



A Member of the SARRL



Visit our Website: www.awasa.org.za

Inside this issue:

Valves of Distinction	2-3
Making Your First QSO on CW	4-5
AWA KZN Open Day	6-7
Notices	8

- * President—Ted ZS6TED
- * Vice President—Jacques ZS6JPS
- * Technical Advisor—Rad ZS6RAD
- * Secretary/PRO—Andy ZS6ADY
- * Western Cape—John ZS1WJ
- * KZN—Don ZS5DR
- * Historian—Richard ZS6TF

Newsletter

113

July 2015

Reflections:

The subject of discussion on Saturday 11th July introduced by Ted ZS6TED, certainly brought out some interesting comments from the 20 odd people who called in on the net.

Although many missed the point which was more to “what attracts us to amateur radio?”, there were so many interesting points of how people got involved in amateur radio before actually saying what it was that attracted them to it.

In some instances the original attraction was still valid, but the majority of people said it was that common interest of electronics, building homebrew and then most important, of being able to communicate those same interests with others around the globe.

During my younger years of study, when I got in to

training of people in various aspects, one of the things we learned was how to keep peoples attention while communicating to them whatever subject it was.

Most times it was made easy by the fact that the subject was of interest to the people who you were communicating with. I believe the same thing happens in amateur radio when we communicate with others.

It is because there is this general common interest, that we all love to talk about, that we find it so stimulating.

My XYL has absolutely no interest in amateur radio at all. She would not be able to tell the difference between a Collins transmitter and a valve tester, but, I know that when I tell her

about people, some of whom she has met, she will take an interest in what I am saying to her. But don't get anywhere near technical, because then I lose her interest.

So it is with us, the common interest is valve radio, most of the time, and the intricacies associated with it.

I have often told people that I am using old valve equipment in my shack, only to hear them say, “Wow, I had one of those when I first started out in amateur radio. And yours are still working fine”.

What a thrill, to know that we are still operating bits of history from a bygone era and that we can communicate so well on them.

Best 73
DE Andy ZS6ADY

WIKIPEDIA

Wireless Telegraphy

Both electrostatic and electromagnetic induction were used to develop wireless telegraph systems that saw limited commercial application. In the United States, Thomas Edison, in the mid-1880s, patented an electromagnetic induction system he called "grasshopper telegraphy", which allowed telegraphic signals to jump the short distance between a running train and telegraph wires running parallel to the tracks.[4] This system was successful technically but not economically, as there turned out to be little interest by train travellers in an on-board telegraph service. During the Great Blizzard of 1888, this system was used to send and receive wireless messages from trains buried in snowdrifts. The disabled trains were able to maintain communications via their Edison induction wireless telegraph systems,[5] perhaps the first successful use of wireless telegraphy to send distress calls.

The most successful creator of an electromagnetic induction telegraph system was William Preece in the United Kingdom. Beginning with tests across the Bristol Channel in 1892, Preece was able to telegraph across gaps of about 5 kilometres (3.1 miles). However, his induction system required extensive lengths of antenna wires, many kilometers long, at both the sending and receiving ends. The length of those sending and receiving wires needed to be about the same length as the width of the water or land to be spanned. For example, for Preece's station to span the English Channel from Dover, England, to the coast of France would require sending and receiving wires of about 30 miles (48 kilometres) along the two coasts. These facts made the system impractical on ships, boats, and ordinary islands, which are much smaller than Great Britain or Greenland. In addition, the relatively short distances that a practical Preece system could span meant that it had few advantages over underwater telegraph cables

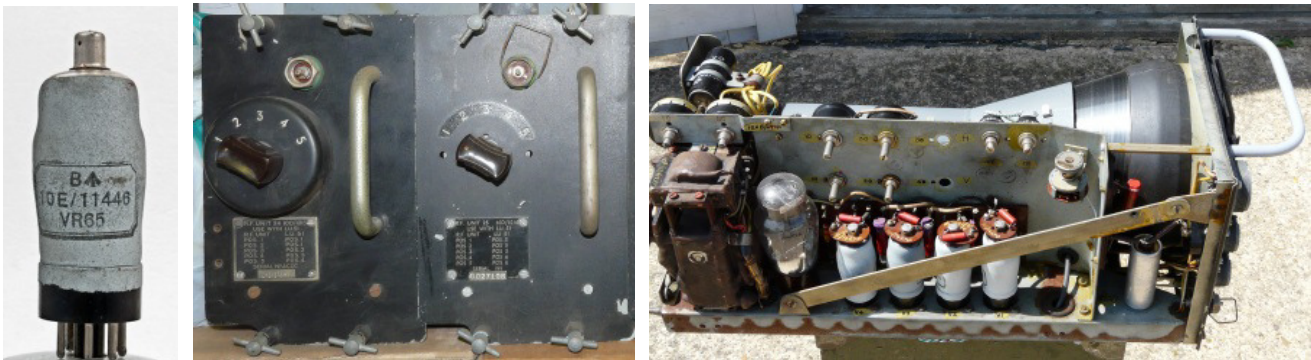
VALVES OF DISTINCTION by AWA Historian ZS6TF Richard

A cornerstone of AWA radio collectability is the valve complement in the equipment under consideration. The AWA QSO parties sort the men out from the boys by rewarding the all-valve operator with a 3 times multiplier, which declines to 2 for hybrid solid state/hollow state operator and 1 for fully solid state equipment. Clearly this strategy is orientated to encourage the revival of the earlier equipment, but is this the full story or the tip of the iceberg? And where does homebrew fit in?

Way back in 1956, your historian embarked on his first radio receiver kit project. It was a 3 valve TRF receiver made up by one of the more famous London surplus equipment dealers. At a cost of £2 it absorbed many months of childhood pocket money savings. Every component was supplied with the exception of the chassis, cabinet, knobs, and loudspeaker. The design was based on 3 VR65 valves, a screened RF pentode developed in 1938 by Mazda for TV RF and IF duty and used widely in radio, navigation, and radar equipment during WW2. It never ceases to amaze me how I was not killed by this device as the HT was derived from a full wave metal rectifier connected across the mains and the heaters were connected in series and fed from a block paper capacitor also connected to the mains. Old TV sets were stripped as a ready source of the extra bits needed and the whole thing encased in an oak cabinet made from wood recovered from ancient school desks for use in the woodwork classes at school. The radio worked fairly well despite the 50Hz component on the Audio, and the tingle through the fingers from the grub screws of the knobs. The block capacitors demised on the HT smoothing circuit fairly early on but the valves proved to be nearly indestructible as they were recycled into later projects, notably an oscilloscope using a VCR97 surplus CRT. Again the valves survived another dramatic incident which occurred at a school open day where the scope wowed parents with Lissajous figures slowly revolving on the screen. A dull explosion accompanied by downward ejection of the internals of the chassis mounted electrolytics, lifted the scope 3 inches of the bench, and the ensuing clouds of acrid white smoke caused an evacuation of the parents and pupils from the Physics Lab.

The VR65, civilian type SP61 is a 6.3 volt heater version of the SP41, which had a 4.0 V heater, commonly used in the 1930s when mains sets first began to appear. It has a top cap grid, metallised shielding, which stemmed from Mazda's strong design initiative during the later 1930s to meet demand for efficient video pentodes for TV, which in Britain preceded the rest of the world. Very short connections to shorter pins on a special base called "Mazda Octal" (MO), very similar but incompatible with International Octal" (IO), and compact electrode assembly delivered a high gain-bandwidth product desirable for TV IF applications and placed the valve streets ahead of the competition, many of whom licenced the design later.

In WW2 the VR65 was deployed most famously in the Gee navigation system in its' plug-in RF converter units type 24 20-30 MHz, and type 25 40-50 MHz. These were the front end to the R1143 receiver which also used them in the IF. Early versions of the Indicator type 62, the visual display unit for the Gee equipment, The fishpond indicator 162A (night fighter downward looking radar) and the indicator type 6 for the Rebecca rearward facing radar on the heavy bombers, utilised many VR65's until the later EF50 became available in quantity. They were also used in the RAF [R1132 VHF ground receiver](#).



Higher frequency RF units were developed for the GEE system, the RF26: 50-65 MHz, and RF27: 65-85 MHz both continuously tunable. These used the newer all-glass envelope tubes based on the EF50 since the VR65's ran out of gain at 50 MHz. When released on the post war surplus market, radio amateurs and TV enthusiasts eagerly snapped up these RF units which shared the common IF frequency of 7.5 MHz and thus could be used as down-convertors with a communication receiver such as the R1155 which could tune around it. RF24's were used to monitor the Sputnik signals and the RF 26 was ideal for 6 metre amateur band reception.

The EF50 (VR91) was designed by Philips in Eindhoven for the same applications as the VR65 but was capable of much higher frequency operation due to single ended construction, very short connections with the electrodes mounted on the pins, and a "metal faraday cage" which encapsulated the whole assembly. The manufacturing techniques were difficult to replicate in Great Britain however, and production was ramped up in Holland in 1939 until the threshold of being over-run by the German forces, when 25,000 complete EF50s and 250,000 tube bases were miraculously spirited out of Holland by sea on the day they invaded.

This valve played a defining role in the development of early British Radar due to a parallel development by Pye in Cambridge who had developed a sensitive 45 MHz TRF receiver using EF50's for the TV market. Already in production, it was easily incorporated into airborne equipment as a high performance radar IF unit.



In the 1950's the surplus market was awash with copious supplies of these valves and redundant equipment containing them. The contemporary hobby press obliged with frequent articles about homebrew radio and test gear projects to build with them.

The story of the beam tetrodes began a lot earlier when other manufacturers were keen to produce pentode type tubes without infringing the Mullard (parent company Philips) pentode patent granted in 1932. Two EMI engineers, produced and patented an alternate design in the same year. Their design featured control and screen grid wires wound with the same pitches and the wires aligned, and a pair of beam-forming plates tied to the cathode located at both ends of the oval grid structure to focus the electron stream into a pair of beams 180 degrees apart. This took the non-linearity out of the standard tetrode characteristic and the term "kinkless tetrode" was applied, reflected by the type numbers of the later British versions. Deemed too tricky to manufacture by EMI/MOV, the design was passed to RCA who were able to tool up for the accuracy needed. Their first valve built to this design was the famous 6L6, primarily an audio power amplifier, which found its way into all kinds of applications from aircraft flap servos to voltage series regulators for radar power supplies in WW2. RF engineers disdained the single ended design which limited the anode voltage due to proximity of the pins; military requirements were for higher power at RF and in audio modulators. The 807 and the 12 volt heater 1625 with a top cap anode, followed by the bigger 813 were the solution, both destined to become workhorses of amateur radio for more than 30 years. Not long after, the 6L6's little brother the [6V6](#) appeared in December 1936, followed by the MOV [KT66](#) in 1937, aimed at the audio market. These were made to work up to 30 MHz by the radio amateurs. RCA kept the development up after WW2 resulting in the release of the 6146 in 1953, the apogee of beam tetrode design for RF PA's known to millions of radio amateurs with the proliferation of hybrid transceivers in the 60's and 70's.



Your historian confesses that he gets misty eyed about the push pull 6V6 amplifier he built to play his homebrew guitar through, all the parts cadged from a widow who still ran her late husband's bicycle and radio repair shop near his childhood home, or harvested from old telly's and radios passed over the garden fence. With good reason, half a century later the AWA thrives on our like minded members appreciation of the great beauty, significance and heritage of the valves which populate our rigs.

Making your first QSO on CW de ZL2AIM Ian

I realise that 98% of you already know the following, but if it helps just one new CW enthusiast, then I will have done my work and it will have been worthwhile! It is not my intention to teach my grandmother to suck eggs.

When I first passed my morse test at 12 wpm, I was a bit overawed by what I heard on the airwaves. It did not have much in common compared to what I had learnt in my CW lessons. My teacher had taught me to read lots of blocks of 5 letters mixed with numbers at 12 wpm. He asked me to forgo SSB and to take up CW as he thought I had an aptitude for CW. That may have been so, but he didn't prepare me for the new type of language that I was to hear on the airwaves. It might well have frightened me off for good, as I had no idea what all this was about.

Luckily, a fellow club member Tubby ZS5TUB came to the rescue. He sent me a draft of a typical CW conversation. In fact, I used to keep the draft in front of me when I was calling CQ just so that I would know what to send. I don't have his original document, but it went along the lines of the following. Assuming that I was doing the calling with my call sign ZL2AIM

Listen on a clear frequency for 30 seconds or so and if nothing is heard, call **QRL?** Wait for 10 seconds and repeat **QRL?** If no one answers, then it is reasonable to assume that the frequency is not in use. Then call

CQ CQ CQ de ZL2AIM ZL2AIM ZL2AIM K

Listen for 10 seconds before trying it again. If no reply, then don't be afraid to keep calling until you get an answer! For example let's assume you get a call from (fictitious) AB1XYZ. He answers your call by sending

ZL2AIM de AB1XYZ K

You would then go back to him with

AB1XYZ de ZL2AIM GE (good evening or maybe **GM** for Good morning) **Tnx** (or **TU** meaning Thank You) **fer call. U R 579 579.** (you are 579 579 or whatever signal report is appropriate). **Name hr is Ian Ian QTH Hikuai Hikuai so hw? BK** (the "so hw" is a bit of shorthand for "so how do you copy?" and the BK is handing it back to the other station) **AB1XYZ de ZL2AIM K.**

We might assume that he would come back to you in the following manner;

ZL2AIM de AB1XYZ Tnx fer call es rpt (Thanks for call and report). **U R 599 599 Name is Vlad Vlad es QTH is Moscow Moscow. QSL fer sure via buro 73 es TU SK ZL2AIM de AB1XYZ K** (The SK does not mean that he has gone Silent Key! The two letters are sent as one dit dit dit dah de dah It is also written as VA) Normally that would be typed with a line over the two letters meaning that the two letters are sent as if it was one letter – I have not learnt how to do that in Word, so bear with me!

Just to be sociable, I would then finish off by saying **AB1XYZ de ZL2AIM TU 73 SK Dit dit**
The "Dit dit" is just a polite way of finishing off the QSO. Some stations would also send just the one Dit.
So now you have made your first CW QSO.

Now, it is possible that you are not interested in all the ragchewing, so you might be happy with exchanging rst (599) and names. But I would like to think that you became a ham so that you could communicate with other like minded folk. In other words that you would chew the rag a bit and exchange some information. Bear in mind, that this is not easy when talking to stations where English is not their home language. In fact there is an art in getting the other station to join in with a bit of rag chewing. You could start off by introducing the subject of the weather.

AB1XYZ de ZL2AIM Tnx fer info. Wx hr is sunny and temp is 20 C Rig is IC706 es pwr is 100w ant is windom BTU AB1XYZ de ZL2AIM That is harmless and lets the other station know that you are prepared to have a chat. If he responds in like manner with wx and rig info, then you could try expanding it a bit more – I will leave that to your imagination – just remember – No politics and no religion and you should be fine. Some of the other shorthand you will come across is FB meaning fine business or OK. Wx is shorthand for Weather.

The main thing is to get on the air and start calling CQ in order to make that first contact. It would help if you had a sked with someone you know who realises that you will be a bit nervous during your first few contacts. Once you have made half a dozen QSO's and you get a bit of DX under your belt, then you will find that your nervousness of the past soon disappears. Always remember that you should never send your CW faster than you can read it.

If you have a good morse reading program you could test yourself by sending CW with your key or paddle into the program and checking that in fact you are sending what you thought you are sending! That can be a bit of an eye opener for the newbie. In my opinion, spacing of characters and letters is the important point – definitely not speed. Remember "Accuracy transcends speed"

Another thing to have handy when you are starting out with your on air calling is a copy of the most common Q codes – I have

a laminated copy which I keep handy especially for the ones that are not used too often.

QRA	Name of Station	QSA	Signal Strength
QRB	Distance from Station	QSB	Fading
QRG	Frequency	QSD	Defective Keying
QRH	Frequency Vary	QSG	Number of messages
QRI	Tone T1 - T9	QSK	Break in
QRJ	Signal too weak	QSL	Acknowledge Receipt
QRK	Readability R1 - R5	QSM	Repeat last message
QRL	Busy	QSN	I heard you
QRM	Man made Noise	QSO	Communicate
QRN	Static	QSP	Relay message
QRO	Increase Power	QST	General Call ARRL / NZART
QRP	Decrease Power	QSV	Send a series of V's
QRQ	Increase Speed	QSX	Listening
QRS	Decrease Speed	QSY	Change Frequency
QRT	Stop Sending	QSZ	Send word / group more than once
QRU	Nothing Further	QTH	Location
QRV	Ready	QTR	Correct time
QRY	What is my turn	QTU	Station open from - to
QRX	When will you call me	QUA	Have you news of
QRZ	Who is calling me		

Remember that putting a “?” after the Q code makes it into a question so QTH? means what is your QTH? If a station says QRU he is not being rude terminating the QSO, but he means exactly that – in other words he has nothing further to add to the QSO.

Now I said above that this would not appeal to 98% of Fists Down Under members as you knew all the above already, but here is a challenge for you.

We are members of Fists as we all share the love of the code. We enjoy using it and would love the code to perpetuate. So my challenge is as follows;

When you next hear an operator who is obviously new to the hobby and he is sending very slowly or making a few mistakes, just remember what it was like for you when you started off sending code on the air. So answer his call at his speed (OK, I know you will automatically do that!), and try and get him into a conversation. Ask him if he is a member of Fists. Then, when you have finished your QSO, make the effort to send him an email giving details of FDU. If his email address is not on QRZ.com you could send the call sign to our top sleuth Ralph ZL2AOH who will try and track him down.

It is only by encouraging the new blood into our hobby of the code that we will be able to perpetuate it. If each one of us makes an effort to encourage one new member to get on the air and give him some practice, then we are well on the way to keeping Samuel Morse happy.

AWA KZN Open Day

On Sunday 28th June the AWA Kzn had their first open day at Baynesfield Museum close to Richmond in the Natal Midlands. The Weather could not have been more perfect as was the setting.

The Baynesfield Estate is run by a board of trustees as a working farm and has a rich heritage in the area, with various display areas that have been set in the stable areas and barns. The museum shack of old man Bert ZS5QM is in one of these areas and Bert has equipped the "Radio Shack" with many fine pieces of equipment from yesteryear.

Every few months there is a flea market held at the estate, which is much more than a flea market. There are displays old farming equipment, Military wares, a pipe band. The museum itself at the Heritage center and is the home of the Vintage Tractor and Machinery Club.

The setting is absolutely idyllic and one can even take a picnic basket along and have a picnic in the gardens, although, with all the food available there, one could actually wonder why one would do that.

Do yourself a favour and go along to the next market in September and see for yourself.



Om Bert ZS5QM, Don ZS5DR, Cuan Radford and Andy ZS6ADY admire an old piece of equipment in Berts shack. It was in fact another fine piece of the G2DAF rigs which were featured in last months Newsletter.





We set up a gazebo with an outside display, and a braai and even managed to sell a few wools rolls



Don ZS5DR and Bert ZS5MQ with the TS520 Bert donated to the AWA.



John ZS5JX (center) joined the group in discussion about old rigs with yours truly showing his better side.

Part of the display in the Radio Shack



All in all a great day was had by everyone.



My Thanks to Jen Radford for the photo's.

CONTACT US:

P.O. Box 12320
Benoryn
1504

Mobile: 082 448 4368
Email: andyza6ady@vodamail.co.za

**Get your backdated issues
at
<http://www.awasa.org.za>**

**Antique Wireless Association
of Southern Africa**

Mission Statement

Our aim is to facilitate, generate and maintain an interest in the location, acquisition, repair and use of yesterdays radio's and associated equipment. To encourage all like minded amateurs to do the same thus ensuring the maintenance and preservation of our amateur heritage.

Membership of this group is free and by association. Join by logging in to our website: www.awasa.org.za

Notices:**Net Times and Frequencies:**

Saturday 06:00—AM Net—3615
Saturday 07:15—Western Cape SSB Net— 7140 (Alternate 3630)
Saturday 07:30—KZN SSB Net—3650
Saturday 08:30— National SSB Net— 7140; relayed on 14135 beaming to WC.
Saturday 14:00— CW Net—7020
Wednesday 19:00— AM Net—3615, band conditions permitting.
