"The Messenger"

(Of The Gods.)

Official Newsletter of the Royal Australian Signals Association (SA) Inc.

March/April 2009.

Presidents Report.

Dear Members,

I Hope that you have all had a great Christmas break and are looking forward to the New Year. We began 2009 with our AGM held at 144 Sig. Sqn. Keswick Barracks, a very hot day thus our numbers were not as good as hoped, obviously the heat took its toll. I would like to thank those that did attend. This year's Committee is still made up of most of the group from last year and we all looking forward to a great year for our Association.

Due to the recent RASigs reunion here in Adelaide we have approximately $12,000 in our account some of these monies being held in a Term Deposit. It is the intention of the Committee to use some of these funds to increase membership and subsidise functions as much as possible. If any member has an idea they would like to pass on regarding the future of the Association please contact myself of one of the Committee.

The Committee have organised a number of functions for this year and I hope that you will be in position to attend at least some of them. There will be more functions than other years and that means more opportunities for you, the member to get involved. It is our intention to promote more contact with 144 Sig. Sqn. members and hopefully encourage and gain their membership. One of the functions is the Presidents Luncheon which was a great success last year so we intend to hold it again this year. Please read the calendar events in the "Messenger" to see the date. The next major function will be Anzac Day, the "Messenger" will carry a run down on where we are going and finishing, please try to catch up with the group.

The Committee are continuing to set-up the area given to us by 144 Sig. Sqn. with memorabilia and the unit have committed radio and antenna equipment to the room. It is really going to look great when completed, definitely a place to visit to see this memorabilia and equipment. We will advise you of the opening date ASAP.

I hope to see you all soon.

Bruce Long. President RASigs Assn (SA)

8248070 Trooper Mark Gregor Donaldson VC.

Trooper Mark Gregor Donaldson was awarded the Victoria cross for conspicuous acts of gallantry in circumstances of great peril during Operation "Slipper" in Afghanistan.

On 2nd September 2008 Trooper Donaldson was travelling in a combined Afghan, United States and Australian vehicle convoy that was engaged by a numerically superior and organised enemy ambush. The convoy was subject to heavy and sustained machine gun fire plus rocket propelled grenades.

The effect of the enemy fire was to cause a number of casualties and to tie the combined patrol down. It was over two hours before the convoy could break away and move to an area free of enemy fire. During the early stages of the ambush Trooper Donaldson acted with great courage exposing himself to enemy fire and firing on the enemy with anti armour weapons and his M4 rifle. This action allowed the wounded soldiers to be moved to relative safety.

During the extraction, all the space in the vehicles was taken up by the casualties so those soldiers not wounded including Trooper Donaldson had to run beside the vehicles. During this manoeuvre a badly wounded coalition force interpreter had inadvertently been left behind. Of his own volition and with complete disregard for his own safety Trooper Donaldson while under fire moved alone on foot across exposed ground to recover the wounded interpreter.

Trooper Mark Donaldson enlisted into the Australian Army in June 2002. After recruit training he was posted to the First Battalion The Royal Australian Regiment. In 2004 Trooper Donaldson was successful in obtaining selection to the Special Air Service and was posted there in May 2004.

The Victoria Cross.

This award is only instituted now and then and is only given for bravery and courage of the highest order, any application for it receiving the highest scrutiny. But during the Zulu Wars in the latter part of the 1800's no less than 23 VC's were awarded. Eleven of these VC's were awarded during the British Army's defence of Rorkes Drift when just over a hundred British and Colonial Troops successfully defended their post against 4000 Zulu Warriors. The movie "Zulu" starring among others Michael Caine depicted this event but there were many inaccuracies and myths presumedly to aid the dramatic effect. The film depicted the unit as a Welsh regiment but it was in reality was the 2nd Warwickshire Regiment hence there was no Welsh Choir or any singing for that matter. There was only one Welshman involved, a

John William Fielding who himself was a recipient of the award. The two privates with the surname "Jones" were from England.

The battle ceased at around 4am on 23rd January 1879, there was no early morning final mass attack by the Zulu's as depicted in the film as they had seen a relief column approaching. Of the eleven VC's awarded two were given to junior officers, five to privates, one each to two corporals, one to the Regiment's Doctor and an acting Commissary. In addition to the eleven VC's awarded there were also five members of the unit who received the Distinguished Conduct Medal.

Fifteen of the unit's members were killed in the action with another sixteen being wounded. Around 600 Zulu Warriors were killed but it is estimated that later many more died from their wounds. The Zulu's main weapon was spears but some did have stolen muskets.

If the film is any guide, the hordes of attacking Zulu's were repulsed by pure fire-power their spears being of little use at range. The soldiers had plenty of ammunition and were armed with single shot rifles. As one line of soldiers reloaded another line was firing.

Where it seemed the greatest bravery occurred was the men who fought the Zulu's that managed to get into the compound. The unit doctor courageously treated the men where they fell and while in the thick of battle. The oldest surviving veteran of the battle at Rorkes Drift was born in 1854 enlisted at the age of eighteen served for most of his life and died in 1945.

The Super-Heterodyne Receiver.

In this case the term "Super" means more than one and the term heterodyne means a radio signal or radio frequency carrier. The "Super-Het" as it was to become known, was developed by E. H. Armstrong who served in WW1 as a Major in the United States Army Signal Corps. Without this principle, receivers whether they are for radio or television, AM or FM would not be what they are today. Amongst the qualities that a good receiver must have there two are of great importance. Selectivity, meaning that the receiver is capable of selecting the signal of interest while rejecting others even if they are nearby frequency wise or in the geographical sense. The other is sensitivity meaning its ability to pick up weak transmissions and make them intelligible.

Prior to the Super-Het, receivers were comparatively primitive and lacked selectivity. If we really go back to basics and consider the simplest of receivers namely the crystal radio set it will help to explain the superior qualities of the Super-Het. Shown here is a circuit for a very basic crystal set (Fig 1) note that only five components are needed, they are:

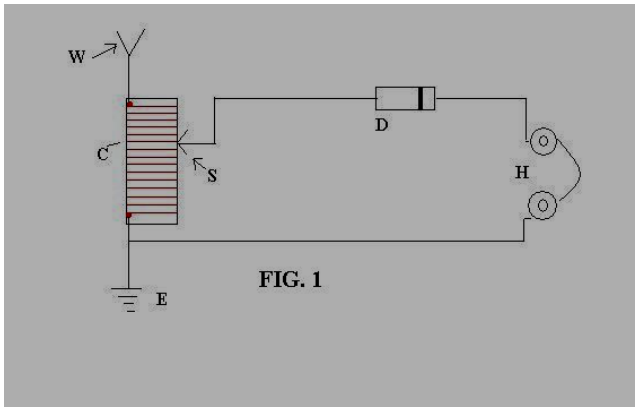

FIG. 1

A nice long wire antenna (W), a decent earth stake (E), A coil of insulated wire (C) of which its length, by way of a sliding contact (S) can be varied, a diode detector (D) and a suitable pair of headphones (H).

Should such a crystal radio be constructed say for the broadcast band one would find that all the stations can be heard simultaneously, the adjustable coil simply not having the ability to receive one and reject the others. The best that the coil could manage would be, when adjusted, to make one station louder than the other. It is worth noting that the antenna or any antenna for that matter would be receiving millions of signal world-wide and in this case the coil by itself, rejection wise is not up to the job.

What is required is some sort of electronic filter (F) connected in between the coil and diode (Fig. 2) to reject the unwanted signals. But therein lies a problem, a suitable filter could be constructed but it would need to be able to vary its frequency as a different station is tuned in. This could be done but it would make the receiver cumbersome and perhaps unreliable to use as not only would the operator have to vary the sliding contact but also adjust the filter every time there is a change in the listening frequency. No doubt experimenters and Boffins in the early part of the 1900's found ways to manage this EG having the filter track, by mechanical means the rise or fall in frequency. With Armstrong's method it was a "Cut to the Chase" situation his development becoming the Norm and it still is. His answer was to have a fixed frequency filter but how? Enter the Super-Heterodyne Receiver!

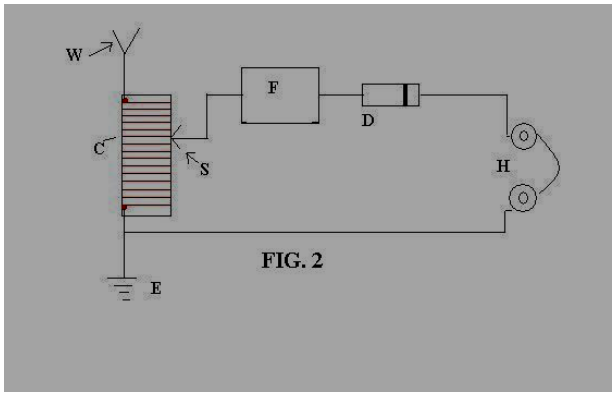

FIG. 2

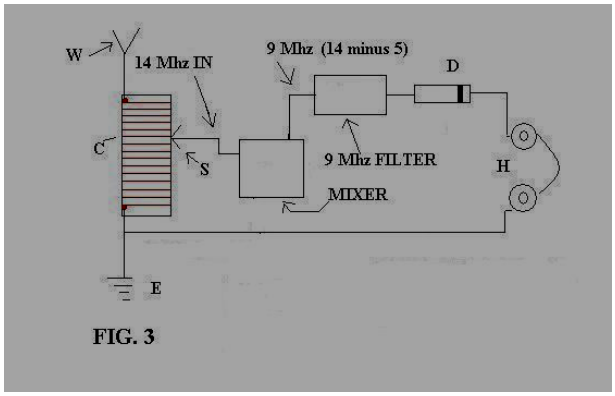

FIG. 3

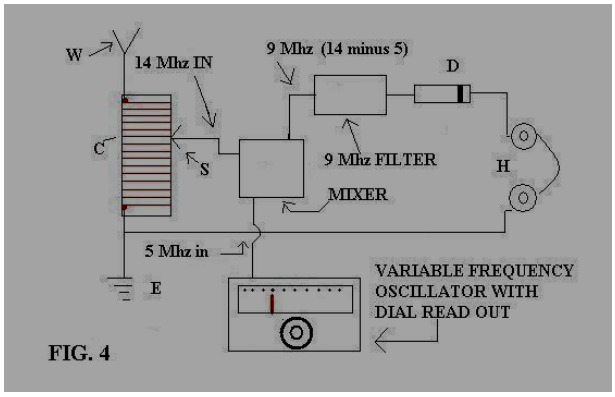

FIG. 4

Mix two colours together for example yellow and blue the result would be green. Mix two frequencies together for instance 14 Mhz and 5 Mhz we get two different frequencies but one for the purposes of our example would be the difference between the two, that is 14 Mhz minus 5 Mhz equals 9 Mhz. The arithmetic is simple but later we find that it can be a little "Quirky".

So returning to our diagram of the simple crystal set now with a filter (F) added (fig 2) we insert a radio valve or transistor between the coil and filter to act as our mixer (Fig. 3). We have a 14 Mhz signal coming in through our antenna and then into the mixing valve or transistor. We also inject a 5 Mhz signal (Fig. 4) into the same mixing valve or transistor. That 5 Mhz signal or "Heterodyne" is generated by a variable frequency oscillator which in reality is just a very low powered transmitter producing a few milli-watts.

The original coil connected to the antenna no longer selects the signals of interest but serves, by adjusted the sliding contact to make the signal heard more powerful (Sensitivity). The main tuning now is via the variable frequency oscillator which would be mechanically connected to a dial of some sort as an indication of the frequency it is tuned to.

So exiting the mixer is now 9 Mhz (14 minus 5) so we can go ahead and design a fixed frequency 9Mhz filter which has, frequency wise, a narrow response (Selectivity). The information on the 14 Mhz signal is still present when it is mixed with 5 Mhz and becomes 9 Mhz.

One might ask well what's the point of all this? How can the frequency of the filter remain fixed when we need to change our listening frequency. Well! Here's what happens.

We are listening to the signal on 14 Mhz with the oscillator on 5 Mhz thereby "Converting" our signal to 9 Mhz. There is another signal nearby on 14.1 Mhz which has been through the antenna, coil and mixer and is present at the filter input but it doesn't get through so we can't hear it-why?

14.1 Mhz minus our oscillator frequency which is still set at 5 Mhz is 9.1 Mhz, well outside the narrow frequency response of the filter so it will reject it easily. If we now tune to the signal on 14.1 Mhz which we do by varying our oscillator frequency up to 5.1Mhz (14.1 minus 5.1 equals 9) we find that now we can hear it but the signal we were listening to before on 14 Mhz now is not audible why? Because 14 minus 5.1 equals 8.9 again easily rejected by our 9 Mhz filter. A simple principle yet brilliant and as previously stated the arithmetic is easy but can be a little quirky.

Perhaps the key to understanding this is to remember that the frequency selection is now via an introduced source, that is the variable frequency oscillator. As the frequency desired rises so must the variable oscillator frequency rise proportionately therefore the filter frequency remains the same. Other signals nearby or further up or down the band when mixed with the 5 Mhz are present at the input to the filter but don't add up to 9 Mhz so are rejected. The following table may clarify things a little further.

Frequency of interest	**Variable oscillator is set to**	**Mixed Frequency is:**
14 Mhz *	**5 Mhz**	**9 Mhz (14 minus 5)**
14.1 Mhz	**5.1 Mhz**	**9 Mhz (14.1 minus 5.1)**
14.2 Mhz	**5.2 Mhz***	**9 Mhz (14.2 minus 5.2)**

Note the two items marked with an asterisk as an example. With the oscillator set at 5.2 Mhz 14 Mhz is not audible because the mixed frequency calculates to 8.8 Mhz and so is rejected.

Another approach is to consider that to achieve selectivity in a receiver frequency variation is essential either with the filter or the variable oscillator. A variable frequency filter proved to be less than suitable but a variable frequency oscillator did prove to be a practical and reliable device so perhaps it could be said that Armstrong substituted one for the other. His first invention was applying the regenerative affect in the early primitive receivers which entailed feeding back and "injecting" some of the energy produced to improved amplification and sensitivity. Perhaps this method of "Injecting" electrical energy into a radio circuit ultimately led him to the idea and the development of the " Superheterodyne Receiver"

Major Armstrong was born in 1890, served in WW1 and died in 1954. He was also attributed with the development of FM radio. He became interested in radio as a teenager being inspired by Marconi's work in bridging the Atlantic Ocean in 1901. The British patent for the Super-Heterodyne receiver was applied for in 1918. Frequency "Conversion" as is it is generally known is a phenomenon and demonstrates how nature serves. Without its presence in the natural order of things Radio and Television in all its forms would not be as it is today. In post WW2 Armstrong became embroiled in litigation with a. broadcasting company the effect on his health being such that he committed suicide in 1954 by jumping out of the thirteenth floor of a skyscraper.

Anzac Day 2009.

Arrangements for this year are similar to preceding years. Commencing at 0700hrs. Association members are invited to a "Gunfire Breakfast" held in the OR's Mess Keswick Barracks. From there it is only a short stroll to our memorial to join the Commando and AATTV Associations for a brief remembrance service commencing at 0830 Hrs Sharp! Experience has shown that afterwards members will have plenty of time for travelling to and parking in the city before forming up.

The Signals Contingent will be lead by Brig. Max Lemon AM. Rtd. The forming up point is within group 10 the location being in Grenfell St. just East of Hindmarsh Square. The release point is in Sir Edwin Smith Avenue. The route takes us right into Pulteney Street and then left into North Terrace and right into King William Road. Forming up for group 10 commences at 0930 Hrs. Generally it's an hour before our group begins marching thus making an excellent opportunity for a "Pre March" reunion. Units/groups salute at the State National War Memorial, The South African War Memorial and at the Official Dais. Units/groups are asked to disperse quickly at the release point.

Generally the after march reunion will comprise of a visit to the Torrens Parade Ground and then on to the Union Hotel in Waymouth Street. This street will be closed to traffic and food will be available for purchase.

Anzac Day arrangements for 2009:

Commencing at 0700 Hrs: "Gunfire" breakfast at the OR's mess Keswick Barracks.

At 0830 Hrs "Sharp": Remembrance service at our Association's memorial in Keswick Barracks.

At 0930 Hrs: Forming up in Grenfell Street. (Group 10 just East of Hindmarsh Square)

At 1130 Hrs: From the release point travel to the various reunion venues.

To our new members. "Max" Merrett.

Dale Goldfinch.

Ron Fredericks.

Geoff Roberts.

RASigs Assn (SA) AGM 2009.

At our recent AGM the following members were elected to the Committee:

President:	Bruce Long.	**Vice President:**	Andrew Graves.
Secretary:	Sally Napper.	**Treasurer:**	Sharon Letton.
Membership:	Dean Hudson	**Website:**	Michael Southern
144 Sag Sqn Liaison:	Daniel O'Connel	**The "Messenger"**	Godfrey Williams:
Social & Memorabilia.	Steve Uppington and Chris Antony		

RA SIGS REUNION VIETNAM NOVEMBER 2009.

As reported in the final "Messenger" for 2008 registrations are now being accepted for this important event to be held in the country of Vietnam from the 5th through to 9th of November 2009. All ex and serving members of the Royal Australian Corps of Signals plus their families are invited to this reunion. There is no registration fee but full payment is required by 30th June. For further and detailed information go to the Web Site **http://www.rasigsvietnam.com/**

RA SIGS REUNION 104 SIG SQN (ALL SIGS WELCOME)

This event is planned for the year 2011 (Gold Coast-Date TBA). For further details go to **http://www.au104.com/**

CHEAPER FARES FOR SENIORS.

From January 1st this year a national scheme begins to roll out to allow seniors to use their concession cards on public transport outside their home state. The Federal Government is providing funds to the State Governments to cover the overall cost. There is no indication so far as to when the scheme will be fully operational but it is expected that eventually over three million Australian Seniors will benefit.

Vale: **Suzanne Hyde (Nee Johnson) Former WRAAC.**

It has come to the attention of the Association that Jeff and Suzanne Hyde tragically perished in the recent Kinglake bushfire. Suzanne served in 4 Sig Regt. RASigs during the 1970's and was possibly a OK or an OKC. No other details are available at this time. If anyone knew Suzanne and perhaps has a unit photograph of her, a copy would be gratefully received. If you can help please contact Phil Edmonds, PO Box 203, Kinglake, Victoria 3763.

RASigs Assn.(SA) Social Calendar for 2009.

All members and partners/guests most welcome.

The following activities are planned for the coming year.

Regularly on the last Thursday of every month (6PM) commencing on the 30th of April a social catchup and/or dinner at the Goodwood Hotel.

25th April : Anzac Day March and Reunion. (See this issue for details).

Wednesday 6th May: Tour of Transport SA Traffic Control Centre.

Saturday 23rd May: RASigs BBQ and get together

Friday 5th June: RASigs Golf day.

(Calendar continued next page)

RASigs Assn. (SA) Social Calendar for 2009 (Continued)

Sunday 2nd August: RASigs Car Rally.

Sunday 16th August (Date to be confirmed): Amateur Radio Day at the Radio Room 144 Sig. Sqn.

Saturday 19th September: Sports Day-Cricket-144 Sig Sqn vs RASigs Assn. (Venue TBA)

Saturday 26th September: RASigs Presidents luncheon.

Saturday 10th October: RASigs Formal Dinner.

Sunday 29th November: Tenpin Bowling.

For the activities proposed for the 6th May, 23rd May and the 5th June contact the President for further details and to register your interest. For the subsequent listed activities further details will be available in the next issues of the "Messenger".

Association and Committee contact details.

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Membership Secretary: Dean Hudson Email: dean.hudson@bigpond.com

Treasurer: Sharen Letton Tel. 0417 874 108 Email: Sharen.Letton@dfc.sa.gov.au

Publisher: Godfrey Williams. Tel. 8255 3080 (Changed) Email N/A

144th Sig. Sqn. Rep. Doc O'Connell Tel. 0419 86 6984 Email: daniel.oconnell1@defence.gov.au

Website: Michael Southern Tel. 0418 956 915 Email: msouthern@southerns.org

Contributing: News, articles etc. Send via the Secretary or Publisher.

The Association's website address is: www.rasigs.com

Paypal is available for convenient payment of your Association subs.

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