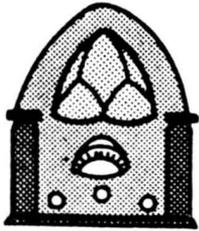


The Mid-Atlantic Antique Radio Club



A Mid-Atlantic Antique Radio Club Monograph

**MAARC Monograph Number 3
January 1993**

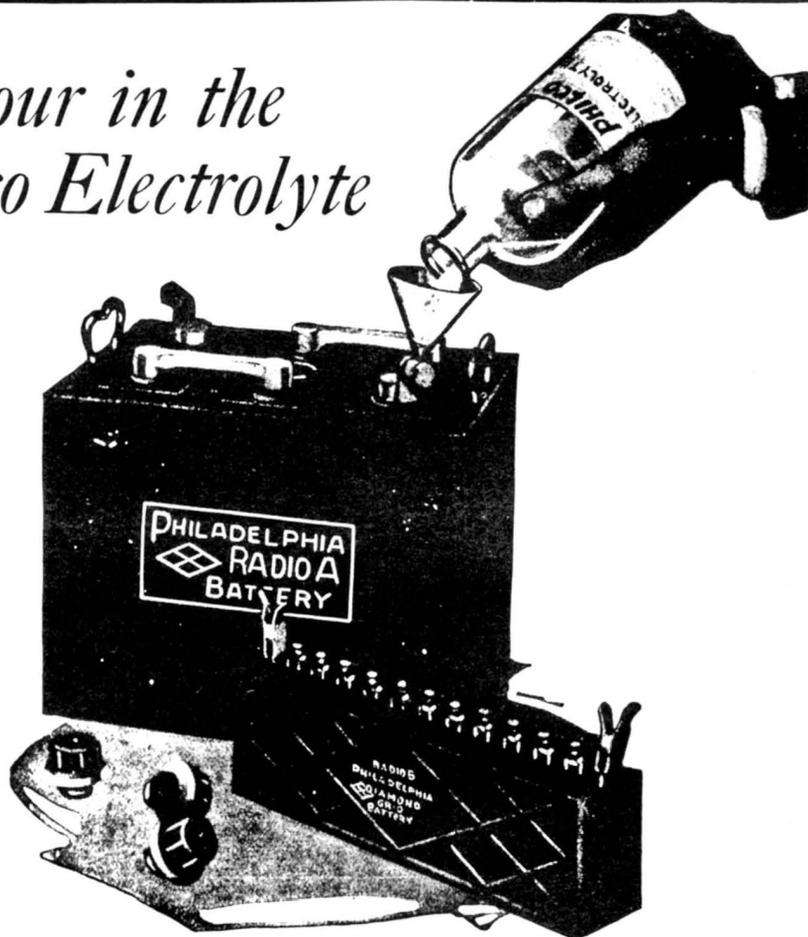
1928 - BIRTH OF THE PHILCO RADIO

by Michael Prosis

MAARC Monographs: MAARC Monographs are articles of lasting value published separately from MAARC's monthly Newsletter, but provided to MAARC members at no extra cost.

This is MAARC's third monograph. Copies of Monograph 1, "All About Getters" by Brian Belanger, and Monograph 2, "A Tester for Early Battery Set Vacuum Tubes" by Gordon Symonds, are available from MAARC's Librarian.

*Just pour in the
Philco Electrolyte*



—and these remarkable new Philco Drynomic Radio "A" and "B" Batteries are ready for use. No waiting for any initial charging. No paying for battery life and current lost before you get them.

Philco Drynomic Radio Batteries are charged DRY at the factory—a revolutionary advance in battery engineering. That means their life doesn't start until the Philco electrolyte is added.

What's equally important—Philco Radio Batteries absolutely free radio reception from "frying," cracking noises in the head phones, and the need of constant "tuning in."

These wonderful new Philco Drynomic Radio Batteries give you the convenience of a dry-cell battery with all the advantages—the absolute dependability and long life—of a Philco Storage Battery, standard for automobiles, mine locomotives and other heavy-duty services.

Equip your radio with Philco Radio "A" and "B" Batteries NOW. You'll be astonished how much better results—at the increased pleasure and satisfaction—you get from your radio set.

Ask your dealer for them or go to the nearest Philadelphia Diamond-Grid Battery Service Station.

RADIO DEALERS—Philco Drynomic Batteries let you into the battery business on a package goods basis. No acid sloppage. No charging equipment. No batteries going bad in stock. Wire or write for details.

Philadelphia Storage Battery Company, Philadelphia.

Makers of the famous Philco Slotted-Retainer Batteries—standard for automobiles, electric passenger cars and trucks, mine locomotives and other high-power, heavy-duty battery services.

PHILCO
DRYNOMIC RADIO
BATTERIES

MAIL THIS COUPON TODAY
 Don't wait to know more about the new Philco
 Drynomic Radio Batteries.
 Name
 Street
 City State Business

Figure 1. Philco radio battery ad from Radio News, Jan. 1923, p. 1311.

PHILCO *Electric* **RADIO** "neutrodyne-plus"

1928 - BIRTH OF PHILCO RADIO

by Michael Prosisie (© 1992)

MAARC Librarian Michael Prosisie is an avid collector of Philco radios. He is particularly fond of the early Philcos, and in this monograph he shares with us the fascinating story of how Philco became, almost overnight, a major radio manufacturer. Since Michael's story begins when Philco made its decision to manufacture radios, the following abbreviated historical sketch summarizes the history of Philco prior to that date. Consult the items in Michael's bibliography for more details.

In 1892, a small group of Philadelphians organized a new firm called the Spencer Company to manufacture carbon arc street lamps. Later that year, the company's name was changed to the Helios Electric Co. Helios was never very successful, and essentially died just before the turn of the century. The company was rejuvenated in 1904. In 1906 its name was changed to the Philadelphia Storage Battery Company (Philco for short) because its directors had decided that storage batteries might be a lucrative business. They were right. Philco was much more successful than its predecessor, Helios.

During the radio boom of the early 1920s, Philco became a major supplier of storage batteries for radio owners. Eventually, Philco developed rectifier power supplies to replace batteries, and sold more than a million of their "socket-power" units. (In addition to showing Philco's line of new radios circa 1928, the illustrations in this monograph show many of Philco's battery and battery eliminator products that accounted for the company's success prior to the time they introduced their new radios.) By the late 1920s ac-operated radios employing the new ac tubes such as the 226 and 227 threatened to make battery-operated sets employing the ubiquitous 01-A tubes obsolete (except for rural families). Recognizing that the decline of battery sets (and their associated batteries or battery eliminators) was imminent, Philco had to rethink their corporate strategy. They decided to manufacture ac-operated radios, and that is where Michael's story begins - Ed.

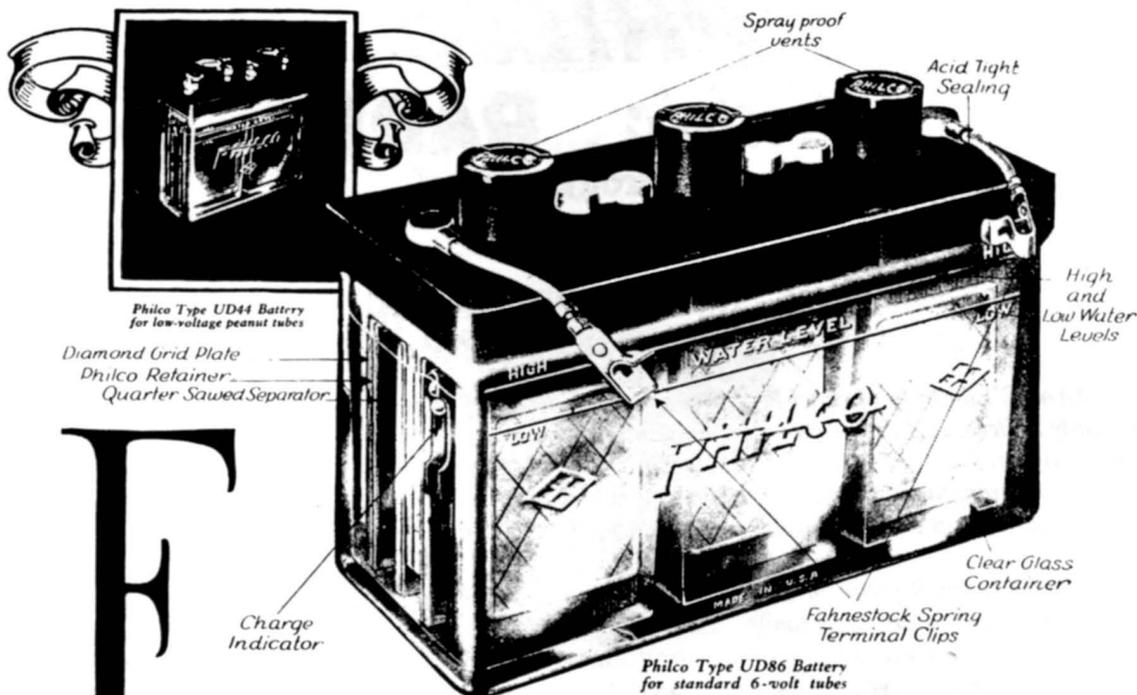
INTRODUCTION

Philco entered the 1927-28 sales year with grandiose plans for its new 1928 product line, featuring a full line of new Socket Power units, storage batteries, and other accessories. At the time, their Socket Power battery eliminator units were their main "bread and butter." In a confidential planning booklet for the year 1928, the company had forecast a sales volume of 1,000,000 Socket Power units, and had set aside an advertising budget of one million dollars to accomplish this goal. It is important to note here that nowhere in this 1928 Planning Guide is there any mention of Philco brand radios.

Still known as the Philadelphia Storage Battery Company, they started out the 1928 season promoting

a new feature of the Socket Power units, which they called the "Philco Current Economizer." Advertising for Philco's 1928 products, which officially went on sale in late summer 1927, boasted that "the new 1928 models of the Philco AB Socket Powers are equipped with the new Current Economizer!" In reality this new feature was simply a four-position rotary switch that selectively controlled the ampere charge rate.

Unfortunately for Philco, this Current Economizer, along with all their other fine products of 1928, became nearly worthless months before the actual calendar year began. This major turning point in Philco's history was due to RCA's introduction in September 1927 of an ac-powered set (Model 17), using RCA's newly developed alternating current (ac) tubes, the 226 and 227. For the first time, the con-



Forget all you ever knew about radio batteries

No more need of big, cumbersome batteries in the cellar for satisfactory, long-distance radio reception.

The new Philco Rechargeable Radio Batteries—assembled in small, attractive, acid-tight GLASS cases—are absolutely safe for use anywhere in your home.

No more need of guess-work charging or using a sloppy old-fashioned hydrometer. The exclusive built-in Philco Charge Indicator tells you all conditions of charge and discharge.

Philco Batteries are Drymatic—shipped DRY charged. Their life starts

when YOU pour in the electrolyte—not months earlier at the factory.

Equally important—Philco Batteries deliver a strong, uniform current over long periods. This means great amplifying power—noiseless service—no frequent, troublesome adjustments.

Philco Chargers make recharging so easy, simple and safe a child can do it. Just a throw of a switch—or a plug in a socket. No odor—no noise—no danger of overcharging.

See them at your nearest Philco Service Station, Radio or Music Dealer's, or fill out the coupon below and mail to us.

PRICES

Philco Type UD86 Battery for standard 6-volt tubes. Guaranteed 2 years **\$16.00***

Philco Type UD44 Battery for low-voltage peanut tubes. Guaranteed 2 years **\$8.00***

* East of the Mississippi River

The Philadelphia Storage Battery Company, Philadelphia

PHILCO DRYNOMIC RADIO BATTERIES

Philadelphia Storage Battery Co.
Ontario & C Sts., Philadelphia

SIRS—I am interested in learning more about the new Philco Rechargeable Storage Batteries for radio.

Name

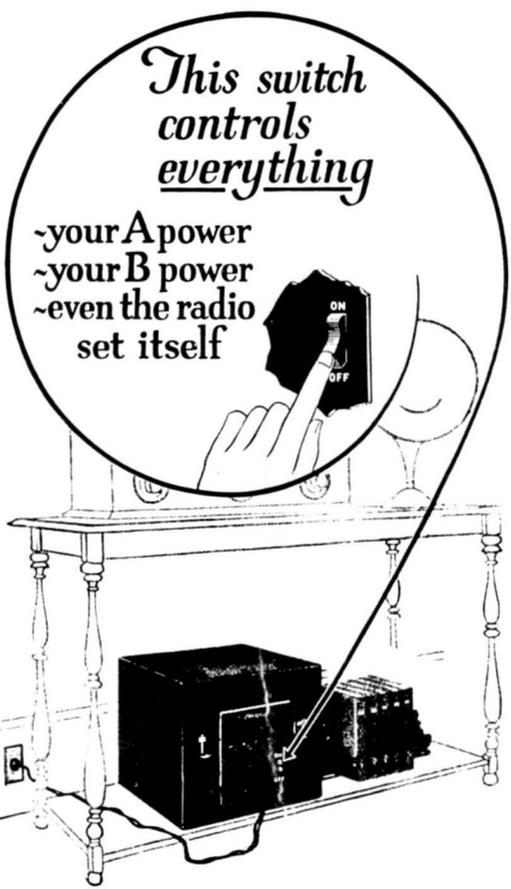
City State

Name of Radio Set

If you are a dealer in radio, please state

Figure 2. Philco radio battery ad from Radio News of September 1924, p. 351.

Both A and B radio power from your house current



Philco Socket Powers are plugged permanently into a wall or lamp socket. They change your bumpy alternating house current into the smooth, hum-free, *direct* current necessary for your radio.

One switch controls everything—"A" power, "B" power, even the radio set itself. Snap it ON and you get a strong, uniform flow of both "A" and "B" power. Snap it OFF and your power is shut off—your radio is silent—and current begins gently feeding back into Socket Power "A" from your light wires.

No high voltage transformers—no moving parts—no hum—no distortion—no falling off in reception. As dependable as your electric current and turned on exactly like an electric light.

Once you connect Philco Socket Power to your radio you never need change a single wire. You forget all about getting wires mixed and burning out tubes. You forget that radio is mysterious and technical. You just enjoy it.

Sold and demonstrated by leading radio and music stores and by Philco Diamond Grid Battery Dealers.

For Radiola Super-Heterodyne

(old and new models) and other sets using 3-volt dry-cell tubes, buy Philco Socket Power "AB" shown above. Both "A" and "B" power built into one cabinet, satin-finished in brown mahogany. Connect to your radio once for all. Plug into a light socket. Turn on your radio switch and leave it on. After that there is nothing to think about but the one Socket Power switch. Snap it ON and enjoy your radio. Snap it OFF and go to bed.

For 50-60 cycle 105-125 volt alternating current \$65.00

For 25-40 cycle 105-125 volt alternating current \$68.50

Socket Power "B" at only \$47.50 (see paragraph on the right) may be used on dry-cell tube sets where house current "B" power alone is desired.

For Storage Battery (6 volt) tubes

buy Socket Powers "A" and "B" in individual cases. Either may be used alone but for maximum convenience use both together. Plug the "B" into the built-in socket on the "A." Plug the "A" into a lamp or wall socket. Turn on the "B" switch and your radio switch and leave them turned on. The one "A" switch then controls everything. Snap it ON and enjoy your radio. Snap it OFF and go to bed.

Socket Power "A" for 50-60 cycle 105-125 volt alternating current \$42.50

Socket Power "B" for 50-60 cycle 105-125 volt alternating current \$47.50

Socket Power "B" for 25-40 cycle 105-125 volt alternating current \$52.50

Philadelphia Storage Battery Company
Philadelphia



PHILCO RADIO A AND B SOCKET POWERS

Philco also builds rechargeable batteries, unique because they may be permanently connected to your radio and safely charged in your living room without changing any wires. Easier than the periodical renewing and rewiring of dry cells.

Philco Standard "B" Battery—a complete Adam-brown mahogany finish replacement for 90 volts of dry cells. Only \$19.85!

Buy a Philco Diamond Grid Battery for your automobile

Philco "A" Batteries in acid-tinted glass cases—for dry-cell tubes, \$8; 6-volt tubes, \$16. Built-in charge indicators.

In rubber cases, subdued mahogany color, \$14.85 and up.

Philco Radio Batteries are built *Dynamic*—DRY but CHARGED. Their life doesn't start until the dealer pours in the electrolyte. You can't get a stale *Dynamic* Philco.

Figure 3. Ad for Philco "Socket Power" A/B eliminator, from *The Saturday Evening Post* of November 7, 1925. By the mid-1920s, battery eliminators had become a growing part of Philco's product line.

Every radio set
in America
should have

Philco socket power B



Eliminates "B" batteries—both dry and storage.

Can be used on any set—in any home where ordinary alternating house current is available.

Plugs permanently into a lamp or wall socket. Snaps "ON" and "OFF" like an electric light.

Gives full-wave rectification—therefore clear, strong, *hum-free* reproduction—at a cost of only $\frac{1}{4}$ ¢ a day.

No tubes to burn out—no water to add—no acid to corrode—no high voltage transformers—no moving parts to get out of order.

Use Socket Power "B" on 6-volt tube sets in combination with Socket Power "A" (see on right) or with a good storage "A" battery and charger.

Sold and demonstrated by leading radio and music stores and by Philco Diamond-Grid Battery dealers.

Philadelphia Storage Battery Company
Philadelphia

Philco Socket Power "B" plugged into a lamp or wall socket—rectifies, filters and smooths out your ordinary bumpy house current, making it equal to the absolutely smooth current of a "B" storage battery.

It takes the place of both dry and storage "B" batteries. Unlike ordinary "B" battery "eliminators," it can be used on any set, is full-size, has no tubes to burn out, contains no corrosive acid and requires no addition of water.

Philco Socket Power "B" occupies the same space as a large dry "B" battery but gives better reception because its voltage remains constant, and reception therefore is always the same. Assembled in an attractive Adam-brown metal cabinet.

For 50-60 cycle 105-125 volt alternating current type \$47.50
For 25-40 cycle 105-125 volt alternating current type \$52.50



*This switch
controls
everything*
-your A power
-your B power
-even the radio
set itself

For one-switch control and the best possible radio reception, use BOTH "A" and "B" Socket Power

For 6-volt tube sets, either "A" or "B" Socket Power may be used alone, but for one-switch control, use both together. Plug the "B" into the built-in socket on the "A". Plug the "A" into your house current. Both "A" and "B" (and the radio set as well) are then controlled by the one SOCKET POWER "A" switch.

Socket Power "A" is a complete "A" power unit for 6-volt tube sets. Plugged into a lamp or wall socket, it supplies "A" battery current automatically—without any thought about recharging.

Socket Power "A-60" for 50-60 cycle 105-125 volt alternating current \$42.50

Socket Power "A-25" for 25-40 cycle 105-125 volt alternating current \$42.50

For 3-volt tube sets, such as Radiola Super-Heterodyne, use Socket Power "AB". Both "A" and "B" power are built into one cabinet, satin-finished in brown mahogany. Everything controlled by one switch—your "A" power, your "B" power, even the radio set itself. Snap it ON and enjoy your radio. Snap it OFF and go to bed.

Socket Power "AB" for 50-60 cycle 105-125 volt alternating current \$65.00

Socket Power "AB" for 25-40 cycle 105-125 volt alternating current \$68.50

(Prices complete—no rectifying tubes to buy)

PHILCO RADIO A AND B SOCKET POWERS

Philco also builds rechargeable batteries, unique because they may be permanently connected to your radio and safely charged in your living room without changing any wires. Easier than the periodical renewing and rewiring of dry cells.

Philco Standard "B" Battery—a complete Adam brown mahogany finish replacement for 90 volts of dry cells. Only \$19.85!

Buy a Philco Diamond Grid Battery for your automobile

Philco "A" Batteries in acid-tight glass cases—for dry-cell tubes, \$8; 6-volt tubes, \$16. Built-in charge indicators.

In rubber cases, subdued mahogany color, \$14.85 and up.

Philco Radio Batteries are built *Dynamic*—DRY but CHARGED. Their life doesn't start until the dealer pours in the electrolyte. You can't get a stale *Dynamic* Philco.

Figure 4. Philco B eliminator ad from *The Saturday Evening Post* of January 2, 1926.

sumer could simply plug the radio into an electric socket; no batteries required. Philco was notably alarmed, realizing that not only would this severely impact their sales of Socket Powers and radio batteries, but it would eventually put them out of business altogether. This situation soon became even worse for Philco when, late in 1927, RCA announced they would license the use of the new ac tubes to other radio manufacturers. Indeed, this spelled the end of the era of battery-powered sets and battery eliminators, as other radio manufacturers quickly seized the opportunity and began making ac-powered radios.

Philco now found itself with a product that had become obsolete almost overnight, and, to top it off, the all-important Christmas sales season was just around the corner. However, Philco had no intention of closing its doors and shutting down. A decision was made that they would design and build their own all-electric radios. They hoped to have their first radios available by mid-1928, even though they were already well into the 1927-28 season. Accomplishing this goal would be nothing short of a miracle, requiring long hours and extreme dedication from every employee. Meanwhile, Philco did the best it could with its current, though obsolete, product offering of Socket Powers and accessories. The last Consumer Price Sheet, updating prices for the Christmas sales season, went out to dealers in late November 1927, with all prices and specifications effective December 1. Like the football team that knows they have lost the game, Philco still tried to score a few more points, though in this case it was dollars.

THE LEGEND OF THE "NEUTRODYNE-PLUS"

The quest to get into the production of radio sets began almost immediately. While the legal department scrambled to research various radio patents and licenses, Philco management turned to its engineering department for advice on how they might proceed in finding someone or some company to design a circuit and chassis. As luck would have it, they discovered that one of their main engineers, David P. Earnshaw, was a long-time amateur "ham" radio operator. He knew radio circuitry very well, and had designed and built his own receiving sets along with a few transmitters. Philco therefore decided to place Earnshaw in charge of the engineering aspects of the radio. Management apparently felt confident that Earnshaw could give the company another good product, as he had done when he engineered the

successful Socket Power devices.

Throughout the history of the company, Philco had achieved a reputation for quality products, and realized the importance of continuing that tradition in the design of their first radio. If consumers were not impressed with Philco's first sets, they could not be expected to buy another one later. Management therefore placed a high priority on the goal of producing a radio of extreme quality and performance. One of the ways they achieved this objective was to collaborate with the very successful and respected Hazeltine Laboratories of New York, which had designed and introduced the highly regarded Neutrodyne receiver circuit in 1923.

The Neutrodyne design was originally licensed to only a handful of manufacturers, specifically to the fourteen original members of the Independent Radio Manufacturers group. In March of 1928, one of those licensees, the Wm. J. Murdock Company, decided to get out of radio receiver production altogether in order to pursue production of other radio-related products. In doing so, they decided to sell all of their RCA and Neutrodyne (Hazeltine) licenses. Philco, having no radio manufacturing rights as yet, was quick to seize upon this opportunity, and negotiated to purchase all the licenses from Murdock for the generous sum of \$100,000.

Prior to this, Earnshaw and his staff had already begun to build a prototype chassis based upon the Hazeltine Neutrodyne, endeavoring to improve upon it so they could come up with a Neutrodyne radio that played better than other similar sets currently offered by the competition. A former early employee of Philco, William Denk, states, ". . . they put together a set on the bench, and then took it to Hazeltine [for them] to check over and make suggestions. What they brought back was put into production."

"What they brought back" turned out to be a very good set. It had its own built-in ac power supply, employed seven tubes (including rectifier), antenna tuning ("Range Control"), three RF stages, two AF stages, and utilized a large four-gang tuning condenser for "one-knob" tuning, a recent industry advancement from the era of the cumbersome "three-dialer" sets (which required the user to adjust three tuning knobs in order to tune in a radio station). Philco had also installed a phonograph input jack on the front panel, another innovation in those days. In addition, they designed into the circuit the ability of the set to operate without an outside antenna. By placing a

CONSUMER PRICES—Effective December 1, 1927 (Subject to Change Without Notice)

PHILCO Radio "A" & "B" Socket Powers

Equipped with Philco Current Economizer

Philco Socket Powers convert ordinary electric house current into smooth, hum-free radio power and deliver it to any radio at the correct filament and plate voltage. Types are provided for D.C. as well as 25, 30, 40, 50, 60 cycles A.C.

They are permanently connected to the house current and radio. All wires enter at the back and all connections are INSIDE Handsome brown crystal cabinets unmarred by outside terminals and wires connecting thereto.

Philco Socket Powers are of ample size to meet even the exacting demands of large radio sets with power tubes.

6-180-volt "AB" Socket Powers

for sets using six or more tubes, including 112 or 171 Power Tube

Provide 180 volts at 60 milliamperes and contain specially large "A" Battery



"AB" Socket Power

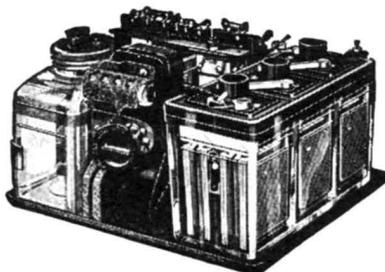
| Type | Control | "A" Rectifier | 115 Volts A.C. Cycles | Consumer Prices |
|---------|---------|---------------|-----------------------|-----------------|
| *AB-686 | Relay | Philcotron | 50, 60 | \$49.50 |
| *AB-386 | Relay | Dry | 50, 60 | 59.50 |
| *AB-382 | Relay | Dry | 25, 30, 40, 50, 60 | 69.50 |

Overall Dimensions: Width 13 3/8", Depth 14", Height 8 3/8"

6-150-volt "AB" Socket Powers

for sets using six tubes or less, including 112 or 171 Power Tube

Provide 135-150 volts for "B" circuit and full-size Trickle Charge "A" Battery



"AB" Socket Power Open Model

For use inside of radio cabinets and consoles.

| | | | | |
|---------|--------|------------|--------------------|---------|
| AB-663 | Switch | Philcotron | 50, 60 | \$39.50 |
| *AB-656 | Relay | | | |
| *AB-356 | Relay | Dry | 50, 60 | 49.50 |
| AB-623 | Switch | | | |
| *AB-652 | Relay | Philcotron | 25, 30, 40, 50, 60 | 49.50 |

Overall Dimensions, AB-663, AB-623: Width 13 3/8", Depth 12 3/8", Height 8 3/8";
AB-656, AB-652, AB-356: Width 13 3/8", Depth 12 3/8", Height 8 3/8"

4-volt "AB" Socket Powers

for any number of 199 tubes, including 120 Power Tube

| | | | | |
|--------|--------|------------|--------------------|---------|
| AB-463 | Switch | Philcotron | 50, 60 | \$39.50 |
| AB-423 | Switch | Philcotron | 25, 30, 40, 50, 60 | 44.50 |

Overall Dimensions: Width 13 3/8", Depth 12 3/8", Height 8 3/8"

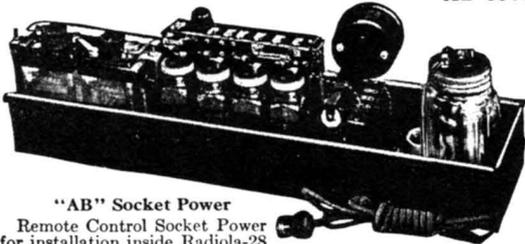
| | | | | |
|-------|--------|--|----------------|-------|
| DAB-4 | Switch | | 115 volts D.C. | 50.00 |
|-------|--------|--|----------------|-------|

Overall Dimensions: Width 9 3/8", Depth 12 3/8", Height 7 3/8"

Remote Control Console and Cabinet 6-150-volt "AB" Socket Powers

| | | | | |
|----------|-------|------------|--------------------|---------|
| *AB-6561 | Relay | Philcotron | 50, 60 | \$39.50 |
| *AB-6521 | Relay | Philcotron | 25, 30, 40, 50, 60 | 49.50 |
| *AB-3561 | Relay | Dry | 50, 60 | 49.50 |

Overall Dimensions: Width 13 3/8", Depth 12 3/8", Height 8"



"AB" Socket Power

Remote Control Socket Power for installation inside Radiola-28 cabinet.

Radiola-28 Remote Control 4-volt "AB" Socket Powers

| Type | Control | "A" Rectifier | 115 Volts A.C. Cycles | Consumer Prices |
|---------|---------|---------------|-----------------------|-----------------|
| AB-4635 | Relay | Philcotron | 50, 60 | \$44.50 |
| AB-4235 | Relay | Philcotron | 25, 30, 40, 50, 60 | 49.50 |

Overall Dimensions: Width 25", Depth 6 3/8", Height 8"

(For Storage Batteries, See Price List of June 1, 1927)

Figure 5 (left and right pages). Two pages from Philco's December 1, 1927, catalog and price list.

Philco "A" & "B" Socket Powers

May be used separately or together. When the "B" Socket Power is used in connection with A-603 or A-253, the "A" switch automatically turns the "B" "ON" and "OFF." When used in connection with A-36, the Radio set switch automatically controls both "A" and "B." Therefore, where space limitations prevent the use of combination "AB" Socket Powers, separate "A" and "B" Socket Powers may be used with the same convenience.

6-volt "A" Socket Powers

| Type | Control | "A" Rectifier | 115 Volts A.C. Cycles | Consumer Prices |
|--|---------|---------------|-----------------------|-----------------|
| A-603 | Switch | Philcotron | 50, 60 | \$25.00 |
| A-253 | Switch | Philcotron | 25, 30, 40, 50, 60 | 27.50 |
| Overall Dimensions: Width 9 1/2", Depth 12 3/8", Height 7 7/8" | | | | |
| *A-36 | Relay | Dry | 50, 60 | 32.50 |
| Overall Dimensions: Width 9 1/2", Depth 12 3/8", Height 7 7/8" | | | | |
| DA-6 | Switch | | 115 volts D.C. | 28.50 |
| Overall Dimensions: Width 9 3/8", Depth 12 7/8", Height 7 7/8" | | | | |



6-Volt "A" Socket Power

"B" Socket Powers

"B" power for 6 to 10-tube sets, including 171 power tube. Provide 180 volts at 60 milliamperes with transformer taps enabling voltage to be adjusted to fit exactly and permanently any line voltage and any number and type of 6-volt tubes. B-86 and 82 give clear, undistorted reproduction at tremendous volume, as obtained heretofore only with expensive power amplifiers. The last word in "B" power. Philcotrons eliminate the uncertainties and troubles of tube rectifiers. Guaranteed for 1650 hours, which is 18 months' service, using the radio set three hours every day. Solution contains no corrosive acid whatever. Require no addition of water or other attention.

| | | |
|--|--------------------|---------|
| B-86 | 50, 60 | \$32.50 |
| B-82 | 25, 30, 40, 50, 60 | 39.50 |
| Overall Dimensions: Width 7 3/8", Depth 12", Height 7 7/8" | | |



"B" Socket Power

"B" power for sets using 6 tubes or less, including 171 power tube or more than 6 tubes using 112 power tube. Special terminal for power tube, giving perfect quality with more than enough volume for the average home. Philcotrons eliminate the uncertainties and troubles of tube rectifiers. Guaranteed for 1650 hours, which is 18 months' service using the radio set three hours every day. Solution entirely harmless. Require no addition of water or other attention.

| | | |
|---|--------------------|---------|
| B-603 | 50, 60 | \$25.00 |
| B-253 | 25, 30, 40, 50, 60 | 30.00 |
| Overall Dimensions: Width 8 1/4", Depth 8 1/2", Height 7 7/8" | | |
| DB | 115 volts D.C. | 28.50 |
| Overall Dimensions: Width 8 1/4", Depth 8 1/2", Height 7 7/8" | | |



Philco Trickle Charger

Philco Trickle Chargers

for 4 and 6-volt "A" Batteries

The most convenient Trickle Charger made. A snap switch is provided so that the plug doesn't have to be pulled from the light socket when the radio is used. Socket for plugging in B Socket Power is provided and the snap switch controls A power, B power, even the radio set itself. Three charging rates make it adjustable to any set. Handsome crystal metal case.

| | | | | |
|---|--------|------------|--------------------|--------|
| TC-60 | Switch | Philcotron | 50, 60 | \$9.90 |
| TC-25 | Switch | Philcotron | 25, 30, 40, 50, 60 | 12.25 |
| Overall Dimensions: Width 9", Depth 5", Height 8 1/4" | | | | |



UD-44

Trickle Charge Glass Case "A" Batteries

Exclusive Philco visible built-in charge indicator. Spray-proof. Keep dry and clean permanently. Designed especially for trickle charge use. Large solution space insures operation over long periods without addition of water. Very thick plates and separators insure longest life.

| Type | Voltage | Length | Width | Height | Consumer Prices |
|--|---------|----------|----------|--------|-----------------|
| UD-44 | 4 | 7 1/6" | 2 13/16" | 6 3/4" | \$7.50 |
| UD-86 for sets using six tubes or less | 6 | 10 9/16" | 4 5/8" | 6 7/8" | 12.50 |
| UD-96 for sets using six tubes or more | 6 | 10 9/16" | 4 5/8" | 7 3/4" | 13.90 |

Philcotron Replacement Cells



UD-96



"AA" Philcotron Part K-463

Price \$4.00



"A" Philcotron Part K-458

Price \$3.00



"B" Philcotron Part K-457

Price \$1.00

*Equipped with Philco Current Economizer.

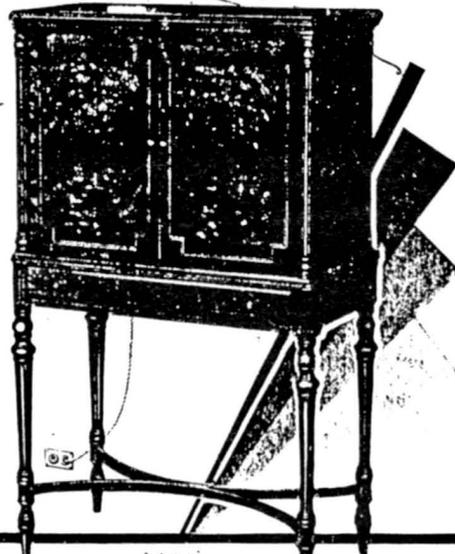
'NEUTRODYNE-PLUS'

New Radio Discovery

Scientists agree that Neutrodyne produces the purest tone quality known to radio—absolutely clear and free from oscillations. Now, Philco engineers have found the way to combine Neutrodyne with *super-power*. *The result: Perfect tone quality PLUS vast distance range and extraordinary selectivity—a combination new to radio.*

No Aerial Needed

Yes, Philco brings in local and many distant stations *without an aerial!* With its marvelous selectivity and power, it brings in far-distant stations even during the day—*real* daytime reception, at last! **All-electric**—entirely dry; no batteries; no liquids. Special Range Control cuts out local interference and separates distant stations. Electric phonograph connection on the dial plate. Many other features fully described in Philco book. *Send coupon below.*



COLOR

In response to the modern trend, the Philco "Neutrodyne-Plus" receiver has been placed in table cabinets of exquisite color. Soft, two tone effects, plain and hand-decorated, to match the conservative as well as the colorful room. Your choice of five colors.

And—at a Price!

The super-quality Philco is available in exquisite console furniture cabinets at surprisingly moderate prices. And, in addition, *this same instrument* has been installed in table cabinets of color to sell at *popular prices!*

The PHILCO Speaker

The Philco Speaker reproduces the entire musical range, high notes as well as low notes, in perfect balance and proportion. A full, broad, life-like tone. The combination of Philco Speaker and Philco Radio produces a range, depth and naturalness of tone which is *new to radio!* In five colors to match the Philco table cabinets.

Console Grand Speaker

Has specially designed tone chamber which gives amazing emphasis to its life-like quality of tone. In combination with the Philco table cabinet it offers the utmost in "Neutrodyne-Plus" performance.



Console Grand Speaker

Superb cabinet; matched walnut panels. Fluted legs and pillars.

FREE TRIAL

IN YOUR OWN HOME

ANY Philco dealer will send the new Philco Electric Radio to your home on an absolute Free Trial. He will attach it to your light socket (you do not need even an aerial!) and *then*—judge for yourself its flawless reproduction, its amazing selectivity, its uncanny power in getting distant stations—even in the *daytime!* If you are not delighted, your dealer will take the Philco back. No obligation to buy. The trial is *free*.

Trade In Your Old Radio

Philco dealers offer a liberal trade-in allowance for your old radio. Don't be content any longer with inferior reception or an old-fashioned, troublesome set. Now you can have the *all-electric* radio you wish for without taking a dead loss on your old set.

Easy Payments

If you decide to keep the Philco after trial, any Philco dealer offers easy monthly payment terms. A small payment down and it's yours! Pay the balance out of income.

Call - Look - Hear

This Remarkable Radio at any Philco Dealer

Visit the Philco dealer in your neighborhood; see the beautiful Philco models. He will gladly tune in the Philco for you, so you can hear what "Neutrodyne-Plus" adds to radio in

tone, selectivity and distance. AND—he'll explain, if you wish, the liberal offer on which Philco is being sold everywhere. Be sure to *find out* about this offer. No obligation.

SEND for Free Radio Book

In the meantime, fill out the coupon and mail it at once! It brings *free* the Philco book showing all models in natural colors; also prices and details of Philco's Free Trial, Easy Payment, Trade-In Offer. Tells the full story of "Neutrodyne-Plus." No obligation. *Send coupon.*



Philadelphia Storage Battery Co.
Ontario and C Streets—Dept. 1547—Philadelphia, Pa.

Kindly send me, free and without obligation, the Radio Book telling about Neutrodyne-Plus and showing in full color all models of the Philco Electric Radio and Philco Speakers. Also prices and details of the Philco Free Trial, Easy Payment, Trade-In Offer.

Name _____
Address _____
City _____ State _____

PHILCO ELECTRIC RADIO

REG. U.S. PAT. OFF.
General Offices: Ontario and C Streets—Dept. 1547—Philadelphia, Pa.

In Canada: Philco Products, Ltd., Queen's Quay, Toronto, Ontario

Figure 6. Ad for the Philco 1928 line of "Neutrodyne-Plus" radios (Colliers, October 13, 1928).

jumper wire across the "ANT" terminal post to the "LOC" terminal post, the set utilized the ac wiring in the home as an antenna. Until that time, if a person could not or did not want to erect an outdoor antenna, he had to purchase separately a special device that could be screwed into an ac light socket, from which he or she could connect a wire to the radio's antenna terminals. Such devices were common at the time, but Philco was the first to incorporate the concept into the radio itself. It worked very well.

The chassis was designated as Model 511 and was used in all of their 1928 radio cabinets. These sets are often referred to as the "511 series," although each cabinet design had its own model number. The chassis was named "Neurodyne-plus" and Philco pushed the "plus" part heavily in their advertising, claiming that Philco engineers had made a "new radio discovery."

Regarding the word "plus," a former employee says that when he started with Philco in 1937, the story of what the word "plus" meant in "Neurodyne-plus" had become a much talked-about legend at Philco. When questioned about the "plus" many years later, an elderly David Earnshaw recalled that "...yes, there was a 'plus,' but it wasn't much to get excited about..." Essentially, the "plus" was a combination of circuit enhancements and innovations, but the marketing people used them to advertise the set as a "new radio discovery." Specifically, Philco advertised the radio set as having **"...super-power...perfect tone quality PLUS vast distance range and extraordinary selectivity--a combination new to radio."**

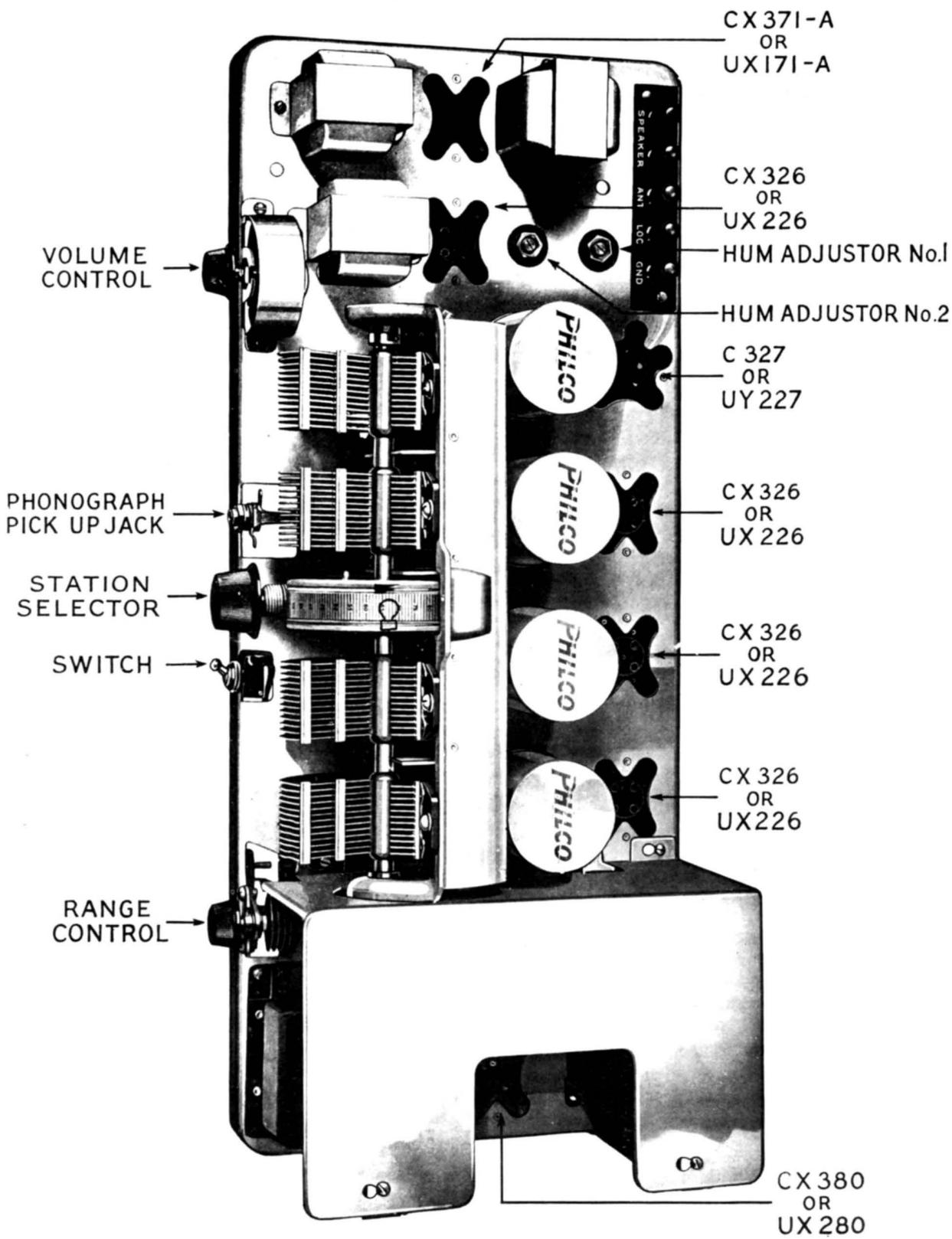
As best as can be determined by examining Philco's 1928 service manual and through interviews with former early Philco employees, the word "plus" in "Neurodyne-plus" was only of moderate significance. Philco engineers were able to improve reception of weak, distant stations and improve selectivity (station separation) in various ways, such as with what they referred to as a "range control," operated by a knob mounted on the front right-hand side of the cabinet. When the listener turned this knob, he or she was actually rotating a small variable tuning condenser. For strong local signals, turning it counter-clockwise would disconnect and ground the grid of the first RF tube, which in turn reduced amplification. This made a slight improvement in tonal quality on very strong signals. When the knob is rotated in the opposite direction, fully clockwise, the tube is reconnected in the circuit and enables the Range Control to perform like a "fine tuner" in the antenna circuit.

Selectivity was noticeably better than many other sets on the market, due partly to the use of a large and successfully shielded four-gang tuning condenser.

Philco also touted the fact that their radio receiver would not "howl" or "squeal" when tuning for a station. These loud audible oscillations were a common annoyance of regenerative-type sets, though very few were still in use by 1928. Since radios with "one-knob" tuning had only recently become widely available to the consumer, most of the radios in use at the time were still the three-dialer TRF sets, some of which were Neurodyne "three-dialers." (RCA did have Armstrong's superheterodyne design, but it had not yet been perfected nor was it licensed to any other manufacturers.) Although the TRF-type sets were non-regenerative, their tuned RF stages were still prone to cause loud howls and squeals from the speaker. To help counter this problem, the RF stages had to be modified to such an extent that the radio ended up losing much of its sensitivity, which translated into poor reception of distant stations. The Neurodyne circuit had much better sensitivity, and by its design was not supposed to howl or squeal due to the neutralization process. Unfortunately, some Neurodyne sets on the market still tended to whistle or squeal occasionally, mostly due to inadequate or absent component shielding, but also because of cheap components and/or inferior circuitry that would lose their neutralization adjustments over time.

Philco believed their sets would never have that problem due to the extensive use of shielding. Philco was the first to shield the RF transformer coils successfully, placing them in aluminum cans mounted atop the chassis. Until then, Hazeltine had always insisted it was critical that RF coils be tilted at a very specific angle. Philco's coils, however, were mounted vertically inside the shielding can. The entire set was very well shielded throughout, resulting in very stable and noise-free reception. Even the underside of the chassis was shielded, being completely sealed in by a large metal pan.

According to a few former Philco employees, however, some of the sets still tended to oscillate at certain frequencies on the dial, even though they had been properly adjusted and neutralized by standard procedures. It was discovered, by accident, that by purposely misadjusting the first compensating condenser 1/8 to 1/4 turn clockwise, the set would no longer oscillate anywhere across the dial (tuning range). In addition, the engineers were somewhat surprised to find this also resulted in a further



The Philco Chassis



Figure 7. Chassis used in the Philco radios described in this article.

increase of the set's sensitivity and selectivity, most noticeably above 1000 kilohertz. This unusual misadjusting procedure, in conjunction with the range control, the well-constructed four-gang tuning condenser, and 100-percent efficient shielding, did in fact make the set perform very well as compared to other sets of that era. However, to call this improvement a "new radio discovery" is stretching the facts a bit. More accurately, Philco's Neutrodyne-plus chassis was simply an extraordinarily well-designed and carefully crafted set. Even today, some 64 years later, a properly restored 511 plays remarkably well.

The engineering of Philco's first radio receiver required the use of 37 different patents--27 from RCA; 10 from Hazeltine, Latour, and others. The oldest patent dates all the way back to 1913 while the most recent is 1927.

Unlike the chassis, the Philco speaker of 1928 was not a Philco-engineered item. The speaker they used was obtained by the outright purchase of a small radio products manufacturing company owned by Mr. John S. Timmons. Located in an old converted mill near Philadelphia--in Germantown, PA--Timmons Radio Products had been one of the first to manufacture battery eliminators, similar to Philco's Socket Power units. Therefore, like Philco, Timmons now also found one of its main products obsolete. Fortunately for Timmons, their speaker was not, thanks to an oversight by Philco. The Timmons speaker was of magnetic design, which was inferior to the recently introduced electrodynamic-type loudspeaker. Technically, the magnetic-type loudspeaker was indeed obsolete. Had Philco realized this at the time it is doubtful they would have bought the Timmons company; and had this happened, the "Neutrodyne-plus" would have ended up with an electrodynamic speaker that would have greatly improved its tonal quality, thereby making the word "plus" very significant. The well-designed "Neutrodyne-plus," if coupled with an electrodynamic speaker in the year 1928, would have made Philco's first radio sets true state-of-the-art receivers. Unfortunately, this would not happen until 1929.

After the technical aspects of the radio had been put into motion, Philco turned its attention to the marketing aspects. They would need to come up with a selection of designs for the radio cabinets. Since they were entering the radio market late in the season, they wanted something different, something eye-catching, something that would attract the potential buyer immediately. What they came up with was truly

brilliant: Flowers!

GREETINGS, MADEMOISELLE MESSAROS!

While the cold winter winds of January 1928 whistled past the Philco offices at Ontario & C Streets, a group of Philco planners were busy inside discussing various cabinet designs and how many different styles to offer. Originally, it was planned that Philco would introduce four radio models for 1928--a highboy console (Model 551/561), a lowboy console (Model 531/541), a highboy console with a built-in phonograph (Model 571/581), and a metal cabinet table-top (Model 511/521) with a separate mantel-type speaker or an optional wooden console speaker cabinet (Model 221), upon which the table radio would sit. All the cabinets had an identical chassis, although each cabinet style was also available with a slightly modified circuit in the chassis to accommodate geographical areas using 25-, 30-, or 40-cycle ac instead of the usual 60 cycles. The "other cycle" versions were assigned a different model number (indicated here by use of a slash mark).

For the furniture models, Philco hired an internationally known furniture designer by the name of Albert Carl Mowitz. He submitted several designs for the wooden consoles, and Philco settled on what is described in their literature as "a modern conception of the Louis XVI period style." These cabinets featured walnut panels, a pull-out drawer, doors, fluted legs, and fluted pillars. The metal cabinet table model was an attractive design created by a gentleman named Hollingsworth Pearce, reported to have been a leading authority on cabinet design at the time. Philco documents from 1928 show that his design was accepted on March 10, 1928, and was designated as the Model 511/521. Its finish was a two-toned Spanish Brown with gold pin-stripes. The top or "lid" of the cabinet was not attached and could simply be lifted off. Philco placed an initial order for 47,350 of these cabinets with American Metal on April 13, 1928, at a cost of \$1.14 each, and later ordered an additional 18,500 from Hale and Kilburn. A Philco specification chart shows a total run of 68,850 metal cabinets.

At about the time Pearce submitted his cabinet design for the Model 511, management had already begun to consider the idea of offering the 511 in more than one color. It was thought that brightly colored cabinets would naturally stand out, especially among the typical offerings of other radio makers with their

mostly brown, black, or gray cabinets. The colorful sets would help attract attention to the fact that Philco was now a manufacturer of radio sets, and no longer "the 'socket power' company."

A search was begun to find the right person for the job. Among the several different artistic associations in Philadelphia, the name Matild Messaros was often mentioned. At the time, Miss Messaros was a free-lance artist who had been creating beautiful hand-decorated designs on lampshades, furniture, and other in-home furnishings. She was also a graduate of the old Philadelphia School of Design for Women. Philco decided she was just the person they were looking for.

As Miss Messaros recounted during an interview in 1977, "Philco had just started production of its first radio receivers when they contacted me in March of '28. They asked me if I could hire and supervise several dozen artists to hand-paint their metal cabinet radios as they came off the production line." She answered yes; and, at an excellent salary of fifty dollars a week, began a project that produced four beautifully decorated models that today are highly prized by collectors.

Documents from Philco claim that "hundreds of sample cabinets were finished and submitted" during the design process. Eventually, they settled upon four of Miss Messaros' different floral designs, which were applied over each model's base color. In addition to the undecorated two-tone Spanish Brown Model 511/521, there would now also be the Models 512/522, 513/523, 514/524, and 515/525. The Model 512/522 was finished in a bright, two-tone Mandarin Red with a floral design of black and gold; while the Model 513/523 was a two-tone black and gray finish, called Labrador Gray, with white daisies on gold leaves. The Model 514/524 had yellow, tan and gold flowers with black leaves over a dark two-tone Nile Green finish. Finally, the Model 515/525, called Impressionistic and looking very different from the others, was painted gold. Its design consisted of green, red and blue lotus leaves rising up from the base with wide green lines outlining the side, rear and front panels, and a continuous red line all the way around the base. This set is the rarest of the group, and very possibly the rarest of all Philco radios as it appears that very few were sold. The hand-decorated "flower radios" were painted only in response to orders from dealers.

The process of painting and applying the floral designs by hand was very time-consuming. The

cabinets arrived with a primer coat, over which the base color was sprayed. After it dried, the lighter shade of the same color was applied to give the blended two-tone effect. The cabinet then went to the artist. Philco had hired about 25 artists, all women. They used a stencil to create the basic outline of the floral pattern. Using oils, the artist then created the actual design, all by free-hand. Each cabinet was therefore slightly different. The gold striping was also applied by hand, using a small-tipped brush. The final step after all the designs were in-place and dry, was to spray the entire cabinet with a clear coat of lacquer.

Painting the floral design on the lid alone took ten minutes, while completion of all the floral designs for a particular cabinet could require anywhere from 30 minutes to an hour. This labor-intensive process went on throughout the nine months that these sets were in production. An exact accounting of how many of each style were sold is not known at this time, although it appears that the 511/521 Spanish Brown was the best-selling model in 1928. At \$115, it was also the least expensive. The four hand-decorated models sold for \$125 each. The prices quoted here, taken from the May 1, 1928, Dealer Price sheet, did not include tubes or the speaker.

The hand-decorated sets also had color-coordinated mantel speakers. Painted with the same base color as the matching radio cabinets, they each had a small floral design on the base with gold pin stripes along the edges. In addition, the decorative mantel speakers had their own model numbers. The Mandarin Red speaker was designated Model 212, while the Labrador Gray speaker was listed as Model 213. Speaker Model 214 had the Nile Green finish, and the gold Impressionistic speaker was Model 215. As regards the pricing of the speakers, the plain Spanish Brown Model 211 was listed at \$25, while the hand-decorated speakers were \$27.50 each. The floor model speaker, standing just under 30 inches tall, was called the Console Grand Speaker and was assigned Model number 221. It sold for \$50, and was quite attractive with one of the 59-pound metal sets sitting on top of it.

One day in early spring, after the artists were in-place and production was finally under way, Miss Messaros was approached by someone from the marketing department. She stated that this gentleman wanted to know if she would object to being referred to as "Mademoiselle" Messaros in Philco's advertising of the sets. She told him it did not make much difference what they called her. Shortly thereafter,

The Table Model

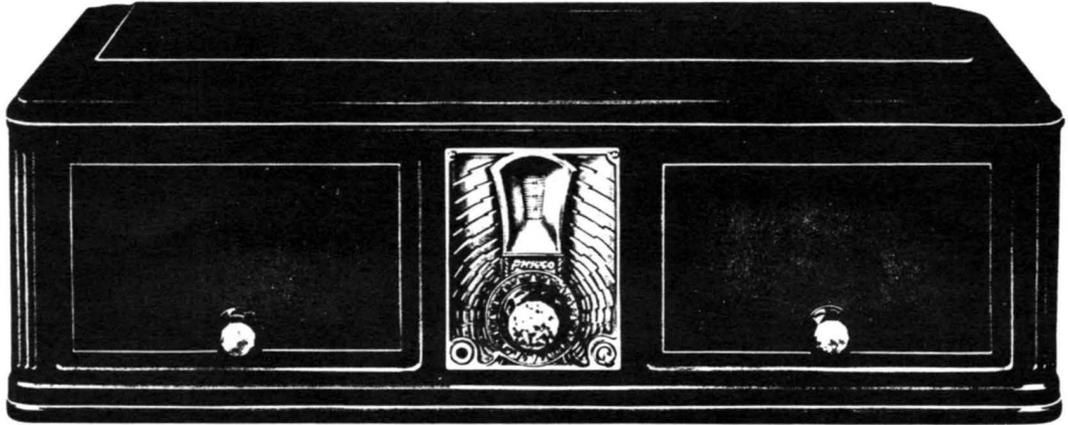
In Spanish Brown

A warm, rich, natural furniture color, shaded in two tones which will blend perfectly with any interior.

SIZE: 8 inches high, 24 inches wide, 11½ inches deep.

THE MANTEL SPEAKER
in color and design to match.

SIZE: 10⁵/₁₆ inches high.



The Table Model

In Mandarin Red

A warm, bright, yet reserved color admirably suited to a walnut or mahogany interior. The hand-decorated floral designs are in contrasting shades, with panels outlined in gold.

SIZE: 8 inches high, 24 inches wide, 11½ inches deep.

THE MANTEL SPEAKER
in color and design to match.

SIZE: 10⁵/₁₆ inches high.

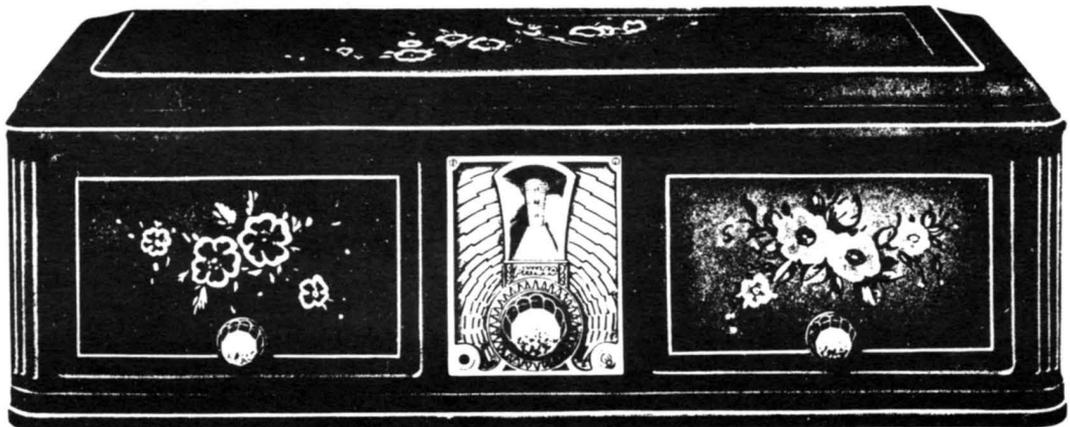


Figure 8. Spanish brown Model 511/521 (top) and Mandarin Red Model 512/522 (bottom).

The Table Model

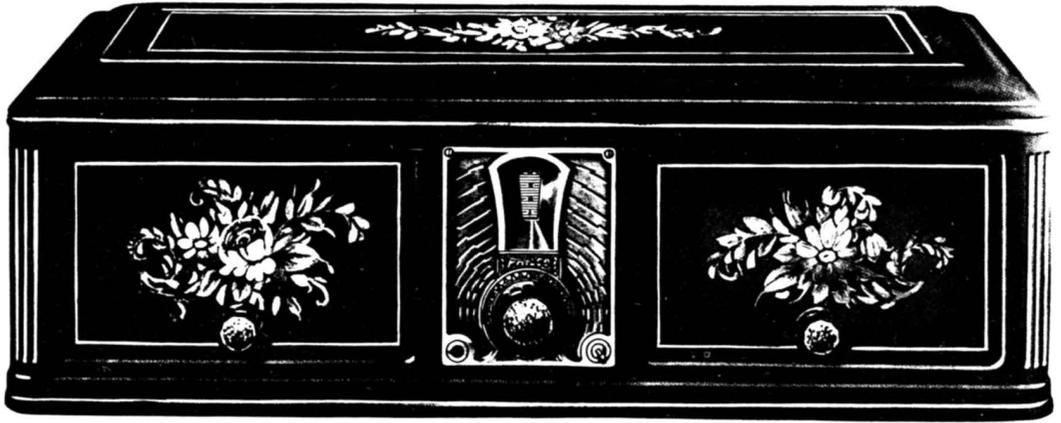
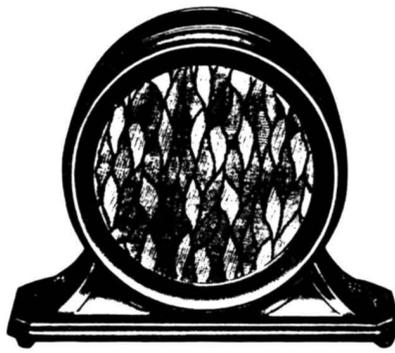
In Labrador Gray

A beautiful neutral shade, with graceful floral decorations blending beautifully into the background, achieving a conservative yet highly decorative effect.

SIZE: 8 inches high, 24 inches wide,
11½ inches deep.

THE MANTEL SPEAKER
in color and design to match.

SIZE: 10⁹/₁₆ inches high.



The Table Model

In Nile Green

A soft gray green with just a touch of blue; the flower spray decorations, applied by hand, are in properly contrasting shades. The border lines are in gold.

SIZE: 8 inches high, 24 inches wide,
11½ inches deep.

THE MANTEL SPEAKER
in color and design to match.

SIZE: 10⁹/₁₆ inches high.

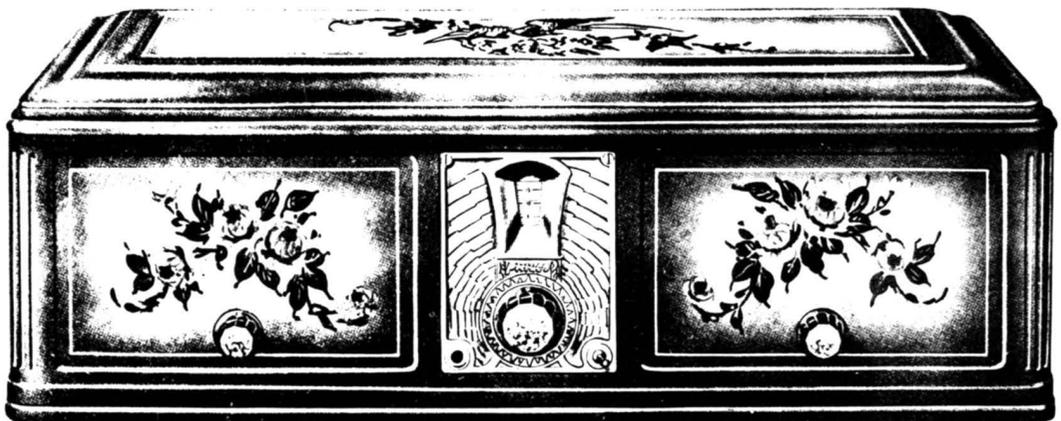
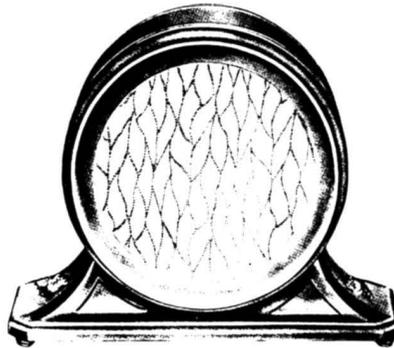


Figure 9. Labrador gray Model 513/523 (top) and Nile green Model 514/524 (bottom).

The Table Model

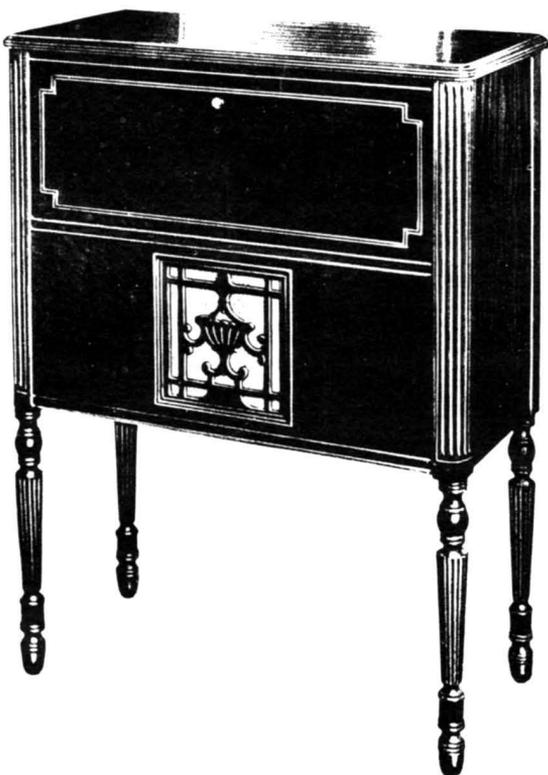
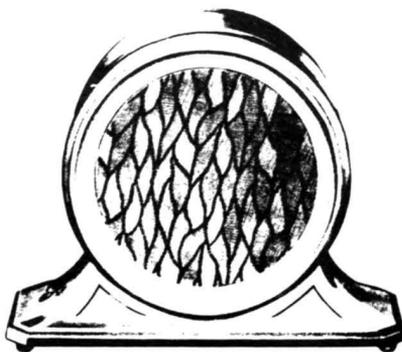
Impressionistic Design

The beautiful hand decorations combine modern design with the lotus leaves of Egypt—the effect is strikingly attractive.

SIZE: 8 inches high, 24 inches wide,
11½ inches deep.

THE MANTEL SPEAKER
in color and design to match.

SIZE: 10 $\frac{1}{16}$ inches high.



The Lowboy

An unusually attractive cabinet of the Louis XVI period of design with matched walnut panels. The drop door, when open, forms a convenient arm rest for tuning.

SIZE: 39 $\frac{1}{8}$ inches high, 30 inches wide,
14 $\frac{7}{8}$ inches deep.

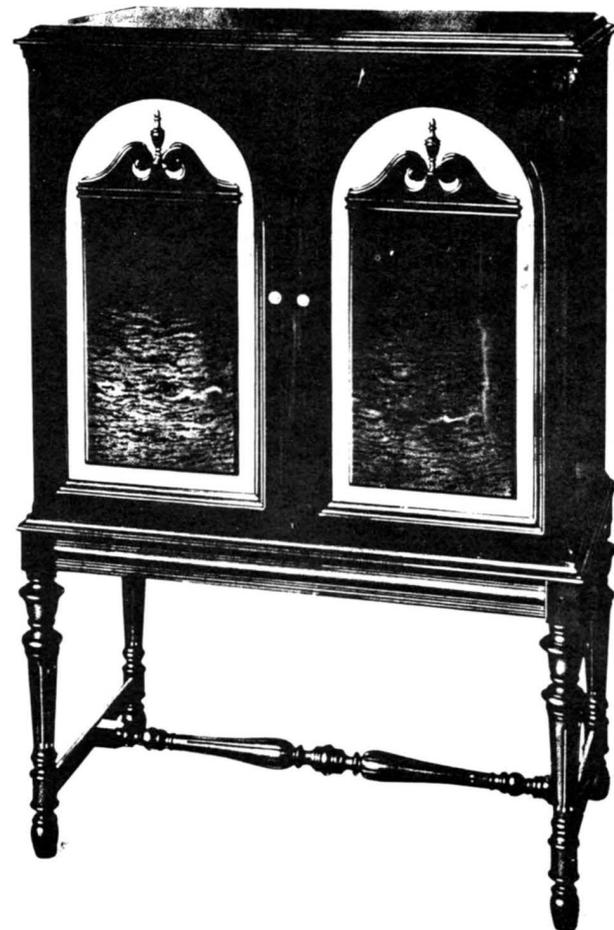
Figure 10. "Impressionistic" Model 515/525 (top) and lowboy console Model 531/541 (bottom).



The Console Grand Speaker

The very ultimate in speaker reproduction is attained in the Philco Console Grand Speaker Table. The specially designed tone chamber gives a volume, a depth, a resonance which can be compared to nothing less than the actual performance before the microphone. The cabinet is made of selected walnut panels with precise care and handsome finish.

SIZE: 29 inches high, 26 $\frac{1}{2}$ inches wide,
14 $\frac{1}{4}$ inches deep.



The De Luxe Electric Phonograph Radio Including Console Grand Speaker

This Louis XVI cabinet is constructed with infinite care of beautifully matched walnut panels, inlaid with selected Bird's-Eye Maple.

SIZE: 47 inches high, 32 inches wide,
18 inches deep.

Figure 11. Console grand speaker, Model 221 (top) and Deluxe radio/phonograph Model 571/581 (bottom).

Philco's first ads began appearing, referring to the hand-decorated sets as ". . . enhanced with color effects by Mlle. Messaros, one of the foremost colorists in the decorative arts." Probably written by the same advertising agent who called the sets 'a new radio discovery,' the colorful advertising was spectacular, and drew a lot of public attention to Philco's first radios.

OH WHAT A YEAR IT WAS . . .

As reported at the time in the June 1928 edition of *Radio Retailing*, a trade journal, Philco unveiled their first line of radio receivers at an industry trade show early in June. The Philco line-up consisted of eight models, the three consoles and the five table-top models, as described earlier. This was quite a landmark occasion for the Philadelphia Storage Battery Company, a company that many thought would become a permanent casualty of RCA's ac tubes. In the span of only seven or eight months, a small company that once made "socket power" battery eliminators, was now full-steam into the radio manufacturing business, bringing forth an impressively performing high-quality set with cabinets that were well-designed and very attractive.

Under the dynamic leadership of General Manager James M. Skinner, Philco had now become a force to be reckoned with. As mentioned, a series of costly double-page ads, in full color, began appearing in every major magazine, emblazoned with the words "NEW RADIO DISCOVERY! NEUTRODYNE-PLUS" and "COLOR! VIVID COLOR." The ads always featured the beautiful, hand-decorated "flower" sets, and hailed their "super-power" long-distance reception. Along with the magazine advertising, Philco also had an established network of newspaper advertising in no

less than 663 cities! In addition to all this, there was the weekly broadcast of the Philco Hour every Friday night, heard nationwide over 26 stations. In a promotional pitch to their dealers, Philco pointed out that they "...have arranged a series of announcements during the Philco Hour whereby the word Philco is worked into it a dozen or more times during the broadcast."

Philco's aggressive advertising campaign, along with their huge network of dealers, paid off, as sales for 1928 totaled 96,000 units. Although this figure placed them at only 26th in the industry, it was still an impressive showing considering the fact that they were unable to introduce their radios until June. In terms of dollars, Philco managed to generate \$12,500,000 in total sales for the year.

The birth of the Philco radio was a significant event in radio history. At a time when radio was just getting out of its infancy, along comes a user-friendly set that established new standards in quality and creative appearance. But more significant was the birth of Philco as a new manufacturer of radios, because in only two more years, Philco would take the number one position in the industry, selling twice as many radios as its nearest competitor. This is a position the company would maintain for many years to come, and along the way would introduce many innovative and exceptional products.

As the year 1928 drew to a close and the last flower was brushed upon the last set, Philco's 1929 line-up of new radios was already waiting in the wings. There would be no more flower radios next year, but the legendary "Neutrodyne-plus" would carry on, and this time would be even better than before.

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Philco Model 511

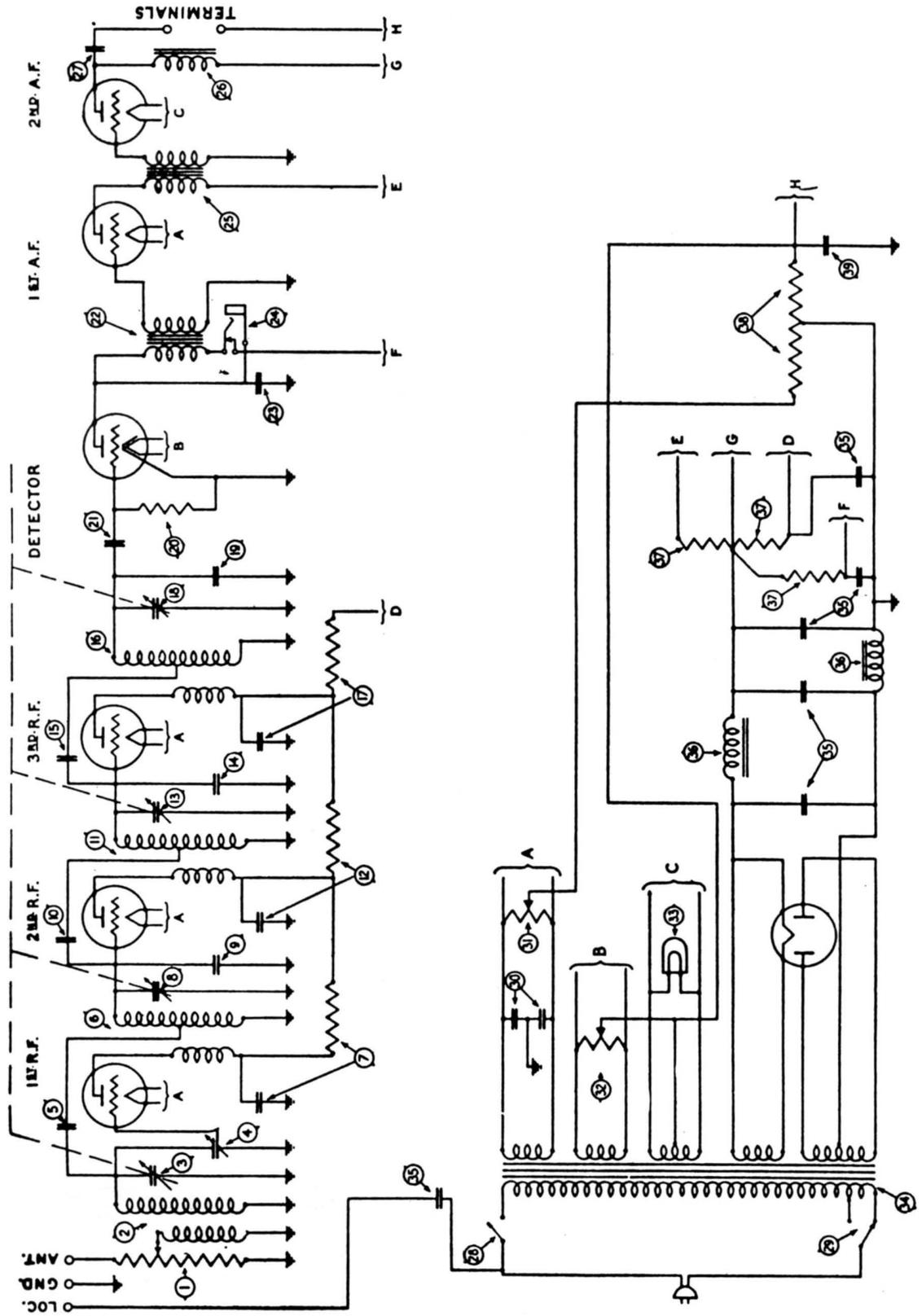


Figure 12. Schematic of the Philco Model 511 and its counterparts.

APPENDIX

Philadelphia Storage Battery Company, Philadelphia, Pa.
Ontario and C Streets, Phone--REgent 8840

PHILCO RADIOS FOR 1928

| Model Number | 110-Volt ac Cycles | Finish | Consumer Prices (Set without Tubes) |
|---------------------|---------------------------|---------------|--|
|---------------------|---------------------------|---------------|--|

Highboy Console

| | | | |
|-----|----------|--------|-----------|
| 551 | 50/60 | Walnut | \$ 275.00 |
| 561 | 25/30/40 | Walnut | 285.00 |

Deluxe Electric Phonograph-Radio Console

| | | | |
|-----|----------|--------------|---------------|
| 571 | 50/60 | Walnut-Maple | not available |
| 581 | 25/30/40 | Walnut-Maple | not available |

Lowboy Console

| | | | |
|-----|----------|--------|--------|
| 531 | 50/60 | Walnut | 200.00 |
| 541 | 25/30/40 | Walnut | 210.00 |

Table Models

| | | | |
|-----|----------|---------------|--------|
| 511 | 50/60 | Spanish Brown | 115.00 |
| 521 | 25/30/40 | Spanish Brown | 125.00 |

Table Models--Hand-Decorated

| | | | |
|-----|----------|-----------------|--------|
| 512 | 50/60 | Mandarin Red | 125.00 |
| 513 | 50/60 | Labrador Gray | 125.00 |
| 514 | 50/60 | Nile Green | 125.00 |
| 515 | 50/60 | Impressionistic | 125.00 |
| 522 | 25/30/40 | Mandarin Red | 135.00 |
| 523 | 25/30/40 | Labrador Gray | 135.00 |
| 524 | 25/30/40 | Nile Green | 135.00 |
| 525 | 25/30/40 | Impressionistic | 135.00 |

PHILCO SPEAKERS

Console Grand Speaker

| | | | |
|-----|--|--------|-------|
| 221 | | Walnut | 50.00 |
|-----|--|--------|-------|

Mantel Type Speaker

| | | | |
|-----|--|---------------|-------|
| 211 | | Spanish Brown | 25.00 |
|-----|--|---------------|-------|

Mantel Type Speakers--Hand-Decorated

| | | | |
|-----|--|-----------------|-------|
| 212 | | Mandarin Red | 27.50 |
| 213 | | Labrador Gray | 27.50 |
| 214 | | Nile Green | 27.50 |
| 215 | | Impressionistic | 27.50 |

MID-ATLANTIC ANTIQU RADIO CLUB

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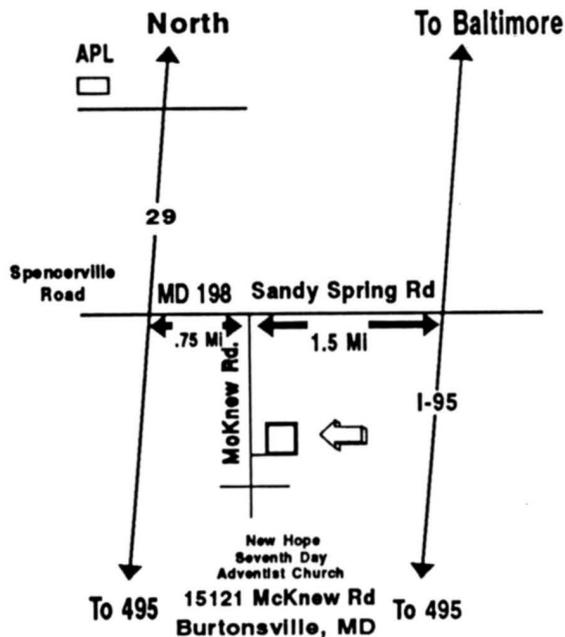
ABOUT THE MAARC NEWSLETTER

The MAARC Newsletter is a monthly publication of the Mid-Atlantic Antique Radio Club. Subscription begins with the next available issue after the membership application and dues are received. Dues are \$15 in the U.S., Canada, and Mexico, and \$25 per year elsewhere. (U.S. funds, please.) Two- and three-year memberships and life memberships are available as noted on the application and renewal forms. All checks should be made payable to MAARC and addressed to the Membership Chair. Back issues of the Newsletter from Volume 1, Number 1 (August 1984) are available for \$1.50 per issue postpaid from the Librarian.

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Submissions to the Newsletter are eagerly solicited. Material should be double spaced. Typewritten copy is preferred. Articles submitted on 5 1/4" or 3.5" diskettes in ASCII or WordPerfect format are very much appreciated. Send all material to the editor and be sure to include your name, address and phone number.

MAP TO MAARC MEETING LOCATION



MEETINGS: MAARC monthly meetings are currently being held at the Seventh Day Adventist Church in Burtonsville, MD. Consult the calendar section of the MAARC Newsletter for dates and times and the map (above) for directions. There is a traffic signal at the intersection of MD 198 and McKnew Road. Park in the lot behind the church or on McKnew Rd. Do not block the fireline to the rear parking lot. Entrance to the meeting is via the door to the gymnasium.

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MID-ATLANTIC ANTIQUE RADIO CLUB

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