BEGINNERS GUIDE TO VINTAGE RADIO

Is your latest find a gem from radio's "golden age," or just a flea-market special? Once you know what to look for, you'll be able to tell at a glance.

BY MARC ELLIS

Maybe you already have a couple of vintage radios in your possession; a set or two that caught your eye at a rummage sale or in a relative's attic. Or maybe you don't own anything right now, but know that you have an affinity for the look and feel of decades-old electronic equipment. No matter how you developed your interest, if you're new to the radio-collecting hobby, this guide will give you the background you need to evaluate your "finds" with a knowledgeable eye.

When the Classics Were Made. The radios of greatest interest to most of today's collectors span the years from the beginning of serious broadcast radio (early 1920's) to the onset of World War II (early 1940's). Of course, there are collectors who are interested in the relics of the earliest days of radio. Unfortunately, however, Fleming Valves, DeForest Audions, or other very early pieces of point-to-point communications gear are museum-quality items. They don't often show up at flea markets, house sales, or the other channels normally available to the average collector.

Conversely, the sets made after World War II may be the collectables of tomorrow—but I don't sense much interest in collecting that period today. I'm sure that there are readers who will disagree, but those later sets just don't seem to have the classic appearance or romantic associations that the earlier ones do.

The "classic-radio" period spans less than twenty years. But within that small slice of time, sets were manufactured by the millions in a bewildering variety of types and styles. Technological advances came so rapidly that new designs were rendered obsolete almost as soon as they came on the market. The sociological and economic changes that occurred as an era of national prosperity was replaced, in turn, by the Great Depression and the gathering storm clouds of World War II, also had profound effects on the radio industry.

Let's take a trip, now, through that fascinating period and look at some typical sets manufactured at various times within it. In the process, you'll learn the sign-posts that will help you relate the radios that you find to the years in which they were made.

The Earliest Broadcast Sets. If I were to ask you to identify the first type of radio in general use during the early days of broadcasting, you'd probably answer "the crystal set," and you would certainly be right. The wonderful thing about the crystal set was that it required no external power. The detection properties of the "crystal" (a small piece of lead ore, or *galena*) extracted the sound portion of the signal from the radio frequency "carrier" and made it audible in the headphones. The only energy used was the energy of the radio signal itself.

A crystal detector consisted of a fine wire (the "cat's whisker") in contact with a fragment of galena (lead ore). The version shown does not have the usual swivel-arm mount for the wire.

Regretfully, crystal sets aren't easy to find. By the time the broadcasting industry became big enough to create a mass market for radio receivers, the vacuum tube was becoming generally available. And even a small one-tube radio could easily outperform the most elaborately made crystal set. By 1925, crystal sets were largely relegated to the status of kid's toys. A survey of mid-1920's advertising in two prestigious radio magazines did not show one serious crystal set for sale. If you do find a vintage crystal set, you'll have no trouble identifying it. It won't have any tubes, of course, and the bit of rock-like galena—mounted in a small metal cup—will be in plain sight. You'll also find a short length of springy wire (the "cat's whisker"), typically attached to one end of a pivoted metal arm. The arm is arranged so that the wire tip can be placed in contact with various locations on the surface of the crystal. In practice, the listener tried various spots until he or she found one that provided the loudest volume.

However, watch out! Not every set having a crystal is a 1920's model. Crystal sets were made as toys, educational kits, and novelty items at least into the 1950's. Look at your find with a critical eye before you make a purchase. Should you have your heart set on adding a good example of an early twenties crystal set to your collection, your best bet would be to attend the swap meet at an antique-radio convention. You'll have a good chance of locating one there. But, of course, it's not likely to be cheap.

Battery Radios of the 1920's. During most of the 1920's, the radio most likely to be found in the family living room was a vacuum-tube set powered by batteries. The development of practical technology for plug-in AC operation did not occur until near the end of the decade, and, like all new technologies, it was high-priced when introduced and therefore not widely adopted at first.

Battery radios were made in many sizes and styles. And if you're new to collecting, it would be natural for you to assume that a simple-looking one- or two-tube receiver might be an older design than, say, a five-tube set with multiple controls. Don't make that mistake, though.

The three-dial battery-operated TRF was common in the 1920's. The one shown in this photo is a Neutrodyne and was originally built from a kit.

There were three major storage-battery-operated tube-receiver designs in use throughout the 1920's: the regenerative, the TRF (tuned radio frequency), and the superheterodyne. The first and last of those were the brainchilds of the legendary radio inventor, Howard Armstrong. A searching technical discussion of the designs is beyond the scope of this article, but the regenerative circuit was by far the most efficient.

Inside the Regenerative Radio. A tube that was set up for regenerative service was basically an amplifier. But, using an adjustable-feedback arrangement, part of the output was coupled back into the input. Because of that set up, received signals could be amplified over and over again, resulting in tremendous gain.

The RCA Radiola III is good example of a typical regenerative receiver. Its two-tube circuit made loudspeaker operation possible, especially on strong local signals.

If too much of the output were to be fed back to the input, however, the tube would begin to oscillate like a radio transmitter, causing an unearthly howl in the headphones and sending out a signal that would interfere with reception throughout the neighborhood. To obtain maximum amplification, then, the trick was to stay just below the point of oscillation.

Not only did the single tube act as an RF amplifier—boosting the signals from the antenna—it performed another function as well. While going about its job as an amplifier, it could also serve as a detector—separating the audio signals from the radio "carrier wave" so that they could be heard in the headphones.

Though there are certainly exceptions, the typical regenerative receiver of the period had one tube functioning as described. Sometimes an extra tube was included, as an audio amplifier, for louder headphone volume. Occasionally, a couple of added tubes (either built into the set or available as an "add-on" amplifier) were used to drive a loudspeaker.

To determine if your flea-market find is regenerative, first look at the controls and tubes. If it has a limited number of tubes, a control marked "regeneration" or "amplification" and only one "tuning" or "station selection" control, there isn't much doubt. The "regeneration" or "amplification" control typically operates a mechanical arrangement that changes the physical relationship between two coils; one in the tube's output circuit, the other in the input circuit.

The tubes used in those sets were quite often of the variety designed to be lit by dry cells (look for types 11, 12 or 99). However, storage-battery types (most often the 01-A) are also found. Though regenerative sets were made by many manufacturers, you're most likely to find sets made by Crosley—a company that saturated the market with inexpensive sets—and RCA, which used regeneration in most of its low-end line.

The TRF Scene. During the early 1920's radio manufacturers could secure a license to use regenerative circuits directly from Armstrong, their inventor. The license could be obtained fairly easily, and on reasonable terms. Towards the middle of the decade, after Westinghouse bought the patent rights, regenerative licenses were difficult—or impossible—to get.

A typical mid-1920's RCA superheterodyne used six tubes. A set like the one shown here was considered to be a "semi-portable."

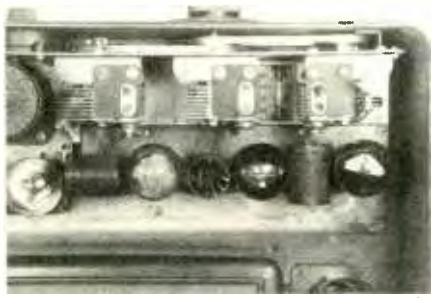
Manufacturers who couldn't (or chose not to) secure a regenerative license had to use more tubes. Generally speaking, it required two RF amplifier tubes and a separate detector tube to get approximately the same results obtained from a single tube operating as a regenerative amplifier-detector. Three tuned circuits (coil and variable-condenser—condensers are now called capacitors—combinations) were required for efficient operation of the two RF stages. Radios of that design were called TRF (tuned radio-frequency) sets.

Most TRF sets of that era also had the two additional audio-amplifier tubes, which were needed to operate a horn-type loudspeaker. The theory apparently was that anyone willing to purchase (and buy batteries for) a three-tube radio, would just as soon invest in the two additional tubes and have a more versatile set.

You might think that the cumbersome and expensive TRFs wouldn't be able to compete with the more efficient little regenerative radios. But the

"regen" sets were more difficult to tune and adjust. And the multiple tuned-circuits of the TRFs made them a little more selective (able to separate closely-spaced stations). That proved to be an important factor as the number of stations broadcasting at once began to increase.

The five-tube (generally all type 01-A's), three-dial basic TRF set eventually became an industry standard. It was made by scores of manufacturers, but a couple of the better-known ones were Atwater Kent and Freed-Eisemann. The *Neutrodyne* circuit, made famous by Freed-Eisemann, was a method for preventing unwanted oscillation in RF amplifiers. (A common problem with triode RF-amplifier tubes whose inputs and outputs were tuned to the same frequency.). The three-dial TRF set fell into disuse only when the first plug-in sets appeared on the market.



A "straight-down" view of an open Model 42 cabinet shows belts and pulleys linking the tuning condensers for single-control operation. The corner of the separate power-supply box is seen at the lower left of the photo.

Armstrong's Other Masterpiece. The superheterodyne, Howard Armstrong's other masterpiece of radio circuitry, wasn't in widespread use during the 1920's battery-set era. In later decades it was to become the dominant radio design. However at this time, RCA—the patent owner—retained exclusive manufacturing rights.

The superheterodyne circuit represents yet another approach to amplifying radio frequencies. Signals coming in from the antenna are converted to a much lower frequency by mixing (heterodyning) them with a signal generated by an internal oscillator.

The lower frequency, typically between 150 and 450 kHz, is called the IF, or the *intermediate frequency*. The IF signal is amplified and detected much as it would be in a TRF receiver. But by amplifying at a lower frequency, greater gain can be obtained without danger of oscillation, and greater selectivity can also be achieved.

The Cathedral-style Gloritone screen-grid set represents the transitional period of radio-receiver development Note that the tuning dial is viewed through a tiny window.

Identifying a superheterodyne set of the 1920's by its physical appearance requires a fairly sophisticated knowledge of radio circuitry. However if the set is a pre-1930 battery model, has six tubes or more (usually type 99's), and was made by RCA, it's probably a superhet.

Enter the "Socket-Power" Radio. Broadcast-radio listening entered a brand-new era when the first practical plug-in, or "socket-power" radios appeared on the market. Though many prior schemes had been tried for powering battery sets from the AC power line, the necessary "battery-eliminator" units tended to be heavy, bulky, and expensive.

The true breakthrough came in the late 1920's, when amplifying tubes especially designed for alternating-current service became available. Clumsy external batteries or battery eliminators could now be replaced by a compact power supply unit (usually using a type-80 rectifier tube) built right into the receiver cabinet. The power lead coming out of the radio now terminated in a simple AC plug rather than a tangle of individual wires intended for connection to various DC voltage sources.

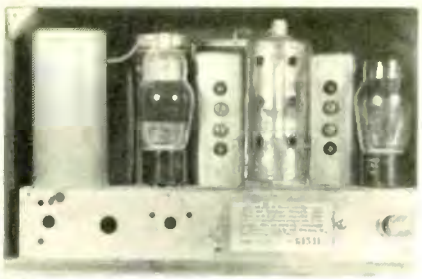
These first AC radios were generally TRF sets (except for RCA's, which were generally superheterodynes). But the familiar array of three tuning knobs had all but disappeared. The three tuning condensers formerly operated by those knobs were still in the radios. But, in most models, their shafts were ganged by belt-and-pulley arrangements that permitted tuning all three with a single control. The rheostats formerly required for controlling current flow from the batteries through the tube filaments also disappeared—leaving the front panel of the late-1920's AC radio with just three controls: power (typically a separate toggle switch), volume, and tuning.

For some reason, the preferred material for the cabinets of those sleek new radios was now metal rather than wood, or wood and Bakelite. And the hinged top of the older-style sets was replaced by a friction-fitting metal lid that could be lifted off for tube replacement. External loudspeakers were still the rule, housed in matching metal cases. But a more compact paper-cone style had replaced the earlier horn design. Late 1920's AC-powered sets by Crosley and Atwater-Kent are good examples of this "new look" in radio. RCA, however, opted for furniture-style cabinets with rich wood-grain finishes.

Transition-Period Radios. From the final years of the 1920's through the early years of the 1930's, the evolution of radio receivers passed through what I think of as the "transitional period." All of the basic receiver circuits had been invented, and further advances in circuitry would be refinements of design. Those were paralleled by refinements being made on the mechanical aspects of the radio chassis.

This view of the Gloritone's chassis shows the 24-A screen-grid tubes wired to the three-section tuning condenser. The power transformer, with its ventilating cover, is seen just to the left of the tuning condenser.

For example, the three tuning condensers so typical of the TRF radio were no longer ganged by belts and pulleys. Instead, they were combined in one frame and turned by a common shaft. This broke up the familiar "row-style" arrangement of the RF amplifier stages. Now the RF amplifier tubes and coils tended to be grouped around the common variable capacitor so that they could be arranged for max-



The rear view of this depression-era AC-DC radio shows its tall glass tubes. This set uses a line-cord resistor.

imum compactness and minimum lead length.

The power-supply circuitry, formerly housed on a separate chassis within the radio cabinet, moved onto the radio chassis itself—achieving still greater compactness and design integration. The functional groups of the receiver were no longer separate "building blocks" but blended together as a unified whole.

Finally the loudspeaker, stripped of its decorative case and reduced in diameter, was placed inside the radio cabinet. The design of the speaker also changed. Formerly nothing more than a scaled-up earphone movement incorporating relatively weak permanent magnets, the new unit (called a *dynamic* speaker) contained a powerful electromagnet operated from the receiver's power supply.

The new speaker required four leads (one pair for electromagnet power) compared with the original two. Though smaller in size than the old-style separate speaker, the built-in speaker delivered much more sound—particularly since the audio tube that drove it, no longer having to rely on a limited battery supply, was delivering more power.

The presence of the speaker inside the cabinet caused another major change in the radio's physical appearance. Previously, the hinged-lid, coffin-shaped, wooden box of the mid-1920's battery TRF had been replaced by the more rectangular box of the late 1920's socket-power radio with its built-in power supply. Now, because of its more compact chassis, the cabinet of the "transitional" radio took up less table space, but required more vertical space to accommodate the speaker.

One of the resulting cabinet styles, the familiar *cathedral*, curved upward to form a dome around the speaker. Another common style, the *tombstone*, took the shape of a vertically oriented rectangular slab. But however they were shaped, cabinets were now made of hardwood veneers, metal having virtually disappeared as a material for radio enclosures.

It's worth noting, too, that the late-1920's release of screen-grid tubes (which were highly efficient RF amplifiers) gave the TRF design a last breath of life before the superhet became king. And the screen-grid TRF, with its distinctive group of three top-capped 24-A tubes is a common relic of that era.

By now, radio broadcasting had become such an important feature of American family life that it was natural for a radio receiver to become the focal point of the living room. Thus, the "transisitonal period" was also the period of the magnificent living-room console. The speakers of those big consoles were mounted below the chassis, and the cabinets were made tall enough so that the knobs and dial could be elevated for easy visibility. Cabinets were as massive and elegantly crafted as the family could afford.

The 1939 Philco set shown here was one of the last wood-cabinet table models in the line. Note the large tuning dial with rotating pointer.

But whether it was a table model or a console, the typical "transitional period" set had moved into the modern era of vacuum-tube radio design. Inside, the radio no longer looked like a hand-assembled laboratory prototype, but more like the mass-produced home appliance it had become. Outside, the "apparatus" look was gone. The multi-knobbed Bakelite front panel or neutral metal enclosure was replaced by a cabinet made of fine wood in a furniture style and finish.

Impact of the Depression. As you might imagine, the financial crash of 1929 and the deepening depression of the 1930's had quite an impact on the burgeoning radio industry. But, if anything, the number of radio listeners was increasing. Broadcasting was in its Golden Age, when some of the most popular radio series of all time had their beginnings. The programs were a blessing to the cash-starved depression family; they were free, and could be enjoyed without leaving the home.

However, if the manufacturers wanted to continue to sell radio sets, they'd have to develop economy versions. The market for the elaborate consoles and table models of the late 1920's was definitely dwindling. Luckily, radio stations were increasing in number and power—so the new sets didn't have to be supersensitive. And the improvements in the efficiency of vacuum tubes and components made it possible to downsize receivers and still maintain reasonable performance.

In creating the "depression radio" two bulky and expensive power-supply components—the filter choke and the power transformer—were eliminated completely. By wiring the field coil (electromagnet) of the dynamic speaker in place of the filter choke, the field coil could replace the choke and still receive the DC power it needed to function. The transformer was eliminated by devising a new method for lighting the tube heaters.

Formerly connected in parallel and operated from a low-voltage winding on the transformer, the heaters were now wired in series to build up as large a voltage-drop as possible. That series string of heaters was connected, in turn, with a series resistor to increase the voltage drop still further. The combined voltage drops of the tubes and series resistor totaled 115 or so, and the entire "shooting match" could be operated directly from the AC (or, as we shall see, DC) line without benefit of a power transformer.

Recognizing Depression AC-DC's. The elimination of the power transformer resulted in an interesting fringe benefit; a radio without a power trans-

A 1940's Emerson, like the one shown here, is a typical "second-generation" AC-DC set.

former could be operated from DC as well as AC current. During the 1930's, the downtown sections of many large cities were supplied *only* with DC power. Conventional radios having power transformers could be operated downtown only by using a costly power inverter. Here was a ready-made market for the new "bare-bones" radios, which quickly became known in the trade as "AC-DC sets."

The first AC-DC "depression radios" make interesting collectibles. Cabinets were generally made of wood in a variety of fanciful styles. They look nice on a bookshelf, and are much easier to store and display than the full-size models.

Besides the distinctive cabinet, you can also recognize the first-generation AC-DC set by its series resistor and the types of tubes used. The tubes were a mixture of 6-volt types originally developed for auto use (6A7, 6D6, 6Q7—to name a few) and higher-voltage types designed especially to help build up the voltage drop in the series string (typical were the 25Z5 and 25L6). You'll also often see the 43, a 6-volt type designed especially for use in AC-DC sets.

Series resistors were sometimes included in the set's line cord as an asbestos-covered third wire; sometimes housed in metal plug-in tube-like enclosures mounted on the set's chassis. The former type were commonly called *line-cord resistors;* the latter were known as *ballasts.*

Those little radios were made both as TRFs and as superheterodynes. But construction practices were such that it isn't always easy to tell the difference without a knowledgeable eye or a circuit diagram!

The Second Generation of AC-DC sets. The design of the AC-DC set slowly evolved through the 1930's, and by the early 1940's it had quite a different look. The cabinet was now generally made of Bakelite, often in a dark-brown color. That plastic material could be formed much more easily into the soft curves of the streamlined, or "moderne" look then in vogue.

The old tall-glass ("G" style) tubes had been replaced by the shorter metal, or "GT"-style glass versions—resulting in a more compact cabinet. By the way, don't confuse the "GT"-type glass tubes with the even smaller miniature glass tubes of a later era. The former have a separate metal or plastic base equipped with an octal (8-prong) plug. The latter are one-piece glass types having no separate base; the connecting pins (usually 7) pass directly out through the tube's glass bottom.

The speaker of that second-generation AC-DC set was frequently a *permanent-magnet* type rather than the older style dynamic version. Through the development of better magnetic materials, permanent magnets could now be made much more powerful than before, making obsolete the need for a speaker field coil. And improvements in power-supply components over the years had done away with the necessity of having a field coil to play the part of a filter choke. One easy way to identify a permanent-magnet speaker is to check the number of leads going to it; there are only two of them, compared with the four wires required for a dynamic speaker.

The Zenith 1940 portable had an "airplane luggage" case and a removable loop antenna with suction cups for mounting on car windows.

Second-generation AC-DC sets were usually superheterodynes rather than TRF's. And the superheterodyne sets of that period were easily recognizable by the pair of tall, square-topped aluminum enclosures housing the IF transformers. The top of each transformer normally contained a pair of access holes used for reaching the tuning adjustments.

Enter the Portables! Lightweight, battery-powered radios that could be carried anywhere appeared in the late 1930's. Like most earlier innovations in radio receivers, that one was made possible through development of a new variety of vacuum tube. The new battery-radio tubes required much less power (especially to light their filaments) than "normal" types. That meant that the portable could be operated for a long time by a compact battery pack housed within the case.

The battery portables of that era have a romance all of their own. Most came in suitcase-style cases, often covered with "airplane-luggage" fabric. Some had shortwave bands as well as standard broadcast. And a few had special arrangements to remove and orient the antenna for best reception.

The little battery portables were often marvels of mechanical ingenuity and organization of interior space. It was quite a trick to find places for a full set of batteries without coming up with a cabinet size appreciably larger than the standard AC-DC table model. And since those sets were generally designed for plug-in operation as well, designers also had to provide a spot to store the line cord when not in use.

As you might imagine, the "3-way" portables (so named because they would operate from the AC line, DC line, or internal battery power) were enormously popular with teenagers,—who lugged them to beaches, parks, or other recreational areas to add a little extra romance and excitement to the proceedings.

You can identify the first-generation 3-way portable not only by its case style and battery compartments, but also by its tube complement. The tubes will be in the octal-based "GT" style described previously, and you'll see types such as 1A5, 1A6, 1A7, 1B7, 1H5, 1N5, etc. The "1" at the beginning of the type number indicates that the tube operates from a 1.4-volt DC source.

Other Trends in Radio. So far we've covered the evolution of broadcast radio receivers during the 1920's. Then we skipped rather abruptly from the early to the late 1930's as we discussed the AC-DC sets and 3-way portables—types that were quite dominant during that era.

But it should be stressed that—throughout this period—plenty of full-size, full-featured, wood-cabinet table models and consoles were also being made. So I'd like to finish this beginner's guide to vintage radio by discussing some of the other developments that took place during the 1930's and early 1940's. Developments that apply generally to the full-sized radios and, in many cases, to the scaled-down models as well.

You already know that, during this period, the tall glass "G"-type tubes were replaced by the much shorter and more compact, octal-based, GT-type (glass) and metal tubes. You know, too, that the dynamic speaker

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with its 4-wire connection gave way to the 2-wire permanent magnet speaker. It's also important to note that the superheterodyne circuit became dominant as RCA finally began licensing other manufacturers to use it, and the TRF design finally faded slowly into oblivion.

Once the superheterodyne was well-established, the 1930's would see no further basic changes in radio receiver circuits. There were, however, many developments that made radios easier and more pleasurable to use. One of them was the improvement of the tuning dial.

Better Dials and More Bands. The tuning dial entered the 1930's as a small window just big enough to show the frequency being received and a couple of divisions to either side. As the set was tuned, the scale moved by under a fixed indicator line in the window.

By the middle of the decade, that window (usually in the form of a semicircular arc) was becoming much larger, so more of the scale was visible at once. A little later on, the functions of the scale and pointer became interchanged, with the scale becoming fixed—printed on a large oval, square or circular dial—and the indicator becoming a movable pointer. That meant that the entire tuning scale of the set was visible at once.

Also during the 1930's, radios began to sprout extra bands. Some sets had one labeled "police" beginning just a little higher in frequency than the standard broadcast band. Tuning around that band, patient listeners could eavesdrop on some of the first police car-dispatcher communications.

Still later in the decade, as European countries began to be drawn into the conflict that was to become World War II, there was heightened interest in a higher frequency band sometimes labeled "Shortwave," and sometimes labeled "Foreign Broadcast." There, the international broadcasters could be heard—country after country reporting on world events, each with its own unique point of view.

Multiband sets now had several concentric scales representing the different frequency ranges. It wasn't uncommon for the broadcast scales to have the call letters of major-market

This view of the Emerson's chassis shows the loop antenna, the "GT"-type tubes, and its square-topped IF-transformer cans.

radio stations printed near their operating frequencies. Likewise—on the shortwave scale—the names of different countries would often be shown near frequencies typically used by them. Generic markings (such as "Police," "Aircraft," "Amateur," and "Ships") were also sometimes used.

By the end of the 1930's, many manufacturers had "straightened out" their dial scales, turning them into horizontal lines. Multiband sets had two or more straight lines arranged parallel to each other—each with its appropriate range of markings. The pointers of those easier-to-read *slide rule* dials moved horizontally, of course, instead of describing a circular arc as did the earlier "clock-type" pointers.

Pushbuttons that could be set to select frequently-tuned-in local stations were also common as the decade ended. These supplemented the main tuning dial, but did not replace it. One type was entirely mechanical and worked by physically moving the tuning condenser to the proper position. Another was electronic and worked by switching individual fixed capacitances in and out of the tuning circuit. The craze for pushbuttons affected other controls on the set as well. Some sets bristled with buttons to control station selection, bandswitching, tone, and even the "on-off" function.

Other Developments. No discussion of dials would be complete without mentioning the *tuning eye*. That innovative tuning aid of the mid-1930's was a specialized vacuum tube known as an *electron ray tube*. It was mounted horizontally; you looked into its top end through a circular opening in—or above—the tuning dial. With the set turned on, the end of the tube lit up with a phosphorescent green glow and a pair of shadows became visible on a circular *target*. The stronger the station, the closer together the shadows moved—looking vaguely like the closing of the pupil of an eye.

The tuning eye was actually a fringe benefit of the automatic volume-control circuitry that was coming into use during that era. The AVC, as it was called, automatically reduced set sensitivity when strong stations were tuned in—preventing overloading—and increased sensitivity as weak stations were tuned in. The control voltage generated during that AVC action, applied to the grid of the tuning-eye tube, was responsible for the opening and closing effect.

Let's complete our coverage of events during the 1930's and early 1940's with a word or two about the all-important topic of antennas. Throughout the 1920's, an elaborate outside antenna system had generally been required for adequate reception. But because of the superior sensitivity of the early 1930's radios, and the more powerful and more numerous broadcast stations on the air then, a less elaborate antenna would now do the job quite well.

This RCA table model from about 1940 boasted a slide-rule dial and pushbuttons for station selection.

By the late 1930's, there was no need even for that wire. A multiple-turn loop antenna mounted inside the set cabinet pulled in all the local stations with no trouble at all. External antennas were used only for more distant stations or to enhance shortwave reception for the really serious listener.

Wrapping it Up. Those of you who are new collectors should now have a solid orientation to the types of sets that might fall into your hands and the era of radio development to which each of those radios belongs. That information will help you make intelligent acquisitions and give you a knowledge base that you can expand on yourself as you dig deeper into this fascinating hobby. Happy collecting! ■