Market place

Members wishing to place advertisements should ensure that these are sent in by the 20th of the month preceding the month of publication. Deadline for the next issue is May 20,1983. Please write or print clearly and be sure to include your name,address and phone number. There is no charge for this service.

WANTED

Interstage audio transformer for Stewart Warner model 300. Crystal detector, Red Diamond or similar,to suit Brownie Crystal set. Bill Lambie, 230 Taita Drive, Lower Hutt

Dial scle and set of control knobs for Pye 'Cambrige' model 'H' PZ60 table model. G.L.Thomas, 23 Jull Street, Napier, Ph 54-820

RCA Valve shields (2) 1¾ inch diam, for model R28; early RCA wavechange switch 3-section, 2-pole, 2-position. Peter Lankshear, P.O.Box 802,Invercargill

Complete chassis for RCA model R28. Will buy for cash or exchange for items on my extensive list of vintage gear. Also wanted, power transformer for Atwater Kent 567. Dave McLaren, 25 Aotea St, Dunedin, Ph 44-777

RCA Radiotron Tube Charts for the years 1926, 27, 28 only, photocopies acceptable will purchase outright or swap for RCA Tube Manuals or other material. John Stokes, 617 Dominion Rd, Balmoral Auckland, Ph 656-615 (eve)

AVAILABLE

Chassis and speaker for Clarion model 51, in going order, cheap to good home Dave McLaren, 25 Aotea St, Dunedin. Ph 44-777

A MESSAGE FROM OUR SECRETARY

In accordance with the Society's Rules, all subscriptions are due for renewal on the 1st April aech year, regardless of the date of becoming a member.

The incidence of late payments of subscriptions for the current year gave your committee cause for concern. So please ensure that your subscription, due 1st April 1983, is paid promptly. Don't run the risk of missing the May issue of the Bulletin! And, remember, in spite of rising costs the subscription rate remains at $8.00.

BACK ISSUES OF THE N.Z.V.R.S BULLETIN

Members wishing to complete their files of the Bulletin are advised that back numbers of all issues except Vol 1,No 1 are still available. The price is $1.oo per copy, postage paid. Order from secretary or editor (addresses inside front cover).

DIODES OF A SORT

Noticed in a recent American catalogue - solid-state replacements for vacuum tube rectifiers at prices ranging from US $5.85 for types 5U4G, 5Y3G, 5Z4 to $7.95 for types 80 and 5Z3. Interestingly, the same company lists a 'real' 80 for $3.40 and a 5Y3Gt for $2.76, though a 5U4G is $5.85, the same price as the solid-state counterpart. Another item of interest was the listing of vibrators. Now there's a thing I thought was even deader than a tube!

J.W.S.

N Z V R S BULLETIN

Vol. 3 No.4 Feb.1983

NEW ZEALAND
VINTAGE RADIO SOCIETY

An organisation devoted to the preservation and restoration of early radio equipment, and collation of associated information

Photo: Stewart Edwards, Corby, U.K.

Two-in-One, Three-in-One, and now, FOUR-IN-ONE !

This unusual valve was made by the Quadruple Valve Co of Northampton,England in 1929. The filament consumed 0.5 amps at 1.8 volts. No further details are available but it is noticed that a 12-pin base was used which would seem to indicate that the filaments were grouped in two pairs.

NEW ZEALAND VINTAGE RADIO SOCIETY

PRESIDENT: Des. Wright
3 Coquille Place
Bucklands Beach
Ph. 535-8928

SECRETARY: Eric Kirby
10/29 Owens Rd.,Epsom,
Auckland 3
Ph. 603-054

Correspondence, membership enquiries, subscriptions: To Secretary, at address above.

N.Z.V.R.S. BULLETIN . . .

EDITOR: John Stokes
617 Dominion Rd., Mt.
Roskill, Auckland 4
Ph. 604-213

Contributions to the BULLETIN, and advertisements, should be sent to The Editor.

EDITORIAL COMMENT

E3. NZ made radios

Amongst collectors New Zealand made radios do not seem to rate very highly, which is a pity, really, for over the years there have been some excellent receivers produced which in some cases compared more than favourably with imported counterparts.

Although some people may be critical of the term 'Made in N.Z.', arguing that such sets were 'assembled' rather than 'manufactured', the same criticism can be levelled at many overseas manufacturers who bought in nearly everything from outside suppliers and were thus more in the nature of assemblers than most N.Z. manufacturers. Of course this does not alter the fact that the overseas set was usually constructed from raw material produced in its country of origin, thus it really was made in that country.

Obviously, local radio manufacture would have been impossible without the importation of of both raw material and certain key components, but it is surprising just how much was made here in pre-war days. Apart from such things as chassis, coils and transformers which most firms made themselves, it should not be forgotten that two firms even made wave-change switches and by 1936 Radio Corp were making an excellent E.M. speaker of their own design. Not long after this the same firm embarked on the production of paper and moulded mica capacitors. Furthermore, all this was entirely a matter of local enterprise, though of course N.Z. manufacturers had access to the world's patents in the same way as did overseas set makers. Apart from this local manufacturers were entirely on their own and completely free of any overseas interest or control.

In addition it must be remembered that the local industry was unprotected and in open competition with Australian, British and Canadin manufacturers whose products came into N.Z. duty free. Although American receivers were subject to import duty this did not appreciably affect their price competitiveness owing to lower manufacturing costs in the U.S. When we consider the fierce competition existing in the local market in those pre-war days it is all the more credit to our pioneering firms (alas, no longer with us) who successfully established a viable radio industry and even exported to Australia.

So, don't overlook the worth of New Zealand made radios, whether you regard them as being collectors' items or as part of this country's radio heritage.

J.W.S.

LETTERS TO THE EDITOR

Oh dear! I have upset Don Sutherland, haven't I? Don Has fallen into the trap of not reading what was actually written. Nowhere did I say that I considered Zenith to be superior to Philips. If he reads the article carefully again he will see that I gave credit to the superior Philips coils and DX performance.

In his reminiscences Don confirms my contention that Philips receivers require specialist knowledge,and take time to service. I doubt if any novice would need four hours to replace a Zenith dial cord!

No, I am not predjudiced against Philips receivers, I, too, have "no sweat" finding my way round them.

Don may be interested to know that my collection has only one Zenith (a 1932 LH) but has five Philips, including a 462 and a Theatrette. What do I think of the latteer? It is a most interesting receiver, the only one I know with neither I.F.transformer shielded. "Professional" equipment would not do it that way!

Peter Lankshear
Invercargill

R3

More on Restoration

Having duly noted the different views presented lately on the subject of restoration I thought I would put pen to paper and air a few myself.

I believe the private collector/restorer has a part to play that cannot be filled by the usual public museum with its glass showcases and 'PLEASE DO NOT TOUCH' signs His can be a living museum where visitors can be given a personal explanation of the exhibits, and a demonstration. They may even be able to twirl the dials themselves and find out what it was like to tune a 3-dial Neutrodyne and listen to a horn speaker, or fiddle with a catswhisker and crystal. What public museums can offer that sort of thing?

Certainly there are different degrees of restoration,a lot may depend on the condition of the vintage article when received. How far one goes may depend on how rare or interesting the article is and its actual historic value. Did it play an important part in radio history? If so it may best be preserved 'as is'.

With my own collection I prefer to have items in as original condition as possible but at the same time have them in working order. Refinishing of cabinets is done only when the original finish is well beyond redemption. When capacitors etc have to be replaced I retain the old sleeves; transformers are rewound, rather than replaced and so on. I reckon nothing looks worse than the use of plastic covered wire or modern components in a vintage set. Again, whether or not any modifications,done to the set over the years, are removed in favour of using the original circuitry may depend on the set's historical significance. I much prefer to see the patina of years on the cabinet rather than a shiny new coat of polyurathene,or whatever. Similarly, I would rather have an original,if somewhat battered,set in my collection than somebody else's restoration project.

Most collectors, myself included, like to find out more about the items in their collections; such things as duration of production, history of the manufacturer,rarity etc. The more data that can be compiled on an item in one's collection will add to its interest in the years to come, particularly if it finds its way into a museum.

Although born into the transistor age, I became interested in early radio about a dozen yeras ago after finding pre-war valve models superior to transistor sets for my DX listening hobby. In those days old radios could be bought for a dollar or two. Since then much browsing through old magazines and talking to old timers has greatly increased my knowledge and interest in radio and electrical history.

Arthur R.Williams.
Invercargill.

R1

THE REMARKABLE PHILIPS V7A THEATRETTE

Peter Lankshear

It would not surprise the writer to learn that the receiver most frequently found in collections around New Zealand is the Philips V7A 'Theatrette'. The number still in existence shows that it was a popular and durable model, yet it has received a lot of scorn for its unusual construction.

At first glance the internals look as if they were wired together on the bench and then dropped into the cabinet without benefit of a chassis. Of course this was not really so and a closer inspection shows the careful placement of each component so typical of Philips. But why such an odd method of construction from a manufacturuer who normally used elaborate chassis?

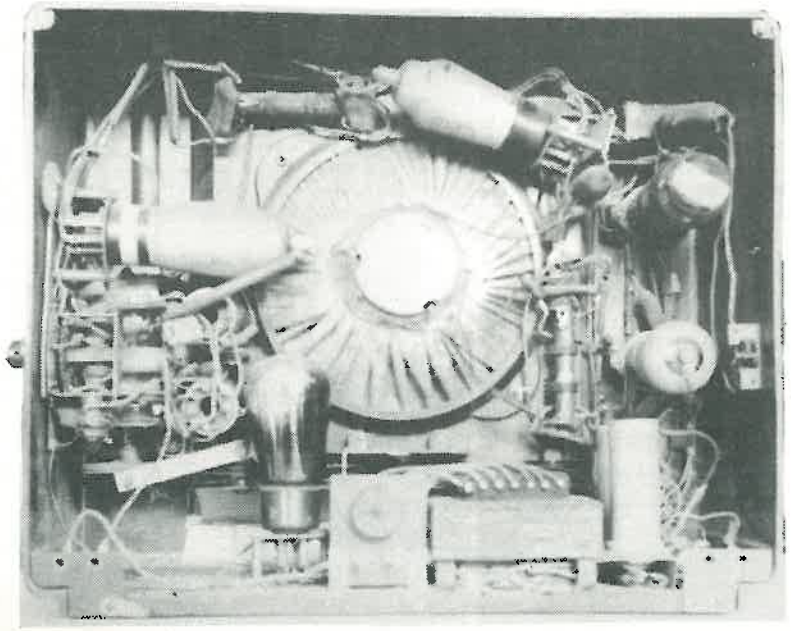
The answer would seem to be market competition and cost. The 1938 N.Z. price of the V7A was 13 guineas ($27.30), Philips bottom price in a competitive market.

Generally manufacturers met the price challenge by paring down component quality and quantity and by reducing the size of speaker and cabinet. The receiver which performed, looked or sounded better than other makes in the same price range was likely to win the market.

If a manufacturer could produce economically a receiver using high grade components in a circuit with no short-cuts, preferably with all-wave coverage and a full sized speakerin a good looking cabinet he would have a real advantage. But these were the specifications of more expensive models, so how was cost saving to be achieved? The only thing left was the chassis itself. In the V7A practically all metalwork was eliminated, even the IF coil cans. But to avoid unwanted couplings very careful layout design became necessary. About the only circuit compromise was the use of half-wave rectification. A bonus resulting from the unconventional constructionbwas that a cabinet only six inches deep was required.

A prospective purchaser was not really concerned about the way in which the set was constructed, even if he knew about it; but he was aware that for his 13 gns he got a smart looking 5-valve, 3-band radio with an 8-inch speaker plus a large tuning dial - undoubtedly good value for money.

So next time you look over a V7A don't make fun of it, for it was a very successful radio. Maybe it was ahead of its time, because many of today's radios don't have a chassis either!



M3 Old Time Radio Programs

also A1

V1 & A1

THREE DOTS ACROSS THE ATLANTIC

Eric G.Kirby

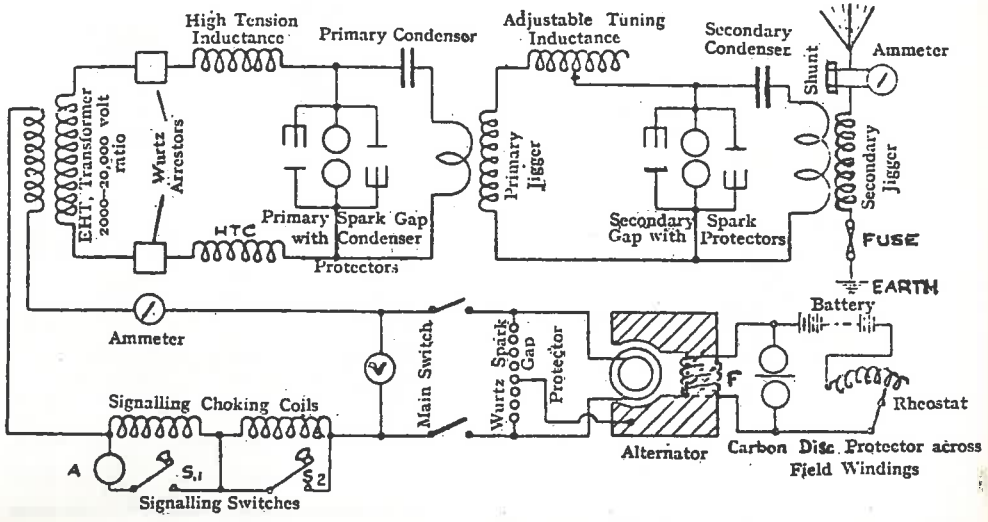
If you are interested in the early work of Guglielmo Marconi you will already know about his remarkable achievement in spanning the Atlantic by wireless. However, the following information may contain some technical details which have not come to your notice previously.

To recap: the experiment took place during the northern winter of 1901, Marconi and his assistants being rewarded for their efforts on Thursday 12 December when signals transmitted from a spark transmitter sited at Poldhu, on the west coast of Cornwall, were heard on simple receiving apparatus installed at St Johns, Newfoundland. The distance involved was approximately 1800 miles.

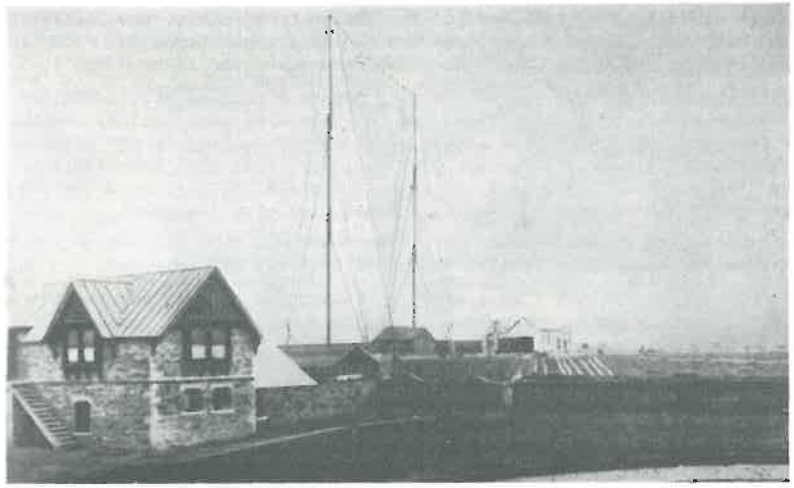
Writing some years after the event* R.N.Vyvyan the Marconi Co engineer who supervised the construction of the transmitter, described the requirements as follows:

> "To get signals across the Atlantic Marconi had calculated that he would require a capacitity of 0.2 microfarad discharging across a two-inch spark gap. One of the many problems was to obtain this by the single action of a transformer on a condenser without raising the transformer voltage to an unworkable value. Dr Fleming thereupon devised a method of double transformation, whereby the current from a transformer was employed to charge a condenser, discharging [it] through an oscillation transformer across a spark gap. The secondary of the transformer, consisting of more turns than the primary, was connected to a second spark gap, a second condenser and the primary winding of a secondary transformer being also across this spark gap. The secondary of the last transformer was in series with the aerial. The effective working of the arrangement depends of course on the proper syntonization of each circuit. But the principles of syntonization were by this time thoroughly understood, largely as a result of Marconi's work on syntonic wireless telegraphy."

Much of the design work for the transmitter was undertaken by Professor J.A.Fleming of the University of London. He was appointed Scientific Adviser to the Marconi Co in 1899. Dr Fleming was a specialist in the generation of extra-hightension alternating current and, no doubt for this reason, was chosen by Marconi to design the alternator and transformers, and to devise a method of keying the transmitter. Interrupting 2000 volts must have presented many problems!



Raising the kite aerial at Signal Hill.



Poldhu wireless station in 1901.

Looking at the circuit diagram we find a 25kW alternator, the field of which is energised by batteries, voltage being controlled by a rheostat. The output of the alternator is fed into an EHT transformer, 2000 - 20,000 volts ratio. Keying is by interruption of high voltage, this being achieved by the use of two chokes across "signalling switches". The high tension inductances and 'Wurtz' arrestors prevent oscillations getting back to the transformer windings. The remainder of the circuit is as described by Vyvyan except that the value of the secondary condenser turned out to be 0.037 µF, and the secondary spark gap 4 cms. The condenser was made up from 24 stoneware jars connected in series / parallel. A "test fuze", placed in the earth lead comprised 9 strands of 31 guage platinoid wire. It blew when correct aerial current had been achieved!

The receiver (manned by Marconi himself) was the essence of simplicity - a self-restoring coherer of Italian navy design in series with a telephone earpiece and the aerial. The aerial was suspended by a kite which flew erratically in the high wind, thus varying its electrical capacity. Marconi was therefore prevented from using a more sophisticated receiver incorporating 'Syntonic tuning' which had been patented in 1900 (the famous patent 7777).

The wavelength used was estimated by Professor Fleming to be 960 metres. He probably wasn't very far out. I wonder if he later checked his calculations in 1904 on his "cymometer" (wavemeter).

* "Wireless Over 30 Years",R.N.Vyvyan, Pub. Geo Routledge & Sons Ltd.London,1933

VLO - ZLO
AN EARLY NEW ZEALAND WIRELESS STATION

John Stokes

Recently, and quite unexpectedly, when reading a book on about Mansion House* I came across a picture of an early and little known wireless telegraph station - VLO. For the benefit of those unfamiliar with it, Mansion House is located on Kawau Island in the Hauraki Gulf some 30 miles north of Auckland. Mansion House itself is of some historic significance as it was once the home of Sir George Grey, one of New Zealand's early governors. For many years the old homestead was run as a guest house but recently it has been taken over by the Hauraki Gulf Maritime Park Board and is now open to the public.

Originally, and for many years, the only means of communication with the mainland was by a twice-weekly mail service. During the busy Christmas holiday period, or in times of emergency this isolation caused some concern and led to the owner of Mansion House requesting the Post & Telegraph Dept to lay a cable from the mainland. This request was denied for economic reasons as the tiny population of the island could not provide enough telephone subscribers to justify the heavy expense involved.

Finally the owner had a bright idea- 'wireless'. To this suggestion the P &T agreed provided Mansion House would provide a trained operator at their end.

So it was that in 1925 a flea-power transmitter and associated receiver was supplied and installed. VLO was born. Referring to the accompanying illustration - it will be of interest to old timers to learn that the well-dressed operator depicted with Baldwin phones clamped to ears and pencil at the ready is none other than the youthful Tom Clarkson one of this country's early hams and a former Post Office radio engineer. In the picture, , visible at the extreme right,is the one-valve CW transmitter which used a UV202 triode. Perched atop the transmitter cabinet can be seen an Amplion 'Dragon' speaker minus, for some reason, its driver unit. The two units at the left are a Northern Electric regenerative detector coupled to an N.E. 2-valve AF amplifier. Yes, but what's the P & T handset doing on top of the middle unit? Ah, well that's another story, but first it should be explained how Tom Clarkson came into the picture (literally).

According to Tom's own account he was at VLO doing maintenance work on one occasion when he was asked if he would take on the job as relieving operator at the busy Christmas holiday period. This he agreed to do and subsequently returned on other occasions. Like others before him, Tom fell in love with Kawau and eventually bought a small nearby island to live on when he retired.

As a change from brass pounding during his off-duty periods T.R.C. rigged up a small phone transmitter (the middle unit in the picture) by means of which he could contact VLD at the Chief Post Office and from there be patched in to the automatic telephone exchange at Wellesley St and connected to the number of his choice. By this means he was able to call up friends and relations from the radio shack at Mansion House.

As in the case of other W/T stations, VLO changed its callsign in 1928 when it became ZLO. The station remained in operation until 1937 when a cable finally connected Kawau with the mainland.

* Memories of Mansion House, Nora Criena Wilson, Richards Publishing, Auckland, 1980.

"RADIO VLO"

A little-known CW station located on Kawau Island in Auckland's Hauraki Gulf. From 1925 it provided the only direct link with the mainland until a cable was laid in 1937.

SAGA OF A VACUUM TUBE

Don Sutherland

Not so long ago whilst experimenting with an RCA-221 tube, trouble was experienced due to a combinationof a loose base and a dry joint in one or two of the pins. I therefore decided to remove and re-cement the base by way of making a proper repaur. However, difficulties were encountered which led to the wire connecting to the grid accidentally getting broken off part way into the pinch.

At this stage I just about felt like bursting into tears, but there it was and couldn't be helped. Sadly I put the valve away, hoping that someday a remedy would turn up, and there the matter had to rest for more than a year. Then it was that Philips came to my aid with a new product known as 'Elcolit 340' a silver paint which proved to be almost miraculous in the way it worked

So one night I got to work. It was a tricky job, tipping a piece of wire with a minute droplet of '340', inserting it into the hole and working it around. This had to be done several times to thoroughly coat the inside of the hole and make contact with the end of the buried wire. Then the valve had to be baked (at about 90 degrees C) and a new wire of the same kind prepared for insertion. It was necessary for the wire to have a tapered tip so that it could be made a force fit into the hole, after which it was given a light coat of '340' and alloweed to dry before being inserted into the hole. Then the base could be re-cemented and the pins soldered up.

However in the course of tests it became evident that the conductivity of the repair was poor, but fortunately the remedy was quite simple. By arranging to draw the full emission current through the grid connection the current proved high enough effect proper cohesion of the silver particles.

An interesting point: the baking process, even at the low temperature mentioned, resulted in the release of gas internally, but this subsequently cleared up and the valve is now OK.

nothing about the 221 here

CORRECTION EVER SHARP

Since writing the article on the origins of the Sharp Corp I have received a letter from Mr Koichi Hirose of Sharp's Engineering Division advising that the company has never made vacuum tubes and has always obtained them from outside suppliers. Mr Hirose is endeavouring to obtain further details and any information received will be published in the Bulletin. Incidentally, Mr Hirose volunteered the information that, just as I guessed, the letter 'T' in the original Sharp trademark was the initial of the founder's first name - Tokuji. How about that?

J.W.S.

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SHARP

BOOK REVIEW

"70 YEARS OF RADIO TUBES AND VALVES" by J.W.Stokes. Vestal Press, New York,1982.

When a magazine editor is also the author of a book he is in a quandry. He can't very well review the book himself and it isn't good form to commission a review. To circumvent these problems I am, without prior consultation, reviewing "70 Years of Radio Tubes and Valves".

All this is to say that John Stokes has produced the book of the year for the radio antiquarian. It may not be an exaggeration to say the book of the decade, because I have yet to see an electronic history book to approach it.

Last September I was privileged to have lunch with the executive of the Antique Wireless Association in Rochester, New York and was enthusiastically told about "70 Years". A.W.A. were so impressed that they presented John with the prestigious Tyne Award for 1982.

Vestal Press of New York have done a magnificent job worthy of the material within. This is no ordinary soft-covered booklet but a beautifully bound large format of 274 pages. From the attractive dust cover photo of John's De Forest Audion (with filament glowing) to the comprehensive index, this book exudes quality. Inside there is a plethora of beautifully reproduced illustrations, advertisements, photographs, drawings and tables.

The depth of information and quality of research is remarkable. John must have spent countless hours researching, checking, writing and collating for this landmark in electronic archaeology. In 27 chapters he covers thehistory of valve and tube technology from Edison and Fleming to the final ascendency of the semiconductor. By living in New Zealand John has been in the unique position of seeing the U.S. and European scenes in context and has been able to give an unbiassed account each area's story.

This story is so well presented and so many fascinating facts emerge that your reviewer sat down and proceeded to read his copy like a novel!. Until now the definitive work on valves has been Tyne's "Saga of the Vacuum Tube". "70 Years" complements and makes a worthy companion to this book.

The flawless book has yet to be produced and the difficulties for a U.S. publisher working on N.Z. material must have been considerable. Even so mistakes are very few and most are trivial and obvious. In a work of this nature much of the original material has to be inferred, is indirect, circumstantial or deduced, and it can be that normally reliable sources are wrong. Inevitably, further information will turn up and John's desire for the truth has led him in his preface to invite corrections and criticisms. Frankly, I don't think his mailbox will be overburdened.

To sum up, for everyone with any interest in electronic or industrial history, even those who merely regard valves as necessary devices to fill sockets in old radios, this book is a 'must'.

P.M.Lankshear

"Man of High Fidelity: Edwin Howard Armstrong", a biography by Lawrence Lessing

Bantam Books, N.Y. paperback edition,1969.

This is the story of one of radio's greatest pioneers. The circuits he developed remian to-day an important part of radio and television receivers and transmitters.

The book outlines Armstrong's early life, his boyhood interest in wireless leading to his discovery in 1912-13 of the principle of regenerative feedback which turned De Forest's Audion tube into an amplifier and generator of continuous waves. The Major went on to to invent the superheterodyne in the latter stages of WW 1, the super-regenerative receiver in 1922 and develop frequency modulation in 1933

His life was beset by constant patent litigation, including a graet deal over the regenerative circuit which De forest also claimed to have invented. But it was frequency modulation that was to be his crowning achievement. It was a hard and prolonged battle to get FM broadcasting adaopted and then another battle to obtain royalties for his invention. It was thesedrawn-out legal battles with broadcasting and manufacturing giants that led to his tragic death in 1954.

This book makes for interesting reading, giving a good background to the life and trials of the man who gave us the superhet and FM radio.

Arthur Williams.