

GARC COPY

A REVIEW OF THE GEELONG AMATEUR RADIO CLUB

THE EARLY YEARS 1948 - 1965

By Richard J Heighway VK3ABK

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This is intended to be a descriptive review of the formation, and the early years, of the Geelong Amateur Radio Club. Also, it is brief look at some of the radio `Hams` who, in 1948, thought it would be a good idea to start a club. This was not the first time such a radio club had existed in Geelong. On two previous occasions, similar ideas, although perhaps different ideals, had resulted in groups of `wireless` enthusiasts forming what must have been even more strange at the time, a radio club. However, needs change, and interests wane, or more serious times can have an effect, as these clubs eventually disbanded. When the present club was formed, radio had become accepted as part of everyday life. Due to the tremendous advances in technology during the war years (1939-1945), radio communication between individuals was about to become common. Military use of radio had been essential, to provide long and short range contact between men fighting battles, or armies controlling countries, and governments trying to control the world. The importance of radio as a medium was growing fast.

Those who gathered together in the earlier radio clubs, would have been more aware of the fundamental nature of wireless and it's recent history. It was not many years since pioneers had made the first voice transmissions across the oceans. Morse code was still the main form of modulation and the radio `amateur` was often the one to use both voice and morse experimentally. Radio had not yet become a science, but was open to all who could understand the fundamentals learned by experiment. By trial and error !. But this was changing and the theory of radio technology was about to become vital. Radio Amateurs had been known as `Hams`, and the title radio Ham was used, at least within the ranks of the converted, although, as at present, it may not have been understood by the average citizen. Ham Radio as a title is possibly a contradiction in terms to the casual observer. A ham was either a product of a pig, or was an uninspiring actor !. Similarly, amateur could refer to one who was less than competent professionally, or was a raw beginner. But, on the other hand, amateurs were once the gentlemen of society games ! One of the problems of a technical exponent, is in making himself known to the rest of humanity. A name or title can impress and be accepted, as was CB for Citizen`s Band personal radio. But getting the same response to Ham radio is very difficult. So, despite it`s doubtful meaning and origin the names `Ham` and `Amateur` are used to describe one who is licensed to experiment with radio as a hobby.

This History of the `GARC`, as it is known, will be mainly as I remember the events from the first meeting in the original clubroom, and a brief note of related incidents and conditions. Of interest will be the type of radio equipment used, mainly home constructed or bought and adapted from the many war surplus stores. These were literally crammed with `state of the art` and, to most of us, completely new equipment. It was often like Christmas as we carried home and unwrapped our latest treasure, and tried it out. War does much harm; but nothing brings such change and technical progress so rapidly, and Ham Radio was to benefit from new equipment and knowledge.

As club records of the 1948-1960 period are not available, except for the notes and news sent to Amateur Radio magazine by several correspondents, much of the `history` will be of my personal involvement and recollection. I am grateful to writers of the notes in AR, and in the Geelong Advertiser, and for the help received from foundation club member Phil Grigg VK3APG/2AGP, whose recent correspondence has confirmed much of what I remembered. We have both been surprised at the similarity of our memory of events. Others contributed answers to questions, and confirmed details and names, and this helped to make an authentic, and I hope, interesting review of the GARC.

In 1948, the Ham population in Geelong numbered about 15, of whom, 12 had shown an interest in promoting the hobby of Amateur Radio, and using the equipment that had been banned during wartime. So, a move was made to call all known licensed Hams to a meeting.

A list is reproduced here of those present at this inaugural meeting.

Bill Barratt	VK3WT	Alex Bell	VK3ABE
Bill Brownbill	VK3BU	ALF Forster	VK3AJF
Fred Freeman	VK3ALG	Phil Grigg	VK3APG
Ed Kosseck	VK3AKE	Jack Mathews	VK3SY
Bruce McKenzie	VK3VF	Len Sceney	VK3AES
Bob Wookey	VK3IC	Archie Woolnough	VK3BW

These 12 Hams met on the 7th of June, at 75 Gheringhap St Geelong; the home of Bill Brownbill, and his mother, Mrs Leila Brownbill. This property is now renovated, and operates as Ghery's Bar-Resturant. Bill had been active in Ham radio prewar and experimenting with anything electrical. With help from his father, using the family bread delivery van, they had started Brownbill's Amplifier Service, a public address business. Also, as a broadcast station technician at 3GL, the Geelong Advertiser station, Bill had shown an interest in audio and recording, and in the cutting of acetate discs. Bill was a haemophiliac; a medical condition which at times made movement difficult and hazardous. But he didn't allow this to prevent his involvement in things of a technical nature as his credentials show. And with Ham radio he was in contact with the world. What other hobby would permit an invalid to travel to other countries so easily, and allow contact which was physically limited. It was the right time to start a new radio club, since most of those who belonged to the two previous radio clubs had departed, leaving a void. The following meeting of the GARC, chaired by Alex Bell VK3ABE, formally established the club and adopted a constitution.

The office bearers were elected as follows:-

President	Alex Bell	VK3ABE
Vice Presidents	Ed Kosseck Jack Mathews	VK3AKE VK3SY
Secretary	Bob Wookey	VK3IC
Treasurer	Alf Forster	VK3AJF

A Committee elected included:-

Bill Brownbill	VK3BU
Phil Grigg	VK3APG
Bruce McKenzie	VK3VF
Archie Woolnough	VK3BW

Press Correspondent and QSL Manager Fred Freeman VK3ALG

I was not present at the inaugural meeting, as I was not licensed until the following October and received the callsign VK3ABK.

The next meeting of the new club was open to `all interested in Amateur radio`, and I was invited to attend. I was invited by Bob Wookey VK3IC who had been asked to see me at the place where I was working at the time, The Electric Motor Guarantee and Trading Company, then at 84 Lt Malop St. Later I found that Bob was usually the one to go out of his way to help in any way he could, and I was meeting him for the first time. Bob Wookey worked for the Australian Post Office as a Postmaster at many locations in country areas including Cressy and Werribee. Later he spent time at the temporary Belmont Post Office on the site of the present one in High St. He was also at the now vacated Geelong City Post Office in Ryrie St and at Ocean Grove before his retirement. Bob assumed many positions in the GARC, as an official and as our morse instructor. Bob was noted for his way with children at our weekend club picnics, and for his cheerful manner, in the Post Office and at the GARC.

The Post Office and the Postmaster General's Department or PMG to use the most common, all encompassing abbreviation, controlled radio licensing for all commercial and private use, including domestic broadcast receivers which required a yearly licence fee. The Amateur Operator Certificate of Proficiency, only one grade, morse code sending and receiving, radio theory and regulations examination, was conducted by the PMG's department either in a capital city or by arrangement at a local Post Office, and under the supervision of the Post Master. Yes, it was serious stuff ! Most aspiring Hams were left to make their own arrangements about learning the theory and regulations. Some morse code instruction was available from friendly Post Office personnel and ex service men and women, as morse had been used extensively during the war and many of the trained operators eventually became Hams. There was much less to distract a would be Ham, as television and computer games, fast cars and the Pokies, had yet to arrive. So, apart from girl friends, and for some of us, motor bikes, we were relatively well off, and could devote more time to study. It is often said today that the young people are not taking an interest in Ham radio because they have many other interests, and that computers have taken the place of radio transmitters in their lives. This is certainly true to some extent, but if a person is able to see beyond the bright lights and into the heart of a subject, and is intrigued by how and why something works, then we have a future engineer.

Ham radio has never been a hobby to attract hoards of young people; and as it is today, most of the members of the GARC, and from observation at other clubs, have always been advanced in years. There have been times when, usually by chance, a group of students will appear and become active club members for a few years, only to move on and disperse when their school course is finished, and work assignments interrupt. It is usually, then the older person who remains the backbone of a radio club, and who becomes deeply and seriously involved in radio. There are of course exceptions, and every club, radio or otherwise, will see a few who will make an early choice and become interested for life, even making a career in the subject. However, these people are most welcome, but not essential to the success of a good club.

Radio broadcasting in Geelong in 1948 was confined to only one station, 3GL, and that was the radio outlet for the Geelong Advertiser group. This was an AM station, although few listeners would have been been aware of that technicality. FM radio and the modern decimal system of station identification, did not exist. The dial of a `wireless` was simply and very conveniently marked by the station call-sign. So, one only had to be aware of the local 3GL, and a few Melbourne stations. The dial of the family wireless was large, well lit, and could be seen easily. All very simple. And so too, I suppose, were the programs which would range from serials at 6.00 pm, and the news at 7.00 pm, to an evening of plays, quiz competitions, and on the ABC, music, and the more `cultural` or `quality` program. It was after all, even then, `our ABC` ! All programs finished for the night at about 11.00 pm. and the stations `closed down` !

The Geelong Advertiser Station, 3GL, was located at 4 James St, after a shift from the corner of Lt. Malop and Union St. in 1938. During that year, a new transmitter building and vertical antenna was erected in Heyers Road in the then sparsely populated suburb of Grovedale. Supervising the changeover was the Chief Engineer of the station, Jack Mathews VK3SY, one of the foundation members of the Geelong Amateur Radio Club, and a one time member of the previous Geelong Radio Club. That club had used rooms at the Gordon Institute of Technology in Fenwick St for its meetings, and included in its membership, most of the radio Amateurs and professionals of the period. The callsign of the `Gordon` club was OA 3LK, and in a newsletter of the Geelong Amateur Radio Club, GARC NEWS of June 1983, the following is found.

`At that time the G.A.R.C.'s predecessor "The Geelong Radio Club" OA 3LK, met in rooms under the south tower of the Gordon in Fenwick St. The operating room was under the tower and meetings were held in an adjacent classroom. The antenna stretched from a flagpole on the south tower to the middle tower.....Geelong's population was about 40,000 and operators at the time included VK3YZ, VK3AU, VK3QH, VK3GN (Harold, VK3CM) -- later a member of the GARC -- VK3RP, VK3EK (later VK3AKE) -- who was also a GARC foundation member,-- VK3ZZ, VK3AF.` And of course, Jack VK3SY.

Jack Mathews was able to organize the second meeting of the club in the studios of 3GL, and it was at this meeting that the permanent meeting place for the GARC at 65 Lt Malop St., `for all interested in radio`, was announced. The 3GL meeting was held at 8 pm on the 15th of June, 1948. And again from the GARC NEWS,`the nature and objective of the club was explained to an enthusiastic gathering.` Arrangements were then made to commence meetings of the club in a room at 65 Lt Malop St. This was the meeting place of the Geelong Budgerigar Club, next door to Wilson's depot, a terminal of a Geelong transport company, then in a large building adjacent to Chas Cole's wine cellars on the corner of Lt Malop and Gheringhap St, opposite the City (Town) Hall. The club address is now a sandwich shop, under the Civic Centre Car Park. The original meetings of the club were on Monday nights, later changed to Wednesday for what reason is not known, but as most members were engaged in business, this would have been a factor, as also was the Budgerigar Club ! The Budgie clubroom was interesting, as it was quite usual to find left over birdcages hanging from the walls (unoccupied) and birdseed crunching on the floor. Well, we added to the wildlife to some extent but never encountered any competition from `birds`, and the room was very satisfactory for the 15-20 members who regularly attended during our first year.

As indicated previously, the first President of the GARC was Alex Bell. Alex was a pharmacist at Pardeys pharmacy, on the corner of Moorabool St and Lt Malop St. After receiving his callsign, VK3ABE in 1947, Alex had already begun, what was to be a long association with the 20 metre phone band. At his home in Mercer Parade, Newtown, he installed a rotary beam antenna, which in 1947 would have been an outstanding feature in the neighbourhood ! Alex and future club member, John Taylor VK3AJT in the same locality, were to dominate the local DX (long range) radio scene for many years. It's an interesting fact of Ham radio, that with so many modes and bands available, many, and perhaps most, find a field of interest and maintain this wholly. This develops into a skilful use of the radio, and an operating technique that leaves a new-comer bewildered. Likewise, the experimenter who looks into the technical side of radio and electronics, will always be fascinated by the science and theory which is fundamental to Ham radio. It was this fascination that led the early pioneers to experiment and discover the new methods that enthused many of the GARC members, and made the hobby of Amateur Radio so interesting and educational.

The first meetings in the Budgie clubroom attracted more than the twelve licensed Hams of the formation meeting. Radio had become more important in many ways during the war years, and the armed forces had trained technicians and radio operators who now wanted to find an interest in civilian radio. Many found that interest in Ham radio and joined the club. Club meetings varied between Monday and Wednesday at first, and lectures or discussion topics usually consisted of theory and practical demonstrations of equipment, with an occasional visit to members' radio 'shacks'. This is a word that has long been used to describe the radio operating room, be it a true shack, a lounge room, or a palace. One had to take into account the attitude of parents or a spouse, and at times, neighbours and others who were not quite understanding! However, as in any group of like minded persons, we were content to enjoy a weekly get together, and talk about radio, band conditions, building and modifying equipment, and to conduct a monthly business meeting.

The clubroom was not very big. From memory, about six by four metres, and had originally been an office with a single door opening directly onto the street. But the central location was convenient and especially so for several of the club members, who worked in the city. Alex Bell, the club President was a Pharmacist at Pardys Pharmacy, on the corner of Moorabool and Lt Malop St. On the adjacent corner was the ABC cafe which was the premier social meeting place, and business luncheon or dinner venue for Apex or Rotary clubs etc., or for wedding receptions. Alex was often working late and would arrive straight from work. I didn't know Alex before joining the club but he would sometimes leave the pharmacy after normal closing time and have a chat with Bill Barratt VK3WT about a DX contact or band conditions as he passed our motorcycle group. Alex's daughter, Mrs Joan Lindross, is currently president of the Geelong Environment Council.

Another clock controlled member was Archie Woolnough VK3BW, who was the proprietor of Woolnough's Bus Service which operated between Geelong and Portarlington. Archie was an active HF DXer, (he operated on the 20 metre international band) and also an exponent of VHF (very high frequency) who, 40 years later, would use satellites to contact over 100 Ham stations. Archie would arrive at the club at picture bus time, wearing cap and coat!, then at about 10.30 pm he would leave to be ready when the shows finished. Four picture theatres operated in the city at the time and trams and buses would be ready to take the patrons home at about 11.00 pm: usually all shows finished around the same time. Archie's, and other coastal buses, left from the tourist bureau in Lt Malop St. (now the Mall) and buses for Herne Hill, West Geelong, and Manifold Heights left from the Post Office in Gheringhap St. Trams for North Geelong, Belmont and West Geelong would line up in Moorabool St, while those for East, Eastern Park, and Newtown and Chilwell left from Ryrie St. Trams and buses were very convenient for many of the GARC members. Although Geelong's trams were slow, and caused considerable irritation to motorists by stopping frequently to pick up or discharge passengers, nothing else could clear the crowd of many hundreds in such few minutes and in the four directions, north, south, east and west.

Our meeting place was ideal in 1948, because bus and tram transport was available close by and cars were less than plentiful then, due to wartime restrictions. With new cars, spare parts, petrol and tyres scarce, most of the Geelong public and members of the GARC, walked or rode trams and buses. Bicycles were common, as were motorcycles. Geelong, and possibly other towns and cities was seeing a dramatic surge in motorcycle numbers, as these became available sooner, and more rapidly than new cars. I had become friends with one of the future club members through our motor cycle gatherings in Moorabool St, where we would take up most of the parking spaces outside Purdies newsagents shop, the Tarax Bar and the Savoia Cafe most evenings, and talk motorcycling and radio. I met a most friendly, and rather unusual person who was also combining a liking for Ham radio and motorcycling.

Bill Barratt VK3WT was this extraordinary fellow. Bill rode a James 125cc two stroke, a lightweight English bike common at the time, but Bill was also minus one leg and had a badly deformed spine. He used two crutches to get about, except when he was on his motorbike ! To get on the bike, he would put both crutches under his right arm for support, while he kicked the starter with his left leg. When the bike fired, he would leap aboard, supporting the bike on his only leg, strap the two crutches together, and then over his shoulder where they were held at an angle by a chest strap. Once mobile, Bill was just one of the boys who rode bikes, and he kept up with the rest of us.

Bill's Ham station was in his bedroom and a homemade transmitter was on a small table beside his bed, looking like a piece of Doulton Ware, or a crystal ornament. It consisted of an aluminium chassis with the two vacuum tubes, a 6V6 crystal oscillator and a 6L6 power amplifier for CW (continuous wave or morse code). Bill had been an Amateur pre-war and this was the time of mostly home construction, and pride in simple things, and understanding how they worked. To build a simple transmitter and talk to Hams around the world from your bedroom, long before the internet ! , was very satisfying. Bill was one of many who found an interest in Ham radio, and a way to forget any physical limitations. He later became our first life member and one of the forgotten members of the GARC.

Although we had no workshop facilities at the GARC, some modification of disposals gear was possible, and wiring and soldering was done at least. Most construction at the time involved mounting components on and in a metal box and chassis, which required much cutting and bending and the holes for tube sockets and transformers punched or drilled. In fact, by far the hardest and most time consuming part of home made items was in the mounting and housing of the parts, and often adding a coat of paint. The type of wiring used was mainly dictated by the need for six or twelve volt heater voltage supply for the vacuum tubes, and higher voltages from 150 to 300 volt, or even more in the case of transmitter final amplifiers. The wire size and insulation was much greater than today's printed circuits and all this was necessary just to get a useable flow of electrons. Heated cathodes and high positive anode voltages to overcome the work function associated with vacuum tube electron emission, seems so archaic now, considering the ease with which we achieve the same effect with semiconductors. It was an engineering process to build what can now be done with cold emission transistors mounted on a piece of circuit board, and at a fraction of the size, weight and of course, time.

A popular syllabus item was 'my project' where someone would bring along a partly built amplifier, test instrument etc, and explain the objective and the use of it. So, it was possible, in the rather small single club room, to entertain ourselves, and at the same time learn from each other by taking part in the construction process. This had the effect of bringing us closer, and more aware of what others were doing in Ham radio. Tuition in radio subjects was very limited in Geelong schools and we had to attend classes in Melbourne which didn't suit those who worked during the day. So, by gaining practical experience at the club meetings and learning radio theory from books and from each other at syllabus lectures, we were better able to gain knowledge required to pass the AOCP (Amateur Operators Certificate of Proficiency). At the time, this was the only certificate obtainable as the no code licence had not been introduced and the 'limited' or novice licence was many years away. An examination was conducted at the AWA School of Wireless in Queen St Melbourne and consisted of a test in morse code at 14 words per minute, and a written, essay style, radio theory paper, plus questions on regulations. Having passed the AOCP, it was usual then to call at the PMG Office in South Melbourne to choose a callsign from the record book. At that time, all the two letter calls had been issued and in 1947 a start was made on VK3A - - or three letter callsigns, with a lookout for name initials or similarly attractive groups.

Without a doubt the main influence on Ham Radio at this time was the abundance of war surplus `materiel`, and this was of great benefit to GARC members as it was both plentiful and cheap. The wholesale and retail sales of all sorts of ex army and airforce clothing and hardware including cars and trucks, jeeps, bren-gun carriers, and even amphibious jeeps which could be cut down and used on farms. Bren-gun carriers were handy if you wanted some land cleared of trees etc.! New, unused motorcycles could be bought for a price, fixed by the government, of 85 pounds for a 350 cc Royal Enfield or BSA and 110 pounds for a Harley Davidson or Indian twin. These also came with a sidecar and were the nearest thing to a backseat bedroom that was in our price range. In spite of this handicap, or perhaps, because of it, many relationships flourished !

However it was the surplus radio gear, and associated generators, motors, and aircraft instruments that started most new and many of the older Hams in building a station. The market was literally flooded with equipment that was the latest and newest designs possible due to the intense development taking place, especially in the United States, during the war years. The radio surplus, available at bargain prices in stores in Melbourne, and later in Geelong, could be described then as `state of the art`, and couldn't be built or even contemplated by Australian Amateurs. To buy an item that was vaguely described by the vendor, (knowing little about it) and to open it at home, often from it's sealed packaging, was like Christmas morning ! One literally waded knee-deep through Waltham Trading Co. in Flinders Street Melbourne, or Spare Parts, then in Swan Street Richmond and later to be `Ham` Radio Suppliers in Melville St Hawthorn. This became a type of Ham heaven and was operated by Ken (Snow) Milburn VK3CW, a real Ham's friend to visit. This equipment, having been bought by the truckload, and sometimes by the warehouseful!, would be examined for evidence of frequency coverage and power output, or suitability for conversion for home or portable use, and the rest was up to the ingenuity of the buyer. Most army transmitters were able to operate on the usual high frequency (HF) bands to give the best range in daylight or darkness, so 3 Mhz and 9 Mhz was a common tuning range, giving us the 80 and 40 metre bands without much alteration. A modulator and a power supply were usually required as additions for home use. As many of these units were meant for portable or field use in the army with a variety of antennas that could be matched, a pi or L coupler was included. A vibrator power unit or a battery driven genemotor was supplied for use away from mains power, so many were put to use in country areas in rural fire brigades and by Hams for mobile, emergency operation, and field days.

So, the usual method of transacting business at Waltham Dan(TM)!, was to spot a likely article, or one about which a few facts had been learned from an ex-army informant and ask `how much for this`?, and be told, by guess or an ambit claim and a bargain deal was made. Some order gradually came to the disposals scene and for years sales were held by the WIA and members and the affiliated clubs were sent lists of gear to be balloted out and collected at the WIA rooms, or a suitably large shed, again at bargain prices. Eventually a disposals market opened in Geelong and was run by Mr T K Maltby and his son, Tom, in the old market in Market Square in Yarra Street which is now the Eastern end of the present Market Square shopping centre. T K Maltby MLA as Minister for Public Works in Victorian government gave the name to the Maltby Bypass on the Princes Highway around Werribee.

Of course, the GARC had it's own `Mr Disposals` in Alf Forster VK3AJF who was in charge of the radio department of Motor Spares in Mc Cann St, a short street between Lt Malop St and Malop St, and is now represented, by name, in a ground floor corner of the Myer Emporium in the Bay City Plaza. Alf could supply bits for radio experimenters and would get items of interest from war surplus sales. He had served in army radio and could identify all of the Australian army equipment, and much that was foreign.

The use of Disposals radio gear usually required modifications to some extent, and spare parts, either as issued with radios or salvaged from the unused part of the unit made the job easy. Whole Ham stations were set up using transmitters and receivers that had been made for war time use in aircraft, and as these were predominantly American, so the radio gear we used would be as modern as tomorrow ! Aircraft transmitter-receiver combination units, known as the Command Tx/Rx, became the nucleus of stations, and the TA12D high power transmitter, with an AR7, or for the more fortunate an AR88, as a receiver. These were all vacuum tube radios using octal and 5 pin base tubes, for power amplifiers such as the 807 and 1625 tetrodes, with 1626 or 6AG7s in the variable frequency oscillator (VFO) . The receivers used 6AC7, 6SK7, 6V6 etc., all standard types, common in service equipment. Conversions of some of the Command transmitters required removing, or adding to, coils in the VFO and maybe the RF amplifier anode circuit. A Pi coupler was included for matching to an antenna, so this section was very adaptable. The main addition was, as usual with ex-aircraft transmitters, a modulator of the plate and screen type, as grid modulation would be used to conserve aircraft power supply. Grid modulation is effective but also inefficient, and greater output can be achieved by supplying energy from an additional power supply and using parallel plate and screen modulation.

The range of disposal radios was from the small battery operated portable types used in combat such as the SCR-536 walki-talki or the `spy` radio receiver MCR-1. Both used the new miniature 7 and 9 pin tubes, 1T4-1S4-1R5 and 3V4, all-glass types. The next size up were used as behind-the-lines espionage communicators and encased in metal, waterproof, boxes which could be dropped by parachute and survive other rough handling. These radios, transmitter and receiver combinations had a power supply unit which could be operated from a range of voltage supplies from 6 volt batteries to 240 volt AC or DC mains. They had provision for temporary unobtrusive antennas, with instructions for the best way to hide them from view. These radios were the TYPE A MK 3 and the larger TYPE 3 MK 2 , using mixtures of 8 pin loctal and octal based tubes. They were particularly useful for Ham radio purposes, as the tuning range of each covered two bands of frequencies already in use, and a bonus of another band with the TYPE 3 MK 2. So, with the addition of an audio modulator, as morse code was originally used, they could operate on the phone and CW 80, 40 and 20 metre Ham bands. For home station use an AC power supply could be readily built but much of the advantage of these units was in using them in portable or mobile operation. Other portable types such as the FS6, No.19 and No.22 were larger and found their way to rural areas for bushfire and other emergency communications, as well as in Ham stations. This type of disposals radio, along with portable antennas, power supplies from petrol generators, and even war surplus vehicles, formed the basis of a volunteer Ham operated Civil Emergency Service, which later became the beginning of WICEN, the Wireless Institute Civil Emergency Network, the well organized Ham volunteer communications network so active today.

Ground based radio installations were, at least in part, available to the buyer, and with the larger aircraft types, AT5 and AR8 transmitter/receiver combination, and also the TA12D became the main home station after suitable modification. It was modified, and parts were used for many years as the basis of a home constructed Ham station, until eventually as industry returned to normal, new designs in radios and accessories became available. A useful addition to the HF station, where rotatable beam antennas gradually replaced the single wire or dipole, was the aircraft propeller pitch motor; a rugged totally enclosed design for it's intended use, and included a reduction gear drive. These motors could be run from low voltage DC, and were reversible, making them ideal for rotating beam antennas. With all this hardware coming onto the market, at a time when local industry was fully engaged in supplying essential services under post war reconstruction schemes, it was no wonder that the disposals stores were so well patronised by the post war Ham.

Since Marconi began experimenting with `wireless` and `aerials` in his efforts to extend the range of the early spark transmitters, other amateurs have been getting involved with the ever expanding occupation of `radio` as a hobby. It was only a few years from the time of the first news of Marconi transmitting across the Atlantic, that Australians became our first Amateurs or Hams as we are known. In that, Marconi was not at first a professional, and was in the fortunate situation of being supported financially by his parents, and later by a `Patron`, (according to his biographer) it seems to me, that he can be regarded as the first Amateur or Ham. True, he later became involved in commercial undertakings, which we as Hams can not do. However, in his early years, while he was experimenting with new methods and trying to build more efficient equipment, he was doing what thousands of Amateur enthusiasts have been doing ever since.

When the GARC was formed in 1948, an Amateur Experimental Licence was issued to those who passed the proficiency examination. Since then, the word `experimental` has been omitted, but the `code` by which Hams operate still includes the objective of `experimenting` in some aspect of radio as a hobby. Many of the GARC members were involved in some form of experimenting with radio or electricity, or they soon became so, and home construction of some kind of apparatus was common. Apart from radio, telephones, audio amplifiers and electronic gadgets were the usual choice. There were no kits of parts to supply the home constructor, and Radio and Hobbies magazine was about the only source of inspiration and circuit design. There was also no Dick Smith shop or similar place where an unlimited range of components was on display. For some years previously, my main source of supply was at Wiggs tobacconist shop in the T and G building in Moorabool St. Yes, that's right ! The basement section of Wigg's was the sporting goods shop, and in this shop was the radio repair department operated by Mr Len Blackney. Len was always there to help and advise, and to supply the odd resistor, capacitor, or valve socket, or to test a suspect valve (no tubes then !) for a struggling novice building his first one or two valve radio. Usually parts were available, as the range required was not great, and most domestic radios were similar in design to our receivers. A simple transmitter could be built, using available components.

There was another source available and this was often used; in the radio shop of Mr E L Barnes, opposite the Post Office in Ryrie St, and later operated by Mr Roy Stokes. His son, Bruce VK3HAV, is now a member of GARC, and a partner in the motor car dealers, Peck and Stokes. These two sources of supply have since disappeared, along with the names, and many changes have been made in radio servicing. The less complex design of radio equipment in the past was often a good reason to get to know the operation of each stage of a receiver or a transmitter. Most test instruments were fairly simple: apart from the usual and essential mutimeter, a grid dip oscillator was very useful for checking output and resonance of tuned circuits, and for construction projects. Audio and radio frequency oscillators were in general use for test and alignment of transmitters and receivers, a process which was very simple compared with that for a modern radios. An oscilloscope was available to several members of the GARC, either being home built using a disposals cathode ray tube or on loan from a place of employment. These were early days for oscilloscopes but a surplus store could supply a 5BP1, a 5 inch CRT, or a 3BP1 or VCR139A, two with 3 inch screens. These used electrostatic deflection and focus and a simple voltage amplifier would provide enough gain to get a full deflection trace on the screen. The main object of a CRO was in audio waveform display, and in monitoring transmitter modulation envelopes for distortion and over or under modulation. Monitoring is taken for granted today, with the design of modern transceivers having built in precautions, but it was a necessary part of the licence provisions fifty years ago. We were always taking care to monitor, in one way or another, the emissions from the transmitter, lest it caused serious interference, or just plain annoyance to others. This is still, or should be, the aim of a well run Ham station.

In the same area of station management, an essential and also obligatory test instrument was a frequency meter, for making sure a transmission was contained within the allotted Ham band ! The reason for this was, the somewhat arbitrary frequency generating section in most transmitters and receivers. Many of the war time radios were designed to operate on, or near a frequency, and the operator was not concerned about band limits ! As long as contact was made with the other party, a few adjustments to the receiver maintained the link. And being plain AM, having both sidebands plus a carrier frequency, tuning was not nearly as critical as today's single sideband with the carrier suppressed. The regulations required at least an absorption type wavemeter, calibrated to enable transmissions to be monitored and kept within the band in use. Some transmitters, especially those using crystal control of the frequency, and some of the better home built radios with a variable frequency control, were good, the usual receiver tuning dial was often rather cramped for range and not particularly accurate. So, in order to maintain a standard frequency monitor, a common type of wavemeter called a Class C was obtained from disposals sources. This meter had a large calibrated dial and a lens to improve viewing accuracy. When placed near the transmitter, some of the output was absorbed by a tuned circuit, detected, and heard in head phones.

None of this is necessary today of course, as the accuracy of modern radio oscillators and frequency displays are far more accurate than the best monitors of the past. But when analog methods were used, and the heating and cooling of tuned circuits due to the use of vacuum tubes caused variations, it was much more difficult to maintain frequency stability. While there were receivers in use that were of limited accuracy, some were much more stable and had a dial which made reading and setting the frequency much easier. One of these was demonstrated at a GARC meeting by Archie Woolnough VK3BW who had acquired an RCA AR88. This receiver was of American origin, and along with other types that were developed for commercial and military use in critical applications, was of first class quality and performance. Notes in AR magazine report that seeing this receiver `...caused great interest among the members. Many Hams consider this receiver as one of the world's best.` On another occasion, the club notes report; `Mr Brian Lloyd (later VK3AOL) gave a talk on `The Advantages and Disadvantages of the Straight Super Heterodyne Receivers and Double Conversion Super Receivers.` So, from all that, it is obvious that even 50 years ago the GARC was right up there with the state of the art, when we met in Lt Malop St !

Not to be outdone, Fred Freeman VK3ALG, in February 1949, `gave a lecture on ``Receivers I Have Built``. Fred drew circuits of these receivers on the blackboard and explained their advantages and disadvantages. He finished with a practical demonstration of his 6 tube home-built ``1946 Amateur Junior`` receiver. And then, further down in the same notes, `3AKE (Ed Kosseck VK3AKE) outlined his BL4 15-tube high frequency receiver and explained how it could be adapted for use on 144 Mc.` It was always possible to find something new and interesting going on in Geelong Amateur radio, such was the variety of hardware available or being built or modified.

Another aspect of construction was in the preparation of receivers for transmitter hunting. Of the war surplus radios, both the TYPE 3 Mk2 and the TYPE A Mk3 were suitable, as was the FS6, all being of reasonable size and weight when carried in a vehicle. All could operate from a 6 volt battery, which was common in cars at the time. As these radios were designed for portable operation, some consideration had been given in their construction to electrical interference from the DC generators and ignition systems used in cars. No such thought had been given in the car design however, and some extra earthing and shielding was necessary. Metal shields over spark plugs and copper braid over leads helped, and capacitor bypassing at the generator terminals reduced the `hash` from this source. The DF loops, when made with a metal tube as the circular former, also electrostatically shielded the wire loops.

It should be remembered that Geelong citizens were not always as mobile as they are today and public transport played a major part in getting about. Those who had cars, and to a lesser extent we motorcyclists, were limited by petrol rationing and the non-availability of tyres as priority was given to essential services and post war reconstruction. Most new cars, as they became available after many months wait for delivery, went to those who were considered in need for business, such as doctors, food, clothing and building company proprietors. Australia's own Holden FX (48-215) sedan launched in 1948 was to be available in limited numbers and involve a waiting period of up to two years, well into the next decade such was its popularity. The English Vauxhall was favoured in 1955 as it could be bought from the car dealers' showrooms. Britain had begun an urgent attempt to restart its war damaged industry and economy by exporting cars and machinery at maximum rate.

The transport situation had another effect on the GARC members at this time. One of the earliest forms of outside activity, and one that was to develop into a major part of club and Zone Convention field days, was the hidden transmitter hunt. These involved some form of mobile transport and a portable transmitter on the 80 metre band with a direction finding loop, usually referred to as a DF loop, into whatever was available as a receiver. The DF loop consisted, essentially, of a large coil of wire tuned by means of a variable capacitor to the frequency of the hidden transmitter, and another loop of lesser turns which coupled the tuned loop to the receiver. The loop, usually being approximately 30 centimetre in diameter, required some form of support. This resulted in a variety of ingenious designs from simple crossed sticks to a picture frame and even a 12 inch 78 rpm shellac recording disc.

Such a loop was produced by Bill Brownbill, who, in his public address business, had been using and cutting discs, and by adding a series of radial slots, wove the wire coils around the perimeter. A 'broom handle' supporting mast enabled the loops to be turned by the operator while travelling as a passenger in, and sometimes out side, the vehicle. Those who owned a car, and there were a few, provided the pilot, with navigators and observers making up a team. An unforgettable combination was Jack Mathews in his Ford roadster with Fred Freeman, complete with loop, receiver and headphones, in the open air dickie-seat at the rear ! Intercom was marginal at best !! My own form of transport which didn't arrive until later, (June 1949), was a Jawa motorcycle, with a loop and a radio mounted on a carrier at the rear. This was eventually refined, and the receiver was mounted on top of the petrol tank, the loop being carried as a slipped halo or necklace, until a quick twirl, handheld above the head, gave a new direction to follow.

The principle involved in the direction finding is quite simple, and the DF loop is an interesting and educational form of radio fun-and-games. If the loop is held upright and the direction of the transmitter is normal to the plane of the loop the radio wave will induce equal currents in the tuned coil, which will cancel and so provide a null. This can be detected by audible means if modulation is present, or by the deflection of a meter such as an RF signal strength meter. The loop, held edge on to the transmitter, will result in unequal currents in the coil due to a wave phase difference, which although giving an increase in received signal instead of a 'null' indication, is not as easy to detect accurately to indicate direction.

For simplicity and lots of fun, the transmitter hunt followed by a picnic at the beach, was to become a regular weekend event which involved families, and introduced newcomers to the science of radio without even opening a textbook ! Nighttime hunting was another thing again and as many will be aware, was to result in many a hairy tale of how to get lost without really trying. The lakes at Connewarre, and the Barwon river at Belmont and Queens Park, are not places to be looking for directions in the dark ! Photographs of the transmitter hunts and the picnics, show cars and attire of the time and some of the past and current GARC members.

Of the portable transceivers available from disposals and adapted by Hams for both home and portable/mobile use, the Type 3 Mk2 and Type A Mk3, ex espionage equipment were the most popular because of their ability to operate from AC mains or DC battery supply. My first transceiver was a Type 3 for use at home, and in similar domestic situations. When my new Jawa motorcycle superceded a rather veteran (1927), rebuilt, single cylinder Indian Scout, a Type A Mk3 was bought to combine both hobbies.

It was with the Type 3 Mk2 that the GARC arrived on the air using our new club callsign, VK3ATL, on the last meeting night for the year, 7 December 1948. Whether it was because I owned the radio, or a two month old Ham licence, I'm not sure; but I was permitted to make the first contact on the 40 metre band as recorded in the original log book. The antenna used was a horizontal dipole, or doublet as it was also known. This had been installed by the ever active and energetic, Phil Grigg VK3APG, and was fixed to the high roof of Wilson's Depot, our next door neighbour. Although it was elevated, it was not the best location, being over corrugated iron roofing. The feedline to the club transceiver was figure 8 Nylex lighting flex, a cheap, available, and effective adaption for our purpose. It should be realised that adaption and compromise was necessary at the time when, apart from disposal sources, not a lot of Ham radio accessories were available and coaxial cable was not an option. Although the usual type of Nylex flex we used had a clear (not colored) insulation, colored could have been used. But the rationale was an assumption that a non pigmented dielectric would be more pure and less lossy. However, figures published later by the makers of the flex, gave higher attenuation (3.73 dB / 100 ft), compared to blue Nylex (2.08 dB / 100 ft), and brown, black, red, white and yellow, all having better figures than clear. One of the confounding attitudes assumed by Hams, about some of the 'facts' in use to the present day. (eg. SWR, and Nicad cell charging and memory effect.)

It may have been the influence of the CB (Citizen Band) craze of the late 1970s, and the introduction of voltage-critical solid state transmitter final amplifiers that makes the thought of plastic lighting flex feedlines somewhat horrifying now. But this was no big deal then. The makers figures also gave the characteristic impedance of the twin Nylex as about 150 ohm or about twice the feed impedance of an elevated dipole. Our antenna was elevated, but the iron roof made this somewhat irrelevant; and anyway, the matching ability of the Type 3 and all other transceivers designed for military use overcame this fault. By inserting twist to the Nylex flex a lower impedance could be achieved but a variable impedance ratio transformer in the form of a Pi coupler output stage in the transceiver was the usual arrangement. The clear Nylex was durable in wet conditions and only slightly affected by sunlight and showed patches of brown coloring after several years of use. A later improved twin plastic-insulated feedline, having good properties, and made with a near dipole matching impedance of 75 ohm, was Telcon, made, or at least supplied by, Amalgamated Wireless (Australasia).

The often quoted and discussed subject of Standing Wave Ratio, (SWR) or more correctly Voltage SWR (VSWR) was not a serious problem in 1948, and for years later, for several reasons. Firstly, it was not brought to our attention and to some extent ignorance was bliss ! However, the RF power levels used and the design of vacuum tubes, and transmitter output circuitry being intended for high voltages, unlike the low voltage transistor equipment of today, gave us a fair margin of safety. The antenna feed lines of higher powered equipment were often open wire; ie, widely spaced of 300 to 600 ohm impedance for low loss and ease of construction, and so were not much affected by high VSWR. Coaxial cable later began to appear in disposal stores, and made possible feeding rotary beams, and indoor installation to the transmitter. Many Hams then began to build reflectometers, or bridges, to indicate the VSWR, as the coaxial cable made connections much more satisfactory and gave meaningful indications of feedline conditions. A very useful VSWR indicator used was the 'Monimatch' a type of bridge that was both easy to build and to use.

With so much of the disposals radio equipment available that was intended for use in portable or mobile applications it was inevitable that this would be one of the main conversions done to make it adapt to Ham radio. As the transmitters were designed to load into many types of antenna, this meant that anything from a wire thrown over a tree to a mobile whip would be used. The power supply, always a problem with portable equipment and even today the main limiting factor in operating convenience and duration, was usually a heavy and bulky 6 volt car battery. All but a few English and Continental cars had 6 volt electrical systems and most disposals gear was the same. Even our just launched FX Holden had a 6 volt system, and this was so until a major model change in 1956, by which time the 12 volt automotive system was preferred.

The main alteration/addition required by most Ham operators was in the modulator, if any, to allow voice operation. The two previously mentioned transceivers, Type 3 and Type A, were intended for morse code and a small key was provided with the equipment. This worked well in the military use and satisfied some of the new Ham owners but a majority wanted the more convenient phone modulator. This was available in the larger ex army type of transceiver such as the FS6, No.22 and No.11 sets but here, inefficient grid modulation was used. This could result in low speech levels at the receiving end; but this type of modulation was effective, if inefficient, and was used to save battery capacity which was of prime importance as was the saving in equipment size and weight. The difference between efficient and effective should also be noted as it is common practice to confuse the two. The main aim of any equipment is to be effective. It must do the job for which it is intended. However, it would also be nice if it did the job with the least possible loss of energy, but this is not always possible or even desirable. Matching source and load transfers maximum power, but is no more than 50% efficient, and power stations can't afford that can they?!

By introducing some form of anode modulation, either in the anode or the cathode of the radio frequency output stage, either in parallel or series with the supply current, the Type 3, Type A, etc. could be converted into a very useful multi-purpose Ham radio. A convenient container for the extra components was the spares box, often included, or by rearranging the layout of the output stage. With Anode modulation, that is, in parallel with the output amplifier, an extra power supply was required and for this reason it was usual to insert the modulation in series with the amplifier by replacing the key, in the key socket, with a plug from an external modulator.

This form of series modulation caused a reduced voltage applied to the RF tube but it was necessary as it created the modulator supply voltage. Less RF output power was offset by good modulation and not needing an extra supply for the modulator. Of interest to the audiophiles of 50 years later would be the two types of microphones most readily available from disposals and universally used for portable and mobile transceivers. One of these was the No.3, a carbon granule microphone and the No.7, a dynamic of the moving coil variety, both using inserts similar to those used in the domestic and commercial telephones for many years. This gave adequate phone modulation, high output if a trifle rough in the carbon granule type, but an occasional shake of the microphone could improved that!

One of the first of the GARC Ham portable /mobileers and certainly the most energetic, was Phil Grigg VK3APG who's mode of transport was his trusty bike! Phil was a member of 1st Barwon Scout Group and like most scouts of the time, rode his bike to meetings and to Eumeralla Scout Camp a Anglesea. As a fellow scout at Eumeralla, I can recall Phil riding his bike to camp with his Type 3 tied to the rear carrier, a 6 volt battery held on the handle-bars and with his camping gear in a back pack! The Type 3 weighed about 20 kg with power supply and modulator, and the weight of a car battery is well known!

Another of Phil's portable expeditions which also illustrates a commitment to Ham radio experimenting is recorded in Amateur Radio magazine for March 1949. In the notes of the South Western Zone (of the WIA) is the following. 'An interesting thing happened when Phil VK3APG/3WC operated his Type 3 Mark II portable from the train bound for Melbourne; he was in contact with 3ALG and 3ABK and when passing Laverton 3ASD was QSOed. Good work Phil.' Once again, consider the size and weight of the radio, PLUS the car battery and antenna that the article doesn't mention! Also, consider the size and weight of a modern hand held radio that would be used in 1998, with the extra advantage of several VHF and UHF repeaters for bonus points. In the days before transistorised radios the heavy and bulky battery seriously limited the ease, and hours of use, when taking the Ham station portable.

In Phil's callsign given in the above excerpt, his portable callsign VK3WC is added to his home station callsign. In 1949, and for many years on it was necessary to ask permission of the PMG, and to give full details of all Ham operation away from the home address of the owners station. It was then, and still is, the station that is licensed and not the operator. As a two week notice of portable operation was required, those who wanted the freedom of a weekend portable/mobile at short notice, could apply for an additional portable callsign. Amateur Radio magazine notes therefore will show 3APG/3WC, 3BU/3ABU, 3ABK/3ABW for example; only the second callsign being used when away from home. With the gradual streamlining of the official procedures controlling the use of the radio spectrum in the last 50 years, this and other irritations have been removed.

Portable operation and our portable callsigns were used from the early days of the club when we became part of the Wireless Institute Civil Defence Network, the forerunner to WICEN. The inclusion of 'Civil Defence' in our brief had obvious wartime connections, but apart from assisting in flood and fire evacuations, and conducting message relaying exercises, our involvement was mostly helping Red Cross, Geelong Motorcycle Club reliability trials in the Otways, and similar events to those conducted by WICEN today. It should be noted here that with the availability of war surplus radio and allied equipment such as portable power supplies and antenna masts, volunteer fire brigades were able to set up their own emergency network, and conducted regular Sunday morning transmissions for signal strength and news reporting. The Type 3 Mk 2, FS6 and other battery operated ex army radios were used to good effect on a frequency adjacent to the 80 metre ham band and depending on atmospheric conditions and the time of day, these provided communication links that had not been possible previously.

The first major use of the civil emergency radio network by the GARC was during the 1949 flooding of the Barwon river and the subsequent inundation of Barwon Heads which effectively cut off that town by road and telephone. The link set up by several club members using portable and mobile radio, was for several days the main source of message handling for the besieged population. Thereafter, fire and flood became the most likely emergency use of our civil emergency network although, as radio communication was not as commonly used by police and ambulance services as it is today, we were sometimes able to fill in at short notice when a sporting event or a Geelong Hospital Gala Day procession required communication, or an emergency call for first aid. Some years later the WIA Civil Emergency Headquarters in Melbourne made ready, two ex army vehicles fitted with radio for use in Victorian state emergencies. However as the various state services developed their own communications and treatment facilities, the need for Ham involvement shifted more to a backup roll, and organizations without their own radios were provided for, and gave us the opportunity for message handling practice and equipment testing. Public service has always been a key issue in Ham radio and was part of our understanding of the licence conditions.

A significant addition to the Amateur frequency allocation was made on May 1 1948 when the band 144-148 MHz was substituted for 166-170 MHz which had been used in the post war period along with 288-296 MHz and 576-585 MHz. This 2 metre band became popular immediately as existing 166 Mhz equipment was converted and new and very suitable ex-aircraft transmitters were to be adapted, giving a crystal controlled capability that had not been universal until then. Many of the VHF experimenters had been using transmitters that were free running oscillators of the MOPA, or modulated oscillator/power amplifier type, and modulated oscillator/super regenerative transceivers. This had been common in some service equipment, with vacuum tubes such as the 6X4, 6X5, 6X6 and 6X8 readily available. The use of quartz crystal for frequency stability in transmitters and receive converters then became universal when the American SCR522 and the British version, TR1143, started a change to stabilized, narrow bandwidth transmissions on VHF and UHF.

In late 1948 and through 1949 the interest in the higher frequencies had resulted in a new frequency allocation, and also a change from vertical to horizontal polarization of antennas and so to the transmitted signal. This had, by design or otherwise, a beneficial effect on the propagation at VHF as the wavefront suffered less interference from a near ground and antennas were easier to mount and stack vertically. Antenna design tended toward the phased array, influenced by the experience with radar during the war, when, due to the pulsed nature of the transmissions, a broad bandwidth antenna had to be used. This is one (the only one in my view) virtue of the phased array and many of the early television antennas were of this type for this reason. However, in hilly country, for example in parts of Gippsland they did show good signal capture properties where propagation was variable.

As VHF and UHF experimenting is virtually synonymous with antenna design and construction, this aspect of Ham radio has attracted many followers who are intrigued by the ability to build and use equipment in a most progressive field of Amateur Radio. Distance records were and still are the aim of those who went portable to hill tops to compensate for the deficiencies in the vacuum tube receiver front ends; orders of magnitude more noisy than modern solid state circuitry and far less sensitive.

The first major social responsibility for the GARC came in November 1948 when the half yearly convention of the WIA South Western Zone was held in Geelong on the weekend of 6th and 7th. Amateur Radio magazine for December records the details of the arrival of visitors from Melbourne, Ballarat, Colac, and further to the south west country areas. On Saturday evening a formal dinner was enjoyed in the Garden Gate Cafe in Moorabool Street with thirty three Hams present. After the dinner we proceeded to the Bostock Hall of the Gordon Institute of Technology (in Fenwick St) where a meeting was held, chaired by zone Vice-President Bill Brownbill VK3BU. A roll call where those present stood up in turn and gave their name and call, listed the following call signs.

VK3BU, VK3SY, VK3SW, VK3AKE, VK3VF, VK3BW, VK3ABE, VK3AJF, VK3ALG, VK3IC, VK3AML, VK3APG, VK3WT, VK3ABK, VK3SE, VK3GR, VK3VA, VK3HW, VK3UT, VK3AKR, VK3PS, VK3AG, VK3ED, VK3LS, VK3RT, VK3VC, VK3RD, VK3BE, VK3ASV, VK3WQ, VK3PW, VK3ANL/7EB, and VK3RU. Of these, 13 were members of the GARC.

Also recorded in Amateur Radio was the presentation to Arch Woolnough, VK3BW and Ed Kosseck, VK3AKE, of vacuum tubes, 832, a VHF twin diode and an 813, an HF tetrode, as first and second place winners for the longest distance 144 MHz contact. Considering Ed's interest in, and later record breaking on 144 MHz, the award of an HF tube may have been an oversight! Presentations were also made to Alex Bell VK3ABE and Bill Barratt VK3WT for the best piece of home constructed gear. This is mentioned to illustrate the accent placed on home construction and modification that was a constant part of Ham operating at the time, partly of necessity due to the unavailability of some items and the supply of war surplus.

As the GARC was a member of the WIA, we were also part of a state wide system of 'zones'. These divided the Ham population into areas that could be better managed by biannual zone meetings in a central city, or as was our arrangement, in one of four. We, in Geelong, belonged to the South Western Zone which extended to South Australian border to the West and to the latitude of Ballarat, with some variation to the north west, to allow for a Central Western, including Horsham and westerly, a North Western, and Far North Western extending to the Murray River. Later, Midlands, North Eastern and Eastern zones completed the Victorian Division of the WIA. Our biannual meetings, or Zone Conventions as they were called, alternated between Geelong, Ballarat, Colac and Warrnambool. A president, secretary and treasurer were elected, with a committee to handle zone affairs. These zone conventions were a useful means for meeting fellow Hams who would not otherwise be able to travel to the multitude of locations to visit as we do today. Even so, apart from a less mobile post war world, it was often a feat of some magnitude to get farmers, tradesmen and city business workers to find a mutually agreeable weekend for a convention. Farmers in particular, and we had a fair share of them to the south west, were always in the midst of shearing, crutching, lambing, or sowing, or harvesting and would have to fit in a weekend visit with a busy schedule on the farm.

However, once everything was organized, the proceedings started with a Saturday registration and dinner, and a business meeting at a suitable hotel or a restaurant. Sunday morning was usually devoted to visits to local Hams to see how the strong signals originated or to visit the local broadcast station for something exotic ! Remember, in the far simpler world of 1948-50 a visit to Radio Australia would be a big deal and not to be missed. My own experience of an out of town convention will serve to accentuate the rather laid back style of 50 years ago. Two incidents may be of interest. I was between motorbikes for the Colac Convention of April 1949, and our old reliable, Mr Nice Guy, Bob Wookey VK3IC, offered a ride on his 500 cc Levis which was as good a way as any at the time. Bob duly arrived at my home and said, hop on, which I did with reservation ! The Levis was a single cylinder long stroke 'thumper' and fairly plain and simple. It had an unsprung metal parcel carrier over the rear wheel and the usual foot pegs. Nothing fancy, but OK. When arriving at Colac and I was able to dismount, Bob looked, with great concern and said, where's the cushion? To this I replied, what cushion ! Apparently between Bob's house and mine a soft addition had come adrift but that was not known at the time and was of little consequence anyway as the objective had been reached and the convention proceeded as planned.

Next morning, Sunday, we assembled outside the Colac radio station, 3CS, then in Murray Street, Colac's main street, where the vertical antenna was located at the rear, and we prepared for an inspection of the transmitter and control room. Eventually a motor cyclist arrived and apologised for the delay as he had to milk his cows ! Then, using a screwdriver from the motorbike tool kit, he opened the front door and proceeded to explain the workings of the station. Life in Colac had it's priorities properly organized ! These country conventions were a meeting place and a get to know you, for the voices that we heard on the Ham bands and wondered about the owner, and then to find out what new station equipment had been built or aquired since last time. Now that zones have become centred in a few cities and the more formal kind of arrangement has changed to a market and swapmeet, the older style can be remembered as more of a social event, and involved the local mayor or a member of parliament at the opening of the formal business meeting.

Some years ago, when trying to sort out the GARC zone position, we were told that, we in Geelong, were not included in a country zone, but that after the main country areas were grouped, we were in 'what's left over' ! A case of not quite country but also not quite Melbourne. Sound familiar?

By 1950, several GARC members had acquired the SCR522 transmitter which had become one of the most sought after VHF items from disposals due to its advanced design and construction, and had proceeded to upgrade it for increased RF output. This involved the substitution of the 832 RF amplifier in the final stage with the larger 829B giving an output of up to 70 Watt on 144 MHz compared with 30 Watt for the original 832 with maximum voltage applied to the anodes. This was a significant increase given the generally fixed home locations and low gain antennas that were common at the time. Later, with the growing acceptance of the multi element Yagi antenna and a trend to choose an elevated home site whenever possible, power became less important. Height and a good antenna are the main factors involved at VHF and UHF, in conjunction with good, low noise receiver front ends.

Of those using the modified transmitters, Ed Kosseck VK3AKE had been for some months anticipating an attempt to contact a Tasmanian Ham station for what would be an Australian record. Ed was a market gardener living by the Torquay Road at Belmont Victoria. He had become an observer of weather and sky cloud formations which were known to indicate the suitable atmospheric conditions for VHF wave propagation. Seeing what he believed was developing into a promising evening, he sent a telegram to Peter Frith VK7PF who had a similar Ham station in Launceston Tasmania, suggesting a time and frequency on which to listen. These two stations were able to make the first two way contact across Bass Strait on 27 March 1950. This feat was repeated a few days later with several other VK7 stations, but it was to be another year when suitable summer conditions made further attempts possible. Such was the nature of less than ideal radio techniques at the time, long distance VHF and UHF contacts depended more on the intuition, and a good deal of luck by the Ham experimenter. However, like many achievements, the first time is the hardest and one then wonders, what was so difficult about it!

This period, 1950 to 1955 saw the growing interest in higher frequencies and while the use of unstabilized transmitters still continued, the 2 metre band 144-144.5 MHz and especially the first 100 KHz of these frequencies, became the realm of crystal control for both transmitter and the receiver. These were usually a 3 or 4 tube converter feeding into a disposals communication receiver. Many of us used portable operation until the 'ultimate contact' to VK7 was made and considered a successful contact with a Melbourne or western Victoria station to be a very satisfactory achievement. This was to become fairly routine from the home location and as more stations appeared both in Melbourne and in the country, activity increased dramatically.

But, no one-factor brought this about more than the introduction in 1955 of the no code, limited licence or 'Z call'. The need for a class of licence for those who had no interest in the HF bands and contacts with overseas countries, for which a knowledge of morse code was required, had long been a matter for discussion, and negotiation with the PMG's department. Finally, it was agreed that the mostly young and enthusiastic would-be Hams who wanted access to the VHF and UHF should be issued with a callsign prefixed with 'Z' which, far from being a limitation, became, in my view, one of the best and most timely moves in Amateur radio.

Much of my activity was with Z calls, and the impetus they gave to experimenting and home construction of the advanced circuitry, with exotic components used at VHF and UHF was of great benefit to the hobby, and to the future of the radio industry. Many of the owners of Z calls were students who later went on to positions in radio and electronic engineering, and, as time went by, became fully licensed after a more leisurely attempt at the morse code unit. Even today we find that a licence that enables the holder to operate on the higher frequencies, including microwaves, has an attraction for some of the more enterprising and, gifted experimenters. The interest in exploring new frequencies and methods is not confined to these people, but it seems that there has been more than enough to keep them looking 'up'!

During the early years of the GARC, the original meeting room situated at 65 Lt Malop St Geelong was in many ways suitable for our purpose. It was centrally located and surrounded by bus and tram routes. Car parking in Lt Malop St and James St was adequate, considering the limited use of motor cars due to availability, and continuing petrol rationing. The main limitation was the small single room available, which, at half the size of our present meeting room at Storrer St, was at times required to accommodate up to 30 members and visitors. Seating was a mix of long forms and chairs, easily adapted to suit the occasion, and a table for the conduct of business. We had a 40 metre dipole antenna on the roof, but no other means for the installation of antennas required for other bands, and no adequate way to build or install transmitters or test equipment. The time came to look at other sites which retained the central location but gave us more space to meet, build, and operate on the air.

In January 1951 we moved to a larger room at the Congregational Church, in Gheringhap St, south of Ryrie St. This church was demolished in 1982 and the site, number 70, is occupied by offices of lawyers, Harwood and Andrews. We also had the use of an outside Sunday-school room, and later a shed in a big back yard with a rear entrance via the existing lane way. This shed was converted into a radio shack/workshop with a workbench for construction projects. Radios used were an AWA 3B transmitter, disposals multi band unit of the 6V6/807 type made with a companion receiver in a matching combination. Also, a transmitter built by members around a Geloso VFO, (variable frequency oscillator) made in Italy. These Gelosos became the start of many a post war home built transmitter. Several members of the GARC began construction of receivers and converters at this workshop and the back yard and lane way was convenient for the occasional gathering at conventions and field days. We had more room for an increased membership with the advantage of a central location and public transport nearby.

From this location the club continued weekly meetings each Wednesday as this suited most of our members who relied on car parking in Gheringhap St. In addition to meeting at night, more could now be done at weekends and this meant Sunday transmitter hunting and picnics with family involvement. Usually a transmitter hunt, finishing at one of the coastal towns or beaches, followed by a barbeque lunch and further radio games in the afternoon. Pictures of some of these gatherings show families and vehicles of our members and some of the radios used. Club notes in Amateur Radio magazine record the details of these weekend and Wednesday night hidden transmitter hunts. They were one of the most popular GARC activities. Using the 80 metre band, and an easily built direction finding loop antenna, meant that simple receivers from home built converters to disposals trancieivers could be used by the novice or expert.

Amateur Radio records, in club and zone notes, the continual activity of the GARC in the visits and lectures that covered a multitude of subjects relating to radio and a constant reference to visits to members homes to see the station equipment and how it operated. This was because each one had a unique item or layout that set it apart from others. Perhaps a new way of doing something could be seen that was then used experimentally. It seems that the modern style of Ham station is built from units that are similar from the outside and rarely modified by the owner. This removes some of the wonder of fundamental operation of the circuitry involved. Most Ham radios today are compatible; only different plugs and sockets prevent interconnection. One does not adjust each stage of a transmitter, for example, and tune and load the final RF amplifier to get the most output into the antenna by monitoring the drive to each stage, and closely watching the operating condition of the output tubes. The old rule of `tune for minimum color and load for maximum smoke` ! , has been superseded by push-button automatic antenna tuning ! Pity !! The cold and seemingly inert transistors in modern transmitters, don`t have the warm and `friendly` glow of vacuum tubes, especially on a cold night in a Victorian winter.

Amateur Radio notes for March 1956 record several items of interest that were newsworthy at the time and each in it's way was an epoch in the history of the GARC and involved club members. I quote from the notes..... Peter VK3ZAV, our most enthusiastic 2 mx (metre) member, has successfully worked Tasmania and is whooping with delight, our congrats.' This came nearly six years after Ed Kosseck VK3AKE had made the first two way contact and not many others had done so since then. Peter was our first Z call licensee (Jim Barber VK3ZBR, now VK3ABT also appeared) and was one of those who were not greatly interested in the lower frequencies, being a devotee of VHF and UHF from the beginning. Having a home on an elevated spot adjacent to the St Augustines service basin in Highton, with a view to the coast of Bass Straight, he had the advantage of height, so important at VHF. I had a long association with Peter on the 2 metre band and made many visits with portable gear to a trig. point (a survey marker) at Bayview, in the Ceres hills, to try for a Bass Straight contact taking advantage of the even greater height. Eventually this was achieved but it does illustrate the difficulty with such a long distance contact that is fairly routine today.

Also from Amateur Radio for March 1956, 'Jack (Mathews) VK3SY is to be congratulated on obtaining his commercial TV licence at the recent exam.' Commercial television had been promised in Australia since 1950 when I had been involved with the Astor Radio (Radio corporation) television unit that toured Victoria and New South Wales, preparing the anticipated audience by showing television production from stage acts to receivers. This involved all the equipment of a small television station, from camera to transmitter and back to an array of receivers such as might be used in the near future. Due to a change of government the introduction was delayed until 1956 when the first 625 line black and white transmissions started in Melbourne and Sydney. Geelong, and the GARC, were involved in this event as we were favoured from the beginning when a successful attempt was made by at least one TV station, to direct as much signal as possible in the Geelong direction.

Bill Brownbill VK3BU, one of our foundation members, became an original television dealer and invited the club members to a night of television viewing with receivers showing a transmission of the opening of HSV7 TV. It's hard to imagine the interest shown in 1956 when 17 inch receivers were presenting us with television in glorious black and white! However many of the Geelong public were limited to watching television through a dealers window and a small crowd would gather in the city streets to watch anything that appeared on the display receivers. Like true Hams (miserly?) some of us built our first television receivers and I at least could claim that I had the first color TV in the street. Unfortunately it was all green due to using a disposals VCR97 cathode ray tube! Full size Black and white tubes became available, and 17 inch soon gave way to 21 inch models when competition was introduced by Admiral of the USA including the first use of printed circuits.

The arrival of television had a further effect on the GARC, or at least the club members, as we began to consider the possibility of transmitters causing TVI (television interference). This had been experienced overseas and was soon a reality in Australia. Of course, we Hams had been blamed for anything that interfered with broadcast radio reception, lights dimming and if chooks stopped laying, so it was only natural that we caused TVI as well! Due to the design of a TV receiver and the coincidence of frequencies used, it was quite possible that some mutual interference would occur and this did happen occasionally. The opposite also presented a problem and was even more serious, as the TV line oscillator was found to be radiating harmonics that caused many a Ham and shortwave listener to wonder about the future! However, as television was such a new and wonderful acquisition, it was not for some time that the problem of TVI became a talking point as the normally active Ham was among the viewers. The South Western Zone notes of this time record the malaise that also spread across country Victoria

The subject of interference to and from Ham radio had been raised at the GARC on many occasions before TV was introduced. Those who listened on the short wave bands had experienced the occasional click and crackle from a light switch or faulty connection. But these were fairly minor problems and could be overcome by shielding or fixing the fault. Some electrical apparatus caused far more trouble on the HF bands and also to the 6 metre band. One annoying kind was caused by the high voltage bar type city traffic lights, as they switched one bar at a time each 15-20 seconds. One of these traffic lights were installed at the Gheringhap-Ryrie St intersection near the club, and caused continuous interference that could not be eliminated easily. Other similar neon signs which switched in the high tension conductors, also added to a constant background that was part of city radio reception. Most motor car ignition systems of this period were unshielded and suppressors were not used in the spark plugs, so this added to reception problems in the city or near busy roads. It should be remembered that a Ham receiver in use was for amplitude modulation reception, and did not use a suppressed carrier system. The electrical interference added to, or modulated, the wanted amplitude modulation and so was difficult or impossible to eliminate. Some kind of clipping of the peaks that extended above the audio modulation was the best that could be done. However, this was partly successful on ignition pulses from some cars but not all, as a few makes were particularly bad.

Probably the worst kind of interference experienced by club members was that from pilot arc welders. In electric arc welding, certain types of weld and welding rod would benefit from a means for striking the initial arc. To do this, a welding machine would have a high voltage generated, and then applied between the tip of the rod and the work, causing a pilot arc to give a more positive start to the main arc. As these high voltage generators had an internal arc running continuously as part of an oscillating circuit, the whole system, including the welding leads that acted as an antenna, radiated a kind of hash that could not be clipped or separated from the wanted audio. In many instances, this kind of interference extended over large areas and was probably conducted via the electricity mains. Gradually, this kind of welder was discontinued but for many years during the 1950s it was a problem on the 80 and 40 metre bands. A similar type of noise was radiated from the high voltage electricity supply aerials and was either a sizzle or a buzz, depending on the nature of the voltage arcing at line insulators, and weather conditions prevailing. Operation on VHF, where often the wanted signal would be weak, was made difficult by a strength 9 (very strong) noise from power leaks due to moisture and dust on high voltage insulators. Clipping types of noise limiters were useless on this noise and in the days before frequency modulation, and filtering in SSB (single side band) transceivers, a power leak would mean the end of an evening of Ham radio.

Amateur Radio for January 1957 records that 'At a recent meeting Bill 3BU (Bill Brownbill VK3BU) entertained members at his new QTH, (new TV showroom at 100 Gheringhap St) and gave those present a fine demonstration of television application, noise, and transmitter interference. Various types of antennae were used and a low powered transmitter alongside showed what type of t.v.i (television interference) could be expected.' As the foreseen problem of the interference to television receivers in countries overseas had not been taken seriously by Australian legislators, it resulted in many instances of motor car ignition and electrical appliances interfering with amplitude modulated television pictures. The television sound systems using frequency modulation were only occasionally effected by very strong ignition pulses from certain vehicles, especially the Volkswagen and the Holden. As the problem could have been overcome by installing suppressors in the vehicle, and a more energetic approach to appliance shielding and circuit design at minimal cost, the TV viewer, and incidentally the Ham operator, would have been much happier, then, and in years to come. Only in recent times has the subject of electro-magnetic compatibility (EMC) become a national concern, and legislation enacted.

While the GARC activities during 1957 and 1958 frequently involved the subject of television and reports of previously active high frequency Ham band operators being 'lost to the TV receiver' life went on as usual and Amateur Radio notes report much activity in the home construction scene. Those not building TV receivers were occupied with various projects from car radio converters, repainting and refitting the shack, to fathering a family. 'ALF Forster VK3AJF has a daughter and Chas Hyatt VK3XH has a son' according to Amateur Radio while 'Mr G.(Geoff) Wood, well known yachtsman boat builder...devoted much time to the procedure necessary in rigging aerials, the types of splicing required and the methods adopted, as well as the raising and lowering of tall masts.' Geoff was an active club member and had built his own boat 'Ileola', named after his wife, on which they lived for many years at a Corio Bay anchorage. Jim Barber, now VK3ABT, had been a gentleman farmer at Anakie for many years before entering into Ham radio and the Rural Fire Brigade, with a keen interest in radio for use in fire fighting communications. Jim showed his talents when the GARC visited his home 'for an inspection of his gear. Jim is well known for the care he puts into his constructional work...As well as running on AC the Ham station can run on batteries with vibrators and genemotors.' And in a letter to AR, Jim expresses his complete agreement with a previous writer to the magazine about Emergency Networks, saying that 'the standard of equipment used... In emergency service there is absolutely no room for equipment that is not 100% stable, 100% efficient, 100% reliable and maintained ready at all times for immediate use.' This was reflected in the manner of Jim's home built gear.

1957 saw the Soviet Union launch the first man made earth satellite. This was named Sputnik and was programmed to send a radio signal with simple tone modulation that could be received by a common short wave receiver and so gave it the maximum effective publicity. This gave Ham radio a boost at a time when space exploration was just beginning. Many were impressed by hearing a radio signal that came from space and at the time it was a big news item. Sputnik was followed by other small satellites until eventually the first one that could be seen from earth, Echo 1, was launched a few years later. This was a large gas filled balloon with a metalized surface that could reflect the sun light, and be seen an hour or so after sunset, moving slowly across the sky. Hams were soon to be involved in the building and launching of their own satellites; first, like Sputnik, sending simple beacons in the 2 metre Ham band. Later telemetry was included and eventually message transmission, data, and pictures. However in 1957 and 1958, anything that beeped was news!

In June 1958 a Trade Fair and Hobbies Exhibition was held at the Grain Elevators storage shed adjacent to the silos at North Geelong. The GARC was invited to set up a stand and to demonstrate Amateur radio, and AR magazine reported 'The members of the club maintained a four day stall at the Y.M.C.A. Exhibition in a 7 acre wheat silo. Most bands were worked. 3ALP (Jack Cations) and helpers operated on 80, 40, 20 mx (metres), whilst 3ZAV (Peter Ward) maintained skeds on 2 mx. The inquiries and interest of sightseers was beyond expectations. The President, Jim (Barber) 3ABT, is to be congratulated for the amount of time he put into the effort.' This was one of the best attempts by the club to show off to the Geelong public, and showed that people will take notice of an interesting, and operational display. Included was the club HF station, our Geloso VFO/transmitter, and transmitters and receivers for VHF and UHF. Also many items of old and new radio gear with a 2 metre station in operation. A photograph of the GARC stand shows 10 members, on one occasion, ready to talk about Amateur Radio. This photograph also shows Jack Cations VK3ALP, who supplied the photograph, seated at the desk with the club station, and a display board showing the stations contacted. 'Vic Clarke (GARC Treasurer) entered his car to show DF (direction finding) equipment, and radio controlled boats were shown by Laurie Costa.' according to AR magazine.

Since the introduction of commercial television, the subject of Amateur TV, or ATV, had been discussed, and several of us had applied for a permit to experiment with and transmit television in the 288 MHz band. Standards to be used were not strictly specified, but the general opinion was that they should be compatible with the Australian commercial standard which would then allow the use of available receivers and a suitable down converter. Also, components were becoming available from television station disposal of used or unwanted camera tubes and monitors. The domestic television industry could supply many useful components. A very comprehensive series of articles appeared in Amateur Radio magazine running for many months, and described in detail a complete ATV station from camera to transmitter and receiver. The author of this series was Eric Cornelius VK6EC who was then employed in the television industry in Perth. I built the camera, video and audio modulator, and the transmitter from these articles. For a receiver, a crystal locked converter from the 288 MHz (1 metre) band was then fed to the Channel 1 input of a standard TV receiver. Letters appearing in AR from others who were building ATV equipment added to the interest, and slowly the activity increased. But as the 288 MHz band was in the upper region of the VHF spectrum for that time, the distance between interested parties was an obstacle to cooperation. Each capital city, and some country towns, seemed to have only small groups, actively engaged in building and experimenting with this mode.

Sometimes, a new or unknown medium takes time to get started, or sometimes, for no obvious reason, just doesn't grab the interest of more than a few. So it was with the 288 MHz band, which languished in comparison with other VHF bands. And so too with television as a mode. One club member would not accept television as a legitimate form of Ham modulation. Perhaps it was the entertainment use of commercial TV that influenced him and others. This didn't prevent trials between Geelong and Melbourne with Charlie Rann VK3AAK and Geoff Hughes VK3AUX, and Bill Brownbill VK3BU who was also active in ATV in Geelong. Our attempts to send and receive ATV on the 288 MHz band between Geelong and Melbourne failed, due mainly to inadequate transmitting power and the simple receivers used. Here again, it was one of those difficult 'firsts' that now seem so easy with experience, and, no doubt, better equipment. The inclusion of 'Television' in the name of our club some years later, was an attempt to get the mode established, and several times during the following decades, an ATV project was started only to fail as the interest subsided.

Amateur Radio for June 1959 reported the sad news of a loss at the GARC. An obituary for William (Bill) Barratt, VK3WT, records the passing of Bill, on April 30 1959 after a long illness. Bill was a highly respected person and had been an original and most active and enthusiastic member. Despite a physical disability he was one of the most cheerful and energetic people one could imagine. He had been a motorcyclist for many years and a licenced Ham since 1936. He had been made the first life member of the GARC.

During 1959 and 1960 the club had one of the most active periods since its inception. The list of club visits to various members homes, and to the many industry sites to inspect the equipment, was endless, according to the notes in AR. We visited the Channel 2 TV transmitter on Mt Dandenong where 'The station's technical staff was most co-operative and allowed members to inspect equipment at close range', according to AR. Several portables were on the air during this visit using 80 and 40 metres mobile and 2 metres from the mountain top. Club evening syllabus items included a display of VHF and UHF gear, including crystal locked converters for 144 and 288 MHz, and a coaxial tuning unit for 576 MHz. This period saw much activity on the VHF and UHF bands. New licensees were Ron VK3ZLP(now VK3AFW), Ian VK3ZMH(VK1BG), John VK3ZMG, Keith VK3ZLW(VK3AFI), Laurence VK3ZLG, and Bill VK3ZHL(VK3WE). Soon to appear, was Daryl VK3ZNC, who became a keen VHF'er, and as VK3AQR, a GARC activist on HF and in ATV.

Much of the disposals equipment had been either rebuilt or replaced in the time since the introduction of the Z call licence that also saw the arrival of more modern vacuum tubes. On HF, the 813 beam power tetrode was a common choice; and on VHF, the 815, a twin beam power tube was used up to 144 MHz with reasonable output. This tube was comparable with the 832, also a beam tetrode which was used in the original SCR522 ex aircraft transmitter. The higher rated 829B raised the available RF output by about 50%, but the efficiency of these tubes at 144 MHz was a limitation, while operation on 288 MHz was beyond their capability. Fortunately, a new series of VHF twin tetrodes appeared in the late 1950s that satisfied our requirements, and were to be the basis of many a 432 MHz transmitter when that band was introduced on January 1 1964. These new tubes, made by the Philips and Mullard companies, were the QQE and QQV series respectively, QQ being code for two, or twin tetrode and the E and V denoting the type of cathode. So, we had the QQE 03/12 which was a useful 10 watt amplifier and driver for 144 MHz, and the QQE 02/05, a similar tube, but rated at 5 watt and useful up into the 432 MHz band. But the best advantage came with the QQE 06/40 replacing the old 829B and giving up to 80 Watt output at 144 MHz, and the QQE 03/20 giving us up to 40 Watt at 288 MHz. These would be the main transmitting tubes for most of the VHF/UHF experimenters for many years on 2 metres and 70 centimetres.

Following on the success of the Trade Fair of 1958, the GARC held another exhibition and demonstration of Amateur Radio, this time in the church hall in Gheringhap St. The purpose of this was to acquaint the public with all phases of Amateur Radio as practised by licensed Amateurs and S.W.Ls. The exhibition was officially opened on Friday evening at 8 pm (9/9/60) by the Minister for Shipping and Transport, Mr Hubert Opperman, MHR. On display was a whole range of radio and allied equipment from the AMR300 receiver that had been used to receive the first satellite signals from the Russian Sputnik, to ATV and VHF/UHF and a 1296 MHz link transmitter. An ATV transmitter, a flying spot scanner and a 1 to 1 converter, (1 metre to channel 1); a 24 inch TV receiver (home made) and a 5 inch receiver built from disposals parts. The earlier Civil Defence Network had been modified and was operating, passing messages from mobile stations from the WICEN (Wireless Institute Civil Emergency Network) base station prepared by Jim Barber VK3ABT. Jim also received the GARC Perpetual Trophy (Since demised !) for the "best piece of home constructed equipment". A 60 Watt transmitter used a Geloso VFO and 6146 (beam power tube) power amplifier. Also a SSB generator, grid dip oscillator, cathode ray oscilloscope monitor, and audio oscillators. A mobile display included crystal controlled transmitters and modified command receivers, (ex aircraft disposals) and a field strength meter, DF loops (direction finding) and whip antennae. Amateur Radio, October 1960 gave a full page to this exhibition which was supported by commercial firms HeathKit from Warburton Franki, A.R.S Albury, A&R Transformers, and Zephyr microphones from Mr A.J Forster (VK3AJF) of Brownbill's Amplifier Service. An experimental projection TV receiver with an imported German model along-side for comparison was shown by Mr Davies. (Ern, later VK3ECD).

1961 saw the completion of a new transmitter at the GARC after a building program aimed at replacing the low power AWA 3BZ, an ex RAAF ground station transmitter. The new transmitter was built around an Italian made Geloso VFO (Variable frequency oscillator) which made possible transmission on multiple frequencies in the high frequency Ham bands. Previously our transmitters had been crystal controlled: that is, the output frequency was determined by the resonant frequency of a quartz crystal, in a similar fashion to the way a crystal controls the time in a quartz watch. By having a transmitter capable of operation on several Ham bands, with an unrestricted choice of frequency, was a luxury at the GARC. With several helpers, Peter Perkins VK3APK was able to complete the transmitter and make the initial contacts from the club, as reported in the Geelong Advertiser for May 18 1961. Pictured in the paper, assisting Peter, was Keith Vriens VK3AFI, and Jim Barber VK3ABT.

Amateur Radio notes tell more in a report of yet another South Western Zone convention held in Geelong, and of a Geloso transmitter and Eddystone receiver set up in the club rooms to work the incoming mobiles. Note the use here of HF for mobile contacts, while the present day mode would be FM on VHF. The ready supply of ex taxi FM transceivers was a few years away and so the rapid switch to FM for mobile and home use, and the subsequent introduction of repeaters had yet to cause a dramatic change of interest for many Hams. As most of the country visitors had HF mobile equipment as part of their rural operation, this was a favourite mode of communication. Of interest at this convention is the record of thanks passed to a long time radio dealer in Geelong, Mr (Arthur) Bent, (VK3AF, although inactive) who donated one of the prizes. After lunch on Sunday, the Eastern Gardens was the setting for the afternoon events. The best mobile prize went to Gordon VK3AGV (Colac) with his ATR2B. Brian VK3ADV (Skipton) had a walk-over in the 80 metre transmitter hunt and now holds the GARC trophy! (?) This was a wall mount barometer / thermometer combination.

1961 was the year when the GARC decided that we should have a club badge for added publicity. For this, a design competition was launched, whereby members could submit designs for judging. The winner of this competition, and designer of the present club badge, was Jack Cations VK3ALP, who became our president during 1961-62. Jack came to Geelong from Werribee, to teach in the electrical department of the Gordon Institute of Technology (now the Gordon Institute of TAFE in Fenwick St), in 1948. After setting up a station as VK3ALP in 1951, Jack joined the GARC. The original drawings which Jack had submitted, show that the badge we now use is a faithful copy of that design.

Another notable event of this time was a near disaster, in the form of a fire in the church which did much damage to the main building, and to our club room. As a consequence, we were able to use the Sunday School room in the rear yard. The church was repaired, and reused in 1963, however, due to added security concerns by the church management, we continued to use the back yard Sunday School and the shed/shack for our meetings. This, and the inconvenience of accommodating a growing membership in a shared room caused us to consider a move to another location. Although a small library had been started using a cupboard, we lacked storage space and a motion was moved to write to the Geelong City Council inquiring about a suitable meeting hall for club lectures. An offer of an athletic clubroom at 12/6 (twelve shillings and six pence) per night was considered, but not acted upon and a Council reply was not received. There had also been suggestions by several members that other facets of electronics could be included in club activities and a group of audio enthusiasts wanted the growing Hi Fi scene included. Others wanted to expand into electronic gadgets, but the general feeling was that we were a club which was devoted to Amateur radio and allied subjects according to our constitution, and that covered most of the interest in electronics.

In January 1962, Bill Brownbill VK3BU who had been the motivator for the formation of the GARC, died after many years of ill health. Bill was at the centre of Ham radio in Geelong because of his home at 75 Gheringhap St. As a semi invalid he was dependant on his mother to drive him to club meetings, field days and conventions. Even his going to and from his home was difficult as he required parallel parking for his car when angle parking was normally used in Gheringhap St, and meetings at the adjacent Masonic Lodge on most week nights, often prevented this. However, he was cheerful, helpfull to all, and a true Amateur.

The 1962 annual meeting of the GARC was held in the 3GL studios due to renovations taking place at the Congregational Church. This had caused more concern about the club future in Gheringhap St and negotiations with the church management about use of the Sunday School, behind the church, as a permanent meeting room continued.

1963 was a year of new members and callsigns, many of which were held by younger people, bringing new thinking, ideas, and needs to the club. It was also a year of the pirate operator who became interested in radio through local networks on both HF and VHF, particularly on the 288 MHz band. This activity added to the interest and population of the frequencies. It also added to the numbers at meetings and the predominance of students and their activity in club affairs. Construction of FM mobile transceivers started a new phase in Ham radio, which two years later was aided by the availability of ex-taxi units when new solid state radios brought about the demise of tube types in the industry. Several of the newcomers to the club were employed in the two way radio field or were apprentices and so brought a new interest that caught on quickly. With cars more readily available and used by all but the student members, FM mobile soon became a common mode.

During the year, some of the radio club members felt a growing need for a way to involve more electronics in their lives than was being provided by the Ham radio activities of the GARC. Eventually, an advertisement appeared in the Geelong Advertiser for any interested people wishing to form a club for the promotion of 'all facets of electronics'. The result was encouraging, and the Geelong Radio and Electronics Society was formed in October 1963. This Society prospered, and today it still enjoys a good membership and the enthusiasm of many Hams and experimenters in a range of interests.

On 1 January 1964 a significant change was made to the Ham frequency allocation, when the 70 cm band, (420-450 MHz) became available, instead of the 1 metre band (288-296 MHz). The 1 metre band had never gained much interest, and this may have been because it was not a lot different from the already very popular 2 metres. Propagation was similar, and construction methods only slightly more dependent on short connections and stray capacity in tuned circuits. But the relative inefficiency of doubling from 144 MHz, rather than tripling as with 432 MHz, could have been a factor. Certainly, a push-pull tripler was a very satisfactory circuit to use, especially with the previously mentioned QQ series of twin tetrodes, while a push-pull doubler had a distinct disadvantage! The push-pull driven multiplier uses a reduced conducting angle per cycle, improving overall efficiency, and together with good internal construction in the QQ tube series, this made the addition of an outboard multiplier from existing 144 MHz transmitters to 432 MHz, a simple way to get started. There was a challenge in the construction of the tuned circuitry and the use of linear 'coils' or tuned lines with greatly reduced tuning capacity as compared to the more familiar 2 metre combination. The increased frequency, into the UHF section of the spectrum, made the use of 'line of sight' and mountain tops more of a consideration than at VHF, although with time and experience this became just another factor that was to be overcome. At any rate, '432' did become a very popular band.

The 1963 call book listed eleven Z calls, ten belonging to GARC members. Together with six other full calls, they were active on the 2 metre band and this was the greater part of the Geelong Ham population at the time. While operation was initially on the first 100 KHz of the band using AM (amplitude modulation), the introduction of frequency modulated mobile transceivers in 1964 added new interest. This extended the used part of the 2 metre band that had been practically ignored since being allocated for Ham use in 1948. With Peter Ward VK3ZAV, I had the opportunity to begin using the new 70 cm band on January 1 1964 and also operate portable in the succeeding weeks to contact Melbourne Hams who were starting up on the new band. With Peter in Geelong, and later able to operate portable while employed by the SEC, (State Electricity Commission, later succeeded by Powercor Australia Ltd and other private companies), the advantage of local support in a new venture was demonstrated and should not be underestimated. The support of a radio club, such as the GARC, can be most helpful in establishing new methods and modes of operation.

In an effort to promote Amateur Television activity and to overcome the apparent aversion to the mode for various reasons, the club meeting on June 24 1964 passed a motion, that the name of the GARC should include the word Television. So, the club was to be known as the Geelong Amateur Radio-Television Club, and a renewed interest was created with several members in the process of building receive converters for use on the new 70 cm band. Transmitters which had been built for the 1 metre band had to be altered and antennas built. This did have some effect but there was still only a very limited response from the majority, and some opposition. As before, it would take more than one or two involved to get ATV started and the the best way was to come, many years later, when a television repeater in Melbourne, and later on Mt Dandenong, made reception of ATV much easier and started a boom in transmitting activity in this mode.

During the period, 1964 to 1966 the club went through a time of change. Much of the discussion at meetings was about administration, and the needs of a younger and new Amateur, who was now employed, driving a car, and had a great deal of enthusiasm. This combination resulted in a more volatile and less predictable operation of the club. At this time we were meeting in the Sunday School building at the rear of the Congregational Church and using the outside shack/workshop. Although this arrangement was not ideal, it was reasonable given the state of club finances and income. As some of the older members had not renewed their subscription and junior rates applied to others, our income was barely adequate to pay rent and general running costs. Attendance was good on average, and activity and interest in Amateur radio was as good as ever. I remember the ordering system which we had with Radio Parts in Melbourne and how I, as treasurer during 1963 to 1966, would take orders for construction parts, and post an order form to Melbourne, so that the goods were available during the following week. At this time, there was no Dick Smith in Geelong, or anyone else selling the kind of parts that we needed. A monthly account with Radio Parts was very convenient, and as long as we paid on time, it worked well. However, I do recall times when the payment was a near embarrassment both to the club , and to me !

In any organization, there is usually someone who is a dependable and mature anchor when things are unsettled. I am sure we had, in Bob Wookey, a most dependable anchor, assistant secretary and later president, during the mid 1960s. Bob had been secretary many times during the early years of the GARC, and was always ready to step in when needed. When he did this, his professional experience was a great advantage. Bob was given life membership in 1969 by those he had helped and guided in the first twenty years of the club existence.

During 1965 and 1966 the weekly club meetings continued to hold interest in a variety of radio related subjects. A syllabus card for 1965-66 lists items such as antenna regulations, my project, night radio exercise, fault finding, audio and microphones, semiconductors, principles of frequency modulation, careers in radio, and teletype systems. These were interspersed with disposals sales, transmitter hunts, and film nights. Not much had changed in 18 years, as this list shows the range of subjects of interest being very similar to the preceding decade, but more aligned to the current state of the art. Perhaps the only difference was the absence of home visits which were frequent in 1948 and the 1950s. This was a result of changing times and the absence of mystery, present in earlier Ham stations. With the demise of zone conventions, where home visits were normal, and the sameness that had crept into radios and station equipment, there was not the incentive to see the other side of a contact. On reflection, we were seeing the start of present day, big, bright, bells and whistles, that now goes with entertainment. The inside of a piece of equipment was becoming less important. What it did, and how it looked on the outside was becoming the main attraction.

To be continued in part 2

This review of the Geelong Amateur Radio Club would not have been complete without the regular notes and news of the club that appeared in the Geelong Advertiser, and in the Ham magazine, Amateur Radio. As the original Publicity Officer of the GARC, and from his consistent attention to that appointment, Fred Freeman has left us with a record of events, and contributed to this reminder of the way things were in the early days of the club. Unfortunately, Fred's service with the GARC was suddenly reduced by his death in 1997. But he has left a legacy in his notes and log books, now in the club archives, and still continues this service in the pages of this Review of the Geelong Amateur Radio Club.

R J H

20/01/97

FREDERICK ALEXANDER FREEMAN.

VK3ALG

Fred Freeman was one of the founding members of the Geelong Amateur Radio Club in 1948 and his interest continued for nearly 49 years. At the first meeting of the club, Fred was appointed Publicity Officer and it was in this position that he became the voice of the GARC through his weekly notes in the Geelong advertiser. After our meetings he would call at the Advertiser office before going home by tram to Chilwell, or as Fred would insist after a move further south, to Marnock Vale; and his world of wool spinning and weaving by the Barwon river.

Fred continued to support the club and amateur radio, becoming an active home constructor of radio transmitters and receivers using many of the bits of war surplus materiel that was about at the time. He was enthusiastic in transmitter hunting and weekend picnics that usually followed. He was the eyes and ears of anyone who had a motor car with a spare seat either inside or out, as his own notes will tell !

Remembering Fred, I am reminded of Sir Reg Ansett who said, 'persistence' was the key to his success. But persistence was not Fred. 'Consistence' is a more suitable word, and it was well earned. Fred became our QSL manager. A job that involved many hours of sorting and distributing 'post cards' to Hams around the world; and thousands would have received their card with the stamp on the back, 'VK3ALG QSL SERVICE'. And it is the word 'service' that also fits well when we think of Fred.

So, in those words 'consistent service' we can sum up Fred's years with Ham radio and add to that, the memory of his company at club meetings and the Wednesday afternoon 'coffee club' at the GARC. He will be leaving a gap that will take time to fill.

In memory of Fred.

Dick Heighway. VK3ABK.

GARC Newsletter and Amateur Radio.

GEELONG AMATEUR RADIO CLUB

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PAST OFFICE BEARERS (Dates of election year and callsigns at the time)

- 1948 Pres Alex Bell VK3ABE: VPs Jack Mathews VK3SY, Ed Kosseck VK3AKE:
Sec Bob Wookey VK3IC: Tres ALF Forster VK3AJF: Com Bill Brownbill
VK3BU, Archie Woolnough VK3BW, Bruce McKenzie VK3VF, Phil Grigg
VK3APG: QSL Manager and Press correspondent Fred Freeman VK3ALG.
- 1949 Pres Ed Kosseck VK3AKE: VPs Bill Brownbill VK3BU, Alex Bell VK3ABE:
Sec Bob Wookey VK3IC: Publicity Fred Freeman VK3ALG: Com Bill Barratt
VK3WT, Dick Heighway VK3ABK, Peter Cartwright, Jack Mitchell.
- 1950 Pres Alf Forster VK3AJF: VPs Ed Kosseck VK3AKE, Bob Wookey VK3IC:
Sec Peter Cartwright: Tres Alex Bell VK3ABE: Publicity Fred Freeman VK3ALG
Com Bill Brownbill VK3BU, Bill Barratt VK3WT, Brian Lloyd VK3AOL, Bob Reece
- 1951 Pres Dick Heighway VK3ABK: VPs Peter Cartwright, Max Stock: Sec Keith Muller:
Tres Brian Lloyd VK3AOL: Publicity Fred Freeman: Librarian Ray Tucker:
Com Bill Brownbill VK3BU, Bob Wookey VK3IC, P Perkins, Jack Beckingham.
Tech Advisory Alf Forster VK3AJF, Bill Brownbill VK3BU, Ed Kosseck VK3AKE,
Dick Heighway VK3ABK.
- 1952 Pres Bob Wookey VK3IC: VPs Max Stock, Dick Heighway VK3ABK: Sec Peter
Perkins VK3APK: Tres Jack Beckingham: Publicity Fred Freeman VK3ALG:
Librarian K Hawkins: Com Ed Kosseck VK3AKE, Bill Barratt VK3WT, Bill Brownbill
VK3BU, Bob Reece: Tech Advisory Alf Forster VK3AJF, Bill Brownbill VK3BU,
Brian Lloyd VK3AOL.
- 1953 Not recorded.
- 1954 Not recorded.
- 1955 Pres Alf Forster VK3AJF: Sec Bob Wookey VK3IC: Tres Jim Barber VK3ZBR
- 1956 Pres Bill Zimmer VK3AWZ: VPs G Wood, Chas Hayatt VK3XH: Sec Jim Barber
VK3ABT: Tres Alf Forster VK3AJF
- 1957 Pres Jim Barber VK3ABT: Sec Keith Vriens: Tres Vic Clarke
- 1958 Pres Bob Wookey VK3IC: Sec Harry Michael: Tres Vic Clarke
- 1959 Pres Dick Heighway VK3ABK: VPs Bob Wookey VK3IC, Jim Barber VK3ABT:
Sec Peter Perkins VK3APK: Tres Vic Clarke: Librarian and Equipment Officer Bill
Erwin: Publicity Officer John McDonald VK3AMC: Com Fred Freeman VK3ALG,
Bill Brownbill VK3BU, Bill Hussin.
- 1960 Pres Harry Michael: VPs Bob Wookey VK3IC, Bill Hussin: Sec Jim Barber VK3ABT:
Tres Vic Clarke: Librarian Eric Coxall: Auditor Geoff Wood: Com Bill Brownbill
VK3BU, Peter Perkins VK3APK, Keith Vriens, Eric Coxall

- 1961 Pres Jack Cations VK3ALP:
- 1962 Pres Alf Forster VK3AJF: VPs Jack Cations VK3ALP, Jim Barber VK3ABT:
 Sec Dick Heighway VK3ABK: Tres Harry Michael VK3ASI: Assist Sec Vic Clarke:
 Publicity Daryl StJohn VK3ZNC: Assist Publicity Jim Barber VK3ABT: Auditor
 Geoff Wood: Com Fred Freeman VK3ALG, Peter Perkins VK3APK, Bob Wookey
 VK3IC, Frank Rocca: Librarian and Equipment Officer Eric Coxall VK3XL.
- 1963 Pres Mike Trickett VK3ZNZ: Sec Noel McDonald: Tres Dick Heighway VK3ABK:
- 1964 Pres Calvin Lee: VPs Bob Wookey VK3IC, Ray Cowling: Sec Laurie Kelly VK3ZLA
 Tres Dick Heighway VK3ABK: Librarian Dan Dixon: Equipment Officer Lindsay Dunt:
 Publicity Ian Baxter, Jack Cations VK3ALP: Com John Oxley VK3AKO, John
 Killworth, Daryl StJohn VK3ZNC, Noel McDonald.
- 1965 Pres Bob Wookey VK3IC: VPs Ray Cowling, Ian Baxter: Sec John Heard,
 Tres Dick Heighway VK3ABK: Librarian Russell Walker, Equipment Officer Hayden
 Chittock: Publicity Noel McDonald, Jack Cations VK3ALP: Com Mike Trickett
 VK3ZNZ, Jim Barber VK3ABT, John Wall VK3AAR, Mike Bellaart L 3275.
- 1966 Pres Ian Baxter VK3ZIB: VPs Bob Wookey VK3IC, Mike Trickett: Sec Terry Leith
 VK3ZXY: Tres Ray Cowling: Com Russell Walker, Mike Bellart, Graeme Pattie,
 Hayden Chittock: Publicity Brian Killian.
- 1967 Pres Mike Trickett VK3ZNZ: VPs Mike Bellart, Ian Baxter: Sec Bob Wookey: Tres
 Daryl StJohn VK3ZNC: Publicity Hayden Chittock: Com Terry Mitchell, Ray Cowling
 VK3ZUG, Terry Leith VK3ZXY. Librarian Russell Walker VK3ZUC:
 Equipment Officer Graeme Pattie.
- 1968 Pres Ian Baxter VK3ZIB: VP Mike Trickett VK3ASQ: Sec Bob Wookey VK3IC:
 Tres Russell Walker VK3ZUC: Librarian John McKeown:
 Equipment Officers Graeme Pattie, Terry Leith VK3ZXY.
- 1969 Pres Terry Leith VK3ZXY: Sec Bob Wookey VK3IC: Treas Mike Trickett VK3ASQ
 VP Daryl St John VK3AQR: Publicity Terry Mitchell VK3ZZQ: Librarian Bill Mc Lachlan
 Equipment Geoff Gully.

Note. This list has been compiled from various sources. Amateur Radio magazine and Geelong Advertiser notes by club correspondents and my notes and syllabus cards. All official club records of meetings have been lost.

RJH 1997