

# A PAGE FOR RADIO ENTHUSIASTS

## RADIO SQUEALS BECOME MUSIC IN APPARATUS

By C. E. BUTTERFIELD  
New York (AP)—The squeal of radio has been turned into music.

Known to technicians as oscillation, this electrical condition which radio engineers worked so long to eradicate from the broadcast receiver is the foundation of the invention of Leon Theremin, Russian scientist and inventor.

He has made oscillations behave. They now come from the loudspeaker as sweet tones of music rather than growling, screeching sounds which once were the bane of the owners of regenerative and radio frequency sets.

Professor Theremin really has gone the next packer one better. The packer sells practically everything from the hog but the squeal. The inventor uses the radio squeal to make melodious music.

How it is done? Tubes just like those of the radio set produce the squeal that results in a combination of tones duplicated by no other musical instrument.

Eight tubes housed in a compact cabinet with a music sheet rest, generate and amplify the oscillations. There are two circuits to build up oscillations. These produce a beat note, or a third series of oscillations, in a mixing tube, which is then fed into the audio stages and loudspeaker.

The instrument, named after the inventor who has granted an option on exclusive patent rights to the Radio-Victor corporation, has three 227 tubes as oscillators. The mixer tube is a screen grid. Two 171A's are audio amplifiers, and a 120 acts as a volume control balance tube.

Action is entirely electrical. Unlike any other musical instrument there are no strings or mechanical devices to produce musical vibrations. Tone variations, and volume is regulated merely by waving the hands in the air.

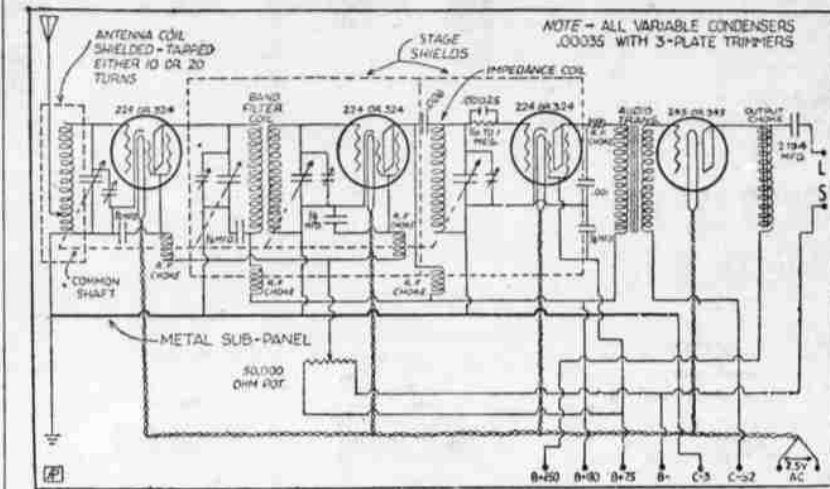
To the uninitiated, a person playing the device seems to be an orchestra leader without an orchestra. There is music but no apparent means of producing it visible except something resembling a dignified music rack.

Movements of the hands are all important. They alter the magnetic fields which encircle two rods that serve as antennae.

One rod, a straight bar, controls tone or pitch. The other, a looped horizontal bar, regulates volume.

Nearness of the hands to the rods determines volume and the frequency or pitch of the music. The closer the left hand to the volume rod the softer the note. High tones are produced with the right hand near the straight bar.

## EFFICIENT FOUR-TUBE AC RECEIVER DESIGNED FOR NEW SCREEN GRIDS



Four tubes have been incorporated in the above receiver to duplicate the efficiency of some sets having a greater number of tubes. All equipment is standard.

By C. E. BUTTERFIELD  
(Associated Press Radio Editor)  
New York (AP)—Fruitful experimentation has produced the Quarto, a four-tube AC screen receiver that works.

Selectivity, sensitivity, and tonal quality have not been sacrificed in the set, which gives an indication of the possibilities of the screen grid tube. Its ability to get distance as well as to make crowded locals behave, as demonstrated early in the experiments.

Three of the tubes were screen grids, and the fourth was a 245 or 345 power output. These four were Location of the band filter in the first stage was necessary. When it and the impedance stage were reversed, the selectivity dropped considerably, although there was an increase in volume.

With a single stage of radio, amplification was sufficient to make a dynamic or compressor speaker talk entirely too loud. Besides, the noise level was reduced somewhat. Hum was at a minimum.

By trying all variable condensers together with an extension shaft, single control was effected, with a trimmer on the antenna condenser selectivity and a following impedance coupled stage gave amplification. Of course, there was considerable amplification in the band filter, but its primary purpose was to sharpen the signal before it was passed on.

Elimination of a band filter stage gave another advantage.

The tuning circuit was a com-

- PARTS LIST FOR QUARTO SCREEN GRID RECEIVER**
- 1 Tapped antenna coil
  - 1 Band filter coil
  - 1 Impedance coil
  - (All coils matched for .00035 condensers)
  - 4 .00035 variable condensers
  - 4 Midset condensers cut down to three plates
  - 1 Audio transformer (low ratio)
  - 1 Output choke
  - 3 Five-prong sockets
  - Four-prong socket
  - RF chokes (145 millihenries)
  - 2 or 4 mfd. blocking condensers
  - 4 1/2 mfd. bypass condensers
  - 1 .001 condenser
  - 1 .008 condenser
  - 1 .00025 grid condenser with clips
  - 1 grid leak (from over 1 meg.)
  - 1 15-ohm condenser extension shaft
  - 1 drum dial
  - 1 Shield (1/2" x 1/2" to be cut down)
  - 1 50,000 ohm potentiometer
  - 1 Zenith speaker
- 1 Foundation unit, including: Tull panel, 12x30 metal sub-panel, hardware, hookup wire, ant. and grid binding posts, speaker terminals and two 6x7 shields. (If wood baseboard is used, terms in foundation unit must be obtained separately.)
- Experimenters desiring to duplicate the original layout may obtain list of parts by addressing Radio Editor, Associated Press, 323 Madison Avenue, New York.

into account this additional resistance, which in effect was shunted across part of the voltage divider of the pack.

The AC filament supply lead was common to all tubes, as each operates on 2.5 volts. Only four plate and screen grid supply leads were necessary, 25, 180, and 75 volts. Two other leads supplied C bias, 3 volts for the screen grids and approximately 50 for the 245.

In the original layout a metal subpanel was used, although a wooden baseboard will do. The metal subpanel came already punched, but some additional holes were required, as it was not originally designed for this outfit. If wood is used, it should be mounted on cleats and raised an inch to permit subpanel wiring and the mounting thereunder of several of the bypass condensers.

All coils and condensers should be as closely matched as possible to permit accurate tuning with a single control. To overcome any discrepancies, trimmers were included on each condenser, all but that at the antenna being mounted on the shields.

## AC OPERATING COST EASILY DETERMINED

New York (AP)—The worried householder, included in whose monthly duties is the paying of the light bill, often wonders if it isn't an expensive proposition to run an AC set.

Numerous tests have shown that this worry is useless. The cost of AC receiver operation invariably will be less than the former cost of charging the storage battery and buying new B's.

It is possible to make a simple check to find exactly what is being paid by determining how fast the meter disk in a house electric meter revolves.

Outlining this scheme, George Lewis, tube manufacturer, says: "If with only a 75-watt lamp turned on, the disk revolves five times a minute, and with only the radio set going it revolves 15 times per minute, it is obvious that the set uses three times as much power as the 75-watt lamp, or 225 watts."

"Multiply this by the number of hours a month the set is in operation, divide by 1,000, multiply by the cost of electricity per kilowatt hour, and there you are."

## COLLEGE COURSES BY RADIO PLANNED

Cleveland (AP)—Listeners of WTAM may attend Baldwin-Wallace college at Berea, Ohio, this year by remote control.

Classes will be conducted over the air by the local station in conjunction with the college. Two semesters of work divided into 17 lectures each will be given.

The subjects will be astronomy, chemistry, biology, physics, vocational guidance, English, history, public speaking and sociology. The lectures will require 15 minutes.

## CONVICTS BUY RADIO

Greensboro, N. C. (AP)—Prisoners at the central North Carolina prison camp have joined in the purchase of a radio receiver on the installment plan. They hear church services Sundays and are allowed to listen in on other programs during the week.

## DEMPESEY APPROVES FIGHT BROADCASTS

Chicago (AP)—Jack Dempsey has enlisted broadcasting to aid in his boxing promotion here, permitting microphones at the ringside, a practice that his rival Paddy Harmon would not admit to his stadium. Dempsey's bouts are in the Coliseum.

The former heavyweight champion will sponsor six shows at the Coliseum. He holds that ringside broadcasting encourages rather than discourages attendance, as Harmon contends.

Jim Mullins, who promoted bouts in the Coliseum last year, sanctioned ringside broadcasts.

## Vibbert & Todd Templetone Radio

ELECTRICAL SUPPLIES—CONTRACTING—MOTOR REPAIRING—REWINDING—INSTALLING  
Telephone 2112—191 S. High Street

## AN OPEN LETTER

From Vibbert & Todd, Salem, Oregon.

To Mr. B. B. Williams, State House, Sec'y of State Office, Salem, Oregon.

Dear Mr. Williams:

Thru Radio Station KGW, Vibbert & Todd, Salem's Franchise Dealer for the Templetone Radio Receiver, have just learned that your letter giving the reasons why you liked the Templetone Radio Receiver, received the unanimous approval of the Judges appointed by that Station for the Temple Letter Contest just concluded.

It is not only our pleasure to congratulate you but to present to you a Lowboy Templetone Receiver in compliance with the terms of the Contest. This Receiver is complete in every detail—ready for service in your home.

Your Templetone Radio Receiver is now on display in our window at 141 N. High Street, there also you can see your letter along with letters from other contestants, who listened to a Templetone Receiver and too enjoyed its marvelous pure tonal qualities.

It is our hope, Mr. Williams, that you and your friends, along with other many Temple Radio Owners, will continue to secure the enjoyable entertainment that you aptly expressed in your letter.

Cordially,  
VIBBERT & TODD.

## SEALS GUARDED BY U. S. NAVAL RADIO STATION

Washington (AP)—On St. Paul Island, where only the bark of seals and breakers of the Bering Sea disturb the stillness of "the top of the world," radio binds a small community to the outside.

An isolated outpost, ice-bound for many months and even without a cable to join it to the mainland, its only connecting link is the radio station maintained by the U. S. Navy.

The radio's mission is to enable strict government surveillance of the seal herds whose only land home lies on the islands of St. Paul and St. George, 40 miles distant.

By wireless, representatives of the bureau of fisheries keep in contact with the revenue cutters which police the waters, and with the other government stations in Alaska and the United States.

From the primary function of guarding the seal herd, the station has assumed further importance as the only link binding the bleak community to the world. It is an outpost of military value to connect Siberia to the western hemisphere, and has been equipped to give compass bearings to vessels.

Thirteen men, under charge of a chief radio operator, run the station. The station has two transmitters, one of two kilowatts, operating on medium frequency, and one of a single kilowatt, operating on high frequency.

Press news is copied by the operators and programs broadcast by commercial stations are easily heard. Reception is good, with little trouble from static.

Decision to hold the annual trade show of RMA in Atlantic City in 1930 was based on a desire to bring the exhibition east after three years in the middle west. The date is to be selected, but it will be some time in June.

## GET GOOD RECEPTION KANSAS SALT MINE

Hutchinson, Kas. (AP)—Radio reception has been accomplished at the bottom of a salt mine 645 feet below the surface.

An ordinary set was used, with a wire stretched to adjacent timbers as an antenna. Resting on a crystal salt floor, the set picked up seven stations within half an hour, including broadcasts from Chicago, Kansas City, Cincinnati, Louisville and Des Moines. No special attachments were used.

## FACTORY MAN HERE TO PRESENT AWARD

Vibbert and Todd, Salem's franchise dealer for the Templetone radio receiver, reported a visit from Arthur B. Detsch, factory representative of the Temple corporation, Chicago, makers of the popular named Temple receiver.

Mr. Detsch came to Salem expressly to congratulate B. B. Williams of the secretary of state's office and to assist Messrs. Vibbert and Todd in presenting Williams

with a Templetone radio receiver that he won recently through a Temple letter contest initiated by radio station KGW of Portland.

Both Vibbert and Todd stated that so many excellent and worthy letters were received from Salem contestants that they regretted very much that they only had one Templetone radio receiver to present.

**RUN CLOCKS BY RADIO**  
Washington (AP)—The federal radio commission has granted the Elgin Watch company the use of a wavelength to conduct experiments in the regulating of watches and clocks by radio.

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Temple's Acoustic engineers have solved radio's most perplexing problem—how to cure the hum that kills the music. How to produce pure tone, rich, faithful, flawless, unimpaird. They have created a set and a speaker in which an acoustic miracle has been worked.

Sybarites who cannot enjoy music with a mechanical flavor revel in the sheer joy of the famous new Templetone.

Temple's well-known 227 tubes—push pull application—using two new 245 power tubes—full-wave rectification. A power supply sized in every respect in combination with the Temple Dynamic Speaker assures maximum tone... \$149. The Temple Complete sets... \$189 (includes The Temple Receiver and complete accessories).  
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Local and distant switch permits tremendous volume of Temple to be softened for local use.  
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*Majestic's*  
**COLORFUL TONE**  
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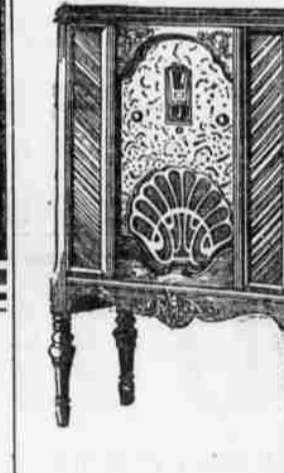
**MODEL 91** Power Detection and the new 45 tubes plus four tuned stages of radio frequency. Absolutely no hum or oscillation at any wave length. Automatic sensitivity control gives uniform range and power all over the dial. Improved Majestic Super-Dynamic Speaker. Heavy, sturdy Majestic power unit with positive voltage ballast insures long life and safety. Early English design cabinet of American walnut. Instrument panel overlaid with genuine imported Australian lacewood. Escutcheon plate and knobs finished in genuine silver.

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All-Electric  
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THE same superb radio that you have seen announced so extensively in The Saturday Evening Post and many other magazines is here today for your inspection! Come in and hear the pure, rich tone of the new Philco Lowboy. See for yourself its entrancingly beautiful cabinet, a distinguished addition to the furnishing of the finest home.

**Balanced Units**  
By extraordinary engineering, Philco has attained a precise electrical balance of all units, resulting in a new high standard of tonal fidelity, split-hair selectivity, and great distance range; and every Philco is balanced to use TWO 245 power tubes, push-pull.

**Free Home Demonstration**  
We will gladly deliver this superb Philco Lowboy to your home on Free Demonstration. Prove to yourself its rare purity of tone, remarkable selectivity and vast distance range. Easy payments, if you decide to buy after trial.

**Call—Look—Hear**  
Come in—see and hear this remarkable new Philco. Examine the various beautiful models. Select the one you want on Free Demonstration. Call today or telephone.

**THE LOWBOY**  
Genuine Oriental walnut and bird's-eye maple give this cabinet a rich distinction such as you had never hoped to find at the price. Philco matched Electro-Dynamic Speaker and Acoustic Equalizer, built-in, give it unsurpassed tonal fidelity. Furnished either with Neutrodyne-Plus or Screen Grid circuit.

**Neutrodyne-Plus**  
**\$159.00**  
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Complete with all Tubes

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