

Volume 33 No. 2 October 2023

S.A. Group Newsletter

Inside Story: These two inventions were developed over 60 years apart.... What do they have in common?



It's an intriguing story, written 60 years ago that has great relevance today...



Announcing Our Newest HRSA-SA Life Member John Crawford Conferred by the National Committee at RADIOFEST – September 2023



In John's own words.....

What a surprise. I feel so very much honoured, and at the same time it has been very much a team effort to support the hobby from which we all gain so much enjoyment.

Before becoming a teenager, I was interested in electronics, and while still at high school I undertook the WIA training for a ham license. I enjoyed their course work, but found the morse code, and the idea of the license were not quite my thing, so I never applied to sit the exam. At the university I found the third year Physics electronics approach almost trivial as the course only managed to get from Child's Law and the thermionic diode into the characteristics of the triode. Circuit function, transistors, solid state diodes and semiconductors never managed to get a mention. So, when I graduated, I asked one of my high school teachers, who was then working in the Philips personnel department, for a job. After being told that all I needed was "grandmother's brains" (i.e., common sense) I started on OC71 assembly as a probation engineer looking into the mysteries of transistor manufacture. My hobby had turned into my job! The real challenge to understand it all came when I was asked to help at TAFE night school, supervising practical classes and teaching Industrial Electronics to help the electricians at the Holden factory nearby to understand the newfangled electronics in their welders etc. It forced me into really understanding electronics enough at least to be able to try to teach it.

I moved on into integrated circuit design, and finally design management, finding my hobby had turned into a life career. That is until I retired: a couple of years into retirement I decided the hobby element was missing, and the HRSA came to the rescue.

I really do feel that to even be considered for this honour is undeserved. Things like this should not come from just having fun. Thank you and thank you to the committee as well. I really do enjoy working with such a delightful team with such a varied and wide range of interests.

Best regards,

John

Historical Radio Society of Australia Inc. – S.A. Group

Web Site: www.hrsasa.asn.au

All correspondence should be addressed to the Secretary, HRSA-SA Group, 2-13 Chester Street, Glenelg South, S.A. 5045.

Committee for 2023-24

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Co-Opted Additional Members/Responsibilities:

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Planned meetings for the next few months:

Sunday 29th October

1:00pm to 3:30pm

ETSA Museum Visit – NOTE: \$5.00 entry fee p.p.

After being postponed in 2019 due to Covid-19, this visit could be a future opportunity to work with ETSA volunteers to help with their collections, especially of radios and other domestic products. *To be held at:*

ETSA MUSEUM

Sir Thomas Playford, ETSA Museum

31-33 Broughton Avenue, Kurralta Park, SA, 5037

Wednesday 8 November 12 noon for a 12:30pm start MEMBERS LUNCHEON

Formerly known as the "Retirees Luncheon" it is open to all members, partners, and guests. *To be held at:*

The Reepham Hotel

273 Churchill Rd, Prospect, SA, 5082

Sunday 26 November 1:00pm to 3:30pm Valve Testing Workshop and Competition

- Interpreting valve codes: What do the letters and numbers mean?
- Understanding valve equivalents.
- Octodes (Graham)
- 3 working valve testing machines will be set up in the hall. Members can test up to 3 valves brought from home.

To be held at:

- St. Cyprian's Church Hall
- 70, Melbourne Street, North Adelaide, SA, 5045

Saturday 16 December (Avoiding the second Saturday of December) 12noon for 12:30 start CHRISTMAS LUNCHEON For MEMBERS AND PARTNERS – Again this year, Lunch will be subsidised by the club, so book early! To be held at: The Maid of Auckland Hotel

926 South Rd, Edwardstown, SA, 5039

A note about our next meeting on Sunday 26th November:

There appears to be a little confusion about our next meeting which is titled **"Valve Testing Workshop"**. This is a working title – the meeting is NOT just about testing using a valve testing machine! It will encompass the following areas:

- An introduction to the way valves are named, ie/ what do the letters and numbers mean, such as ECH35 and 6V6GT
- How do we recognise the different types? What are their characteristics and purposes? Why do some valves have top-caps while others don't?
- Can we look at a box of unmarked valves and make an educated guess about what a particular valve might be?
- There are lots of ways to "test" valves that don't require a valve testing machine....
- What are some common valve equivalents? Can we swap one valve for another? What about military valves? Do they too have regular equivalents so that we can use them?
- What are "OCTODES" are they useful?
- We'll have a quiz about valves, like we did at the last meeting which was very entertaining!!
- Three valve testing machines will be set up in the hall and members can bring up to 3 valves each and have them tested. *This will happen at the end of the meeting so those without valves can leave.*



SECOND REQUEST FOR HELP:

We still have an unclaimed radio!

While cleaning up St. Cyprian's Church Hall on Sunday 30th July, after the AGM and Auction, we found that someone had left behind one of their purchases!!

This particular item cost our unknown buyer \$20.00

If it was you – please contact the Secretary, Ian Smyth on 0488-488-776 and let us know what it was. If your description matches our object, then we'd love to re-unite the two of you. If it is not claimed in the next month, it will be put into the next Auction and sold again!

Bookings are now open for the HRSASA Christmas Lunch:

SATURDAY, 16th DECEMBER – 12 NOON – Maid of Auckland Hotel

As per the timetable above, the lunch is open to all members and their families. This is an opportunity for partners and friends of members to meet and socialise.

- As in previous years, the HRSASA will subsidise the cost of all meals, *but you MUST book and pay in advance*.
- We will be enjoying a three-course meal: Entrée (choice of 2), Main course (choice of 2), Dessert (also choice of 2) with vegetarian options as well. Members will pay for their own drinks at the bar.
- The cost to each member will be only \$20.00 per person.
- You can pay in person at the next two meetings in October and November, or
- You can pay by direct debit into the HRSASA bank account using the following details:
 - o ACCOUNT NAME: Historical Wireless Society of SA
 - o ACCOUNT NUMBER: 150253813
 - o <u>BSB NUMBER</u>: 633108
- Please write your MEMBERSHIP NUMBER and the word XMAS in the description at the end of the payment so we can tell who send the money and for what purpose.

Wanted to Buy, Sell, or Exchange

Are you looking for a hard-to-get part? A strange knob, or a replacement coil? Have an item that you'd like to sell? Why not place a free, classified advertisement on our website? Go to the TRADING POST page of our website at: <u>https://hrsasa.asn.au/page-16/</u> and have a look at what's on offer right now and help a fellow member. It changes frequently. *Why not make use of this resource yourself*?

You could also place a free classified advertisement in the "yellow pages" section of our National HRSA Magazine "Radio Waves" and reach an Australia-wide audience. Just contact the Editor, Ian Batty on 0402 736 527 or send it in by email to: <u>ianbatty311@gmail.com</u>

PHOTO GALLERY:

Presentation to John, Training Stories with Claire and ABC Stories with Graham plus a Quizz

- Highlights from our last meeting on Sunday 24th September 2023





<u>Above:</u> John was presented with his award by Tony Bell, who had accepted it on John's behalf at the RADIOFEST dinner on 16/8/2023



<u>Above</u>: Audience enjoying Claire's stories about training PMG/Telecom/Telstra apprentices, and Graham's stories about his early days at the ABC



<u>Above</u>: We heard about the pre-Collinswood days at the Hindmarsh Square studios



<u>Above:</u> Many adventures were had on the road with the radio "Outside Broadcast" van



<u>Above</u>: Quizz Question 25 was a stumper..... "Who invented this, and how many were made...."?

AZTRONICS – RELOCATED AND NOW OPEN

HRSA-SA Group Valve Bank:

The SA Group Valve Bank, containing our stock of over 20,000 valves has been relocated from the old AZTRONICS Store where it has been since February/March 2015.





Note the Google Maps distortion of the spelling?

The new AZTRONICS Store, is located right next door in the red brick building. However, there is not enough room to house the whole collection and provide us with a room where we can sort and test the valves we sell.

AZTRONICS will continue to be our "retail outlet" (and point of collection) for valve sales to members and the public. The stock held at the shop will be topped up from the reserve stock that is now being sorted and collated at a couple of different locations.



Photos from RADIOFEST – Melbourne, September 2023



<u>Above:</u> 1960's Astor 17" T.V. with a white "marble" Bakelite AWA Empire State radio on top.



Above: Looking across the main hall from L to R



<u>Above</u>: The "class auction" being held on Saturday morning



Above: Looking across the main hall from R to L





<u>Above</u>: This corner featured 20 to 30 green Bakelite and plastic radios of varying brands and styles.



<u>Above</u>: "Green Theme" creators, Alistair Craill (SA) and his mate, Laurie Harris (Vic) won 1st prize for "Best Exhibit".



Above: Left cabinet featured 3 different models of green Astor Mickey radios.



<u>Above</u>: Laurie demonstrating his Tasma 780 farm radio with re-packed batteries! 2 x 45v and 1 x 1.5v (The radio is really green not blue!)



<u>Above</u>: Right cabinet of green radios featured a green 1946 STC Bantam radio.



<u>Above</u>: The Centrepiece was a jade-green Bakelite AWA "Empire State" radio on a rotating plinth!





<u>Above:</u> Rare green 1949 Scharnberg Strauss model 41 from Ernsmith's in Adelaide.



<u>Above</u>: Out in the main hall, a collection of 1920's radios



<u>Above</u>: Rare green STC Bantam model A141 from 1946.







<u>Above</u>: Lots of old and rare early radios on display in the main hall.



<u>Above</u>: Lots of spare parts and reproduction parts for sale to members out in the main hall.

You can see a walk-around video from Radiofest on YouTube. Copy and paste this address into your browser, or click on the link: <u>https://www.youtube.com/watch?v=dkIWQwrkp-w&t=19s</u>

Or you can see a great collection of still photographs on the homepage of Kevin Chant's website at: <u>https://www.kevinchant.com/</u>

Looking for a good read...or maybe an idea for a Christmas Gift?

Dick Smith has had a great association with the HRSA over many years. He's spoken at HRSA meetings in Victoria and perhaps one day we might entice him to visit SA!

I've just read his autobiography and loved it. It has been out for a while now, but I thought it might strike a chord with our SA Members. – *Editor*.



Dick Smith is a remarkable Australian and this is a book combines the three strands of his amazing life - those of businessman/entrepreneur, adventurer, and philanthropist.

The story of Dick Smith Electronics is fascinating - especially so for the sense of Dick's talent, his vision, his motivation, and instinct. There is a lot to learn, not necessarily about building a multi-million-dollar business but doing what you were put on this earth to do. His exuberant life is a combination of very hard work, an insatiable appetite to learn and the courage to follow his gut and back himself.

As for the adventures, they started early. Like Dick Smith, I too was a member of the Scouting Movement so I related to Dick's early discovery of the bush and his desire to explore, preserve, and promote the wonders of Australia's natural environment. Dick's wealth enabled him to do what I'm sure he would have done all his life anyway.

Aviation gave Dick the opportunity to go global in his adventures. His love of helicopters meant that he travelled hundreds of hours "...flying at 500 feet to get the best view." As I read about his remarkable achievements it was clear that the numbers were secondary. He was blown away by the natural beauty of what he saw along the way.

Dick's philosophy of wealth is fascinating. One could say, "Easy for him." But when one chapter ends with, essentially, "We sold Australian Geographic for \$41M. I didn't start it for a profit. I thought it would lose money. Anyway, we've given all that money away..." - that's utterly gobsmacking! And challenging to us all, to consider our own assets, how much we really need to live and what we should be sharing.

That's the other element of Dick's life - his philanthropic endeavours. He's not a handout man, he certainly recognises need and enterprise and sees his wealth as a resource to wisely share. Even his approach to paying tax is refreshingly patriotic. "Do it. Don't you like hospitals and roads and schools?"

This is a story of amazing people with an amazing story and an utterly genuine, uniquely individual approach to the opportunities that life has presented to them.

This book is very readable, fascinating, and is an enjoyable adventure story of one Australia's most remarkable characters.

Component Corner

Many new members are probably wondering where to obtain components and valves. The following is a list in order of preference:

HRSA-SA Group Shop: We are working towards a new arrangement for our store. In the meantime, contact our Secretary, Ian Smyth on 0488-488-776 to enquire, or place an order. Ian's email address is: sec@hrsasa.asn.au

AZTRONICS, 170 Sturt Street, Adelaide. Houses the HRSA-SA Group valve bank and modern components. They will source components for members. Great supporters of the HRSASA.

HRSA Melbourne (see *Radio Waves*) Houses the Victorian HRSA valve bank and odd passive components and kits, plus resource books written especially for members.

WES Components, Sydney. The catalogue is viewable on-line, and orders can be placed through the Shop Keeper/Secretary, as the SA Group has an account, through which we get "trade discount". Go to: https://www.wes.com.au to see all their products.

What's happening with the HRSASA Shop?

Further to the advertisement above, the shop will continue, but in an altered form. At our meetings, you will still be able to purchase a wide range of parts such as 600v high voltage capacitors; dial cord; cloth covered mains cable (with or without plugs); 5 metre lengths of coloured hook up wire, and a range of other items.

We are very grateful to Rob Olding who managed the store for many years and built it up to be the valuable resource to members that it is today, hence our desire to continue with the service. Thank you, Rob!

Alan Taylor has consolidated the large boxes into a smaller travelling Attache case for bringing to meetings, but all the extra stock will be kept at our new valve-bank sorting room on Morphett Street in the city. (More details about this development later...) We have reduced the number of lines available for sale (a) due to low volume of sales, such as resistors, and (b) we don't wish to compete with Matt at Aztronics in Sturt Street who continues to sell valves for us. We hope to only sell items that Aztronics do not, such as specialised 600v capacitors and other items more specific to our hobby. We would encourage members to continue to support Aztronics for all other items. The new shop is up and running and is well worth a visit. Once things have settled down at the Valve Bank, we hope to be able to prepare a new, up-to-date list of items available for purchase from the store, and perhaps begin a mail-order service. We hope that the long-awaited Knob Bank will also be able to operate in partnership with the Valve Bank.

In the meantime, several new members have asked about their restoration work and inquired about the sort of spare parts they might need at home for general repair work, especially when replacing old-style capacitors and resistors as many of the old values are no longer available.

It is convenient to have a range of capacitors and resistors on hand before you start! For our hobby, all non-electrolytic capacitors should be high voltage working, say 450v for general use. A high working voltage component can be used in low voltage situations, but the reverse is DEFINITELY not the case! A list of suggested values of tubular, or metal-propylene & plastic capacitors, and electrolytic capacitors, used to replace vintage capacitors is given below:

OLD VALUE	REPLACE WITH
0.001 uF paper/wax	0.001 uF
0.01 uF paper/wax	0.01 uF
0.1 uF paper/wax	0.1 uF or 0.015 uF
0.2 uF paper/wax	0.22 uF
0.25 uF paper/wax	0.22 uF
0.3 uF paper/wax	0.33 uF

1. Non-polarised brown paper/wax capacitors

2. Polarised Electrolytic capacitors

Old Value	New Value
25 uF low volts electrolytic	22 uF x 50v
25 uF x 350 v rating	22uF x 450v
30 uF electrolytic	33uF x 450v or 600v
40 uF electrolytic	47 uF x 600v

Note that high voltage electrolytic capacitors used for smoothing and especially reservoir purposes should have a ripple rating printed on the case. Ripple is the small proportion of AC still present after rectification to DC by the rectifier valve, hence the need for capacitors to be made to withstand this ripple, which causes heating. As a general rule, avoid very small high-value capacitors as they are unlikely to be suitable for radio restoration work. They are more suited to computer work.

Pico-farad (pF) value capacitors (usually brown square Mica capacitors) will be found in the RF and IF stages of old radio receivers. These tend to be more reliable than the tubular wax/paper capacitors but can be replaced if necessary. These can be purchased from Aztronics or Jaycar as the values used in radios can vary considerably.

Resistors come in a range of preferred values and in wattage ratings from fractions of a watt to 3 watts in old radios. For our type of work, 1-watt types will be found to be the most useful and as they are physically smaller, they can replace lower wattage vintage ones. When replacing resistors in values higher than 3 watts, it may be easiest to use modern white ceramic-coated wire-wound resistors. Remember to fix wire-wound resistors securely and locate them apart from other components as they will generate heat.

Finally, some resistors may be hard to replace with direct equivalents. Choose the nearest preferred value or make up the value by using two resistors in series, in practice, it will be found that often, quite wide variations in value have little effect – after all, standard old carbon-stick resistors were made with a tolerance rating of 20%!!



This story was heard on breakfast radio this week in Adelaide......

A Texan farmer met his match after boasting incessantly about Texan farms to an Australian farmer while on a vacation in South Australia.

A Texan farmer decided to leave home and make a trip to Australia for a vacation. When he got to S.A, he visited Yorke Peninsula, and crossed paths with a local farmer, and they got talking about their work. Proud of what he had; the Aussie showed the Texan farmer his vast wheat field. The Texan scoffed and told his new companion that there were wheat fields **twice** as huge as that at home.

Not discouraged by the Texan's quip, the Aussie farmer took his new friend around the property. As they walked around, he showed off his cattle to the Texan farmer.

Once again, the Texan was unimpressed and boasted that they had longhorns that were **at least twice** the size of the cows they were looking at.

At that point, the conversation was almost dead until they came across a herd of kangaroos hopping through the field. The Texan was astonished and immediately asked the Aussie what they were. The Aussie looked at his companion incredulously and deadpanned: "Don't you have any grasshoppers in Texas?"



<u>ADVANCED NOTICE</u>: After a slight delay, this Private Sale, will now be coming up in November.



Recently, we were asked by a family at Willunga to assist with disposal of a collection of 20 to 30 radios which were brought to South Australia by a New Zealand family. The radios were featured as décor in the "Farm Café" at Willunga owned by the family. Earlier this year, the café was closed, and the radios moved to the family garage (some of the radios are in the picture on the left).

The family wish to dispose of the collection and HRSASA members will be given the first opportunity to purchase them at a "Sale Day", to be held at the family property in Willunga, originally in September this year (but now delayed until November.) We will keep you informed when the date and location are finalised, but these are all in excellent condition and complement our Australian radios.

From the Front Cover:

A HIGH-SPEED COMPUTER NO BIGGER THAN A T.V.

- Reproduced from "Radio Television and Hobbies" magazine, July 1957.

A high-speed digital computer, not much larger than a home television set and requiring less power to operate has been developed at **Bell Telephone Systems** in the USA. This newest addition to the family of "electronic brains" was developed under a US Air Force contract. It had been named "Leprechaun" after the tricky sprite of Irish folklore!

Compared with previous computers, Leprechaun operates with a drastically reduced number of components. Excluding its magnetic cores, it uses a total of about 9000 electrical components, of which, 5000 are transistors. Far fewer total components than almost all computers developed so far. It is the small size and low power requirements of these 5000 transistors that make this computer unique.

Highly Flexible

Leprechaun represents a significant advance in computer design. One of its outstanding features is its flexibility. Its components can be easily connected and disconnected. This allows the computer to be used

as a test model for research on digital computers designed for military applications. Proposed new designs can be laboratory tested using Leprechaun without resorting to design and construction of new equipment each time.

Another feature of this new computer is its transistor-driven "random access magnetic core memory". The machine can take its instructions immediately from its memory, no matter where the desired instructions may be stored! This process differs from that of computers with a "revolving drum memory" which may require time for the rotation of the drum before the instruction can be taken from its place.

Almost instantaneous solutions to the problems it has to solve are provided by Leprechaun since any of its stored instructions are immediately available. Each instruction consists of the operation to be performed, such as addition, multiplication etc., and the location of the data in the memory.

Doesn't forget

The machine can store 1,024 "words" in its memory. These words consist of 18 binary, or dual digits, representing instructions or data to be used in solving problems. In computers, all information is translated into a special code which uses only combinations of 0 and 1. These binary digits can be represented in Leprechaun by the flow or absence of electricity in the transistors, by the direction of magnetisation in the memory cores, or by holes in a punch card, or holes in punched paper tape.

One reason for building Leprechaun, was to demonstrate the feasibility of "direct coupled transistor logic". This is a switching circuit technique in which transistors are used to perform logic, or "brain" operations as well as to provide power.

Compared with previous computers, the circuits of Leprechaun are very simple and easily understood. This is an advantage in engineering and maintenance, since less-experienced personnel are required to keep it in operating condition. Leprechaun's simplicity and small number of components result in small size and weight and will permit the use of automation techniques in manufacturing. All these features ensure greater reliability, which is of primary importance in military operations.

While Leprechaun is still in the experimental stage, the techniques developed are expected to have many future applications.



This article was reproduced from "Radio Television and Hobbies" magazine, July 1957.

Want to buy into an argument???

<u>Statement:</u> "That the mere substitution of a better speaker can make a worthwhile difference to the reproduction of sound from a mantle radio set".

First person's point of view: - It is not possible to get near to perfect radio sound reproduction from an expensive speaker using only a mediocre single-ended amplifier. Obviously, the best speaker in the world can't get rid of distortion which such an amplifier introduces. For example, I have just completed building a "retro" amplifier using two 6BM8's (as described in an old "Radio Waves" radio-building project.) It uses only a cheap output transformer and a modest Rola 8-0 speaker. The difference when compared with a fully restored mid-50's commercial mantle radio is the difference between night and day! You should start at the other end....ie/ build a good amplifier first and then make do with the best speaker you can comfortably afford.

Second person's point of view: - That a better-quality speaker, optimally impedance matched to its transformer and output valve, and good sound baffling can make all the difference to sound reproduction in any mantle radio project.

In fact, both arguments are half-right! – It is rather like the argument about what you should look for when buying a second-hand car. Do you buy one that has good engine and gearbox, the fundamentals, with the bodywork and upholstery being a secondary matter. The other argument is that the bodywork and upholstery often can never be replaced when ruined, but an engine and gearbox are (relatively) easily replaced.

The only thing obvious from such an argument is that both are willing to compromise, and that both would be better off than the person who bought a car with both a bad engine <u>and</u> bad bodywork! In much the same way, the quest for good sound demands attention to both the amplifier and the ancillary equipment. To provide either one without the other is to do only half the job.

But that doesn't say that an improvement anywhere in the system won't be noticeable or worthwhile. Undoubtedly, the first person's home-built amplifier will deliver a more liberal and better-balanced signal than the Bakelite (or even wooden box) mantle radio with the inevitable result that it sounds better. But don't lose sight either that the second person achieved better results by using a (possibly) slightly larger, well baffled speaker with a good quality output transformer. Person 2 would have recovered a whole realm of bass response and some of the treble, which must have been missing from the original "general purpose" speaker, small output transformer, and no baffling.

However, one of the greatest dangers in adding a high-quality speaker to a poor receiver or amplifier is that it will make audible gross distortion which might be present.

Things like inadequate AVC, a badly designed detector circuit, or a faulty coupling capacitor can cause distortion which can be distressing through a wide-range speaker system. But then I assume that person 2 would have made sure that the set was working properly before going to the trouble of adding the new transformer and speaker!



HRSA-SA Group - Amateur Radio Call-Back Network



In 2020, when our HRSA-SA Group was unable to hold meetings due to Covid-19, a small group of licensed radio amateurs decided to hold a local call-back net.

The first broadcast was on the 26th of April 2020. Although the ban on meetings was soon lifted, the broadcasts have continued and as we approach the completion of our third year, we have had over 147 broadcasts.

While the aim is primarily for HRSA members, non-members are also welcome, the more the merrier. The group has a small band of listeners who either do not have the required licence or do not have transmitting facilities. Topics generally centre around historic radio, or activities coming at HRSA events, plus a range of widely varying content, can be heard.

For those licenced amateurs and those that would like to listen to the broadcast and have the correct facilities the details are:

Wednesday Nights (each week) – Starting at 2000 hrs.

On VK5RAD repeater (Crafers) on 147.0 MHz. (Note: We will remain with the Crafers repeater until the Houghton repeater is fully upgraded and operational.)

There are generally two full rounds and a quick "wrap-up" round.

New participants are most welcome.

So why not tune in and listen, or join in the conversation?