

The adventures of some 15 year olds

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There must be some form of statute of limitations, so now is the time for some confessions. I am sure that the doings of this motley group, now respectable community members, will strike a chord with others.

Way back in 1956 a small group of lads would meet at lunch times at Unley High School in Adelaide to share common interests. The girls were segregated during lunch and recess, as well they should, so we were limited to boy talk and, of course, in those days radio was a good topic for lads with a technical turn of mind.

The group consisted of Brian Endersbee, Doug McArthur, Brian Tideman, John Hilditch and myself, John Drew. We learned that each of us had experimented with buzzers connected to antennas, telephone wires stretched between friends' houses, homemade microphones, reaction set receivers, and so on. Most of our experiments were battery powered. Our spark transmitters, of course, were broad band, much to the confusion of neighbours who couldn't work out why 'When a girl marries' on the radio was often accompanied by strange buzzing noises. Ah, they were the days when BCI was a bit of a mystery to listeners in a far more tolerant world.

To cut a long story short, one of the group, I think it was Brian Endersbee (known as Indochina for some mysterious reason) told us about the one metre band (288 – 296 MHz) where it wasn't necessary to have a radio licence. Now most of us would know that that

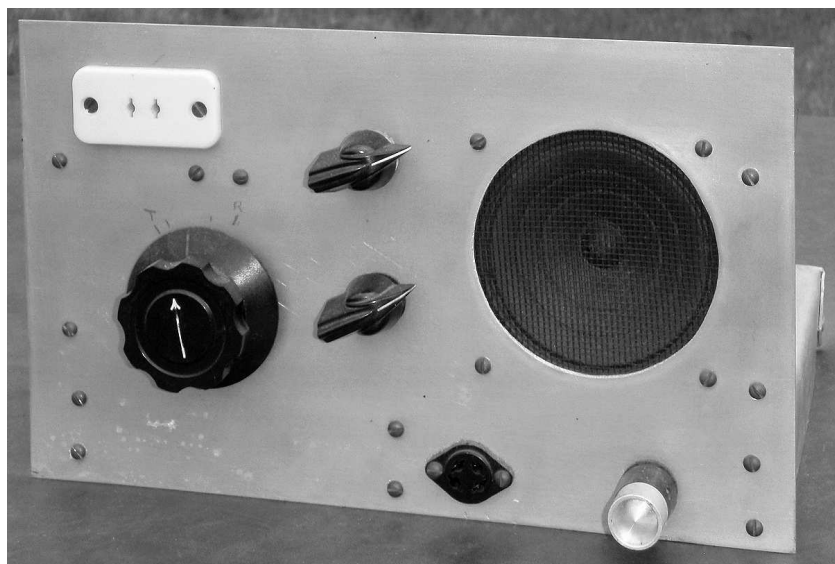
was being a little liberal with the truth, but it sounded pretty appealing to all of us. In fact, Brian, with his mate Frank Choate, had been experimenting there for some weeks.

A trip was made to Waltham's in Rundle Street. Waltham's, affectionately known as the 'Mustard Pot' because of its paint job, was the Mecca for radio enthusiasts, licensed and unlicensed. It was a military disposals store that specialised in communication equipment. With our pocket money in hand we ordered 7193s (two of), a 955 acorn valve, a 6V6, a 12AT7, sockets and other essential items not already in our collections at home. The idea was for each of us to build a modulated oscillator transmitter and a super regenerative receiver for 288 MHz. Aluminium was bought from Cann's in Norwood, another goldmine for those interested in radio.

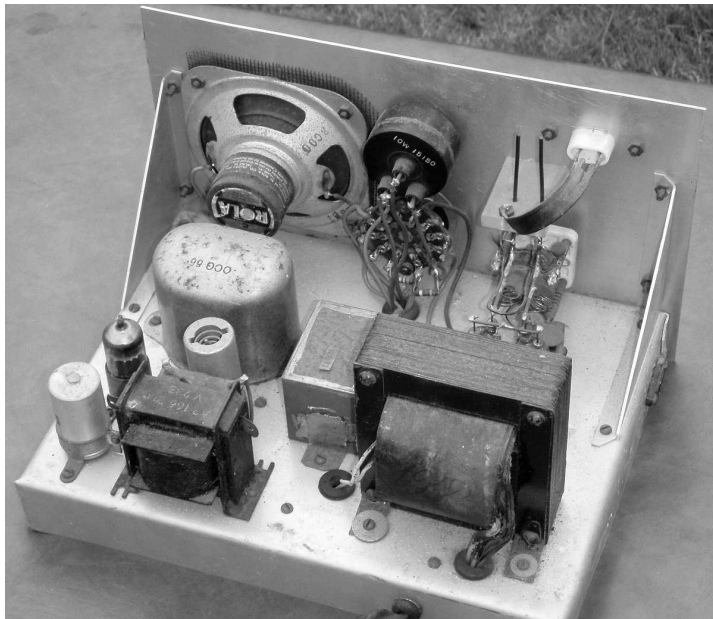
The basic lineup for a 288 MHz transmitter was a pair of VHF/UHF triodes (popular types were 7193, CV6, VR135) arranged in push-pull using a pair of lecher lines about 100 mm long (4 inches for the unconverted) and about 25 mm apart (1 inch). The tubes had their plate and grid connections brought out to caps at the top. The lecher lines were attached to the plates and a shorting bar could be slid along the lecher lines to tune. The cold end of the lecher lines was fed modulated DC via an RF choke. The grids of the tubes were strapped together and a 4k7 resistor, or thereabouts, went to earth from the centre of the strap.

The cathodes went to ground via RF chokes, or in some case via another set of lecher lines for greater efficiency. A flexible loop coupled the RF to a 300 ohm socket where various kinds of cable were used to transfer the energy to a double-pole knife switch and then to the antenna. The knife switch was thrown between Rx and Tx by hand, as was the main Tx/Rx switch to switch high tension. Frequency was checked using an absorption lecher line arrangement, a razor blade and a pea lamp.

Modulation was achieved using a simple audio amplifier feeding a centre tapped speaker transformer, the centre tap going to +V (2-300 volts) while one side of the winding went to the plate of the 6V6 modulator and the other to the end of the lecher lines. This



The photos are of a 576 MHz transceiver using a pair of RL18s, built during the 1960s when solid state rectifiers were becoming available. Unfortunately, I have no photos of the original one metre rigs but the construction of our one metre rigs was very similar to this one, with the exception of a 6V6 or a 6AQ5 as the audio output tube and a type 80 as the full wave rectifier. The photo above shows the typical layout of the front panel of a transceiver of the day. Top left, 300 ohm socket for antenna; top middle, super regen control; right, small speaker; middle left, tuning control using a home-brew split stator capacitor; centre, T/R switch; bottom centre, mike socket; and bottom right, audio volume control.



Typical layout of a super regenerative receiver/modulated oscillator transceiver. Transformers/chokes: the power transformer is front right, and the power supply choke bottom left. The unpainted rectangular transformer is the audio coupling transformer from the receiver, while the speaker transformer near the speaker doubled as a modulation transformer. The super regen control was a wire wound potentiometer as it had to carry the receiver plate current. The multi-pole two position switch was used to change the functions of the components to transmit or receive. Shields were placed on the valves to reduce the likelihood of RF feedback. The lecher lines and the receiving/transmitting tubes can be seen at the top right corner. The coupling loop to that antenna could be distance adjusted from the lecher lines.

was known as modified Heising modulation. The carbon microphone received its bias through the cathode resistor of the 6V6 and it was coupled through a reversed speaker transformer to a valve such as half of a 12AT7 twin triode and then to the 6V6. If there was too much bias there was an unpleasant tickle when the bare microphone touched the lips. Simple switching enabled the same audio amp to be used for the receiver and as the modulator.

Most receivers used either a 955 acorn tube triode, or a 6J6 twin triode, in a simple super regenerative circuit. Lecher lines were again used but this time with a tuning capacitor across the lines at about the half way point to enable sweeping the band.

The tuning capacitor (condenser) was usually made by stripping all but two pairs of plates from a split stator capacitor. The split stator was created by sawing the fixed plates in half and twisting half the movable plates into new positions. Not all tuning capacitors were suitable for modification. The plate circuit of the receiver was fed via an audio transformer, the other side of which was connected to the grid of the unused half of the 12AT7.

There were many variations on this theme and most 'amateurs' sooner or later went to push-pull 807s to hit the modulated oscillator with lots of watts of audio. 200% modulation was the goal - louder was better. The actual modulation on the transmitter was a mix of FM and amplitude modulation which suited the super regenerative receivers.

The antennas were an interesting mix but the big guns tended to use 16 element phased arrays. The author used a 3*3 Yagi (stacked three element Yagis). All antennas were also home brew. Rotation was mostly of the 'Armstrong' method - lean out the window and give the pole a twist - but some were as fancy as a steering wheel inside the shack with a right angle gear box outside (this involved holes in walls and therefore was not an option for 15 year olds - our mothers would have killed us). One or two even had prop pitch motors doing the job, which was something for most of us to dream about.

Doug was keen to put up a tower at his family home in Fullarton and a working bee was held. The highlight of the event was the moment when the last bolt was tightened and Brian Endersbee climbed to the top of the tower and did the Colonel Light stance while balanced on the pinnacle. The rest of us almost had a heart attack, but his balance was true and we all survived. For the information of non South Aussies, there is a statue of the city's architect, Colonel William Light, on a hill at North Adelaide. The Colonel is standing erect with his right hand shading his eyes from the sun as he looks out over Adelaide. Picture this on top of a tower.

Now how did it all work and how did we use them?

Well, the first job was to allocate ourselves a callsign. The unwritten rules were: the callsign must be a 'VK5Z...' call - these had been recently introduced and should be safe; the callsign should not be in the 'VK5ZAA - ZAZ' sequence as these were probably legal; and the callsign should preferably be 'ZC... or above'.

I chose VK5ZCL because it sounded good, Brian E chose VK5ZBZ, Doug chose VK5ZDA, John H chose VK5ZJH and Brian Tideman (affectionately known as Tiddles) chose VK5ZDQ.

Because we were all studying for our licences, the choice of a Z call was a problem because we used our rigs to practise our Morse. Now, a real 'Z call' couldn't use Morse, so the author mounted a dipole on the back fence of his house to the east of Adelaide to reduce the range. Using this antenna I would practise my code with my good friend Col VK5XY (he was legal).

I learned in later years that the monitoring station at Somerton, some 16 km (10 miles) away could copy me quite well, much to the amusement of the inspectors. There was a kind of unwritten understanding by the RIs at the time that went something like, "We know you're there, do the right thing, study for your licence and providing that you stick to one metre, and don't cause interference, we'll pretend you're not there, but if you step out of line you're done!" It seemed to work and almost everyone the author knew achieved their licence - there were few exceptions.

Here are some of our memories from those days. Push bikes were the main transport available to us and to go mobile it was necessary to manufacture mobile rigs. The standard rig was a 6J6 'mod osc/super regen' Tx/Rx. The same tube and tuning circuit operated in both modes by just switching the grid leak resistor and the audio system. High voltage was provided by



Doug McArthur, Brian Tideman and John Drew on their bicycles ready for a fox hunt in 1956. This photo by John Hilditch, was taken at the beginning of the Brown Hill Creek Reserve.

vibrator supplies and six volts was provided by borrowing the battery from the family car. A folded dipole or Yagi on a broomstick behind the saddle was the antenna system, and a WWII 'Spy Snooploop' was used for direction tracking of the fox. It was amazing what could be carried on a bicycle with a carrier both front and rear.

Fox hunts were a popular pastime for us although we didn't call them such. The Brown Hill Creek Reserve wasn't a long way from our homes so we frequently rode our bikes into the valley and we would take it in turns to hide while the others tried to fossick us out.

A number of incidents stick in our minds, such as the time that Doug took the ford across the creek towards the Little Chapel a little too fast and the wheels slipped on the algae covered concrete. Doug, the bike and the rig hit the water. The big question was not whether Doug was OK, but was his rig OK and especially that upmarket crystal microphone? Had the crystal dissolved in the water? Had the vibrator vibrated its last? Was the family battery leaking its life blood into the Brown Hill Creek? Fortunately, all was well and even Doug survived.

On another occasion, while lifting Brian's bike into a hiding place on a hillside, the crocodile clip on the battery was knocked sideways and contacted the lead bar joining the next cells, there was a big spark and the clip glowed red. With great haste Brian knocked the clip off and peace resumed with no obvious damage, although Brian didn't tell his dad about the shorted cell for safety reasons - his!

Later that day John H decided that a good hiding place was the Ladies' toilets. The rest of us circled that 'dunny' where we had tracked him, but none of us were game to go in and check that he was there. The rules of fox hunting were modified after that incident. Clearly the rest of us were gentlemen.

Mobile operation was quite popular in those days and most of us had some facility to operate from the family car. On one occasion, from his home station the author worked Brian E mobile all the way to Brown Hill Creek and back with acceptable but very fluttery signals - to be expected when mobile. The next day at

school he told the author that he hadn't left his shack - he had just run his fingers up and down the 300 ohm ribbon to cause the flutter.

In early 1957 the author bought a motor bike with a nice double sidecar. For those interested, the bike was a BSA 600 cc side-valve, single cylinder, and the first of the 'spring heels'. It was low revving, or so its previous owner told me. "It fires every telephone pole".

The chair was great for mobile operation. One day Brian E and the author set up the one metre mobile gear, hooked up to the bike's 6 V battery, and made the short trip from Frewville to Fullarton. Doug's super regen receiver could be heard (super regen receivers radiate quite badly and they can be heard for miles) so we called CQ using the fictitious callsign VK5SI, short for Station Inspector. Doug replied, being the

polite gentleman that he is.

After a couple of overs we explained that we were radio inspectors, we were mobile nearby and would like to inspect his station. We went over to receive and heard the whistle of Doug's receiver go quiet. We thought we should drive around the corner and check out Doug's state. Hearing the bike arrive he came out to see who was there, saw us, made aspersions about our parentage, and when asked what he had done he owned up to quickly dismantling his gear and hiding it under his mother's bed.

Fortunately, Doug was impressed with our prank and joined us for the drive to Tiddle's home where the trick was repeated. Whether Brian recognised our voices or what, we don't know, but he invited us in and we all had a good laugh together.

Mr Editor, do you think we are too old to be put in gaol?

We worked some quite long contacts on the one metre band. Vic VK5JH made many portable trips and his favourite spot was probably the Hummocks, north of Adelaide. Vic used genemotors and a 16 element beam as part of his portable station. We would take our mobile stations to Windy Point to the south of Adelaide and we could easily work Vic. Distances of up to 100 km (60 miles) were easily achieved. Quite remarkable considering the simple equipment in use.

By now some of us were progressing to our Z licences or doing the exams. The story goes that Brian Endersbee, as VK5ZBN, failed his first inspection by Radio Inspector Rob Gurr due to poor electrical safety. None of us were surprised. Few of us would have passed. Rob did his best to protect us from ourselves.

When it came to exams, the Morse code at 14 WPM was always a good test and, when redoing his Morse exam for the full call, Brian VK5ZBN was saved by a tea trolley that disturbed the exam and resulted in a resent line. Brian took the opportunity to fill in a couple of gaps that had accumulated on his paper. Saved by the tea lady!

It was not just we pirates that got up to mischief on one metre. Well known amateur Jack Stratford VK5JS would often go portable, or pretend to do so, as VK5ZJ (unallocated at the time). The locations were often fictitious but he had his favourites. On one occasion he



Doug McArthur perched precariously during assembly of his tower at Fullarton.

used VK5ZJ and said he was portable in a butcher's cart at Bullalmakanka (a takeoff of pirate John Shaw), and then lost the plot when his wife Doris must have nagged him that the bath was getting cold. So, on the last over, he forgot he was in the butcher's cart and said he had to go QRT and have a bath.

Brian E, now legal as VK5JR, often used VK5SI for some of his fictitious portable operations too. One evening Brian, claiming to be VK5SI, worked Jack from Windy Point when he, in turn, was called by his mother to have his bath and had to go QRT. Jack quipped in a final final, "Yair, you NEED one".

If nothing else we were a clean lot!

The next day VK5JR was entering the lift at Duncan building (PMG) to attend cadet engineer activity and ran into Jack in the lift. Jack told VK5JR that he had worked out who VK5SI was. VK5JR became rather nervous. Then Jack went on to say that VK5SI was his mate Jim VK5SU at North Walkerville as he had DF'd him with his 16 element beam. VK5JR relaxed! So the legend lived on.

By the end of 1957 we all had our licences, either Z or full calls, perhaps at the expense of our school studies. Our full call licences were VK5JR (Brian E), VK5TN (Brian T), VK5KK (Doug), VK5ZEP (John H), and VK5DJ (John D).

We are all now celebrating more than 50 years as licensed amateurs so our early beginnings have not been a disadvantage. We went on to respectable jobs and were never naughty again (although the great balloon episode may have to be written from gaol once this article is published).

The adventures provide some funny memories that the group often share during our 80 metre 'scheds'. We've learned a lot since then about the world, human nature, electronics and amateur radio. We've all successfully raised families and held responsible jobs so perhaps our sins didn't do too much harm, Your Honour?

Please note, dear readers, that VK5SI is now a legitimate callsign and has been for many years. Honest, Hank, we were just testing it for you! VK5ZJ is also now a legitimate call.

Although this expose of past fun was written by John Drew VK5DJ, it was checked by Doug McArthur VK3UM, Brian Endersbee VK3WP, and Brian Tideman VK3BCZ.

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