur Radio purposes.*

Here's the first instalment in a series of discussions on SWR, antennas, feed lines, and related topics.

My aim is to give you some solid information based on facts, and to dispel some of the myths, old wives' tales, and just plain bunkum I hear regularly on the air and at Ham fests. No heavy-duty theory and I'll keep the math to an absolute minimum. Some of the topics we'll explore include:

What is SWR?

What does an antenna tuner do?

My antenna easily tunes to a 1:1 SWR, but no one hears me?

My SWR is high, so I have a bad antenna.  
My SWR is low, so I have a good antenna.

What's the best feed line to use?  
Why does my SWR change when I increase/decrease power?

What does a balun do (and how the heck do you pronounce "balun")?

I strongly encourage you to get the latest ARRL Antenna Book. It's chock-full of useful information. True, some of that information is heavy-duty theory and impenetrable math, but there's plenty in there that anyone can use. And a big plus is that it also includes a CD with (among other things) two very useful programs. EZ-NEC antenna modelling software and TLW (Transmission Lines for Windows) can save you hours or days of "cut, try, and measure, repeat". Later on in this series I'll present some eye-opening material using both programs.

Full disclosure -- I have no formal training in Antenna Theory, RF/Electrical Engineering, or any related field. The material and ideas I'll present come from recognized experts, my own experiments and experience, and plain old common sense. In case of a major error, I welcome correction. Nit-picking, whining, carping, and the like will be ignored. I don't generally have time to answer individual

questions on particular installations, but if I feel a question has wide application, I may address it. So here we go...

The definition of SWR (Standing Wave Ratio) is the ratio of forward voltage to reflected voltage at a particular point on an antenna feed line. Keep "at a particular point" in mind... it's important.

OK, so where do the voltages come from? When you key your transmitter, it sends a burst of energy up the feed line at a certain voltage and current. The antenna at the other end of the feed line radiates some percentage of that energy out as a radio signal. That's what we want! And of course, the higher the percentage, the stronger our signal. But here's the catch. The entire energy burst radiates only when the characteristic impedance of the load matches that of the source (ignoring the generally small resistive losses in the wires themselves). Note that "load" and "source" can refer to any point in the signal path. In a typical Amateur Radio Station, the transmitter is designed to work into a 50 Ohm load. So we often use 50 ohm coaxial cable, and feed an antenna that is also 50 Ohms. By definition, we have a 1:1 SWR and everybody's happy.

But what happens when the antenna is not 50 Ohms? Now some of our transmitted power is reflected back down the feed line instead of radiating out into space. That reflected power has a voltage and a current value, just like the forward power does. And the ratio of the forward voltage to the reflected voltage at a certain point on the line is the SWR *at that point*.

The voltages vary along the line as sine waves. Since they are out of phase (they don't cross zero volts at the same point on the line) the ratio of the two voltages changes all along the line -- that is, the SWR varies along the line. It follows, then, that we should be able to find an acceptable SWR at some point on the line. But that's a cumbersome process, and is good -- at best -- on only one band. Enter the antenna tuner! We'll talk about tuners, and their advantages and limitations.

Above we talked about what SWR is. Now, we'll explore why we care about it, and what we do about it.

Modern transmitters are designed to operate into 50-Ohm resistive impedance. We use 50-Ohm coax, a 50-Ohm antenna, all of our power radiates, and the transmitter is happy. But when the load is something other than 50 Ohms (in other words, the SWR is greater than 1:1,

problems can arise. If the mismatch is bad enough, our solid state final amplifier stage can easily overheat and self-destruct. So our radios include a protection circuit that lowers the output power as SWR increases. The circuit generally kicks in at somewhere between 1.5:1 and 2:1 SWR.

So how do we lower the SWR and regain full output power? There are several ways.

(1) As noted above, find a spot along the feed line where the SWR is at a minimum. Tedious, good (at best) on a single band, and not very practical.

(2) Add an appropriate resistor in parallel with the antenna system. Easy to do, works like a charm, and gets your SWR darn close to 1:1 on all bands. One slight problem with this approach -- nearly all of your power is dissipated in the resistor, and just about none radiates. Can you say "Dummy Load"? Sure you can.

(3) Adjust the antenna length until the SWR is acceptably low. In theory, a very good solution. Good in practice as well, if we're looking at a single band antenna, or can set up separate antennas for each band. Not all of us are blessed with enough real estate for that. We want to use one antenna on multiple bands and so (drum roll!)...

(4) Use an antenna tuner. How does a tuner (sometimes called a Transmatch or Matchbox) work? Quite simply, by putting various values of inductance and capacitance in series or in parallel with our antenna system. Some combination of these values, plus those of our antenna system, result in a 1:1 SWR *at the input of the tuner* (Note this... we'll come back to it). As most of us have found, not all antennas can be matched on all bands. That's because our tuner has a finite amount of inductance and capacitance. Given a tuner with infinite values, you could literally tune a thumbtack on 160 meters. No, it would not work very well... losses in the tuner and feed line would eat up most of the power. But we'd have a 1:1 SWR.

From this, it should be obvious that by itself, a low SWR does not mean that we have a good antenna. Neither does a high SWR mean that we have a bad antenna. We need to look at the entire antenna system -- essentially everything going out from the antenna port on the radio. That includes (principally) the tuner, the feed line, and the antenna; secondarily, it also includes nearby objects and structures, especially metallic

ones. Later on in this series, we'll delve further into this topic.

Actually, "antenna tuner" is somewhat of a bad name for this device. It does nothing to improve the antenna. All it does is make the radio happy so that it can safely generate full power. A more correct term is "impedance matching network". But most folks call it a tuner, so we'll stick with that for simplicity. Just keep in mind what it really does (and does not) do.

Now we'll take a look at how, and why, your SWR meter may well be lying to you. And we'll have some facts and figures that may shock and amaze you.

I have some rather eye-popping information for you. We're going to see why your SWR meter can lie to you. Or as another fellow says, "SWR meters make you stupid."

The material in this section was prepared using 2 programs from the ARRL Antenna Book CD. Roy Lewallen, W7EL's EZ-NEC antenna modelling program was used to get the basic antenna data. That info was fed into Dean Straw N6BV's Transmission Line for Windows (TLW) analysis program. If you like to play with antennas, both programs are great tools.

Using EZ-NEC, I "built" a 40 meter dipole at about 33 feet high. As expected, the SWR was about 1.6:1 at the centre of the band and below 2:1 at the band edges. Then I opened TLW, specified 100' of RG-8X coax as the feed line and added the feed point impedance ( $77 -j13$ ) calculated by EZ-NEC. TLW calculated the total loss in the coax as just under 1 dB. Most of that was the inherent ("matched line") loss in the coax. The slight SWR mismatch added just a 10th of a dB to the total. None of this was surprising; it's basic antenna theory. But read on...

Let's take that 40M dipole and -- through a tuner -- use it on 20M. An SWR meter in the shack will read about 6:1. Not great, but well within the range of most manual or external automatic tuners. So the tuner does its thing, our transmitter sees 50 ohms, and happily pumps 100 Watts out into the coax. But how much of that power actually radiates, and how much is lost in the coax? Would you believe that a mere 6 Watts actually goes out as RF? The remaining 94 Watts are lost -- converted into heat -- in the coax!

Hmmm... I must need better feed line, eh? So (using the TLW program) I

replaced it with some nice, low loss LMR-400. Much better now. I'm radiating 16 Watts. "Only" 84 Watts lost in the coax. Yikes! Well, I decided to go whole hog and swapped the LMR-400 for some nice 1-1/4" hard-line. Which, in the real world, would have set me back about \$500 or more when you include connectors? Only to find out that I'm still losing 1/2 of my power in the feed line!

Maybe the old-timers were right about using ladder line. And sure enough, when I feed that antenna with 100 feet of 450-Ohm ladder line, my loss plummets to almost nothing -- just about 1/2 of a dB. Now almost all of my power is heading out to that rare DX. And of course, now I can actually hear that DX station. Remember that antennas are reciprocal. That 94% loss on transmit is equally a 94% loss on receive.

But how can the losses be so staggering when my SWR meter shows only 6:1?

Here's the first clue... each time I upgraded the coax, my SWR increased. With the hard-line, my meter showed nearly 50:1. No, that's not a typo. Fifty to one. But that's not the worst of it. Remember that SWR is, by definition, the degree of mismatch between the impedance of the feed line and that of the antenna. But I didn't change the antenna at all, and each of my feed lines was 50 Ohm. Then how can the SWR increase? And the answer is -- it can't.

But what my meter reads can (and did) change. Why? Well the high loss in the coax absorbed most of the reflected power. The meter was seeing the full 100W forward power, but only a fraction of what was coming back down the line. TLW tells me that the actual SWR at the antenna feed point is about 100:1. That's just what we would expect from a full-wave dipole -- an impedance of about 5000 ohms.

And as if all of that wasn't bad enough, keep in mind that I used a lossless tuner and good quality coax in new condition. Tuners do have loss. And coax used outdoors does get lossier with age.

That's it for this month. We touched briefly on ladder line today. Next time we'll take a closer look.

73 for now,  
John Bee, N1GNV  
Quicksilver Radio

*(Further parts will follow in future  
OXTALES)*

## Big bounce better than Olympics ... and sex

From:  
The Sydney Morning Herald, Monday August 20  
2012, Page 8  
Date: August 20, 2012

**Louise Schwartzkoff**

"We have far more serious things to worry about" ... Michael Farrell.

WHILE most of Britain basks in an Olympic afterglow, there is an international gathering of people in Cambridge who couldn't care less.

For the 100 or so delegates at the 15th International Earth-Moon-Earth Conference, the year's most important event had nothing to do with sport. They are amateur radio enthusiasts who build their own transmitters to send radio waves into space, to bounce off the moon and back to earth. They converged on Churchill College, Cambridge at the weekend to exchange ideas and develop skills.

"We didn't waste our time going to the Olympics," said Michael Farrell, an economist from Sydney and one of four Australians at the conference. "We have far more serious things to worry about."

Ordinarily, radio communications are limited by the earth's curve. To communicate with someone on the other side of the world requires a satellite - or some other large celestial object. Only the most skilful amateurs can master the "moon bounce". Their signals travel about 700,000 kilometres and reflect off the moon's far-from-perfect surface. As well as technical skill, some understanding of astronomy is required.

"This is right on the limits of what's possible," Mr Farrell said.

The delegates included amateur radio licensees from all walks of life: doctors, engineers, lawyers, and an American Nobel physics laureate, Joe Taylor. Brian Coleman, who is on the British organising committee, believes they have one thing in common.

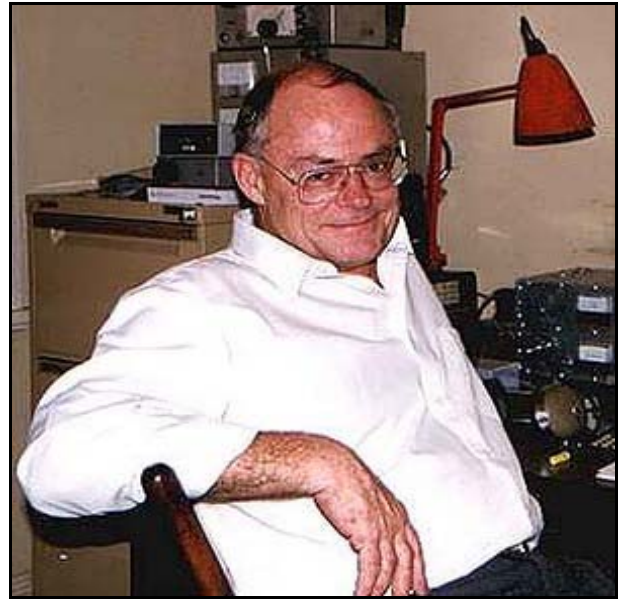
"I suppose you could describe us as geeks," he said. "You are entering serious anorak territory, though it's slightly more serious than trainspotting."

Moon bouncers tend to accumulate a stash of makeshift equipment. Mr Farrell's garage in Glebe is packed with homemade radio amplifiers and antennas. "You can't buy this stuff," he said. "Part of the challenge is to build it. Radio amateurs get really good at scrounging stuff."

When everything goes to plan, it is possible to send simple messages via the moon to fellow enthusiasts overseas. Mr Farrell uses Morse code (seven-three means "best wishes") but some are able to send voice signals.

He remembers the first time he reached the moon in the early 1990s. "It's better than sex," he said. "You are hearing your own signals off the moon."

Note: Michael Farrell is VK2FLR ex VK2AM, VK2ZNA



**Michael Farrell**

### FOR SALE

**VK2AYD is down sizing and has the following for sale:**

**FT-1000MP HF Transceiver plus  
FL7000 (1Kw) linear**

**3 el Wilson Triband beam**

**30ft (5x6ft) Tower**

**Beam Rotator & Controller**

**TS930 HF Transceiver  
(Tx needs attention)**

**Lots more!**

**David has been a World HF Contest  
fanatic for over 65 years and is now  
hanging up his electronic keyer !  
Call or email for prices etc.**



# OXLEY REGION AMATEUR RADIO CLUB Inc.

## MEMBERSHIP REGISTER.

(As at August 28th 2012)

No.	Cat.	Surname	Given	Spouse Name	Call	Location	Tph
1	O	ANDERSON	KEITH	(HEATHER)	VK2FKIA	LAKE CATHIE	02 6586.3988
2	O	BAILEY	JOHN	(FLORENCE)	VK2KHB	PORT MACQUARIE	02 6582.2192
3	A	BAYLISS	KEITH	(DEBBIE)	-	MOORLAND	02 6556.3840
4	D	BELL	ALAN		VK2BEL	COOLONGLOOK	02 6554.1689
5	D	BLACKMORE	MARK		VK2XOF	BAULKHAM HILLS	02 9639.0663
6	L	BLYTH	BOB		VK2XIQ	TELEGRAPH POINT	-
7	O	BOYD	ROSS		VK2RR	LAKE CATHIE	02 6585.4903
8	D	BRICE	GRAHAM	(CYNTHIA)	VK2VV	SCONE	02 6545.0411
9	L	BRODIE	BOB		VK2EJK	PORT MACQUARIE	02 6582.0592
10	F	BROOKE	AILSA	(BILL)	VK2FABJ	PORT MACQUARIE	02 6581.0547
11	F	BROOKE	BILL	(AILSA)	VK2ZCW	PORT MACQUARIE	02 6581.0547
12	L	BURGES	ROY	(JUNE)	VK2EJB	PORT MACQUARIE	02 6583.8801
13	O	COURT	RICHARD	(LINDA)	VK2CHC	PORT MACQUARIE	02 6584.6872
14	O	DANIEL	JIM		VK2FJKD	PORT MACQUARIE	02 6583.1933
15	O	DAVIDSON	ROSS	(ANDREA)	VK3NUD	LAKEWOOD	02 6559.5152
16	A	DOWNES	RALPH	(KAYAN)	-	PORT MACQUARIE	02 6581.3475
17	L	EDMONDSON	CHARLES	(PAT)	VK2KCE	PORT MACQUARIE	02 6584.0495
18	D	EKERT	BRUCE	(YULIA)	VK2EM	FORSTER	Mob 0414532496
19	L	ELLIS	STAN	(BETTY)	VK2DDL	TUNCURRY	02 6554.7996
20	F	FLETCHER	CAROLINE	(PETER)	VK2CZF	PORT MACQUARIE	02 6584.5191
21	F	FLETCHER	PETER	(CAROLINE)	VK2HPF	PORT MACQUARIE	02 6584.5191
22	O	FROST	ROBERT	(SUSAN)	VK2CRF	PAPPINBARRA	02 6587.6129
23	O	GILSON	BARRY	(FAY)	VK2FBRG	PORT MACQUARIE	02 6583.8814
24	O	GRAHAM	PAUL	(JANE)	VK2XDX	WAUCHOPE	02 6586.4720
25	L	GREEN	LEWIS	(PAMELA)	VK2AG	PORT MACQUARIE	02 6584.9162
26	D	GREENWOOD	GRAEME		VK2ZIS	McMAHONS POINT	-
27	L	HANLON	KEITH		-	PORT MACQUARIE	-
28	O	HANSEN	JOHN		VK2AYQ	PORT MACQUARIE	02 6582.7932
29	O	HARDING	DAVID	(ISABELLA)	VK2AIF	WAUCHOPE	02 6586.4980
30	O	HOLMES	JOSH		VK2FJDH	BONNY HILLS	02 6585.5148
31	D	HUTCHESSON	COLIN	(PAULINE)	VK5DK	MT. GAMBIER	08 8725.5527
32	D	JANES	LES	(BEVERLY)	VK5JL	SALISBURY HEIGHTS	08 8281.3878
33	O	JONES	PAUL	(SANDRA)	VK2DEL	PORT MACQUARIE	02 6584.3772
34	O	KOPPEL	HORST		VK2FHKO	LAKE CATHIE	02 6585.5992
35	L	LINDSAY	LARRY		VK2CLL	WAUCHOPE	02 6587.1155
36	L	LUNDELL	HENRY		VK2ZHE	PORT MACQUARIE	02 6582.0534
37	O	MADIGAN	ALLAN	(DAWN)	VK2OA	WAUCHOPE	02 6585.2043
38	O	MARTIN	CRAIG	(JENNY)	VK2ZCM	SANCROX	02 6585.3452
39	D	MCADAM	PETER		VK2EVB	COFFS HARBOUR	-
40	O	McGUIRE	MARK		VK2FMGM	PORT MACQUARIE	02 6583.8875
41	O	MCLEAN	JOHN	(CORRINE)	VK2KC	PORT MACQUARIE	02 6584.6220
42	O	MEEHAN	TERRY		VK2KL	PORT MACQUARIE	02 6584.2997
43	O	MELVILLE	STUART		VK2KSM	BONNY HILLS	Mob 0419043316
44	D	MILLS	TIM		VK2ZTM	BEECROFT	02 9868.1434
45	D	MINAHAN	CHRIS		VK2EJ	HALLIDAYS POINT	02 6559.3516
46	L	MONCK	ARTHUR		VK2ATM	PORT MACQUARIE	02 6581.0960
47	O	NEIL	JIM	(CAROL)	VK2VIV	PORT MACQUARIE	02 6581.2481
48	F	NEWWEY	DAVID	(LEONIE)	VK2DFN	PORT MACQUARIE	Mob 0439925065
49	F	NEWWEY	LEONIE	(DAVID)	VK2LPN	PORT MACQUARIE	Mob 0401015220
50	O	NEWHAM	LAURIE	(ROBIN)	VK2ELN	PORT MACQUARIE	02 6583.5387
51	D	NIVEN	TREVOR	(BETH)	VK5NC	MT. GAMBIER	08 8723.2432
52	O	PERRETT	TONY		VK2FVAA	PORT MACQUARIE	02 6584.1262
53	O	PILLEY	DAVID	(DEE)	VK2AYD	KING CREEK	02 6585.2647
54	O	ROMAINE	PAUL		VK2UPR	PORT MACQUARIE	Mob 0428466075
55	O	SANDFORD	NEIL	(VERENA)	VK2EI	PORT MACQUARIE	02 6582.5830
56	L	SINCLAIR	BILL	(CORALIE)	VK2ZCV	PORT MACQUARIE	02 6583.9302
57	O	SMITH	LYLE	(JEANNINE)	VK2FCVI	WAUCHOPE	02 6585.2497
58	O	STOFMEEL	BILL	(TONI)	VK2BST	PORT MACQUARIE	02 6582.5612
59	D	TARRANT	DAVID	(AILEEN)	VK2TBC	ILUKA	-
60	O	TERRY	COL	(KATHLEEN)	VK2VQT	PORT MACQUARIE	02 6581.3505
61	L	THATCHER	TREVOR		VK2TT	WAUCHOPE	02 6585.2278
62	O	THOMPSON	DES	(BETTY)	VK9FLHI	LORD HOWE ISLAND	02 6563.2152
63	O	TRAYNOR	JOHN		VK2FMJT	WAUCHOPE	Mob 0487748338
64	O	WALKER	BRUCE	(GWEN)	VK2HOT	PORT MACQUARIE	02 6583.8360
65	O	WARD	MICHAEL	(RUTH)	VK2FMDW	PORT MACQUARIE	Mob 0427291276
66	O	WEBSTER	PAUL	(CAROL)	VK2BZC	PORT MACQUARIE	02 6582.3377
67	O	WINCHESTER	JOHN	(PAULINE)	VK2FGAA	PORT MACQUARIE	02 6580.3031

Cat Key: O = ORDINARY    A = ASSOCIATE    D = DISTANT    H = HONORARY    L = LIFE    F = FAMILY