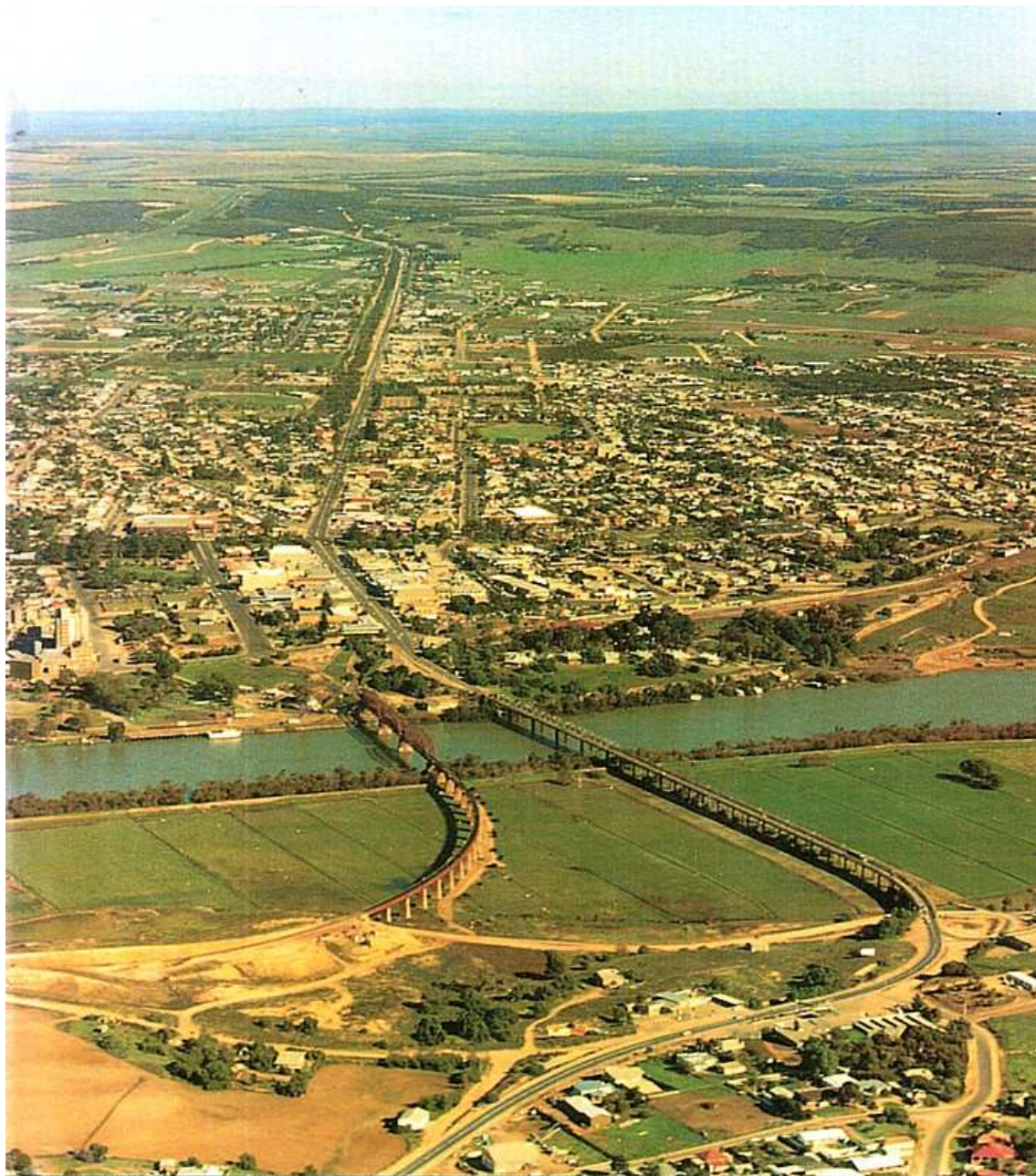


THE MURRAY BRIDGE STORY

A History of Amateur Radio in one South Australian Town .



Every town has its own amateur radio story - Murray Bridge is no exception!

**by Lloyd Butler
VK5BR**

**(Slightly condensed rerun of article originally published in Amateur Radio, July 1988)
(A few photographs have also been added as they have become available)**

This article is a historical review of amateur radio at Murray Bridge, commencing in the early experimental days of 1924 and passing through an era when radio amateurs built their own equipment. The article continues with some interesting details on the activities of the amateurs and the equipment they used.

INTRODUCTION

Every town has its own amateur radio story, some of it early history which has passed on with the silent keys of those who created it. This is the story of one particular town, Murray Bridge, told by some of the amateurs who have been active there.

We begin with an early experimenter, Frank Miller, long since a Silent Key, and progressively discuss the various radio amateur enthusiasts who followed on to build their own equipment and generate radio signals on the air. We finally review amateur radio in Murray Bridge as it has been in recent years.

We discuss modes of transmission and the type of equipment used in the pre-war and early post-war era and make particular reference to the problems we had in coping with the DC mains which Murray Bridge originally had.

Much of the story has been assembled from information supplied by some of its early participants, namely, Elizabeth Wallace, formerly Betty Geisel VK5YL*, Bob Grundy VK5BG*, Jack Trevor formerly VK5AM and later VK2UP*, Bill Rice, formerly VK5BP and later VK3ABP* and Lloyd Butler VK5BR, the writer. Information contained in reference 1 and 2 has also been utilised. More recent information, particularly that concerning the Lower Murray Amateur Radio Club, has been supplied by Colin Schick VK5JP*.

* Now silent keys

THE EARLY YEARS and VK5BF

The pioneer amateur radio experimenter in Murray Bridge was Frank Miller, who had an early association with communications as a signaller in World War 1. He is accredited with having assisted in developing the teletype machine whilst working in the trenches with the Signal Corps¹.

On December 14th 1922, the Murray Bridge Radio Society was formed with 15 members and Frank was the Hon. Secretary. The June 1923 issue of "The Australian Wireless Review" reports that he graduated from a crystal set receiver to a one valve receiver and in that year he had been granted a transmitting licence. At that point his transmitter (discussed following) was being planned.



The Early Murray Bridge Radio Club 1922



Frank Miller

Over what period the Society operated, is not recorded. It is possible that its members were later absorbed into the Railways Radio Club established in 1925.

The Blackwood Radio Club established in 1923 has always been considered as the first amateur radio club in the State of South Australia. However, in the light of this new information, the Murray Bridge Radio Society, started by Frank Miller in 1922, might well deserve that credit as first club. On the other hand, although Frank was an active radio amateur, no evidence has been found to indicate that the Society itself engaged in amateur radio transmission or amateur broadcasting.

Frank set up as an experimental broadcaster in Murray Bridge in 1924 using a grid modulated master oscillator with an input power of 4.4 watts. His callsign was 5BF, which eventually became VK5BF in later years with the development of amateur radio communications. (Considerable detail of Frank's early experimental broadcasting can be found in reference 1). Frank spent the rest of his life as an active radio amateur in addition to his many other activities associated with radio in Murray Bridge.

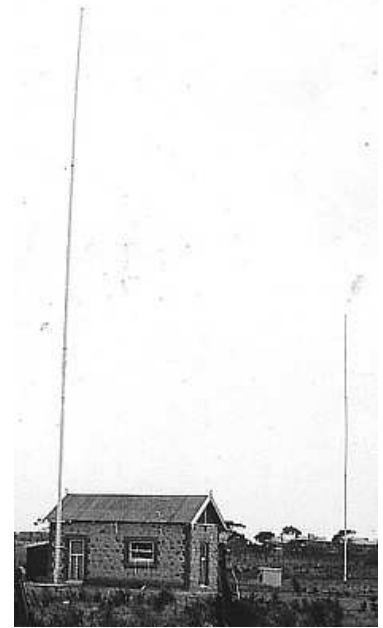
For some years Frank managed a radio and electrical business in the town, servicing radio receivers and actually building receivers for sale.

In 1934, in conjunction with a business partner, Frank set up Broadcasting Station 5MU with a 50 watt transmitter which he had built himself. With local help (much of it voluntary), he erected masts and an aerial system for the station. The picture shows the original 5MU station building with the original two 100 ft wood masts. The masts supported a 6 metre wide flat top which loaded a vertical section connected at its centre.

The station was purchased by "The Advertiser" in 1935 and became a relay station for the programme from 5AD Adelaide. The two wood masts were later replaced by a single base loaded vertical mast. The building originally had a small studio for local broadcasting but the partition between the transmitter and the studio was eventually dismantled and the extra space used to house extensions to the transmitter. Frank

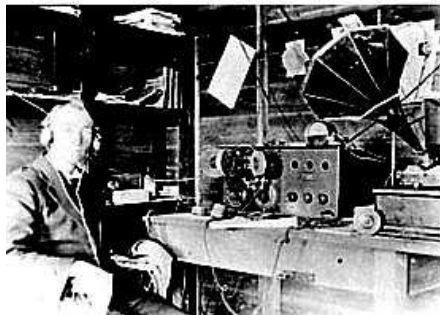
remained with the station until his retirement in 1953.

Transmitter 5MU, with higher power, later moved to a more elevated location on Gifford Hill.

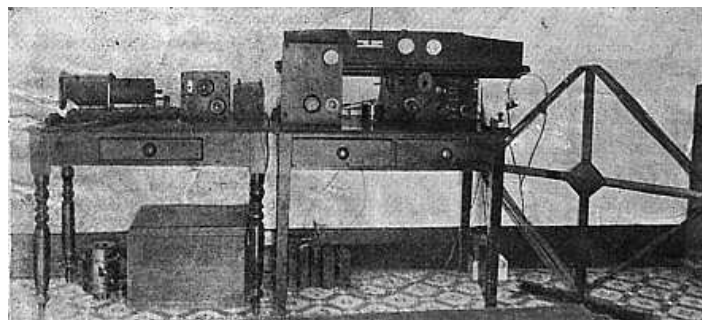


5MU Building & its Original 100 ft Masts

In 1925, a Murray Bridge branch of the Railways Radio Club was formed and Frank had a close association with this club as joint secretary. The club operated from railway offices across the line from the Murray Bridge Railway Station and Frank carried out transmissions from that location using one of his old transmitters. He was also a member of the South Australian branch of the Wireless Institute as early as 1921, only two years after it was formed².



Radio at the Murray Bridge Branch of the Railways Radio Club around 1925 with member Charles Oates at the controls



5BF Early Radio Station Equipment at Murray Bridge

Over the years, Frank built numerous units of experimental radio equipment. Apart from his knowledge of radio, he was skilled in fitting and turning and meticulously applied these skills to the construction of his radio equipment.

A QSO recorded in 1937 shows that, at that time, Frank used a two stage transmitter consisting of a 6P6 valve oscillator driving a pair of 807 valves in parallel, with an input power of 25 watts. This had superseded an earlier transmitter using a Meissner master oscillator driving a power amplifier (details unknown). His receiver was an eight-valve superheterodyne and on 80 metres he used a 134 feet single wire matched impedance antenna. A photograph of Frank, with his station around the 1940s, is shown in Figure 1. Frank also later obtained a National HRO receiver, a desk mounted version of the one shown in Figure 2. Early equipment was powered from the DC mains supply to be discussed later.

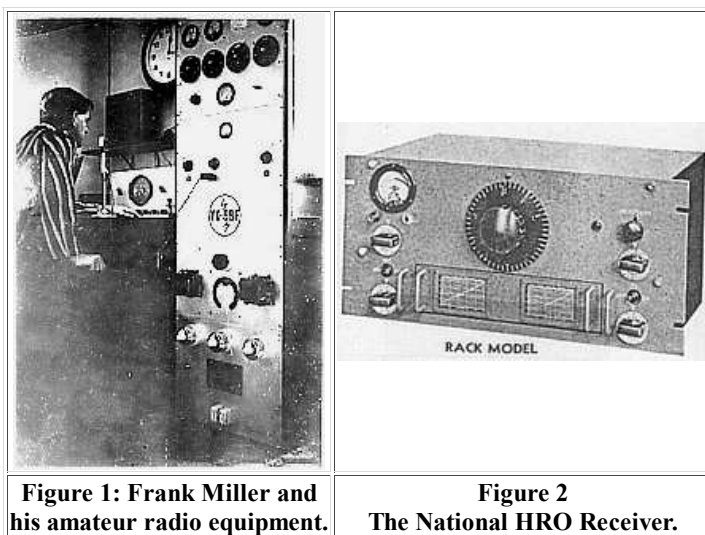


Figure 1: Frank Miller and his amateur radio equipment.

Figure 2
The National HRO Receiver.

Rotatable high gain beams, seen every where today where there are radio amateur stations, were not so common in those early years. Frank built a 20 metre rotatable Yagi which was mounted on a timber mast. To change direction, the whole mast section was rotated by a mechanism fitted at ground level. The mechanism was made up from an old milk separator gearbox, working in reverse, driven by a quarter horsepower DC motor.

Frank's last transmitting system, then AC mains powered, included a rack containing 1000 volt power supplies using 866A rectifiers, a modulator using a pair of 838 valves and an RF unit on 20 metres using a pair of 834 valves as a final stage. The rack was probably redesigned from the one shown in Figure 1. An auxiliary rack contained RF units on 40 and 80 metres and one unfinished unit, probably meant for 10 metres. The auxiliary RF units worked in conjunction with the main power-modulator rack.

After Frank became a Silent Key, his transmitter and other equipment was purchased by Dave Goode, a one time resident of Murray Bridge and district. Dave also took up the call sign VK5BF and made many contacts from the town of Yankalilla, using Frank's old transmitter.

A further article on Frank Miller including his World War 1 involvement [can be clicked here](#).

VK5YL

An early Murray Bridge amateur radio operator was Betty Geisel who, in 1936 at age 16 years, was the first YL (young lady) in South Australia to obtain an amateur radio licence. Appropriately, her call sign was VK5YL. Betty also obtained her commercial operator's certificate and she had the distinction of having her certificates on display in the comprehensive radio section of the Adelaide Telecommunications Museum³.

Betty operated in the CW mode mainly on the 40 and 80 metre bands, with an occasional contact on 20 metres. Betty built her own transmitter and receiver from limited resources. A QSL card, confirming a QSO in May 1937, shows that her transmitter then utilised a valve type 42 electron coupled oscillator, running an input power of 10 watts. Further cards show, that in 1938, her transmitter had been changed to a 38 Tri-tet crystal oscillator driving a pair of 42 final amplifier valves with an input power of 25 watts (refer to Figure 3). Her receiver was a two valve regenerative set, using a type 30 valve RF stage driving a type 19 valve audio stage. (Her final superheterodyne was constructed later after she moved to Adelaide). The receiver and transmitter were initially powered from batteries although later the town DC mains were utilised.



Figure 3. OSL card from Betty VK5YL (the first YL operator in South Australia)

Betty assembled her own high tension batteries to operate her equipment. The series cells, which made up the battery, were constructed by extracting the positive carbon rod and depolariser package from old spent dry cells and fitting them in Marmite jars. The negative electrode was made from a rectangle of zinc amalgamated with mercury. The electrodes were

immersed in an electrolyte of sal-ammoniac or common salt solution. The sal-ammoniac was more satisfactory but Betty could not remember which one she used.

Her aerial, a half wave dipole on 40 metres, was supported by a 40 foot oregon pole which Frank Miller and Bob Grundy helped her erect.

Betty operated at Murray Bridge until 1939 when she left to work at National Radio in Adelaide. Betty, later better known as Mrs Elizabeth Wallace who lived in the Adelaide suburb of Tranmere, went on to become a High School teacher teaching mathematics and science. Betty did not return to the Amateur bands after the war and her call sign VK5YL was later taken over by Denise Robertson.

VK5BG

Another early Murray Bridge amateur radio operator and experimenter was Bob Grundy, who obtained his licence in late 1937 and began operation with the call sign VK5BG.

One of Bob's early activities was carrying out the job of radio operator at Oodnadatta for a 1938 expedition to the Simpson Desert. The expedition was organised as an attempt to find some trace of the Leichhardt party. (Following many previous epic journeys into the outback, early explorer Doctor Ludwig Leichhardt and his party disappeared in 1848 during an attempt to cross the Australian continent, starting from the Darling Downs in Queensland and intending to finish in Perth, Western Australia).

From his post in Oodnadatta, Bob had daily contacts with the expedition in the field and sent Press Releases to the Adelaide Newspaper "The Advertiser".

During Bob's years at Murray Bridge he built a number of different versions of amateur radio equipment. His first transmitter (on CW) used a 42 crystal oscillator driving a 42 power amplifier. A 6A6 modulator was later added to the original unit for phone operation.



Bob Grundy VK5BG at Station 5PI

A further transmitter used an 809 power amplifier modulated by a pair of 6A6 valves and just prior to WorldWar 2, the 809 was replaced by push pull 45 valves. A 1938 QSL card reveals that, at that time, his transmitter was a three stage crystal controlled unit using a 42, a 6V6GT and parallel 6P6 valves as a final amplifier with an input power of 20 watts. The final amplifier was Heising modulated by a pair of 42 valves in class AB push pull. At that stage, his receiver was a home-built superheterodyne. An RF power amplifier, built by Bob, utilising a pair of 45 valves, is shown in Figure 4.

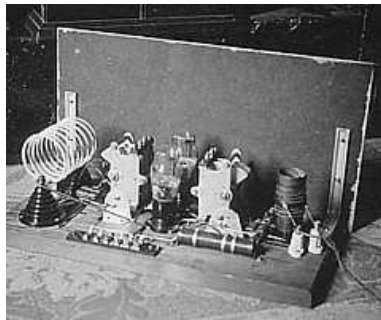


Figure 4: An RF Power Amplifier built by Bob Grundy VK5BG, using 45 type valves.

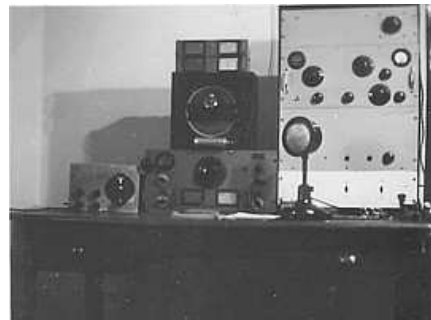


Figure 5: The equipment used by Bob VK5BG in 1947

Bob's post war transmitter, used in 1946, consisted of a 6V6 crystal oscillator, 6V6 driver and push pull 807 final amplifier, modulated by a pair of 6A6 modulators operating in class B. A photograph of his radio shack, taken in 1947, is shown in Figure 5. The receiver in the photograph is not too clear, but it can be seen, that at that time, he had upgraded his receiver to a National HRO, his first item of any commercially built transmitting or receiving equipment. After the war, for a short period, the first and only HF band released was 10 metres and Bob had a six element Sterba curtain antenna operating on that band. The schematic diagram of the Sterba array, a broadside antenna which consists of both collinear and parallel elements, is shown in Figure 6

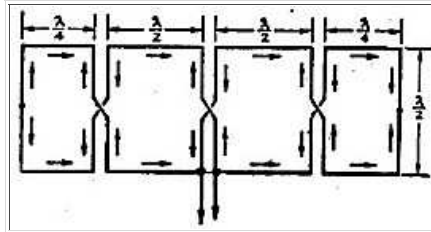


Figure 6: A Schematic Diagram of a six element Sterba Curtain Antenna as used by Bob VK5BG on 10 metres

Bob operated his station at Murray Bridge until 1952 when he moved to Crystal Brook to take up duties at Broadcast Station 5PI. Since then, Bob has spent many years as an active radio amateur at the Brook and at the time this article was written, he was still there in his retirement. With 50 years as an active radio amateur, Bob has been one of our real veterans in the VK5 region.



Figure 7: Frank Miller VK5BF and a young Bob Grundy VK5BG, operating in the field on five metres

One early activity carried out by Frank and Bob was field operation on the old five metre band. Figure 7 is a photograph of Frank and a very young Bob operating fixed portable in the field. In this installation, the antenna used was a vertical collinear array supported by guy ropes. For five metre operation, their transmitters utilised a unity coupled oscillator, with 6A6 valves. The receivers were made up from the resistance coupled five metre superheterodyne circuit published in the early Jones Handbook .

THE EARLY POST-WAR YEARS

At the outbreak of World War 2, all amateur radio stations were closed down. However, Frank and Bob made use of their skills during the war years by setting up, for the district council, an emergency radio network, one of the first to be introduced for Emergency Fire Service (EFS) work. Licences were gradually restored early in 1946 when Frank and Bob renewed their amateur station activities. They were soon to be joined by other enthusiasts who had roots in Murray Bridge.

VK5BR

Lloyd Butler had qualified for a licence during the war years, in 1941 and first transmitted as a radio amateur with the call sign VK5BR in January 1946. Lloyd actually commenced operation in the Adelaide suburb of Blair Athol, but commuted at weekends to his home at David Terrace in Murray Bridge, where he operated fixed portable, using a low power 10 watt rig with a 25L6 as final RF amplifier.

Lloyd initially operated at Blair Athol with 35 watts of input power but soon upgraded to 100 watts after passing the first class amateur certificate, which was introduced for a short time permitting operation on the higher power. (The full 100 watts was eventually granted to all amateurs in September 1947). The transmitter used had an output stage of push pull 807 valves, running 750 volts on their plates and modulated by another pair of 807s, with 600 volts on their plates. The RF output stage was driven by a three stage exciter consisting of a 6F6 crystal oscillator and 6V6 - 807 buffer/multiplier stages. The exciter was, in fact, previously used as the 35 watt transmitter which was then modulated by the same modulator panel but with 6F6 type valves.



Lloyd Butler VK5BR

A photograph of the top section of Lloyd's rack showing the aerial tuner, RF stages and modulator is shown in Figure 10. All coils are on plug-in bases to allow change of frequency. Link coupling between RF power amplifier and aerial tuner is not shown in the photograph. The complete transmitter rack is shown in Figure 11. Power supplies are fitted at the base of the rack, the heavy transformers providing mechanical stability to the structure. Two separate supplies, each using a pair of 5Z3 rectifiers, provide the 600 and 750 high tension voltages. Additional separate lower voltage supplies are also fitted for powering the RF exciter, modulator and grid bias. Lloyd's receiver (Figure 12) was a 10 valve superheterodyne, home-built as was the transmitter.



Figure 10
Modulator and RF units
at VK5BR.



Figure 11
The original transmitter
of Lloyd Butler VK5BR.



Rear View

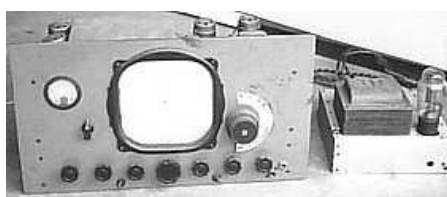


Figure 12: Lloyd's receiver.

Boarding-out and amateur radio did not quite go together and, in 1948, Lloyd moved all his equipment back to Murray Bridge, operating there with reduced power because of the DC power mains. (The problems of the DC power will be discussed later). Lloyd operated intermittently from Murray Bridge until 1958. He then became an inactive licence holder until 1982 when he renewed operations from the Adelaide suburb of Panorama. Lloyd, retired from the Defence Department, is still an active amateur and experimenter.

VK5AM

Jack Trevor was discharged from the Navy following war service, to take up residence in his home town of Murray Bridge. Jack was given the call sign VK5AM (Figure 13) after qualifying for a licence in late 1946.



Figure 13: OSL Card listing equipment used by Jack VK5AM

Jack's first transmitter was built from a China Mk 1 radio set which he brought home from the Persian Gulf. The transmitter consisted of a 6V6 crystal oscillator, 807 driver and push pull 807 final amplifier running 20 watts input from the 230 volt DC mains. Valve heaters were series operated from the mains via a radiator element. His first receiver was a Navy type B28. Antennas used were two half waves in phase on 40 metres and a Lazy H on 10 metres.

We raised the question of what was a China Mk 1 set and Jack informed us that this was specially designed for use on small craft operating at the British Navy China Station. Up to about 1938, this station was based in Shanghai and the small craft were possibly gun boats operating in the Yangtze Kiang River.

In- the course of his business carrying out refrigeration service, Jack did a considerable amount of travelling in his utility vehicle within a 90 mile radius of Murray Bridge. He made use of this travelling to operate AM mobile radio using the call sign VK5WT, which was specially allocated for the mobile operation. His mobile transmitter RF unit consisted of a 5763 crystal oscillator driving a 5763 power amplifier. This was modulated by a further 5763 valve driven by 0C71 transistor stages. (The 0C71 was one of the first early germanium transistors to be produced). RF power from the transmitter was five watts operating into a tank whip antenna at the rear of the vehicle.

During the 1956 Murray River floods, Jack assisted in the emergency operations by supplying mobile communications. For an antenna, he used a 80 metre full wave vertical wire supported, ingeniously, by hydrogen filled balloons. At the time, he could not obtain weather balloons and used six toy balloons for the job. The idea worked well, except in rain, when the water on the balloons added too much weight to maintain the balloons aloft. Jack later utilised the idea at his home shack using real weather balloons.

Jack operated in Murray Bridge until 1971 when he moved to Hope Valley and then, some 10 years later, ultimately retired to the Blue Mountains where, at the time this article was written, he was still an active radio amateur operating under the call sign VK2UP. Jack informed us that it was a fantastic location for amateur radio, 3000 feet above sea level, with no electrical noise and where he could access 19 repeaters on two metres with a Slim Jim antenna. The winds, however, were terrific and not kind to weak-hearted antenna systems.

VK5BP

Bill Rice commenced as a radio amateur at Murray Bridge in 1947 with the call sign VK5BP. Bill operated on 40 metres with a transmitter consisting of a Franklin VFO using 6AC7 valves, a 6L6 driver and push pull 807 final amplifier, modulated by a further push pull 807 pair. The VFO was later modified to a Clapp oscillator using a 6J5 valve.

In 1948, Bill moved his equipment to Adelaide where he was attending university. From the suburb of Prospect, Bill could be regularly heard on 40 metres talking technical topics with John Lamprey VK5JL, when he possibly should have been studying for those many examinations!

Following graduation, Bill moved to Melbourne where, since 1960, he has operated from his home in Altona with the call sign VK3ABP. Bill was editor of Amateur Radio from years 1984 to 1999 and was well known for introducing the popular VK3ABP two metre converters. Unlike today, the amateur operators of those earlier years built almost all their own equipment and Bill was no exception. Bill still built his own gear into the era when most others used commercially made equipment.



Bill Rice operating as VK3ABP (Mainly Homebrew gear)

Bill retired from the Defence Department with an aim to do some of those things he previously did not have time to do, including those many amateur radio projects. Bill joined the silent keys in year 2007 at the age of 81.

It is interesting to observe that, quite apart from VK5BF the other call signs, VK5AM, VK5BP, VK5BG, and VK5BR, all had earlier users in the 1920-1930 era. AM was previously allocated to P Kennedy of Unley, BG was previously used by Harry Kauper, one of the first early broadcasters, BP was previously allocated to R A Caldwell of Unley, and BR was previously used by the Blackwood Radio Club. (Some of the activities of these early experimenters can be found in references 1 and 2).

VK5MP

Len Porter came to Murray Bridge in 1952 to work at Broadcast Station 5MU following a period since 1934 with Broadcast Station 5P1 at Crystal Brook. Len had previously been a wireless operator in the Royal Australian Navy during the spark transmitter era of the 1914-1918 war. During World War 2, he studied the Japanese signal code and, in 1943, was offered a position breaking codes with the intelligence service. Len was an avid user of the CW mode of transmission and operated under the call sign of VK5MP which he appears to have first activated after World War 2. He is believed to have been the first Australian amateur to contact all 48 states of the USA, as they existed at that time, on 28 MHz.

At the time of writing, Len was no longer with us to tell any of his own story and we have been unable to find out any specific details of the equipment he used. During the period at 5MU, Len's permanent home was in Adelaide and he boarded at Murray Bridge. With this arrangement, it is not clear whether he actually operated from a Murray Bridge location.

VK5RF

Another amateur operator was Bob Parasiers who, around 1953, also came to Murray Bridge to take up duty at Broadcast Station 5MU (see Figure 14). Bob had operated pre-war from the Adelaide suburb of Glandore with the call sign VK5RP and post-war with the call sign VK5RF. Having settled in the town, Bob operated as a radio amateur in Murray Bridge for many years.



Figure 14: Bob Parasiers VK5RF (left) and Ron Dube, inspecting a new two kilowatt transmitter for Broadcast Station 5MU.

Like Len Porter, Bob is also now a Silent Key, and we have been unable to define what equipment he initially used at Murray Bridge. We do know that he commenced amateur radio operation in Adelaide around 1932. His early transmitter on the HF bands utilised push pull type 45 valves in a TNT circuit and his receiver was a three-stage TRF unit. On 200 metres, he used a three-stage crystal-controlled transmitter. The crystal control was probably necessary to satisfy stringent frequency stability requirements set down by the licensing authorities, at that time, for 200 metres. In those early years, amateur experimenters operated on that band. As broadcasting developed, stringent controls were progressively introduced, concerning the type of material transmitted, the operating hours and the standards of transmission. Ultimately, amateur operation on the broadcast band was prohibited.

Bob's final equipment at Murray Bridge, by then single sideband, included Swan 350 and 250 transceivers and an SSB transmitter, using 6146 final amplifiers, built by Gilbert Wilde VK5GX. Bob is thought to have joined the Silent Keys around 1969.



Bob Parasiers at a 1929 WIA Field Day Long Gully

A further radio amateur, who worked at station 5MU for a short period around 1969/1970, was Ken Pledger VK5SV. Ken has been more recently listed in the call book at a Western Australian location as VK6SV, but we have been unable to contact him there to get details of his Murray Bridge amateur radio activities.

At this point, one could well have gained the impression that the local radio station 5MU had some affinity for amateur radio enthusiasts. In fact, the following holders of amateur radio licences have, at some stage, worked at 5MU: Frank Miller VK5BF, Bob Grundy VK5BG, Staunton Macnamara VK5ZN and VK5ZH, Lloyd Butler VK5BR, Len Porter VK5MP, Bob Parasiers VK5RF, Ken Pledger VK5SV, Kevin May VK5AXT and Colin Davidson VK5IM. There may well have been several more we have missed.

A further licence holder, for whom we have few records is Keith Kilsby VK5PR, who is listed in call books, around 1947 to 1954, as resident at Mingary and Wiltyerong, both via Murray Bridge. (The Kilsby property, on the river near Tailem Bend is thought to have been named Wilterong). Keith is believed to have been a school teacher, possibly residing at various locations and using Murray Bridge as his postal base. He was apparently active prior to World War 2 as he was also listed in the 1937 call book at the town of Birdwood in the Adelaide Hills.

There is another group who have been licenced amateur operators and have resided at Murray Bridge in the past, but were not active as radio amateurs at that time. This group included Tom Laidler VK5TL, Staunton Macnamara VK5ZN and VK5ZH, Jack Strachan VK5LH, John Millard VK5FC, Keith Angrave VK1RK and VK3BVK and Dave Goode VK5BF.

THOSE DC MAINS

Prior to around 1953, when conversion to AC was completed, Murray Bridge was supplied with a three wire DC power supply system consisting of 230 volts positive referred to neutral (and earth) and 230 volts negative referred to neutral (and earth). For the early radio amateur, it could be said that, if you hadn't experienced DC mains then you hadn't lived, because these mains presented a number of problems. Firstly, every second house was connected to the negative outer, that is, 230 volts negative on the active wire. Normal practice for valve equipment was to connect the negative high tension line to chassis, but if this were applied on a negative outer, then the chassis was at a dangerous potential. Either the negative line had to be isolated from chassis or the complete chassis had to be isolated from earth and human contact.

The second problem concerned supply for valve heaters. On AC mains, a step down transformer was normally used, but on DC this option was not available. On receivers, heaters were generally operated in a constant current series heater chain (typically 0.3 amp). For transmitting valves, that was not always practical as valves were often directly heated and, in any case, often required many amps, so consuming much power when derived via a series chain from 230 volts.

The third problem was the limitation in plate voltage available. To transmit, using input powers approaching 100 watts, some 600 to 800 volts was normally required at the final amplifier plates and operation from only 230 volts amounted to a severe restriction in output power.

Various methods were applied to cope with some of these problems. Frank VK5BF had both mains outers wired to his house so that he was able to apply 460 volts to his final amplifier stage.

The house in which Bill VK5BP lived had a negative mains outer. This provided some incentive for him to build a DC to AC inverter⁴, a device somewhat difficult to get going satisfactorily because of the electrical interference created by the vibrator contacts which switched the high voltage DC. The inverter provided electrical isolation of mains from his negative high tension

line (and chassis), as well as providing the AC source which could be transformed to the required voltage levels within the transmitter.

Lloyd VK5BR, rewound a genemotor to make a DC-AC rotary converter, which was sufficient to supply his valve heaters, but not large enough to power his high tension supplies, originally designed to operate from AC. The rotary converter operated from some time remotely located in his mothers pantry to isolate the noise, but one day the converter decided to destroy itself in a cloud of smoke and it must be said that this did not impress his mother in the least! By that time, Bill had moved to Adelaide where there was 'real' power and his vibrator inverter was pressed into service at VK5BR to replace the rotary machine .

Jack VK5AM, recalls problems he had with electric motor commutator noise on the DC mains and the low voltage experienced in the late afternoon when housewives turned on their electric cookers. The voltage often dropped so low that his oscillator stage ceased to function. (The problem with DC power is that high voltage distribution is not a practical option and power must be supplied all the distance from the power station at consumer potential, requiring very heavy main feeders to reduce the voltage loss). To reduce his mains noise level, Jack ultimately buried a converter in an old iron trunk in the garden and connected the converter via lead covered wires to his radio shack. There must be something magical about old iron trunks because Bill also used one to house his inverter!

For more details on how radio operators and radio technicians in Murray Bridge managed working on radio equipment from DC power mains, [Click Here](#).

MORE ON EARLY EQUIPMENT

The transmission mode up to the 1950 era was either CW or AM on the 3.5, 7, 14 and 28 MHz bands. VHF had not been widely used in Murray Bridge at that stage except for the early work on five metres. Also, Bob VK5BG, and Lloyd have a early record in their logs of having communicated on the six metre band in July 1947. Lloyd apparently was able to get his HF transmitter operational at 50 MHz and worked cross band to Bob who was on 7 MHz.

Transmitters and receivers were all home built although in later years, Frank and Bob eventually obtained the National HRO receivers and Jack had a B28. Audio power output valves, such as the 6F6, 6V6, 6L6, 2A3 and 45 were pressed into RF service particularly for RF driver stages. The 807 was a very popular transmitting tube which was in plentiful supply from disposals following the war years. Power supplies were quite bulky to provide continuous power at high voltage to the RF amplifier for the AM mode of operation and for the high power audio amplifier needed with plate modulation. Because of the equipment bulk, larger transmitters were often panel mounted in a rack (refer Figures 1, 5 and 11).

Very early transmitters were self-oscillating or master oscillator/power amplifier units. However, by about 1940, with a requirement for better frequency stability, transmitters were essentially crystal controlled, the number of channels used being dependent on the number of crystals one possessed. The method of operation was to call CW on your own frequency and then listen around across the band for any reply from another station on his frequency. On contact, the QSO took place across two frequencies. A need for more versatility in choice of frequencies led to the development of more stable VFO units and Bill and Jack made use of these in their early transmitters.

Whilst superheterodyne receivers were generally band-switched, it was common practice to change bands on the transmitter by changing coils. Because each band change necessitated a retune of all RF stages, individual stage tuning and individual stage metering were provided as a front panel facility.

The early equipment built was, of course, all valve circuitry. The first small signal germanium transistors, extending into the high frequency spectrum, did not become available until about 1958 and power type transistors, for these frequencies, some years later. Integrated circuits had not been thought of and computing was in its infancy.

FURTHER DOWN THE TRACK

A more recent amateur operator was Kevin May, who was licenced in Murray Bridge around 1968 with the call sign VK5ZKM. He later took up the call sign VK5AXT. At the time writing this article, Kevin was still resident in the town and controlling operations at the local broadcast station.

A further more recent operator is Colin Schick VK5JP who obtained his amateur radio licence in 1948. initially operating from the Adelaide suburb of Ovingham, but becoming inactive in the early 1950s. He took up residence in Murray Bridge in 1969 and recommenced amateur radio operations in the early 1970s when he purchased the Swan 350 transceiver, previously owned by the late Bob Parasiers.

Colin became involved with the Scout Jamboree on the Air (JOTA) and was active in the establishment of the Lower Murray Amateur Radio Club based in Murray Bridge. Colin became the first president of the club and is still active in the club. Information in the following paragraphs, concerning the background and activities of the club, has been presented by courtesy of Colin on behalf of his club.

LOWER MURRAY AMATEUR RADIO CLUB

The Lower Murray Amateur Radio Club was formed at a public meeting held at the Further Education Centre (FEC) in Murray Bridge on October 20, 1976. The formation and activities of this club (previously included in the original article) are now described in [another article on the Internet](#).

Early in 1998, the Lower Murray Club combined with the Adelaide Hills Amateur Radio Society (AHARS) and Lower

Murray members became members of AHARS. Although now a part of AHARS, the Lower Murray Club members still retain their Club name, local clubrooms, local meetings, station licence and local radio net.

TO FINISH

Here our discussion ends. Within the limits of our fading memories and what records could be found, we have recalled an era of early experimentation when amateur radio operators built their own equipment, often to their own design. We have discussed, in chronological order, the various radio amateur enthusiasts who were active in Murray Bridge and discussed some of their activities and the equipment they used. We have started with an era around 1924 when radio experimenters operated on the broadcast band and we have concluded with some background of the radio club which is now based in the town. Some of us were born and brought up in the town but eventually left it and some of us came into the town from elsewhere and stayed there. Murray Bridge has been our town and we submit this document as its amateur radio story.

REFERENCES

1. JOHN F ROSS. This History of Radio in South Australia 1897-1977.
2. Early history of the South Australian Division of WIA from 1919 to 1980 written by Marlene Austin VK5QO/VK3EQO. Originally published in Amateur Radio, October 1985.
3. THE ADELAIDE TELECOMMUNICATIONS MUSEUM, located near the GPO, had what was probably the most extensive collection of historic radio equipment in the Southern Hemisphere. For anyone interested in the history of radio, a visit to this museum was an enlightening experience. Unfortunately, some time after this article was written, the museum was closed.
4. VIBRATOR INVERTER. Originally published in Proc. IRE (Aust) and rewritten for Amateur Radio February 1949 by Eric Cornelius VK6EC.
5. Radio and the Early Direct Current Mains in South Australia by Lloyd Butler - OTN September 2014

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