



CALL LETTER

VOLUME 18

MAY 1992

NUMBER 5



May 9 Swap Meet & Auction

CALL LETTER

The Northwest Vintage Radio Society

The Northwest Vintage Radio Society is a non-profit historical society incorporated in the State of Oregon. Since 1974 NWVRS has been dedicated to the preservation and restoration of Antique Radio & Wireless apparatus.

The CALL LETTER was founded in 1974 by Harley Perkins (our first President). Editors have served as follows: 1975/77 Bob Bilbie, 1977/78 Bob Hay, 1978/79 Tom James, 1980 Bill DeVey, 1981/83 Jim Mason, 1983/87 Richard Karman & 1987/92 Edwin Buhite.

The Northwest Vintage Radio Society meets at the Northwest Vintage Radio Museum 7675 SW Capitol Highway (at 32nd St.) Portland, Oregon (Museum Phone (503) 246/3400.)

Business Meetings are held at 10:00 AM (Noon in December) on the second Saturday of each month except for summer vacation in August. The meetings are an opportunity to exchange information and advice. The July Swap is at Speed's in Keizer, Oregon. All Swap Meets begin at 8:00 AM.

Annual Dues: \$15-- Renewals are due January 1st

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BINDING

The **CALL LETTER** and The **HORN OF PLENTY** are published monthly as the official publication of the Northwest Vintage Radio Society and the Puget Sound Antique Radio Association. The Call Letter and the Horn Of Plenty are available only as part of the NWVRS/PSARA memberships. NWVRS/PSARA are not responsible for any buying / selling transactions incurred, or for any other use of the contents of this publication. All transactions are on an "as is" basis with the new owner assuming all responsibility.

On the cover: Two men from the Lincoln Shaver family with Wireless set. Our thanks to Oregon Historical Society for use of Photo O.H.61777. & to Art Redman for arranging it.



N W V R S MEETING MINUTES

Portland, Oregon Saturday, April 11, 1992

The April 11th meeting of the NWVRS was called to order at 9:43 am by President Speed Feldschau

NEW BUSINESS: Speed Feldschau volunteered to head the new swap meet committee. Jerry Talbott will assist. A motion was made and accepted for the Society to pay for the new flag outside the museum. Society librarian Norris Jackson was authorized to purchase needed library bookshelves

MEETING ADJOURNED 9:52 AM. Norris Jackson

NOTICE: NWVRS coffee Mugs are expected soon!

**** REVISED ** NWVRS Coming Events**

May 9	8AM Swap Meet, 11AM Auction
June 13	8AM Swap Paper & Small Radios
July 18	8AM Annual Summer Swap Meet at Speed's
August	Summer Vacation
Sept. 12	10AM Technical Clinic
Oct. 10	8AM Fall Swap Meet
Nov. 14	10AM Cabinet repair & Nominations
Dec. 12	Annual Christmas Party

N W V R S Editorial

by Edwin Buhite

Several members have mentioned the poor attendance at the April Swap Meet. One charter member reminded me that we had far better Swap Meet participation at the Oregon City location.

Another problem is the practice of charging a seller's fee. What justification is there for a seller's fee? We don't need the extra money & the membership has paid their annual dues already.

The following action needs to be taken:
1. Elimination of seller's fees at all regular swap meets (except the summer swap).
2. Return all regular swap meets to Oregon City (except the summer swap) until the Rasada museum parking lot work is completed and is really ready for Swap Meets. Keep in mind: The current situations encourage out of state sales of Oregon radios.

We should all be making plans for our big summer swap at Speed's in Keizer OR, July 18.



P S A R A
MEETING MINUTES

Seattle, Washington Sunday Apr. 19, 1992

Our Meeting was called to order at 1:05 PM. Twenty members and two guests were present. Both guests were here for the second meeting so we voted Al Ross and David Hruby in as new members.

OLD BUSINESS: The Treasurer's Report by Al Atworth says we are still doing OK. We still have a few copies of the "Radio Manufacturers' of the Twentys Vol #3" that members have ordered and still not picked up. We will offer those not claimed, For Sale at the next meeting. Also, Al still has some name tags that were ordered last year.

THE MUSEUM REPORT: By Ken Korhonen included some donated items, articles, adds and an Emerson TV sign from the 50's for the TV section of the radio display room. The Shoreline Historical Museum folks liked the movement sensor that starts Old Radio Programs when people walk into the room and may enlist Ken to help them Automate some of the lights in the building.

NEW BUSINESS: There is a possibility of publishing *The Horn of Plenty* every other month here in Seattle to relieve some of the pressure from Ed Buhite. Ed has some house restoration to do. If anyone would like to help with the copying, folding, stapling, or just in general help in getting the newsletter out call David Dintenfass or David Braun so we can get this organized. Also, if anyone has articles to publish call us or send them to us.

Harold Hagen had a short report on the disposition of Art Corbus's radio collection. Most of it was purchased by John Winter, who runs a radio museum in Bellingham, Washington. Art's items in the PSARA museum will remain there as a donation from the family. We will make memorial plaques in Art's name for the items.

Today's program included a short talk by Howard Page on constructing a loop antenna for the radiola radios. A very close replica of the original design. Also, AL Gledhill showed a very



nice planer for wood work. It's an attachment for radial arm saw motors. A neat item for very fine wood work. Our main event was a video tape of an interview with John Mullin from the Audio Engineering Society. He showed many items from early Audio and Video tape machines. His early Army experience in Germany during WWII started his development of audio recording which led to video tape through Ampex, 3M Co., and Bing Crosby development of tape. David Dintenfass has the tape if you want to see it.

THE NEXT MEETING WILL BE MAY 17th

David Braun, PSARA Secretary

OLD TIME RADIO

by Hugh Miller

LISTINGS FOR THE PUGET SOUND AREA

KWYZ - 1230 Everett	Mon - Fri	Saturday
Classic Radio Theater	7:15 - 7:45 AM	6 PM - 7 PM
" " "	5:15 - 5:45 PM	Sunday
" " "		2 AM - 3 AM
KBCS - 91.3 Bellevue	Tuesday	
The Shadow	7PM 7:30 PM	
KBCS - 91.3 Bellevue	Thursday	
Vintage Jazz	9:30 - Noon	
20th Century Jazz	2 PM - 4 PM	
KSER - 90.7 Lynwood	Monday	
Vintage Jazz	9 PM - 11 PM	
KSER - 90.7 Lynwood	Mon - Fri	
Road Movies	4:30 - 5 PM	
KSER - 90.7 Lynwood	Saturday	
Radio Adventures	7 PM - 8 PM	
Rudy's Radio Hour	8 PM - 9 PM	
KIRO - 710 Seattle	Sat to Sun	Sunday
When Radio Was	10PM - 1AM	10PM - 12PM
Mystery Theater		9 PM - 10PM
KUOW - 94.9 Seattle	Saturday	
Radio Roundup	10:25 PM	
Swing Years & Beyond	7 PM - 12 PM	



From the President's Desk

David Dintenfass, PSARA president

Turnout for the April meeting was higher-than-expected, despite the conflict with the Easter holiday. For those of you who weren't able to attend, *An Afternoon with John Mullin*, our videotape presentation, will be available in our library within the near future. I'd also like to thank members **Howard Page** and **Al Gledhill** for their "show-n-tell" items. And welcome to **Dave Ruby** and **Al Ross**, our newest PSARA members.

I'd like to announce a change in plans for our May meeting. Instead of my presentation on spray lacquering (to be re-scheduled), **Bill Hebert** will talk a bit about torroidal coils and demonstrate how to wind them. I've never seen a torroidal winder before, and I'll bet many of you haven't either.

Newsletter Changes

I'm sure most of you are aware of how much effort **Edwin Buhite**, our current editor, has put into our combined newsletter over the past five years. In addition, a number of other faithful members (mostly from NWVRS) have helped Edwin collate, staple, and distribute our newsletters over the past few years. In an effort to share some of this burden, we've tentatively agreed to divide responsibilities. For odd-numbered months, the newsletter will be edited and produced in Portland. For even-numbered months, the newsletter will be edited and produced in Seattle.

Edwin has agreed to stay on as editor for the Portland editions. I am volunteering to edit the Seattle editions, for the interim, until we can find a full-time editor. I'm pleased to announce that at the April meeting, several members said they'd help with the newsletter, including one member who is considering editing the newsletter. By next month, I am sure we'll have most of these issues settled.

PSARA Meetings

PSARA meetings are on the **third Sunday** of every month (second Sunday, December only) at the *Shoreline Historical Society*, 749 N. 175th Street, Seattle, just one block west of Aurora Avenue (route 99). Unless otherwise noted, meetings start at **1 pm**. A business meeting is first,



THE NEW TUBE NUMBERING SYSTEM

The Radiotron-Cunningham organization has initiated a new tube numbering system which works as follows:

The first number indicates the filament voltage. Thus a 2A5 or 2A3 has a filament voltage between 2 and 2.9, while a 25Z5 has a 25-volt filament.

The letter after this first number is somewhat arbitrary, although in general rectifiers take letters in the last of the alphabet (25Z5) while other tubes take letters in the first part of the alphabet.

The final number shows the number of usable tube elements which have external connections. Thus a 2A3 has external connections to 3 usable elements—in other words, it is a triode. On the other hand a suppressor grid not going to an external connection is not counted in this system.

OLD TUBE NUMBERS ARE NOT CHANGED AT ALL.

(from Modern Radio magazine, 3/1933)

followed by the technical presentation. Additionally, an informal swap meet (club members only, except in August) starts around 11 am in the parking lot.

Upcoming Presentations





This list is tentative and therefore subject to change.

- **May 17th:** Demonstration of torroidal coil-winding technique, presented by Bill Hebert.
- **June 21st:** Annual auction. Note new date and early start time (noon)!
- **July 19th:** "The Wonderful World of Shortwave," presented by Max Kaplan.
- **August 16th:** Annual PSARA swap meet, open to the public.
- **September 20th:** PSARA elections

As always, if you have any ideas for future presentations (or just need to discuss something), please call. You can reach me at (206) 784-4803 most evenings after 7 pm.

Regards,

Tubes With New-Code Numbers

TYPE	Filament	Replaces	Mu.	Output	Plate Volts	Load	Plate Res.	Bias
2A3—A.F. Output Triode	2.5V.- 2.5A.	45	4.2	3.5 Watts	250	2,500	765	40
2A5—A F. Output Pentode	2.5V.-1.75A.	47	220	5 watts	250	7,000	100,000	16.5
2A7—Det. Plus Electron-Coupled Oscillator...	2.5V.- 0.8A.	..	...		250	A.F.		**
6A7—Det. Plus Electron-Coupled Oscillator...	6.3V.- 0.3A.	..	...		250	A.F.		**
2B7—Duo-Diode Detector Plus Pentode.....	2.5V.- 0.8A.	..	730		250	I.F.		*
6B7—Duo-Diode Detector Plus Pentode.....	6.3V.- 0.3A.	..	730		The 25 Z5	250		I.F.
5Z3—Full-Wave Rectifier	5V.- 3.0A.	..	...	250 Ma.	500	But.	The 2A5	†
25Z5—Full-Wave Voltage-Doubling Rectifier..	25V.- 0.3A.	80 or 83	...	100 Ma.	125	But.	..	..

** In the 2B7 and 6B7 the input grid is biased by a 1-megohm resistor or 3-volt source. The screen is at plus 125 volts, the suppressor is permanently connected to the cathode. The pentode section may work into either an a.f. or i.f. amplifier.

* Depends on use for several of the grids present.

† Approximately equivalent to two 80 tubes in parallel, but with improved insulation.

(from Modern Radio Magazine, March 1933)



A 15-Watt High Quality Amplifier for Modulation & Public Address Work

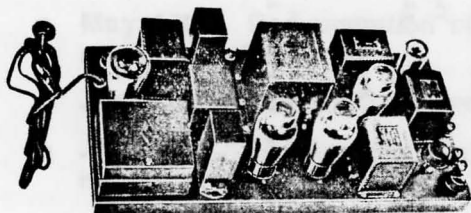
Using the 2A3 and Other New Tubes



(The 5Z3)



(The 2A3)



The audio system is built on a special National base 10 inches by 20 inches. In the front row, left to right, are the VSA power transformer, filter condenser and choke, 2A3 output tubes, B1 push-pull input transformer, volume control, microphone current control and 5 binding posts for microphone battery and microphone or line connections. In the rear row, left to right, is the line switch, the 5Z3 rectifier tube, filter choke and condenser, grounding post, type BM special output transformer, the interstage transformer and the 56 first-stage tube. In front of the 56 is the microphone transformer, and just to the left of it is the 59 second stage tube.

The recent new tubes have removed some of the most stubborn difficulties in the way of a self-contained audio amplifier with high-quality output adequate for either a public address system or the modulation of a radiophone transmitter suited for amateur use.

These problems all boil down to four—gain, hum, fidelity and power-capacity. It has been unfortunate that most of our tubes with fairly high gain were not of the separate-cathode type, so that they tended to introduce hum, or else they failed to provide enough output to swing the grids of a final push-pull output stage hard enough—or finally they were of the pentode type. The present tubes provide everything needed.

The First Stage

In the amplifier diagrammed here-with the first stage is a '56 tube with a "mu" of more than 13 and a separate

cathode, so that one can in this important stage get safely above the hum level. The input is from a National microphone transformer which is adapted for use with either a 2-button microphone or the usual phone lines. A "close talking" mike fed directly into this transformer and spoken to in the average manner at a distance of about 8 inches will swing the last stage fully—15 watts out. This is the condition found in an amateur radiophone station. However, a line does not produce such a high level, nor does a high-grade studio "mike." For these there should be a pre-amplifier, preferably battery-operated and self-contained device. The present crop of 2-volt low-microphonic tubes make such a thing possible and a suitable pre-amplifier is pictured herewith.

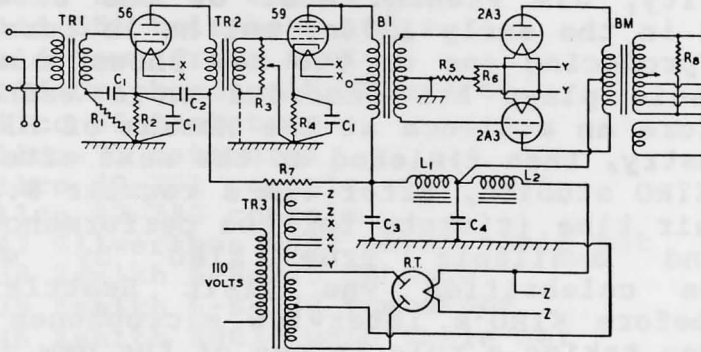
The Second Stage

The second stage, while less fussy than the first, should still be low as to hum and high as to gain—and fidelity. The 59 tube, when connected for Class A amplification, exactly fills the description and in the bargain provides adequate audio power to swing the output stage easily. The grid of the 59 is driven from the 56 through a normal audio transformer, in this case a National type A-100 and in turn feeds the 2A3 push-pull stage through a National push-pull transformer connected in a somewhat freakish manner, not intended by the designer but producing the desired result. It happens that there is no stock transformer whose primary fits into the 59 Class A plate circuit but a match is obtained by using in series the ENTIRE primary of a transformer intended to work out of a push-pull pair of 45 tubes. The secondary was intended to work into a pair of Class B push-pull tubes but is here used to drive a pair of 2A3 tubes



in Class A prime. Those familiar with the National type B1 transformer will be able to check over the impedances and see that they are sufficiently correctly matched for the purpose. In fact the

The variable mu tube's advantage does not appear on single-frequency laboratory tests, but it aids materially in reducing sharp accidental noises of high peak value. The grid lead must be



THE GENERAL DIAGRAM

TR1—Microphone or line transformer, type M.
 TR2—Interstage transformer, type A-100.
 TR3—Power supply transformer, type VSA.
 B1—Class B input transformer used as Class A coupling device.
 BM—Special output transformer, see text.
 L1 and L2—Type 80 chokes, 20 Hy. each.
 C1—1 mike, low voltage paper condensers.
 C2—1 mike, 600-volt paper condenser.
 C3, C4—4 mike, 800-volt, paper or electrolytic.

R1—100,000 ohms, 2 watts, filter.
 R2—2,000 to 2,500 ohms, 2 watts, bias.
 R3—500,000 ohms volume control.
 R4—1,200 ohms, 2 watts, bias.
 R5—700 ohms, 20 watts, bias.
 R6—60 ohms, center tapped.
 R7—50,000 ohms, filtering voltage reducer.
 R8—200,000 to 500,000 ohms, 4 watts, peak absorber.

amplifier output is excellent. The 2A3 pair is operated self-biased by a 700-ohm resistor and its output goes through the only piece of new equipment used, a National type BM transformer, whose primary is push-pull to work out of the 2A3 tubes and whose secondary is designed to work into a variety of loads in the vicinity of 5,000 to 10,000 ohms and also, by means of an auxiliary low-impedance secondary, into a 15-ohm load such as a bank of loud speakers.

Modifications

Several modifications are possible with little difficulty. For example, the 56, first-stage tube may be replaced by a 58 tube, with some loss in high-note response and a considerable gain at other frequencies. The use of a 58 is not quite "kosher" theoretically, but practically the audio fidelity is materially better than with a fixed-mu tube in this circuit. The same expedient will be found used in a number of makes of amplifiers.

shielded. The proper bias resistor in this case seems to be about 500 ohms—which is also a compromise between gain and low background.

The transformers should be left where shown, the positions having been found to give the least hum.

The resistors seen at the secondary terminals of the output transformer are of 250,000 ohms each, one across each half of the secondary. They are peak-absorbers to prevent damage from thumps and accidental sharp noises.

As a Driver for Larger Phones

Finally the amplifier as a whole may be used to drive a pair of 845 ("50-watt") Class A or A prime tubes, or a pair of 203A Class B tubes, the output levels of which are about 40, 75 and 200 audio watts respectively. Thus the unit is a good start for medium-sized radio-telephone transmitters. The BM transformer is provided with a low-resistance center-tapped secondary to permit such use.

(from Modern Radio magazine, March 1933)



Mystery Theater

by Hugh Miller

Mystery Theater is locally written and produced by Seattle's likeable and best known radio personality, Jim French. Most of the shows he produced in the early 1970s, but he is currently writing/producing one or two new shows a month. These radio plays are recorded on a Wednesday nite before an audience at the Museum of History and Industry, then finished up the next afternoon at the KIRO studios, after Jim's regular 9:30 AM - Noon air time (tickets for the performance are free and available from KIRO by mail). Sometimes celebrities who visit Seattle and appear before KIRO's interview microphones find themselves taking a role in one of the new plays.

One of Mystery theater's best shows is "The Adventures of Harry Nile", about a less-than-glamorous private detective in 1940 Los Angeles. An early Harry Nile adventure, "Seattle Blues", was set in our hometown and has Harry griping about the constant drizzle. During a recent fund raiser on KPLU-FM, one of the call-in donors greeted "Harry Nile", who was among volunteer helpers answering pledge phones. "Harry" laughed, "Where ever I go, I just can't escape that name."

In my opinion, the amazingly prolific author of the Mystery theater shows, Jim French, is surely becoming a legend in Northwest broadcasting history; and the programs themselves are a splendid cultural legacy for the region. In future years, as the shows become more widely known, they are sure to be valued as classics in the treasure trove of radio entertainment.



Ole! (acquisitions)

R. A. Dielschneider

- Bendix 697 radio/phono end table
- Grunow 1191 ch 11G console
- Guild 556 telephone radio
- Guild Town Crier radio
- Guild Graphonola AM/FM stereo
- Philco 66 tombstone
- Philco 71 cathedral
- Philco 40-201 console
- Philco 42-380 console
- 1947 Silvertone 6002 metal table set
- 1938 Zenith 6-S-275 console
- 1939 Zenith 6-S-330 tombstone
- 1946 Zenith 8H034 wood table set
- Zenith 6D-2614-N wood table set

Harold Hagen

- 1937 Philco 37-93 cathedral
- Airline Movie-dial console (6V).

Scott MacGregor

- 1935 Zenith 807 tombstone
- 1937 Zenith 6S152 console
- 1938 Zenith 6S254 console
- 1940 Zenith 6S439 table set
- 1940 Zenith 8S458 console
- 1940 Zenith 8S463 console
- 1941 Zenith 8S563 console
- 1942 Zenith 12H670 console
- 1946 Bendix 526B table set

Jim Mason

- 1922 RCA Aeriola Sr. receiver & amplifier
- 1923 Atwater Kent 9 Breadboard
- 1931 Brunswick AC10 cathedral
- 1937 Grunow 941 console
- 1948 Philco 48-472 AM/FM table set
- 1776/1976 Bicentennial novelty
- 1949 GE 145 portable

Robert Rettmer

- 1928 Atwater Kent model 38
- 1950s Zenith Royal 500



SWAP SHOP

WANTED

Tubes: five good 01A & one good 112A or 71A.
Carl Miner (206) 878/9228

Wanted for PSARA Museum: Rider Manuals 4, 5, 8, 18, 20-23, Sams transistor radio & auto radio Series books. (206) 932/9363.

Crosley 59 chassis (used in repwoods), Sky Chief radios, Majestic 20 chassis, Catalin/mirror/art deco/colored plastic radios, leatherette colored radios, Surveillance video cameras, Pre-1950 TV sets & literature. Ken Korhonen (503) 932/9363

Zenith 9-S-263 console or just cabinet.
Edwin Buhite (503) 288/8719.

Schematic/repair info for Comadore 1084 color monitor. David Braun (206) 363/1980

Majestic 5LA5 (Collins pg 95). Scott MacGregor
1115 SW 25th St Troutdale OR 97060 (503) 661/1294

Transistor radios and small tube portables.
S. Martin 815 N. Hayden Rd. B-204, Scotts. AZ
85257 (602) 994/3162

SWAP

RCA R-8 Gothic tombstone for Zenith 6-V-27 or
Amplion Horn. Edwin Buhite (503) 288/8719

FOR SALE

GRUNOW 1191, ch. 11-G Walnut console: 11 tubes,
Round Black dial with white nomenclature lights
multi color when turned on. Needs repairs, call
for details \$65/OBO. Rudy Zvarich (503) 255/2227

MEISSNER 2961 F.U. console, 29 tubes (see Sams
27) Call for details Edwin Buhite (503) 288/8719

Tubes, Parts, Receivers, Electronic Test
equipment. Bob Lee at R5-D3 Electronic Surplus.
6111 SE 82nd Ave Portland OR 97266 (503) 774/6560

LEADS

[Radios available from non-members. Members providing leads are {noted}.]

Philco 37-610 Tombstone Union Gospel Thrift
Store in Tigard OR {Scott MacGregor}

Tubes 3AT2, 6CG8A, 6GH8A, 6GY6, 6HQ5, 6HB7,
8FQ7, 12AT7. R.L.Fitts (503) 935/1218 {mail}



NATIONAL "AGS"

COMMUNICATION
TYPE RECEIVER

NATIONAL'S LATEST
AND FINEST



The amateur who is particular about his receiver; who knows and appreciates the little touches of refinement in design that give TOP QUALITY to radio equipment; will welcome the NATIONAL "AGS" Communication Type Receiver.

The "AGS" has been developed in cooperation with the Airways Division of the United States Department of Commerce to meet the exceedingly strict requirements of aviation ground station service. Every latest development has been included to make the "AGS" the very best possible in performance and every day reliability.

NOW AVAILABLE WITH BAND-SPREAD COILS

The "AGS" has band-spread coils for the 20, 40, 80 and 160 meter ham bands either in place of the standard 15 to 200 meter coils or as additional equipment.

ELECTRON-COUPLED OSCILLATOR

Made with electron-coupled oscillator, the "AGS" has maximum stability.

OUTLINE SPECIFICATIONS

1. CW or Voice, by shift of one control.
2. Optional manual or automatic volume-control by turn of switch.
3. Coil change from front of panel.
4. Tuned RF ahead of front detector. Very high signal-to-noise ratio, and high weak signal response.
5. Suppressed image.
6. Single control S.F.L. tuning by 270° precision Velvet-

Vernier Dial with German silver scale and vernier reading of 1/10 division.

7. Calibration curves and tuning log on front of panel.
8. Phone or speaker output.
9. Relay rack mounting, extremely rigid construction—front panel 8 1/2" x 19".
10. Frequency range 1500 to 2000 kc. Band spread coils available.

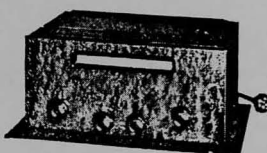
OPERATED ON AC
NATIONAL Power Units for AC operation. RCA Licensed.

IN THE LEAD for 4 Years NATIONAL SW-58 THRILL BOX

More than four years ago short-wave broadcast listeners heard programs the world over with NATIONAL Thrill Boxes. Each year since then the THRILL BOX has been improved kept in the lead, with new and better tubes and new and better circuit design. Now the SW-58 THRILL BOX offers performance not dreamed of in September, 1928.

THE SW-58 THRILL BOX HAS

Utmost Sensitivity, Extremely Low Background Noise (highest signal-to-noise ratio), Unequaled Flexibility and Ease of Control. "Controlled Selectivity." An en-



tirely new feature, found only in the SW-58, which allows the set always to be operated at the best selectivity consistent with signal strength and reception conditions. Loud Speaker Performance. A Push Pull Stage with 245 tubes for best tone-quality gives fine loudspeaker volume. There is also a jack for headphones. Full AC or DC. The AC set operates with the NATIONAL 5880 Special SW Power Supply with extra shielding and filter sections for humless operation. RCA Licensed. Battery model also available for use where there is no AC current.

ONE USER SAYS:

"I would like to tell you that the Thrill Box is absolutely the best short-wave set I have heard, regardless of price. I have received stations in Australia, Holland, England, Germany, South America, Central America, all on the loudspeaker."

San Antonio, Texas.
(Name on request.)

This is one of countless similar unsolicited, unpaid for testimonials from THRILL BOX users who bought and paid for their THRILL BOXES. Send for free book.

SEND FOR THIS FREE 24-PAGE BOOK

If you did not get a copy of this book with your November issue of "Modern Radio," send for it at once. Only a few copies still available. Full and up-to-date information on short-wave receivers, radio time and revised call list of international short-wave broadcasting stations giving wave lengths, call letters and full particulars. USE COUPON BELOW.

NATIONAL

A. C. SW-58 THRILL-BOX



NATIONAL CO., Inc.,
61 Sherman St., Malden, Mass.
Gentlemen: Please send me your new free 24-page book, WORLD WIDE SHORT-WAVE RECEPTION. I enclose 10c in stamps to cover mailing cost.
Name
Address

(from Modern Radio magazine, March 1933)

