MARKETPLACE

Advertisements for the next issue must reach the Editor by the 16th October 1995. Ads should be either hand printed or typed on a separate page. Note: no verbal or phone ads will be accepted. Remember to include your name, address and phone number. There is no charge for ads but the NZVRS is not responsible for transactions between members. Address ads to;
Ian Sangster. 75 Anawhata Road Piha R.D.1. New Lynn. 1232. New Zealand

AVAILABLE

Combined Garage Sale Sunday August 20th 12.30 to 3.30pm . Feel free to include any radio bits you have to sell, swap or show. Bob Cook's place, address below.

Airzone 554 Radiostar (see 550 p148 *More Golden Age*). AWA 163 5 valve console in very original order. (see p.152 *Golden Age*). AWA Radiola escutcheon, dial cover and badge suit R52 etc. old and unused $35 + P & P. Atwater Kent 165 replica grille fretwork $45N.Z. + P & P.
Bob Cook 3/475 Blockhouse Bay Rd. Blockhouse Bay Auckland. Ph.6266241.

Radion 6AW 6valve d.w. (see p.106 *More Golden Age*) Goes well. $300.
Bill Lambie Ph. 5678840 Lower Hutt.

Free. Various bits and pieces, chassis, turntables, speakers etc. Grahame Lindsey, address below.

Early american, English including side contact EF-AZ series valves from $2 ea. Vast quantity of radio knobs early Marquis, Union, A.K., Radio Corp. and Radio Ltd. Columbus ship design sets and Courtenay bakelite or wooden sets. Single knobs $5ea. sets $25.E.M. speakers 5", 8" and 10" Rolas and Radio Ltd. $10ea. Radio and console restoration now at Grahame Lindseys 110 Sylvan Ave. Northcote. Ph.09-4192033.

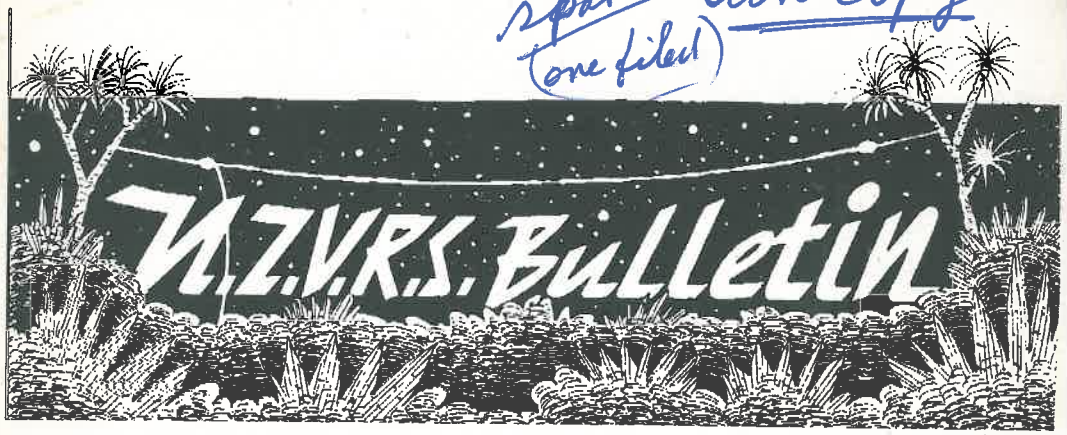
BOOKS

The Zenith Trans-Oceanic: The Royalty of Radios. A 160-plus page book in A4 size format from Schiffer publications covering Zenith portables from 1940 to the 1960's will be available shortly from the NZVRS Treasurer at approximately $30.00 plus postage. N.Z. members only.

NEW MEMBERS

D.Williamson	Fielding	K.J.Hayes	Cromwell
W.Bull	Christchurch	A.J.Taylor	Invercargill
I.P.Johnston	Tokoroa	R.Osborne	Tauranga
K.L.Philpott	Auckland	D.J.Klarich	South Australia
N.M.Barnett	Auckland	B.F.Tipler	Stratford
B.Palmer	Auckland		

Spare Own copy (one filed)



NEW ZEALAND VINTAGE RADIO SOCIETY
Vol.16 No.2 August 1995

A royal wedding photo sent via the N.Z.Post Office Radio Picture service. Attempts made by the operator to bring up detail of the gown but this one really only produced smudges.

NEW ZEALAND VINTAGE RADIO SOCIETY

A non-profit organization devoted to the preservation of early radio equipment and associated historical information.

PRESIDENT; Alf Veart
25 Kendrick Place.
Blockhouse Bay Auckland 1007.
Phone 09-6279068

SECRETARY; Mark Thomson
7 Danbury Drive
Torbay Auckland 1310
Phone 09-4738388

TREASURER; Bryan Marsh
20 Rimu Road
Mangere Bridge Auckland 1701.
Phone 09-6367712

MEETINGS; Regular Auckland of the NZVRS are held on the third Monday of each month at 7.30pm.
VENUE; Meeting room of the Dominion Road Methodist Church (at the rear of the Church) 426 Dominion Road Mt Eden.
AUCTION SALES of vintage items are held quarterly in the months of March, June, September and December at that month's club meeting.
AUCKLAND MEETINGS CALENDAR
See Secretarys Diary page 6.

WELLINGTON AREA MEETINGS
Monthly meeting are held at the Tireti Hall, Te Pene Ave. Titahi Bay at 1pm on the first Sunday of every month. For further details contact Neville Grubner at 2 Peckham Grove Linden Wellington Phone 2326806.
CHRISTCHURCH AREA Contact Russ McKee at 39 Halliwell Ave Christchurch for meeting details Ph. 3525778

THE NZVRS BULLETIN is published quarterly in the months of February, May, August and November. Contributions from members are always welcome and should be sent to the Editor. Opinions expressed by writers are not necessarily those of the society.
BULLETIN EDITOR
Ian Sangster. 75 Anawhata Rd.
Piha R.D.1. New Lynn 1232
FOUNDING EDITOR
John Stokes 281C Hillsborough Rd.
Mt. Roskill Auckland 1004.

BACK NUMBERS OF THE NZVRS BULLETIN; Most issues are still available, though some of the earlier issues are now out of print. Price is $1 each for numbers up to volume 10 and $2 for issues from volume 10 onwards. Postage is extra. Cheques to be made out to NZVRS. Order from John Stokes at the above address.

NZVRS LIBRARY; Members are reminded that our NZVRS library contains a good selection of books plus magazines and newsletters of several overseas societies. A list of publications is available from our librarian: Clarry Schollum
34 Pentland Ave. Mt. Eden
Auckland. Phone 09-6307011.
WAIKATO AREA MEETINGS are held regularly, contact Murray Hall 802 Rolleston St. Thames.
Ph. 07-8688804.

LETTERS TO THE EDITOR

In the May 1995 issue of the NZVRS Bulletin I placed an advertisement seeking any information about a "Waiata Super Five" radio, a recent addition to my collection. I was pleased and thankful that Bill Collerton from Masterton was able to supply me with the information that I required.

The "Waiata" radios were made at the Masterton branch of the Wairarapa Farmers Co-Operative Association. Approximately fifty of these radios were made during the 1941-47 period. Production was halted during World War II. The radios were based on an Exelrad kit set. It is possible that the cabinets were made by the "W.C.F.A.'s" own furniture factory but more probably by Jensen's of Wellington. The dials were made by a Masterton signwriting firm.

I am now seeking information on Sandison radios built in Wellington by K.S. Irvine Ltd.

E.J.Matich
"Melody Park" 38 James Laurie St. Henderson. Ph. 09-8364400

I read with interest the intriguing article by John Stokes on the Splitdorf Abbey receiver in the May Bulletin.

Permit me to advance a possible reason for the unusual biassing arrangement found in the later models.

The set is of TRF design, the first three valves (type 26) being a straight three stage amplifier at signal frequency. Notice that in the circuit diagram the filaments of these three valves are connected in parallel, with no decoupling whatsoever. What we have here is a high gain amplifier with the potential for positive feedback (oscillation) via the filament wiring. I believe that these sets may have been unstable under certain antenna/earth configurations, due to this filament-wiring feedback path.

The proper remedy for this problem would have been to bypass each filament to chassis with a large (0.01 - 0.05μF) capacitor (six in all). Indeed, it would have been good design practice to fit them from the outset. If the problem persisted it would have been necessary to connect an RF choke in series with each filament wire, as close as possible to the relevant filament terminal. If instability was the problem, it seems strange that the Splitdorf designers resorted to re-engineering the model with a multi-winding power transformer to isolate each filament from the others, since the above techniques were well known at the time.

As an additional point, the type 27 grid-leak detector is an indirectly heated valve (i.e. has a cathode) so the balancing resistor R7 and it's connection to the chassis would appear to be redundant in the circuit as printed.

Neil Barnett.
Glenfield Auckland

The enclosed photo shows the cabinet of a Clarion 220 which, as can be seen, has sustained some damage to the bottom. Most of it is just veneer but in the two circled areas (at the lower edge of the cabinet on the bottom of both outside columns), it seems that something, a projecting piece perhaps, has been glued to the cabinet.

I have never seen another of these but I was wondering whether it might be possible to run the photo in the Bulletin with a question. Does anyone else have one of these and if so, could I get a photo showing what was there?

I can get the mottling repaired and have the rest of the set including the grille cloth and knobs, but I believe there was something in those two areas and would like to know what they were.

Dave McLaren
25 Aotea St Dunedin.

I read with concern the article from the N.Z Herald 26 June 1995 about PCB's. As from 1st August it appears to be illegal to own or use equipment containing PCB's.

I wonder if the NZVRS could identify the guilty components so that radio society members could remain on the right side of the law.

Chris Hollis
13A Princes St. Cambridge.

LETTERS TO THE EDITOR

The Herald article enclosed by Chris states " PCB's are found in flourescent light fittings, early model thermowave (fan assisted) ovens, some early washing machines, old *record players and radios* and fridges". PCB's are polyclorinated biphenyls used in capacitors and transformers from 1950's to 1970's. Editor.

Page 18 of the May "Bulletin" has the circuit of the C & B 397AW. There is a drawing mistake in the I.F. amplifier. The secondary winding of the first I.F. transformer is shown as being returned to the H.T. line. In fact, of course, it should be connected to the AGC line.

Further to the reference to Nancy Moore's weaving in the August 1994 Bulletin, I have received some nicely presented samples of copies she has made and they could be taken for the REAL THING! There is little doubt in my mind that, given a piece of speaker cloth, she can produce a very convincing copy.

However-there is the question of price. For a 12" width the price is $A60 a metre length-present minimum 10 metres! 16" widths are $A68 per metre length. She does say that she realises that many people would not need or be able to afford a 10 metre length and will consider supplying shorter lengths. Of course, a group may wish to club together in a single order. I have pointed out to her that, at a rough calculation hers is twice the cost of cloth from Antique Electronics.

If anyone wishes to contact her the address is:- Nancy Moore P.O.Box 171 Kygole NSW 2474 Australia.

Peter Lankshear.
Invercargill.

I have the following questions arising from working recently on some Bell Colts. Was this set available as a kit set via a hobby club or from a kit set supplier? I have recently acquired some sets that were hand wired, have had the valve rectifier and power transformer transposed, have no ends to the chassis, have cut outs for IF's different to the type of IF's used, have aerial and oscillator coils of odd types and having slightly different dial scales e.g. pink backgrounds.

Des Smith
156 Rangitoto Road Papatoetoe.

NZVRS EXHIBITION 2nd, 3rd & 4th Feb 1996

Following some discussion on holding another exhibition it has been decided that the venue will be the same as last time, that is the Organ Society Hall in Hillsborough Road Auckland.

We were trying to coincide with the British and Italian observance of 100 years of radio in 1995 but heavy booking of available halls on the remaining long weekends of this year has prevented this. Thus the weekend before Waitangi Day 1996 has been selected.

It is planned to have special exhibits to commemorate the centenary and any members with early Marconi or spark equipment they are willing to loan for demonstration or exhibition are asked to contact Barry King Ph.09-4435639

SECRETARYS DIARY

Auckland meetings

August 21st	Discussion of the upcoming exhibition.
September 18th	Auction sale.
October 16th	To be announced

Exhibition

It is planned to make our exhibition more sophisticated, that is have displays say of a typical lounge scene of the 20's and 30's with the radio occupying the centre piece as well as our early wireless and spark equipment display. Thus we will need not only radios but period furniture, clothes, mannikins, and people with some curatorial skills to arrange items and provide signs and information panels. We are trying to broaden our scope from just displaying scores of radios, which is of great interest to the true collectors, to thematic displays which will interest the non radio collecting public.

Thus a wide range of items and skills are needed, if you feel able to help please contact the Secretary.

SOME RECENT AUCTION PRICES

At the recent "Vintage and Art Deco Radios' sale held in May by Peter Webb Galleries in Auckland, approximately 150 items were offered, only three of which failed to sell and were passed in. Not surprisingly, art deco bakelite models attracted the keenest bidding, the top price being $1350 for a 1937 marbled ivory Radiolette. Next highest price was $950 for a 1933 black and green Radiolette, while a third Radiolette reached $825. These prices highlight the fact that buyers in this country have to contend with overseas absentee bidders.

Other prices paid were $750 for a 1924 Super Zenith battery set and $700 for a Majestic model 15.; an Atwater Kent shortwave converter sold for $725. By way of contrast, the lowest bids accepted were $15 each for a Bell Colt and a Mullard 402 and $5 for a Philips BZI26A. Among the items passed in were, rather surprisingly, a 1929 metal box Philco complete with speaker and a Philips 2510.

CROSS MODULATION

by Des Wright

Right from the earliest days radio interference in one form or another has been a problem. One that is most annoying is named cross modulation; this shows up when stations other than the one tuned to come in at the same time. These other stations are usually distorted and fluctuating in loudness and not as strong as the station tuned to. Aptly named and something to make one very cross indeed, Aunt Daisy, Parliament, Tex Morton all together.

We are speaking of this problem when caused by local reception conditions and not by any set fault. Cross modulation is usually only found in areas close to the transmitting stations, Auckland would be a good example of many stations close to residential districts. How is this caused?

Remembering that any metallic item will act as an aerial and will collect radio signals. This same aerial at the same time will transmit them. It is when there is some corrosion or rust between different parts of this aerial that we have a direct detector of the broadcast signals. The material in the corrosion acts in the sane manner as the old crystal detector. Signal levels are quite high so our aerial is not only receiving but transmitting at the same time. There is no tuning, it is quite random and covers a wide frequency span. Around the earlier homes we had lots of galvanised water pipes, iron roof, downpipes and guttering. Tops for cross modulation was the pressure pipe through the iron roof from the hot water cylinder. The slightest wind caused the pipe to move and make intermittent contact with the corroded roof opening. Turning taps on caused movement of waterpipes all giving troubles. Old wire clothes lines have been found to be a culprit, old wire fences too; a bit of rust and you have a nice detector. The lovely waterpipe masts with the galvanised wire stays of yesteryear must have been a candidate for cross modulation problems. Current building practice with plastic plumbing must have reduced the chances of trouble, but older homes are still suspect.

With the aid of a portable radio it is possible to move about and trace down the source of the disturbance. A bit of thumping and tapping will disclose the seat of the trouble. Bond together the offending parts or place some insulating material between them. This interference extends over a very wide frequency and I do recall an amateur station being troubled on the 20 metre band. This station had a tri-band yagi antenna mounted on a mast made of telescoped large diameter water pipe. Rust had set in at the joints. Bridging strap across these sections cured the troubles.

Wires, pipes and large areas of metal do have a large effect on signals in the area and must be firm to ensure stable signal levels and clean reception.

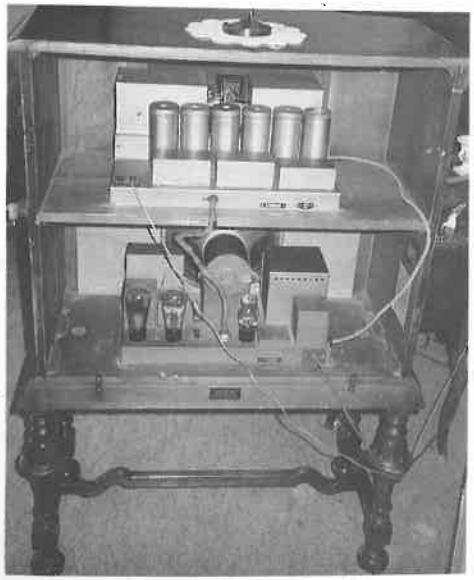
AN EDISON ACQUIRED

By Grahame Lindsey

After two years of negotiation with an antique dealer I finally acquired an Edison model R-6 of 1930 vintage. It is believed that only three of this model were imported by the N.Z. agents, the A.R.Harris Co of Christchurch, but the fate of the other two is unknown. Past information tells me that this particular set was with the Harris family for twelve years and then, fourteen years later, was bought at an auction at Christchurch. The R-6 and its companion R-7 were manufactured late in 1930 and were the last Edison radios produced.

Initially, Edison radios were manufactured by the Splitdorf Radio Corp of Newark, N.J. under an arrangement made in 1928 to enable Edison to enter the radio market. Later, Splitdorf combined with Edison to form the Radio Division of Thomas A. Edison Inc., Orange N.J. By this time production of phonographs and records had ceased completely, consequent upon a directive from Mr. Edison himself given in November, 1929. It was Edison's son Charles who was responsible for the company entering the new field of radio. However history records the new venture short lived as by the end of 1930 radio production had gone the same way as acoustic phonographs and was no more. Because of the comparatively small numbers produced, Edison radios are now extremely rare.

When acquired, my Edison radio was in just about totally original condition and was complete except for one valve can lid and the Light-oMatic switch. However, much work was needed, including the rewinding of the power transformer and RF chokes plus the replacement of 13 capacitors, in order to get the set in operating condition. This work was completed with help from Murray Dick and Mark Thomson. It took a lot of sweat but sounded great when going.



SOME NOTES ON THE EDISON R-6, R-7

by JOHN W. STOKES

Description

The model 6 was a 9-valve screen-grid TRF available in two different cabinet styles, the R-6 console and the R-7 lowboy. It appears that there may also have been a combination radio-phonograph, but no details are available and no such model is listed in any of the usual sources of information, e.g. Rider, Gernsback or Langley-McMahon.

Following the usual practice of the day, the power supply and output stage were assembled on a separate chassis mounted on a shelf below the main chassis. The so-called "Light-O-Matic feature was simply a means of displaying illuminated station callsigns alongside the usual kilocycle marked dial scale.

Circuitry

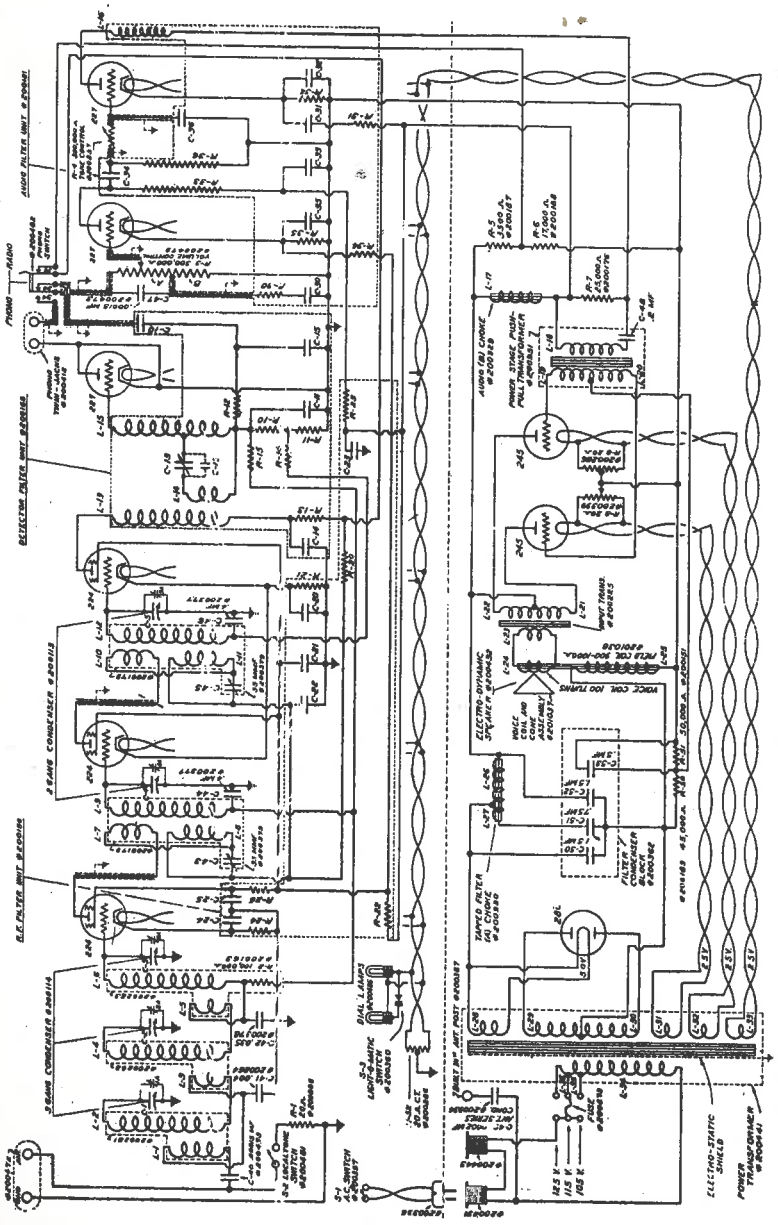
These Edison sets were notable for the incorporation of two very advanced features, diode detection and automatic volume control (AVC). It is interesting to note that at the time, only one other manufacturer, Philco, had made use of this particular circuitry in their model 95 which was released in October 1930. From available infomation, it seems likely that the Philco was marketed slightly ahead of the Edison.

An examination of their respective schematic diagrams reveals that the front end circuitry of both sets is almost identical, and when it is known that the Hazeltine Laboratories were responsible for the design of Philco's 95 it is obvious where the Edison design came from. The only apparent difference between the two is that whereas the Edison used self-biassing on the three screen-grid valves, Philco used back biassing

Comments

The idea of supplying AVC to 'straight' screen-grid valves may nowadays be difficult to accept, but it nust be borne in mind that as vari-mu types had not then been invented there was no alternative. Even so, it was necessary to incorporate a local-distance switch to prevent overloading on strong signals. Similarly, it was the non-availability of any diode detector valve which made it necessary touse a type 27 triode as a diode by strapping its plate and grid together. An indication of the soundness of the Hazeltine design evidenced by the way in which reduced AVC is applied to the third RF stage.

The use of push-pull 45s in the output stage was almost universal in American console models produced at this time and the Edison was no exception. A small, though most unusual difference was the use of individual filament windings for the the two 45s, each having its own adjustable hum control a feature carried over from earlier models.



EDISON Models R 6 and R 7

EDISON—Models R6 and R7
Line Voltage 115—Voltage Tap 115
*Grid Volts 8-10 on Strong Signal
†Volume Control Minimum 2,5—Maximum 5

A History of the Installation of the New Zealand Post Office RadioPicture (Pix) Service. November 1947.

by R.G. Newlands

New Zealand's first Radio-Picture (Pix) machine was bought in line with the general policy of extending and modernising the communication services of the Dominion, considering particularly the needs of the Press. The installation was timed to coincide with the then forthcoming Royal Wedding of Princess Elizabeth and Prince Philip on 20th November 1947.

The team chosen for the actual installation was that of two Radio Technicians, Gordon Burrow and Phil Holloway, with the initial assistance of a junior. The machine was installed in a light and sound reduced booth in a room of the Wellington G.P.O. building adjacent to the High Speed Radio Telegraph Room Used for world-wide communications. Circuits were established, via the High Speed Room's existing wiring, to enable connections to be made to both the Receiving and Transmitting Stations at Wellington Radio, situated atop the Tinakori Hills.

There, radio circuits were established as required, using existing radiotelephone equipment. Later the Receiving Station at Makara took over the receiving side, effecting a considerable improvement. One channel of a 5Kw R.C.A. 3-channel transmitter was normally used for transmission. Some doubt was expressed that the existing Wellington-Sydney aerial arrays would be suitable, as the Australian Pix station was at Melbourne, and the arrays were designed for a 15 degree beam centered on Sydney. But reliable contact was soon established with Melbourne, using radiophone contact. Test pictures were passed back and forth at different times of the day, and were deemed by the Press as quite satisfactory.

Contact with London was more difficult as direct communication was somewhat erratic. London also used c.w. contact only, not being equipped with radiophone. The reason given for this was that because of the large number of international circuits handled by London, phone contacts would occupy too much spectrum.

Melbourne, however, had both Morse operators and phone equipment, and communication with London was effected using Melbourne as a relay station. However, setting up circuits and suitable frequencies (not to mention times available to London) was made complicated by the necessity for phone contact to Melbourne having to be relayed by c.w. to London and the existing heavy commercial traffic schedules, particularly at the London end.

Further tests were made with London using Colombo as a relay station. Circuits, once established, were quite reliable but setting up was a protracted effort. Colombo used Rhombic aerials and in the words of one comic it took time to "despatch a native servant on a bicycle to reverse the feeders and terminating resistors" in order to reverse the directivity of the aerials. The routine was to establish contact Wellington-Colombo and detail requirements. Colombo would then reverse their aerials and arrange a schedule with London that would not interfere with their existing commitments. Colombo would then again reverse his aerial direction and relay back to Wellington.

A test picure received from San Francisco.The original print was made in error on very high contrast paper and showed no detail other than black and white (i.e. no clothing visible) and gave rise to a very severe reprimand from the Director of Communications regarding what he considered was the transmission of lewd and pornographic material during testing. This print is a subsequent one made on softer paper from the same negative, which some what mollified the irate gentleman. Further tests with San Francisco were severely curtailed and decorum preserved.

This frustrating process lasted but a very short time before it was thankfully realised that the Colombo-Wellington circuit could be worked quite well with Colombo's aerials directed to London. This horrified the technical authorities at Colombo and London but the circuit was probably working over the "long path route" via the Arctic. It was finally decreed that Colombo, once the through circuit was established, should direct his aerials towards whichever station was to receive the pictures.

This was the method adopted for the reception of the Royal Wedding pictures, although it must be realised that most of those belonged to a Press "pool" and were broadcast simultaneously over a world-wide net.

Time was running out and there was no opportunity left for the training of other operators. The installing technicians took over the operating duties temporarily, each taking alternate weeks to be "on call" at any time of the day or night should Pix traffic be called for.

At the insistence of the Press the Pix circuit was opened to Melbourne for commercial traffic specifically to forward pix of the tragic fire at Ballantyne's Store, Christchurch. Some really horrific pictures, rejected for publication by the NZ.Press, were sent to the Australian papers. It was a particularly harrowing experience for one of the operators to put one particular picture into the machine. It showed the bodies of girls who had been trapped in the top-floor Credit Office, some of whom he had known personally.

Opportunity was also taken to send a picture of the new Miss New Zealand, Miss Mary Wootton of Christchurch, to London. This was the first picture ever sent directly from Wellington to London and showed Miss Wootton with her pet cat. Melbourne was acting as a relay station and was "tapped in" on the circuit. On receiving the picture the Melbourne operator (those Aussies!) asked if the caption was to be "Miss New Zealand holding her pussy".

Copy of a commercial press photo showing Miss New Zealand, (Miss Wooton) arriving at London, sent for publication in "Truth"

Copies of the first successful test picures received from Melbourne

Around this time audio tone limits, which set the degree of blackness along each line of the picture scan, were undergoing international scrutiny with a view to standardisation. Some stations were using the range 1600 to 2000 c.p.s. while others used 1500 to 2300 with the black and white signal tones reversed. This accounts for the notation of "limits 1600/2000" on some of the pictures.

Later San Francisco acquired a machine of the same type as Wellington and communication was established with them to assist in training their operators. The same Sydney-directed aerial was used as the San Francisco directed array was in constant use for radio-telephone traffic. As these arrays were equipped with reflectors it is probable that "long path" communication was the norm. to the horror once again of some highplaced technical staff this was discovered when, after a "sked" with San Francisco, the operator there heard Wellington calling Sydney for a "sked" with them. San Francisco called and enquired if Wellington had changed the aerial from the San Francisco one to the Sydney one. Wellington had! The San Francisco reply was a startled oath, unintelligible and probably unprintable. After that discovery Wellington used the Sydney aerial array almost exclusively. Just another of the unforeseen effects which were encountered during testing periods.

Some time afterward Sydney acquired its own Pix machine and Wellington assisted with the training of the operators. This unscheduled assistance to both San Francisco and Sydney was brought about by requests from them for assistance because the established stations were almost fully occupied with their own commercial traffic commitments.

The heart of the equipment was a crystal controlled master oscillator running at 108 kc/sec. and divided down to 1800 c.p.s. This frequency drove a synchronous motor which had a gearbox driving a rotating drum on which the picture was placed. It also drove a leadscrew with a 100 turns per inch thread. The drum speed was 60 rpm. A longitudinal matt-black bar held the picture on the drum.

At the back of the machine a focused lamp played a 1 mm diameter, spot of light onto the drum. Reflected light was then detected by two photoelectric cells, black reflecting very little light and white reflecting a lot. The rotation and traverse of the drum caused the light spot to traverse the picture in a spiral pattern at 100 lines per inch. It took about 15 minutes to scan a 10"x 9" picture.

The signal from the photocells modulated an audio oscillator such that black was 1600 c.p.s. and white was 2000 c.p.s. The various shades of grey between modulated the oscillator over a 400 c.p.s. bandwidth. The resulting audio signal sounded as a series of squeals and squawks described by one of NZ's early radio pioneers, Mr. A.J.11.McClay, as "sounding like a tram going round a corner".

When the machine was receiving the incoming tones modulated a light beam which was played onto a slow-speed photographic negative on the drum, thus building up a picture in much the same way as a very slow scan black and white television picture. This was then developed in the normal way in a very basic photographic laboratory associated with Pix room. It was very basic, with no frills or extras.
Briefly, the operation of the equipment was as follows.

(1) Advice sent by cable telegraph arranged a time schedule for projected traffic.

(2) Contact would be established between operators and a quick check of circuit conditions would set both the route and the radio frequencies to be used.

(3) Pix machines would be loaded by wrapping the picture to be sent around the drum at the transmitting end, and using a slow (photographic) speed negative similarly at the receiving end. In safe light, of course.

(4) Both machines would be started and the drums revolved with the scanning-light playing on a white border of the picture but interrupted by a matt-black longitudinal bar used to clamp the ends or the picture to the drum. This gave an indication of the tone limits ("black" and "white") and also the drum speed and relative position of the locking bar. The machines could then be brought into syncronisation.

(5) When the position and speed were satisfactory the "traverse" screw was engaged and the light beams traversed a spiral path around and along the picture as the drums revolved.

At the transmitter end the light was reflected from the variations in shading along the lines of the picture and received by a photocell, the output from which frequency-modulated an oscillator, giving a range of audio frequencies corresponding to the lights and darks of the picture. This range of frequencies modulated a transmitter and was received and "detected" in the same manner as radiophone speech.

The received tones were used to modulate the light beam on the receiving machine, thus exposing the negative in shades corresponding to those of the original picture.

(6) The picture transmission took about 15 minutes for a full-drum-size photo after which the negative was removed from the receiver drum for development and printing.

The noise streaks, very noticeable on some test pictures, give a good idea of the width of the scanning beam and quite good detail is transmitted over a good circuit. For newspaper reproductions high contrast pictures are wanted by most printers and this was usually taken care of by the operator during the development and printing process. The scope for unorthodox results was enormous; given the vagaries of radio circuits, printing processes and human errors.

References: The "Weekly News" November 26th 1947
"Radio and Electronics" Vol.21 No 10. January 1st 1948. p4.

Over the page is a list of some early wireless activity occurring about 100 years ago. Anyone keen on recreating some of these experiments as a centennial celebration?
This data was supplied by Harold Ault from an appendix in an old book called *Practical Radio.*

A test picture of an unknown beauty received from London via Melbourne. The Melbourne operator (Those Aussies again!) asked London for her name and address; only to receive the abrupt reply "The picture has no caption!"
George Newlands supplied many more photos than we could include in this article.

1895.-Marconi's investigation led him to the conclusion that Hertzian waves could be used for telegraphing without wires.

1896.-Marconi lodged his application for the first British patent for wireless telegraphy. He conducted experiments in communicating over a distance of 1.75 miles successfully.

1897.-March: Marconi demonstrated communication being established over a distance of 4 miles.

March 17: Balloons,were first used for the suspension of wireless aerials.

July 10-18: Marconi maintained communication between the shore and a ship at sea at distances up to 10 miles.

September and October: Apparatus was erected at Bath, England, and signals received from Salisbury, 34 miles distant.

AN AUSTRALIAN RADIOPHONE

by John W. Stokes

Back in May, 1994 I received a letter from Lou Albert in Australia asking for help in identifying an early 2-valve battery set which he had recently obtained. The receiver in question was obviously commercially made as it had a patent license plate attached to the front panel and had the wording Serial No. 98/1252 stamped on the underside of the baseboard, but no brand name was visible. An unusual feature was the absence of any tuning capacitor, a point which had originally caused Lou to comment that it might be one of the infamous 'sealed sets', fixed tuned to a particular station. How right he turned out to be.

Referring to the illustration, the large left hand knob adjusts a rotatable regeneration coil pivoted in the centre of the grid coil, while the right hand knob controls the filament rheostat. As mentioned, there was no tuning control but the adjustment of the tightly coupled aerial taps would have had some effect on the tuning, though this was required to be no more than 10% to comply with the regulations. The centre knob controls the aerial tapping switch, and the topmost knob the on/off switch.

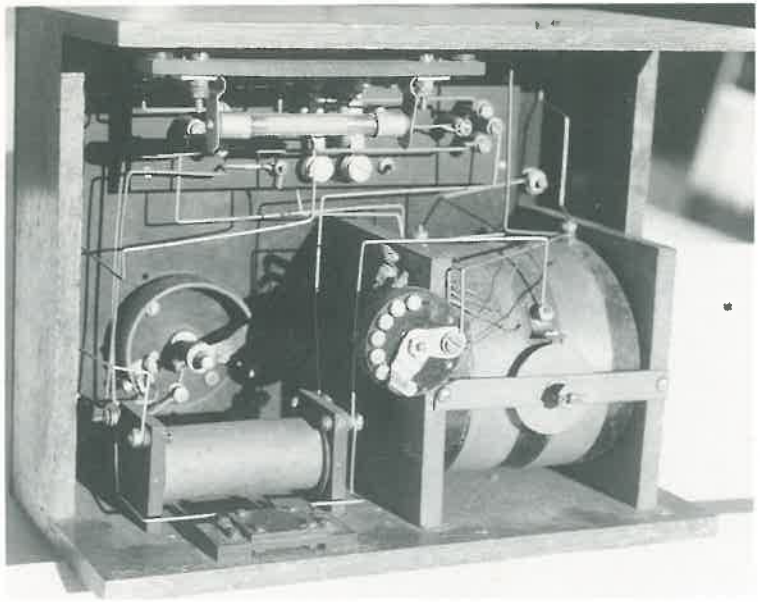
Initially the only help I could provide was to identify the two valves as being Australian made G&R type 77*, but at this stage was no nearer to putting a name to the set, and not until I received a second letter from Lou some two months later was the mystery solved. Somewhat to my chagrin, Lou had found a picture of the where it had been under my nose all the time on page 150 of *The Golden Age of Radio in the Home* !

The source of this picture was an AWA catalogue, No.25 dated 1st August, and a perusal of this catalogue elicited the following details:
This particular receiver was available in three forms but did not have an actual model number, being simply referred to as "The Radiophone". In basic form without valves or accessories the catalogue number was RR3; complete with 2 Marconi R valves, headphones and batteries it was RR4; and in dry cell form with two AWA type 33 valves (equivalent to American UX-199 but fitted with 'English' type bases) it was RR5.

Because in RR3 form the receiver could be fitted by the owner with valves of his choice, it is conceivable that the two G&R valves could be original, though they would not have been supplied by AWA, of course.

An interesting point to note is that at the time the catalogue was issued, in August, 1925, the sealed set scheme was no longer in existence, which meant that all receivers could now be made tunable. To accomplish this the Radiophone was now being supplied with a "Table Condenser" as mentioned in the catalogue description. Another point to note is that although other AWA receivers listed in the same catalogue were referred to as 'Radiola', this particular one was captioned 'Radiophone', though what significance, if any, this had is unknown.

*Anyone interested can find the story of G&R valves by the Australian writer Colin McKinnon, in *The Old Timer's Bulletin* for August, 1994 (35-2-32).
Details of the Australian Sealed Set scheme can be found in Philip Geeves' *The Dawn of Australia's Radio Broadcasting* (Chapter 3) published by Electronics Australia, 1993.



Above: Rear view AWA Radiophone
Left: AWA Radiophone
Below: G&R valves

WANTED

A1 Gulbransen Teledial console or mantel. Any large dial consoles. A small chassis suitable for a small cathedral cabinet Kiwi/Eagle etc.
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Three white domed knobs for old model Bell Colt. A console or mantel cabinet for Ultimate FA. Two wooden or plastic Courtenay knobs. Speaker for A.K. 60. Dial scale or chassis with a good dial scale for Ulimate BIU or BCU.
Des Smith 156 Rangitoto Rd. Papatoetoe. Ph.2783541.

Cabinets for Atwater Kent 447, 808 and 808A or complete sets. RCA 100, 110 and 121 radios.
Bob Cook 3/475 Blockhouse Bay Rd. Blockhouse Bay Auckland. Ph.09-6266241.

Brown bakelite speaker grille decoration bar, with circle at centre for brown Ekco SW86 or cabinet or parts set. Right angled SW86 speaker plug, has four pins in line. Desk cabinet for RCA AR77. Ian Sangster addreess in ad header, ph. 09-8149597.

Japanese valve manuals. Toshiba, Ten etc.
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Good E442 valve for Philips 2510 or faulty one with bakelite cap intact. Knobs for 2510. Any information on Hewlett Packard 400H VTVM.
Noel Laing PO box 71 Te Anau. Ph. 0800-675189.

Dial glass or complete chassis for HMV 626 World Tourer. PYE PZ60 dial glass. Philco 201 cabinet and knobs. Atwater Kent 237 fine tuning dial gear and speaker.
Roy Densley 19 Miro Rd. Mangere Bridge Auckland. Ph.09-6342841.

Columbus 504A knob (see p.118 *More Golden Age*). Circuit and information for LM-11 frequency meter. Cabinet for Antone Cadet (see p.41 *Golden Age*). Dial scale for PYE PZ43 (see p.39 *G.A.*). Cabinet and dial scale for Radio 1936 Ltd. Minor (see p.73 *G.A.*).
Dennis Seymour. P.O. box 23474 Papatoetoe. Ph.5737620 work, 2779480 home.

Leon Theremin music machine (pitch altered by body movement without contact with machine) Any info appreciated.
Barry King 16D Parity Place Glenfield Auckland. Ph.4435639 collect.

***Scott's Radio Handbooks* Edited by Thornton Scott. *Canterbury Radio Journal, N.Z.Radio Hnadbooks* (published quarterly).**
E.Hakanson. 17 Williamson Ave. Grey Lynn Auckland 1002. Ph. 09-3766059.

Eddystone radios for parts. Models with slide rule dials.
Bryan Marsh. 20 Rimu Road Mangere Bridge. Auckland 1701. Ph. 6367712.