

**TWICE AS MUCH RADIO  
FOR - YOUR - MONEY**

*The*

**WORLD  
-WIDE NINE  
RADIO**



**CUSTOM  
BUILT**

*by*

**McMURDO  
SILVER**





## Dedicated—

THIS EFFORT, HOWEVER FEEBLE, IS DEDICATED TO THOSE GREAT ARTISTS OF THE PAST WHO HAVE STRUGGLED UNTIRINGLY AGAINST ALL HANDICAPS TO GIVE TO THEIR FELLOW MEN ONLY THE HIGHEST ATTAINMENTS OF PURE TRUTH IN ALL THINGS, ESTHETIC AND PRACTICAL ALIKE.

# MY NEW LABORATORY SYSTEM BRINGS FINE CUSTOM BUILT RADIO to the AVERAGE HOME

When nearly three years ago I established my custom construction and engineering laboratory, I found myself blazing a practically new trail in radio. The term "custom built" has constantly been grossly misapplied to various receivers in the industry. True custom building in radio is making exact duplicates of a laboratory model receiver, with no tolerances, no variation whatever from the original standard. This demands that each receiver must be constructed completely by an experienced, skilled construction-engineer, who understands not only what to do in each step, but exactly why it must be done that way.

Quite naturally, I built the first MASTERPIECE with my own hands. My next task was to train able assistants to construct precision-made duplicates of it. I found this to be a slow, tedious process, but with care and patience over many months I developed a staff of able construction engineers, who caught what I choose to call the "MASTERPIECE spirit." Working closely, every day with them, we have together established what I believe to be the most efficient radio custom building laboratory existent in the world today.

Due to the extraordinary popularity of the MASTERPIECE Receiver, I have constantly expanded—adding gradually to my staff, so that each engineer could have an apprentice beside him. This system has now developed to a stage where the possible output of the laboratory has advanced to ten times the original capacity.

This ideal evolution in the construction laboratory, plus other factors of economy and simplified design has now made possible the realization of another "dream" of mine—the bringing of fine custom built radio to the average home. This ideal is fully realized in the WORLD WIDE NINE—a superlative precision custom built allwave superheterodyne, employing every advanced engineering feature—beautiful in its gleaming chromium plate—guaranteed for five years—second only in quality and performance to the now famous MASTERPIECE III—yet directly sold at an amazingly low price. A purchase price well within the reach of all radio fans—competitive in cost, yet superior in performance to the most expensive mass-production and competitive custom built radios.

To the legion of trusting, loyal friends the world over, who have faithfully followed and supported my activities and products through all these past fifteen fast-moving radio years, I offer the WORLD WIDE NINE with justified pride in answer to their urgent request for such an instrument. To my new friends, I offer it, backed by the most rigid, comprehensive guarantees ever given in radio history, that they may see and hear for themselves without risk that this new epoch-making receiver fully merits the slogan I have chosen for it—

TWICE AS MUCH RADIO FOR YOUR MONEY!

*Lee Mundo*



# HOW TO CHOOSE

In choosing an all-wave receiver, you will be confronted with identical and conflicting claims, no matter what the price of the receiver offered. Obviously, all are not equally good, yet on the basis of advertising claims you will have great difficulty in making a wise choice.

Possibly most important is the experience and reputation of the builder—what does his experience and work indicate he really *knows*, not simply claims? It is wise to choose the product of a maker known to have long experience in building all-wave, not

FEATURES FOR COMPARISON	WORLD WIDE NINE	MASTER-PIECE III	THIRD CHOICE	FOURTH CHOICE
Number of tubes	9	12		
Custom or mass production built	Custom Built	Custom Built		
Wavelength range	13-560 M	13-570 M		
Two Band "spot" coverage	Full	Full		
Full 13 to 560 meter coverage	Yes	Yes		
How many wave bands	4	4		
Single calibrated dial or auxiliary trimmers	Single Calibrated Dial			
Band spread short wave tuning	Yes	Yes		
Tuned R.F. stage on all bands for freedom from noise and image interference	Yes	Yes		
Combined first detector-electron coupled oscillator for frequency stability and high conversion gain	Yes	Yes		
Two or three i.f. stages for absolute 10 kc. selectivity	Two	Three		
Air tuned i.f. transformers for absolute permanency of sensitivity, selectivity and dial calibration	Yes	Yes		
Diode second detector for elimination of detector distortion	Yes	Yes		
Wide range automatic volume control to eliminate fading	Yes	Yes		
Tone control	Yes	Yes		
Audio beat oscillator for easy location of short wave stations and code reception	Yes	Yes		
One or two audio stages	Two	Two		
First audio driver stage	Yes	Yes		
Single or push pull power output stage	Push-Pull			

# YOUR ALL-WAVE RECEIVER

just broadcast band, receivers. It is wise to consider also the actual value one receives, bearing in mind that where radios are sold through jobber-dealer channels, about two-thirds or more of what you pay represents only middleman's profit—not a single cent of actual value in the receiver itself.

Below is a chart which will enable you to compare the features of different receivers offered to you. Its careful use will enable you to get the greatest dollar value for your expenditure.

FEATURES FOR COMPARISON	WORLD WIDE NINE	MASTER-PIECE III	THIRD CHOICE	FOURTH CHOICE
Pentode, Class B, or distortionless triode Class A or Class A Prime output stage	Class A Prime	Class A Prime		
Undistorted power output	10 Watts	18 Watts		
Does A.V.C. limit output to above level to avoid blasting and distortion	Yes	Yes		
Noisy mercury or quiet high vacuum rectifier tube	5Z3 Quiet High Vacuum			
Power transformer large enough to provide all needed power without dangerous heating	Yes	Yes		
Adequately rated filter and bypass condensers and resistors for long life	Yes	Yes		
Is receiver equipped with recognized high quality, easily obtained tubes	Yes	Yes		
Fully AC operated without hum	Yes	Yes		
Fully shielded	Yes	Yes		
Absolutely stable and free of oscillation	Yes	Yes		
Solid welded steel chassis or softer, less rigid metal	Welded Steel			
Impermanent paint or plated finish, or permanent polished chromium	Polished Chromium			
Electro-dynamic speaker	Full Sized and Over Sized			
Large, full sized or midget speaker	12"	12" or 14"		
Efficient full sized or cramped midget chassis	Full Size	3 Unit Full Size		
Complete servicing instructions on each receiver	Yes	Yes		
Does maker continue to supply up to date short wave station lists	Yes	Yes		
90 day Guarantee against parts defects	Five Years			
Free one year service guarantee	Yes	Yes		
Free trial guarantee	10 Days	10 Days		



# ENJOYABLE FOREIGN RECEPTION NOW AN ACTUAL REALITY

As little as a year ago, the average man did not know that his radio entertainment was not limited only to local, or at best, North American station programs. The man in the street did not know that he could listen to European, South American and Asiatic broadcasts as well as he could local stations—and in the summertime that he could very often get short wave stations many thousands of miles away better than he could get broadcast stations a hundred miles away!

For the discriminating few who did know this, a few expensive custom built allwave receivers were available, or amateur short wave receivers which would get foreign broadcasts, but, only too often, not in a manner that could be called entertainment.

Suddenly the large quantity production radio factories awoke, and realizing that some new sales appeal was necessary to sell the public thousands of cheap radios each day, they saw that the romantic appeal of foreign short wave reception was the only available answer. And, exactly what could be expected happened. All factories rushed into production on allwave receivers, with no previous experience in either the design or building of such receivers. The idea took, and we are all familiar with the advertising (broadcast and in magazines) in which reception of specific foreign stations was advertised—at times these stations were not even on the air! This gives but a small idea of how, once the sales appeal of foreign reception was realized by the big producers, they dashed madly ahead making and advertising good, bad and indifferent radios—requiring only that they be “allwave.”

Behind these allwave radios rushed to the market place in a competitive frenzy to be first to reap sales, is little or no practical engineering experience, and they leave almost everything to be desired, except possibly the bare ability to get foreign stations in such a manner that station announcements may barely be understood through a din of static and noise—or very weakly at best.

Definitely, reception of foreign stations can be entertainment today. Many distant stations around the world can be brought in as clearly and loudly as local stations—but it takes a good allwave receiver to give such results. Such a receiver may not be hurriedly thrown together to get sales, with little or no previous practical allwave experience behind it. Its initial requirements are a thorough knowledge of the problems involved—knowledge that cannot be had in a day or a few months, but can be had only as a result of long and exhaustive experience in designing and building allwave receivers.

With such knowledge, and only with it, really good allwave receivers can be built. Such really good receivers cannot be built to sell for the ridiculously low prices some are being offered at. Thoroughly good receivers can, if the designer be possessed of the requisite practical background and knowledge, be built to sell for from two hundred to three hundred dollars and more. Or, if the usual costly distribution methods are cut out, thoroughly excellent allwave receivers may be built to sell for from ninety to one hundred and fifty dollars.

Such receivers, and only such receivers, will be capable of bringing to their owners consistent daily entertainment from Europe, South America, Asia, and last but not least, excellent reception of all North American broadcast band and short wave programs.

Such a receiver is the WORLD WIDE NINE, designed from experience gained in pioneering throughout the entire history of short wave broadcasting, to bring to your home the finest possible short wave and broadcast reception possible, at a price every home can afford.

I feel that it represents a new mark for the radio industry to shoot at!



*London*



*Paris*



*Rome*

# SILVER ENGINEERING LED WITH "HIGH FIDELITY" IN THE IMPROVED MASTERPIECE II

The end of 1934 will see much talk and ballyhoo on the subject of “high fidelity” reproduction. Just what high fidelity reproduction is, is best explained in the following paragraphs from a Silver Times of early 1934.

Briefly, however, “high fidelity” reproduction means the reproduction of musical overtones as well as fundamental musical notes. It has been the lack of such overtone reproduction in the past that has resulted in the unfavorable opinion of radio held by competent musicians.

The so-called fundamental musical tone range is from about 30 cycles per second up to about 4,000 cycles, and it is this frequency range which every radio designer seeks to produce radio receivers to cover faithfully—with only too frequently and usually, the poor success that can be so easily appreciated upon comparison with such receivers as the MASTERPIECE III and the WORLD WIDE NINE.

But this is not the entire musical range, for it does not include the overtones of the higher frequency notes of many musical instruments. These overtones are actually harmonics of the fundamental musical instruments, and are what give the instruments their individual character—everyone knows that the middle C note of a piano does not sound like the same middle C note of a violin, and this difference is largely due to the different number and strength of overtones characteristically produced by each individual instrument.

These overtones or harmonics may be heard as high as 16,000 cycles per second, by one ear in every thousand average, but to the well trained ear of an extremely critical musician overtones up to 8,000 to 10,000 cycles are necessary

for full enjoyment of music. On the other hand, the musically untrained ear not only does not miss the absence of overtones, but often actually prefers them to be entirely absent.

This may sound strange, but scientific investigation has found the answer—which is really familiar to anyone. The human reaction to music or tone is divided into two broad spheres—emotional and psychic. Bass notes produce an instinctive, or emotional reaction, while higher tones produce a psychic, or intellectual reaction. This is borne out by contrasting the music of savage and civilized people. Primitive African music is characterized by the deep bass drum beat—the music of advanced civilizations by the presence and appreciation of high tones.

It is perhaps true that the great mass of radio buyers, having musically untrained ears, prefer a definitely subdued high frequency response in a radio receiver, one of the reasons being that while accentuated bass response gives rise to a pleasing emotional reaction, the initial reaction to high notes, particularly overtones above the fundamental musical range, is one of psychic annoyance. Yet as the listener advances in his experience with radio receivers, he develops a taste for really perfect reproduction.

## Technical Limitations on Fidelity

A purely practical aspect of music in relation to radio is the allocation of frequency channels 10 kilocycles (10,000 cycles) wide to broadcast stations. Because the transmission of speech or music requires a frequency band width twice as wide as the highest modulation frequency to be used, it is apparent that the 10,000 cycle band width assigned to broadcast stations will permit modula-



tion up to only 5,000 cycles before interference with programs on adjacent channels occurs. This, however, is purely theory—practice is much worse.

Due to the necessity in selective radio receivers of admitting one broadcast channel at a time and rejecting all others, an order of selectivity must be attained that will usually only admit modulation frequencies up to 1,500 to 2,000 cycles before selectivity discrimination begins to attenuate the higher modulation frequencies progressively—so much so that in the average selective radio receiver today even the top fundamental musical notes are almost entirely cut out. This has been tolerated by the average radio listener for the psychological reasons brought out previously, and he has been most frequent in his praise, not of the totally absent “brilliance” of reproduction of his particular radio, but of its “sweet, mellow and rich” tone!—saying simply that he prefers and is satisfied with accentuated bass response at the expense of brilliance.

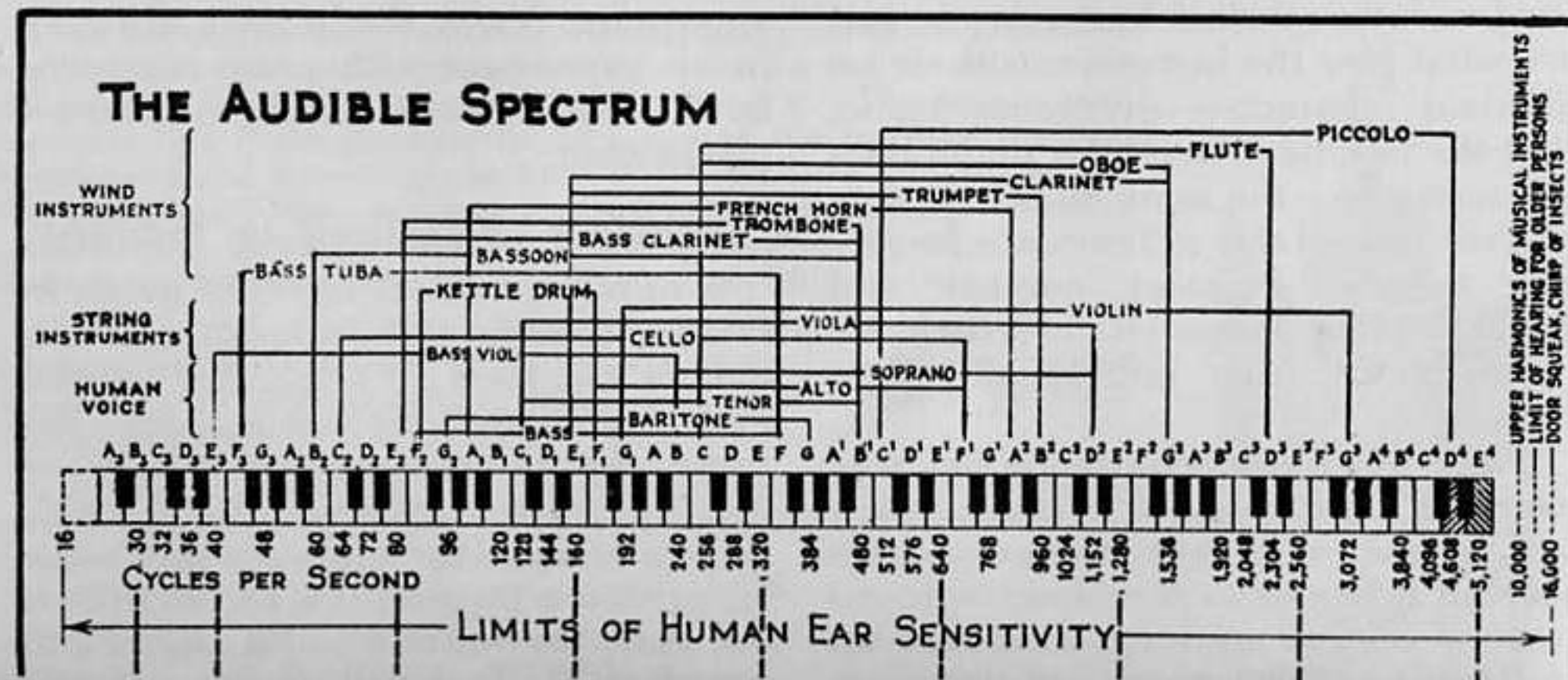
As the appeal of McMurdo Silver receivers is entirely to that small group of human society that is cultured, and consequently discriminating, we at the laboratory have been constantly in search of means of increasing brilliance of reproduction such as to satisfy really cultured musical ears in a manner which even the perfectly faithful reproduction of the fundamental musical range of these receivers could not supply because of the inability to reconcile overtone reproduction with required

selectivity, and the failure (except for purely local service, as high modulation frequencies are lost very rapidly at increasing distances from any transmitter) of broadcast stations to modulate above the fundamental musical range.

Quite obviously this cannot be done directly, for it is impossible to reproduce overtones that are not transmitted, and that if they were transmitted, must be rejected by any receiver which has any claims to selectivity and freedom from noise. This is because the noise in radio reception, lies mostly in the high audio frequency range, and increasing the high frequency response of a receiver invariably increases noise out of all proportion to gain in reproduction fidelity.

The means of obtaining high fidelity in a receiver lies in the fact that the ear is the most deceptive of all human organs, and can be most easily deceived. Much investigation has indicated that until such time as broadcast stations are given 20 kilocycle channels, and are spaced 20 kilocycles apart, the missing overtones of high musical notes may be effectively and convincingly simulated to even well trained ears by placing emphasis on the upper register of fundamental tones.

Thus, when you buy a McMurdo Silver radio, you are obtaining a “high fidelity” receiver such as other makers will not offer for months or years to come—just another evidence of Silver engineering leadership.



# NEW "WATCH" DIAL

## AN EXCLUSIVE SILVER INNOVATION TAKES GRIEF OUT OF SHORT WAVE TUNING

All competitive receivers have usually a single tuning knob having a ratio entirely satisfactory for broadcast band tuning, but utterly worthless for short wave tuning. By worthless is meant just that—competitive receivers simply cannot be tuned except by an expert, so sharp is short wave tuning. A few have dual tuning ratios, one fast for broadcast band, and one very slow for short waves. These, even though usually mechanically stiff and inefficient, are some help, but are not the answer as it is impossible to tell from the dial what station one may be listening to, due to the cramping of short wave broadcast services in very narrow spaces on the dial—so close the eye cannot read them apart.

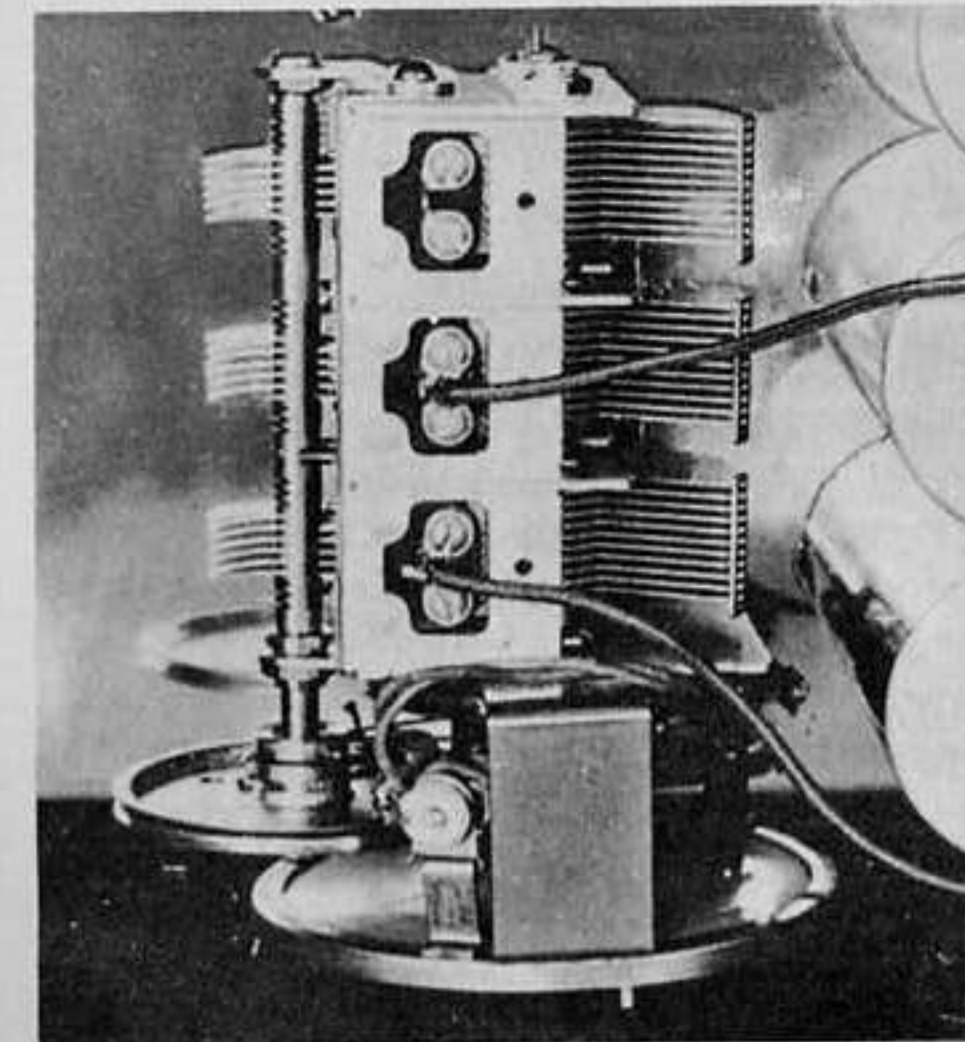
The only proper solution is that found in expensive commercial service receivers where life depends upon ability to operate a receiver properly and easily even in the hands of a skilled operator. This solution is band spread tuning, introduced to broadcast receivers by the MASTERPIECE II in 1933. It involves one main tuning dial for all bands, and a secondary dial and tuning knob which, operative anywhere in the wave length range of the receiver, may be used to spread narrow segments of the main dial out over the full scale of the secondary dial for easy reading. Because of such spread sharp short wave stations become easy to tune on the secondary (band spread) tuning knob.

Just this is provided in the WORLD WIDE NINE by the new "Watch" Dial—a single air-

plane dial having four 180 degree scales (two at top, two at bottom) accurately calibrated in megacycles (thousands of kilocycles) which are read with the large "minute hand" pointer, and two more 0-100 degree scales (inside of calibrated scales) read by the "second hand" pointer.

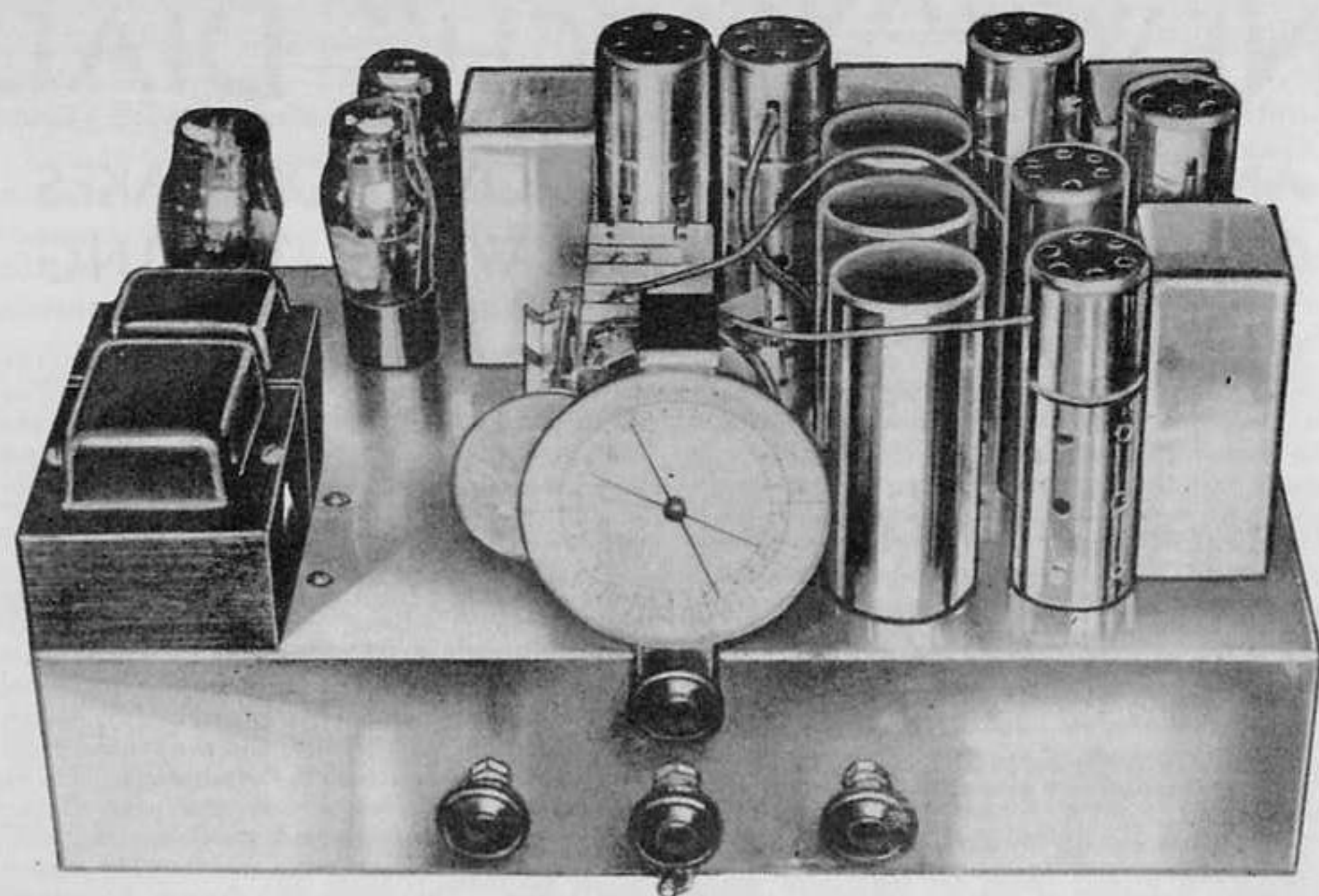
In operation, the tuning knob is pushed in and the "minute hand" pointer used for broadcast band tuning. Then, turning to short waves, this pointer is set to the top edge of any one of the short wave bands clearly marked by heavy black segments on the dial, and the tuning knob pulled out. This brings the separate three gang band spread condenser into use, and if the tuning knob is now turned, the "second hand" pointer will travel over the inside 0-100 degree dial scales. The entire 180 degree movement of this pointer and over four revolutions of the tuning knob will now tune the set only over a range of a few hundred kilocycles—the width of the short wave broadcast bands. On this secondary dial short wave stations will be found, not "half a hair wide" as on ordinary dials, but spread out over several degrees of the dial, easier to tune by far than broadcast band stations, and even easier to read apart.

It is prophesied that every American radio manufacturer will copy this Silver introduced feature in from a few months to several years, for it takes all the difficulty out of short wave tuning and makes it simpler than broadcast band tuning. It is the one feature needed to make short waves popular in every American home.



Mechanically, the system is simplicity itself. On one side of the three gang tuning condenser, and integral with it, is built a second three gang condenser of very low capacity and small size, as is needed for band spread tuning. The shaft of this condenser is linked by an automatic take up belt to the "second hand" pointer, floating freely on the main condenser shaft which moves the main "minute hand" pointer. Below the dial is located the tuning knob shaft, carrying two idling pulleys, each linked by one belt to the condenser shafts. On this tuning shaft is a reversed cone clutch—push it in and it engages the main tuning condenser pulley—pull it out and it frees this pulley and positively engages the band spread condenser drive pulley. This system is known as a "cone clutch," and is found in the most expensive precision lathes. Its principles and application have been known for years, and it is so simple as to be entirely fool-proof as well as beautifully sweet and smooth to operate.





# The New WORLD-WIDE NINE

WITH ENGINEERING FEATURES FOUND  
IN NO COMPETITIVE RADIO RECEIVERS

From the illustrations of the WORLD WIDE NINE shown on this and page 15, the perfect electrical symmetry and circuit progression can be seen, as well as the very short connections made possible at critical points in the circuit. The receiver itself is 17 in. long, 10 $\frac{3}{4}$  in. deep and 9 in. high over airplane dial escutcheon. The chassis is finished in buffed and polished chromium, and is of heavy, welded steel construction for extreme rigidity and permanence—a feature found in no other radios priced below one hundred and fifty dollars. The tube, coil and i.f. transformer shields are of polished aluminum and Iradio, a non-magnetic, low loss alloy, harmonizing with the chromium chassis. The power transformer and first filter choke are finished in black enamel for greatest possible heat radiation, the color black being known as the best radiator of heat.

The Concert or Studio electro-dynamic speakers are finished in silver lacquer, and are 12 in. in outside diameter and 6 in. and 7 in. deep respectively.

## Circuit

The circuit of the WORLD WIDE NINE is a standard, tried and proven superheterodyne circuit incorporating no single feature not proven out exhaustively over a period of years. It includes no "tricks" calculated to make it the "best ever." It is a basically simple circuit, developed to practical perfection by the most painstaking research and engineering—not by the short cut "inspirational" route. Substantial engineering is not "inspirational"—it is just plain thorough going hard work, each step guided by a complete background of at least a decade of practical experience. Behind the

WORLD WIDE NINE are not one, but more than two decades of practical knowledge and experience.

A total of nine tubes are employed, two of them being multi-element or multi-purpose tubes which actually give to the WORLD WIDE NINE, not several combination or reflexed functions, but twelve separate and distinct tube and circuit elements and functions. The WORLD WIDE NINE is actually a twelve tube receiver completely covering the range of 13 to 560 meters, or 23,000 to 540 kilocycles, with no gaps leaving out important short wave services.

Beginning at the antenna is the tuned antenna coupling transformer, of new high gain design giving the maximum signal amplification before the received signal reaches the first tube. This transformer feeds the first '58 screen grid r.f. pentode operating as a tuned radio frequency amplifier on all bands. This tube and circuit, largely responsible for the extremely low inherent noise level despite the high sensitivity of the WORLD WIDE NINE, is not cut out on short waves, as in many other receivers, but is used for maximum amplification on all bands and at all times. This tuned r.f. stage also eliminates image ("repeat spot") interference in short wave reception, which is a serious drawback of all receivers not so equipped.

Following the '58 r.f. amplifier is the high gain tuned r.f. transformer, feeding the screen grid first detector section of the 2A7 detector-oscillator tube. This transformer is tuned by the second section of the low capacity three-gang condenser, each section of which is matched to an accuracy of one part in 400 for maximum selectivity and amplification.

The 2A7 tube, actually a screen grid first detector and electron coupled oscillator in one glass bulb, is a very important part of the WORLD WIDE NINE. This tube is known to give far greater conversion gain than can be obtained with the best possible combination of separate detector and oscillator tubes, and represents the very latest advance in superheterodyne design. It is not widely used as yet, due to the lethargy of most engineers, and the desire of sales departments to be able to advertise an additional tube, but it is definitely over twice as efficient as the best possible combination of two or more separate tubes. In addition, its oscillator elements being coupled to the detector portion only by an electron stream, it possesses the unexcelled frequency stability

of all electron coupled oscillators. This means that temperature, humidity or other short or long time aging factors will not shift dial calibration, unlike the now popular use of triodes, such as '56's, for oscillators. Receivers using such tubes will usually "drift" after they have been turned on so that they must be continually retuned to hold a signal, something completely eliminated in the 2A7 first detector-oscillator combination.

The third section of the gang condenser tunes the oscillator circuit. The broadcast band, antenna, r.f. and oscillator inductances are housed in the three shields just to the right of the gang condenser.

## Low Loss High Gain Circuits

A popular fallacy has been that because the i.f. amplifier of a superheterodyne contributes most of the receiver's amplification and selectivity, any desired liberties could be taken with the antenna, r.f. and oscillator circuits and good results could still be obtained. This is far from the case, the signal-to-noise ratio of any receiver, as well as its freedom from image interference being directly dependent on the excellence of these circuits. This is an absolutely inescapable fact, and in consequence the greatest attention has been paid to these circuits in the WORLD WIDE NINE.

Not only are low loss inductances carefully shielded, not by the steel chassis, but by low loss alloys, used on every band, but their ratio of diameter to length has been most carefully investigated and worked out to yield the maximum of amplification and selectivity.

In sharp contrast with customary design practice, the lowest possible value of tuning capacity is used with these inductances, since it is well known that the lower the value of tuning capacity that can be used, the greater will be the signal voltage developed across the tuned circuit. This is a difficult course, for it necessitates the most careful elimination of the usual stray circuit capacities to get practically wide tuning ranges, but its careful execution results in tremendous gain on weak foreign signals, together with the ability to use all available sensitivity without its being vitiated by excessive noise.

The four tuning ranges of the WORLD WIDE NINE are:

WHITE: 540 to 1520 kc. (560 to 195 meters).

GREEN: 1500 to 4600 kc. (200 to 65 meters).



YELLOW: 4500 to 13,000 kc. (66 to 23 meters).

RED: 9000 to 23,000 kc. (33 to 13 meters).

It will be noted that the YELLOW and RED dial scales overlap very considerably, and this is intentional. By effecting such overlap, the important foreign 25 and 31 meter short wave broadcast bands are arranged to be tuned by very low values of tuning capacity on the YELLOW band, though they can be tuned in not as loudly on the high capacity (low frequency) and of the RED band. The real point, however, is that this overlap lets the RED band take in the highest broadcast frequencies used in the world today, but more particularly the 15,000 kc. (19 meter) band, at a point on the RED range where a low value of tuning capacity may be used to insure maximum amplification, since upon this band are found several of the most dependable and valuable foreign stations.

All coils are wound upon specially sized and gauged tubing, with very uniform wire; the six shortest wave coils, which are difficult to measure, being upon grooved tubing held to extremely close mechanical limits. This care used in selecting material, in winding, and in handling, as well as in measurement insures extremely uniform coils and accurate dial calibration.

### Accurate Dial Calibration and Circuit Tracking

With these uniform coils and gang condensers, it becomes not at all difficult, even though quite rare and unusual, to insure extremely accurate dial calibration, and by virtue of four individual trimmers for each band, to insure absolutely accurate tracking of the three circuits throughout their entire range. By such extreme care and attention to detail are assured, for almost the first time from a single dial all wave receiver, the results that previously could be had only from multi-dial short wave superheterodynes—almost impossible of operation, but capable of amazing results when properly operated. The WORLD WIDE NINE gives the same superior results, but all on a single accurately calibrated, easy to read airplane dial.

### Band Spread Tuning

The WORLD WIDE NINE employs a radically new, simple and revolutionary band spread tuning system.

It is described in detail on page 9. Suffice it to say that not only does it make short wave tuning even more simple, easy and accurate than broadcast band tuning, but it is another evidence of Silver engineering leadership that will be copied by every American manufacturer in the years to come.

### Wave Change Switch

In selecting any one of the four wave length ranges, it is only necessary to turn the lower center knob so that the spot of desired dial scale color is at the top, and the desired range is selected.

This knob actuates a positive six section, four position switch which selects three separate and distinct coils and four separate trimmers for each wavelength range. This switch bears no relation to some of the trick schemes for coil selection which have been widely advertised, but draws only upon the method and experience found to be correct throughout many decades of electrical switch design and construction. It is simple and positive in action, has silver plated contacts, and long, trouble-free life.

### I. F. Amplifier

The WORLD WIDE NINE employs two dual tuned, high gain, air tuned i.f. amplifier stages with two '58 screen grid r.f. pentodes. It provides most of the gain and selectivity of the receiver, and no pains have been spared on it. A total of three i.f. transformers are employed, each having two high Q Litz coils, each coil tuned by a high capacity isolantite insulated air tuning condenser. Here the problem is opposite that of the r.f.—first detector circuits, as gain is quite easily had at 465 kc., the intermediate frequency, while extreme selectivity must be striven for. Hence, equivalently low values of i.f. tuning capacity, as found in the usual air tuned i.f. transformers, are sedulously avoided, and a high enough capacity is used to insure selectivity that will be absolute 10 kc.

In terms of gain, two stages can easily be made to give more than can possibly be used. Three unless cut down will give far too much, while one will not give enough selectivity. Two is the ideal choice for American broadcast conditions. By "too much" i.f. gain is meant so much as to magnify the ordinarily quite slight hiss necessarily a function of first-detector-oscillator operation. The whole aim is to obtain as much r.f. gain as possible in order to work

the detector-oscillator at a signal level so high as to completely submerge oscillator hiss. Using high i.f., not r.f., gain simply magnifies this hiss and vitiates effective sensitivity. Three i.f. stages or, for that matter, two can easily be made to produce more gain than should ever be used. (In the MASTERPIECE III, the third i.f. stage is used for what is really excessive selectivity, not gain, which is intentionally avoided, unlike other receivers boasting three i.f. stages—and lots of noise).

Air tuning of i.f. stages insures absolute permanency of calibration, and possibly more important, permanent retention of full sensitivity and selectivity. Air tuning alone can insure this, yet it is significant that the only supposedly high quality, let alone custom built, receivers in the world employing this vitally essential feature are the MASTERPIECE III and the WORLD WIDE NINE.

### Distortionless Second Detector

A '55 tube is used as a diode second detector, since it is well known that a diode detector is far more free from distortion than is any other type of tube detector, such as a triode or tetrode.

### Perfect Automatic Volume Control

A second set of diode elements in the '55 bulb is used for automatic volume control, to hold the output volume at the same level regardless of signal strength, after it is adjusted as desired by the manual volume control knob. This A.V.C. system is not just the usual "blast eliminator" operative on strong local stations. It not only levels down strong signals, but boosts weak signals, and is of inestimable value on foreign short wave reception. It will hold a station fading over a wide range—from strong to almost inaudible, to the same apparent volume. Its action practically completely eliminates the fading so pronounced on other short wave receivers—even on those equipped with so-called A.V.C. systems.

### Audio Driver Stage

Still a third set of triode elements in the '55 tube are used as the first audio stage—to amplify the output of the diode second detector up to a level sufficient to drive the push pull power output stage to a full ten watts power output. This is a new utilization of this portion of the tube, developed in my laboratories. Supposedly only a voltage amplifier,

the '55 triode has been carefully investigated and found capable of developing not only sufficient voltage amplification, but sufficient power output as well, if very carefully employed Class A, to drive a husky power output stage.

### Push Pull Class A Prime Output Stage

The power output stage uses two 2A5 tubes, usually used as high distortion pentodes, but used in the WORLD WIDE NINE, not as pentodes with resultant poor quality and low power output, but connected and functioning as high amplification triodes in the famous Class A Prime power output system. This system is noted not only for its high power output at safely low operating voltages, but more particularly for its very low harmonic distortion, exceptionally low at home volume levels, and rising gradually to 4% at ten watts power output—enough to be heard almost a mile from the receiver!

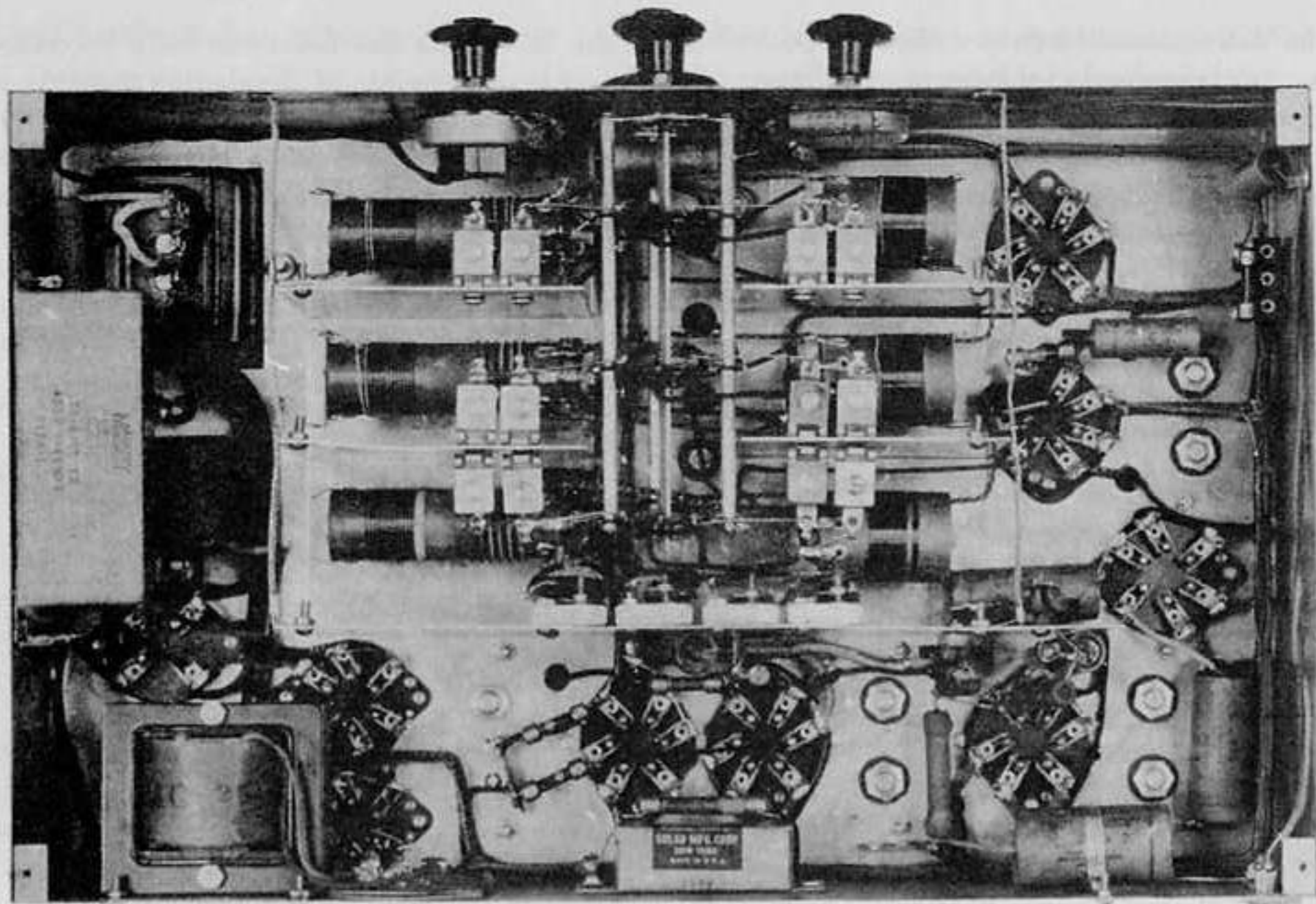
### Tone Control

One knob on the receiver allows tone to be adjusted to suit individual tastes, homes, or programs, and also permits of noise reduction when listening to very weak stations in very noisy locations. It permits softening or mellowing of tone quality to any desired degree.

### Audio Beat Oscillator Makes Foreign Stations Easy to Find

In tuning for foreign stations, they are sometimes difficult to find—or may be off the air or silent between program numbers—and as they tune quite sharply, a means of locating them, particularly when no program may actually be being transmitted, is an invaluable aid—and a feature left out of all competitive receivers. Such a means is provided in the WORLD WIDE NINE in the form of a beat oscillator controlled by the small toggle switch between the tuning and wave change knobs. It is merely necessary to turn the toggle switch to the right and move the dial very slightly around the point at which the desired station should be heard, when, if it is on the air, a squeal will be heard. This squeal identifies the station, and if tuned in and the toggle switch turned off, the desired station will be found properly tuned in and coming through. This feature makes the initial difference between getting foreign stations well, and not even hearing them at all on sets not so equipped.





(Unretouched photograph.) Compare this neat, progressive and workmanlike "engine room" to that of any competitive radios to be had today. This difference alone tells the story.

## Long Life, Absolutely Quiet Power Supply

The power supply of the WORLD WIDE NINE is built directly into the receiver chassis, and is located along the left end of the chassis. It employs a large sized power transformer showing negligible heat rise in continuous operation, and designed and built for long trouble free life. It supplies all voltage for operation of the receiver, which derives its power from any 105 to 125 volt, 50 to 60 cycle A.C. home lighting circuit.

The power transformer feeds the high efficiency 5Z3 high vacuum thermionic rectifier tube having very low voltage drop, and entirely quiet in operation, unlike the more popular but noisy mercury rectifier tubes. The rectifier output is filtered by a three section filter employing one high inductance, large size, low resistance choke (seen directly behind the power transformer). The speaker field, split into two sections, serves as the second and third section chokes, while filter capacity is provided in the form of twenty-one microfarads of high voltage, non-leaking dry electrolytic condensers of an entirely new type, using cellophane as an

insulator instead of the popular but less dependable gauze. Some idea of the conservatism applying to the power supply is indicated by the fact that filter condensers rated at 600 volts are used on a 350 volt maximum circuit, giving, as at every point in the circuit, nearly a 100% safety factor to insure long, trouble-free life.

The power supply, as well as the entire receiver, is totally free from hum in operation.

## Impregnated and Sealed for the Tropics

Many a radio which will give no trouble at all in the United States will fail entirely in a few days or weeks if taken into the humid tropics or if subjected to salt air. The WORLD WIDE NINE has every part specially treated to withstand the worst rigors of tropical humidity and salt air. Its condensers are completely sealed against moisture, as are its transformers, chokes and resistances. Even hookup wire is specially impregnated and is of the most expensive silk, not cotton, insulated type.

These points, plus the isolantite insulated air tuned i.f. transformers, insure not only against

failure in the most humid climate, but equally important, insure complete retention of full sensitivity and selectivity throughout the many years that the WORLD WIDE NINE will be the last word in all wave radio receivers.

## Perfect Shielding

Every sensitive tube and circuit in the WORLD WIDE NINE is completely shielded from noise pickup and from other sensitive parts in the receiver itself. The chassis has a low loss alloy bottom pan completely shielding all circuits inside of it, while every coil and tube circuit is individually shielded by low loss alloy shields. In addition absolute circuit stability is insured by progressive electrical circuit arrangement resulting in the shortest possible leads, coupled with electrical isolation resistors, condensers and chokes wherever necessary.

Nothing is exposed except the audio and rectifier tube, and the antenna binding posts. The gang condenser, which appears to be unshielded, has only its stator plates "hot," and these three stator sections are effectively shielded by the grounded frame enclosing them and the grounded rotor plates. The shielding is practically perfect.

## Provision for All Types of Antennae

While the WORLD WIDE NINE requires only a single wire antenna fifty to one hundred feet long to give dependable daily reception of foreign stations 10,000 to 12,000 miles away with excellent loud speaker volume, nevertheless, for those who desire to, or of necessity in noisy location must, use a doublet or transposed

leadin antenna, the WORLD WIDE NINE is provided with two antenna binding posts for doublet leadin connections, these posts terminating in separate antenna transformer primaries for each wave band.

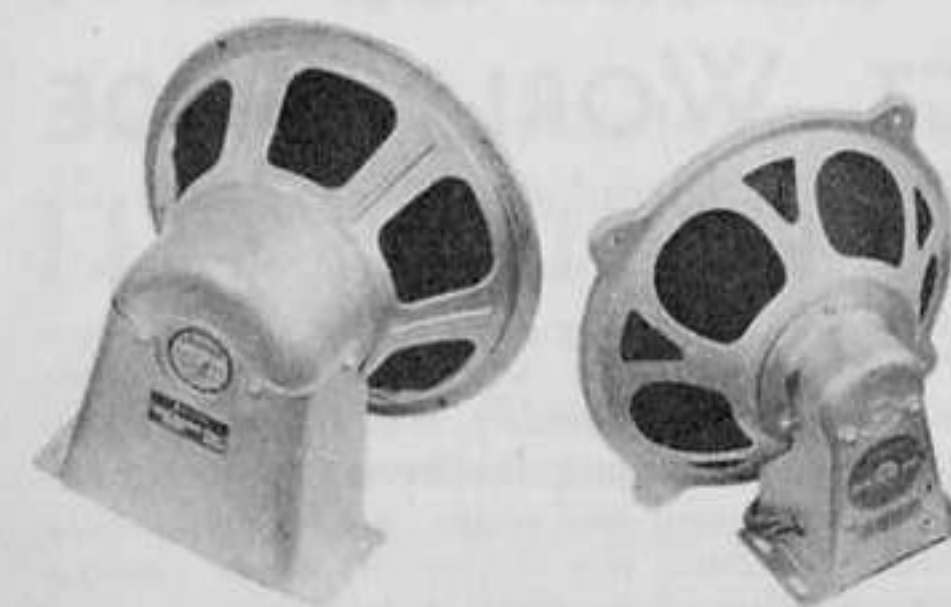
## Optional Concert or Studio Speakers

The WORLD WIDE NINE is available with a choice of two loud speakers. Both are of 12 in. cone frame size, with 10 in. cones and the large voice coils and field excitation necessary for high efficiency and fidelity. They differ in their electric to sound conversion efficiency, which means output volume. There is very little, if any, noticeable difference in tone quality at average home volume levels between either the Concert or Studio types. Both show quite smooth frequency response curves over the fundamental musical range of 40 to 4000 cycles, both being "down" slightly below 60 cycles as are all good speakers, and both being "up" about 10 db. at 4000 cycles to a little more than equalize for the 6 db. drop existing in the WORLD WIDE NINE at 4000 cycles, this slight over equalization being desirable in terms of high fidelity reproduction to add brilliance to reproduced speech and music.

The Concert type speaker will show an electric to sound conversation efficiency, as it is used in the WORLD WIDE NINE with maximum field excitation power, of about 7%, while the Studio speaker will show a conversion efficiency of about 10%, or nearly one-third greater efficiency. This greater efficiency translates only into more maximum volume, and when the WORLD WIDE NINE is to be operated in a large living room, or must be operated at close to maximum volume most of the time, the Studio model is decidedly to be preferred.

In addition, the Studio speaker will handle even more than the full ten watts output of the WORLD WIDE NINE without introducing any distortion of its own, while the Concert speaker will begin to introduce some very slight distortion at just over eight watts output. In an ordinary home, however, this is of no moment, as the average volume level needed will seldom if ever run above five watts.

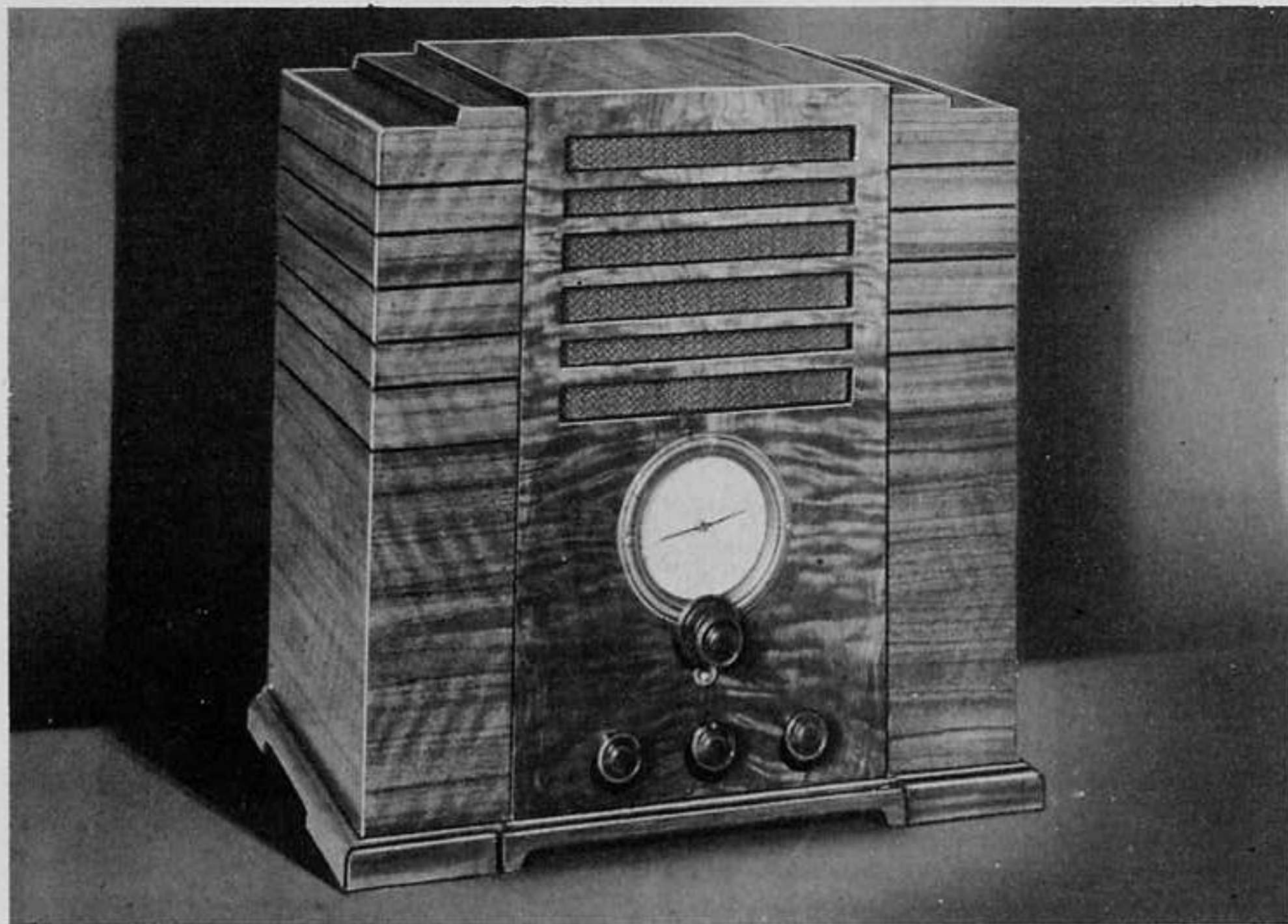
For these reasons the choice of speakers is optional, the Studio model being desirable, however, for large rooms or high volume.



Studio Speaker

Concert Speaker





## THE DEVON COMPACT MODEL

The mantel or table type cabinet beautified! A striking modern design, created by Arthur Charles Haggstrom especially for the WORLD WIDE NINE. Made of heavy beautifully figured oriental grain walnut with distinctive rout lines and a set off base. The mounting and grille panel are of choice grain butt walnut. Rich hand rubbed and polished finish in two tones, bringing out all the innate beauty of the natural wood grains. Strong, rugged

construction—an ideal baffle for the speaker output. Height 18½ in., width 18½ in., depth 11¾ in. A perfect setting for this fine receiver.

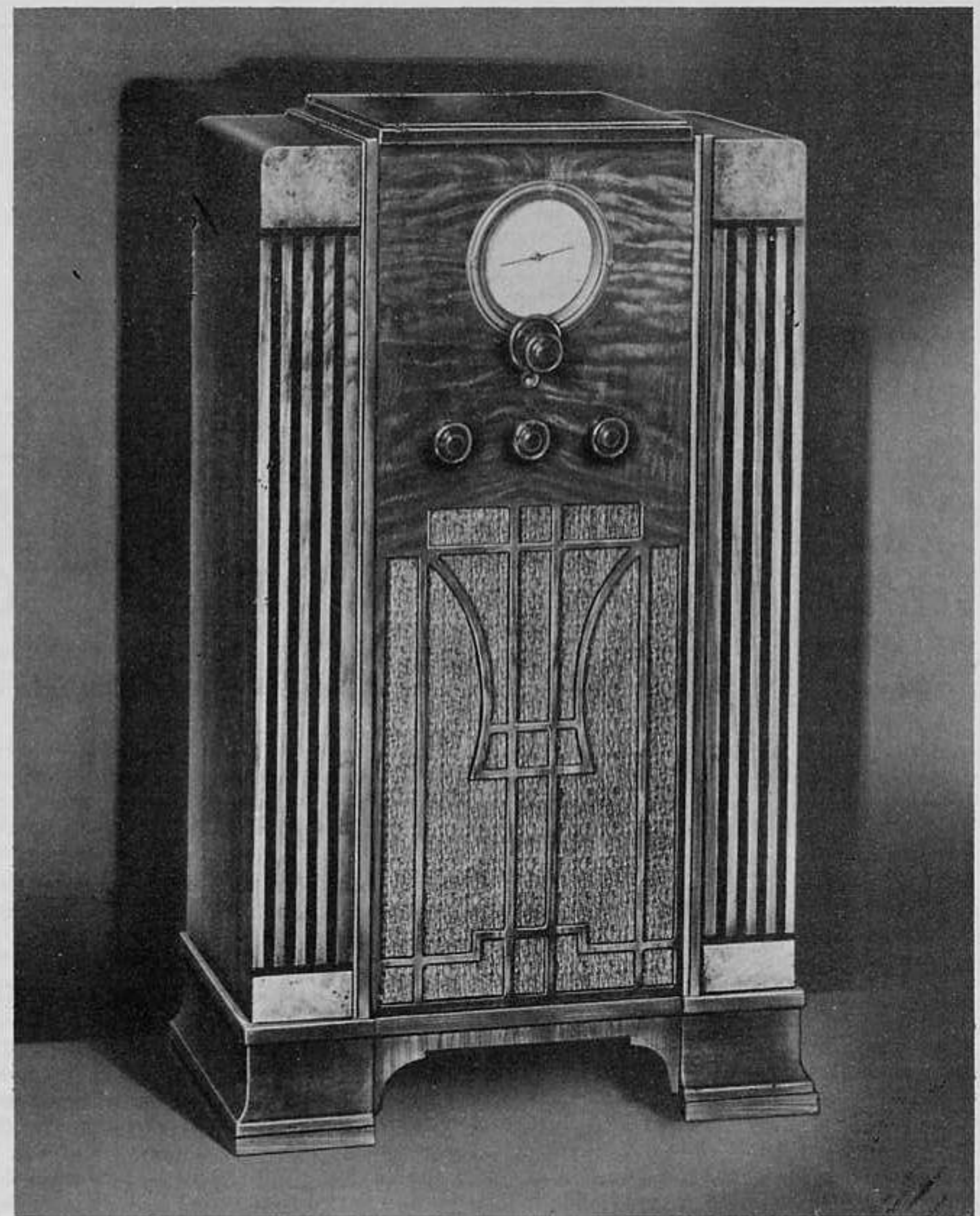
When the WORLD WIDE NINE is supplied for use in the Devon table cabinet, it is furnished with a special 8-inch Jensen dynamic speaker, since the Devon cabinet will not accommodate the large Concert or Studio speakers.

## MOVIE STARS SELECT WORLD-WIDE NINE AND MASTERPIECE III

Just as we go to press, technicians of Paramount Productions, Inc., after a careful survey of the all-wave market, have selected WORLD WIDE NINES and MASTERPIECE III for use by their stars in the forthcoming Hollywood International DX championship contest.

Bing Crosby and Richard Arlen will both use MASTERPIECE IIIs to win the contest, while other stars will use WORLD WIDE NINES.

Not only do these stars, particularly Bing Crosby, know tone quality, but the sound technicians of Paramount Pictures most certainly know both sound and radio, since that is their business. Hence the choice of Silver custom built receivers against the field by these competent authorities is simply further indication of your own similar choice of an all wave receiver.



## THE CLARIDGE CONSOLE MODEL

Here is an ideal example of how the gifted designer has adopted the plain straight lines of the modern trend to a design that will fit well into and harmonize with any style of furnishings. The fluted side pilasters are topped and footed with attractive birdseye maple onlays, adding a pleasing touch of contrasting color. The side and top are of American walnut while the mounting

panel and distinctive grille are of choice grained butt walnut. Artistically finished in the nutbrown color, hand rubbed and polished. Strong rugged construction—providing abundant baffle for the powerful output of the speaker.

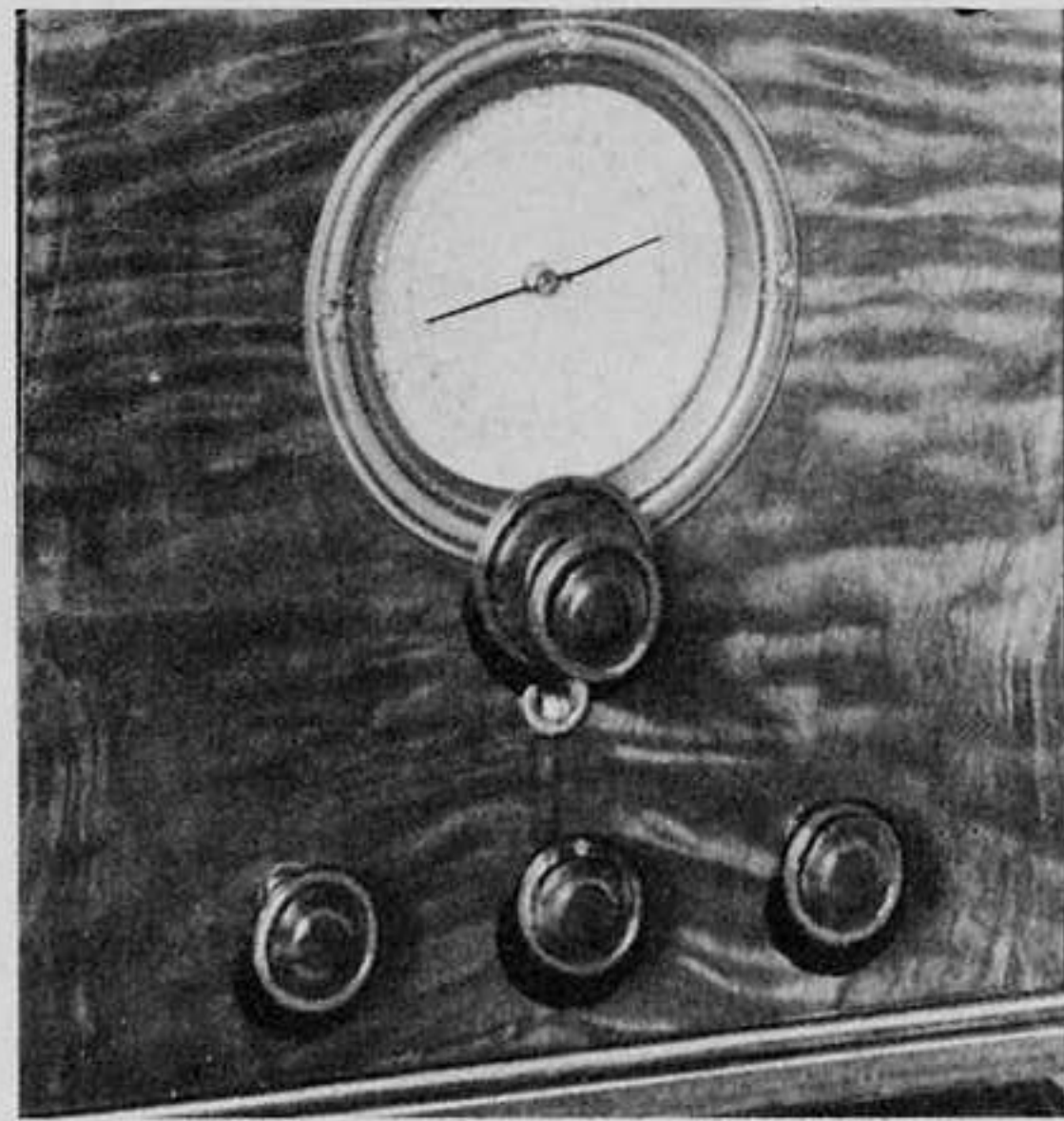
Height 36½ in., width 22 in., depth 11¼ in.—compact, yet with an air of bigness in its design.



# TUNING CONTROLS

of the  
WORLD-  
WIDE  
NINE

Quicker,  
Easier  
Finding  
of Short  
Wave  
Stations



*This shows the simple arrangement of the tuning Controls of the WORLD WIDE NINE, a new system of allwave receiver operation that makes short wave tuning a delight.*

The WORLD WIDE NINE is seen to have four knobs and one toggle switch below its dial. These knobs give you complete and perfect control of all functions of the receiver.

The lower left knob turns the receiver on, which is indicated by the illumination of the airplane tuning dial scale by means of concealed lights behind the scale. This knob also adjusts volume to any desired degree.

The lower right knob is the tone control—turning it to the right gives perfect tone quality. Turning it to the left softens and mellows reproduction, and where necessary allows static and local noise reduction.

The lower center knob is the wave change switch, marked with four different colored indicators. The color at the top indicates the wave range for which the receiver is adjusted, this color corresponding with the dial scale color marking in use at the moment.

The knob, one directly under the dial, is the tuning knob. Pushing it in gives 9:1 ratio control for broadcast band or fast short wave tuning on the larger "minute hand" pointer. Pulling it out brings the band spread "second hand" pointer into use, for very accurate and easy tuning of short wave stations. The larger pointer with knob pushed in for broadcast band tuning, and the "second hand" band spread

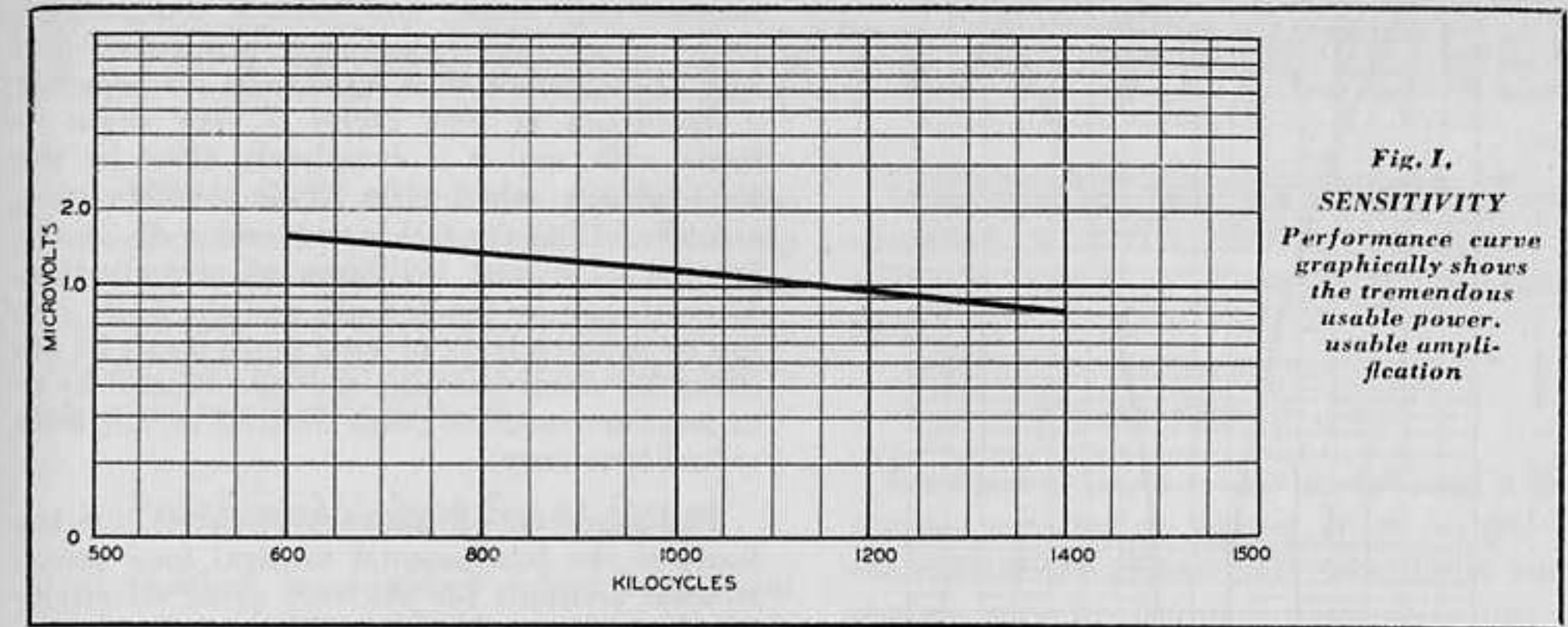
smaller pointer with knob pulled out for precise short wave tuning, makes for easy and simple tuning.

The small toggle switch below the tuning knob controls the beat oscillator. When looking for a short wave station, turn this switch to the right, tune to a squeal heard at the point on the dial where the station should be heard, turn the toggle switch left, and there is the station. This switch makes stations come in as a squeal, which is a positive indication that the station is properly tuned in. The "finder" squeal is turned on and off by this toggle switch.

The operation of the WORLD WIDE NINE is just as simple as this—really simpler, as in tuning, once the desired volume level has been set and the wave band selected, all operation boils down to the tuning knob and either of the dial pointers.

This extreme simplicity of operation is one of the features that assures dependable, day-in and day-out reception of foreign stations direct in any American home. Absolutely nothing in the way of super-fine results are sacrificed to obtain this simplicity, unlike competitive all-wave receivers.

The WORLD WIDE NINE has everything other radios have not, excepting only the MASTERPIECE III.



## PERFORMANCE MEASUREMENT CURVES DEFINITELY PROVE WORLD WIDE 9 SUPERIOR TO ALL COMPETITION

The final story of the merit of any radio receiver is told by its performance curves. These curves show graphically its sensitivity, selectivity and tonal fidelity, and when automatic volume control is employed, the action of the A.V.C. system. These measurements are made and presented in terms of standards established by the Institute of Radio Engineers, and these standards are utilized by every reliable American radio laboratory or manufacturer to express the merit of his product.

In making these measurements a miniature broadcast transmitter known as a signal generator is used, capable of adjustment in terms of a few hundred cycles in a million and in terms of fractions of a millionth of a volt. This signal generator, most carefully shielded, is connected to the receiver under test through what is known as a "dummy antenna" or a combination of resistance and capacity uniformly accepted in radio engineering circles as having characteristics representing the average residential antenna installation.

### Tremendous Sensitivity with Minimum Noise

The curve of Figure 1 indicates the sensitivity of the WORLD WIDE NINE throughout the American broadcast band. It is seen to range from .8 to 1.5 microvolts absolute. This means that a signal of from only eight tenths to one and one-half millionths of a volt only need be received by the antenna to produce a power output of 50 milliwatts, which represents good armchair entertainment volume in a home. Obviously, the lower the signal voltage needed to produce this standard output, the more

sensitive the receiver. The sensitivity shown will bring in any signal which is not so much weaker than the local noise found in even the quietest residential location as not to be drowned in such noise, low as it may be.

No curves are shown for short wave sensitivity, since such measurements cannot be made with absolute accuracy, but it may be stated that careful and exacting measurement of short wave sensitivity using the best and most expensive measuring equipment today available, show the sensitivity to average 1.0 microvolt absolute over all four bands of the receiver.

Some expensive receivers are advertised as having greater sensitivity than the WORLD WIDE NINE, but such advertising is absolutely meaningless, since noise is neglected. It is no trick at all to set the sensitivity of the WORLD WIDE NINE at 2/10 microvolts absolute, if noise be neglected. This is not done simply because a sensitivity on 1.0 microvolts absolute average is as much as ever can be used, and it is excessively expensive, if not usually impossible, to obtain greater sensitivities without inherent circuit and tube noise out of all proportion to the gain in sensitivity.

To compare the Figure 1 against curves plotted, not in microvolts absolute input, but in microvolts per meter input, the sensitivities of Figure 1 should be divided by four. This would make Figure 1 read .2 to .375 microvolts per meter.

### Selectivity Absolute 10 KC

The curve of Figure 2 shows the selectivity of the WORLD WIDE NINE to be such as to assure the ability to receive weak distant sta-



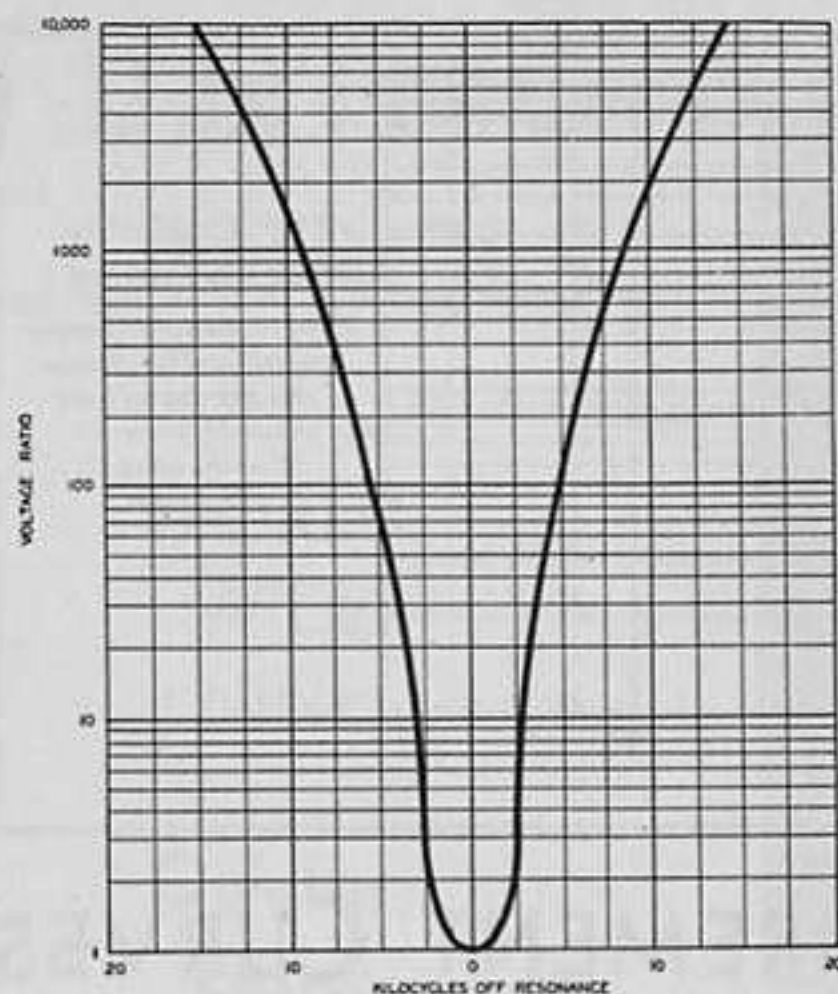


Fig. II—Selectivity

tions on channels immediately adjacent to powerful local stations, if these stations be separated by 10 kc., the standard American broadcast allocation. This curve indicates that an unwanted station 10kc. away from the one desired or tuned in would have to be over 2000 times as strong as the wanted station to produce equal output volume. This is a condition never encountered in actual operation, as is best indicated by a practical example.

In Chicago is located WGN, on 720 kc., a 50,000 watt local station, while in Cincinnati is 500,000 watt WLW, on 700 kc., ten times as strong and consequently received in Chicago as though it were a local Chicago station. There is just one channel in between, occupied by WOR at 710 kc. in Newark, N. J., a thousand miles away and a station very weakly received in Chicago. Yet weak WOR can be brought in clearly between local 50,000 watt WGN and practically local WLW. This is absolute 10 kc. selectivity, and is had anywhere in the range of the WORLD WIDE NINE. It is particularly helpful on the crowded short wave broadcast bands, where competitive receivers are almost useless.

### Fidelity Perfect

Figure 3 shows the fidelity, or audio response, to be flat to 6 db. from 40 to 4000 cycles, the

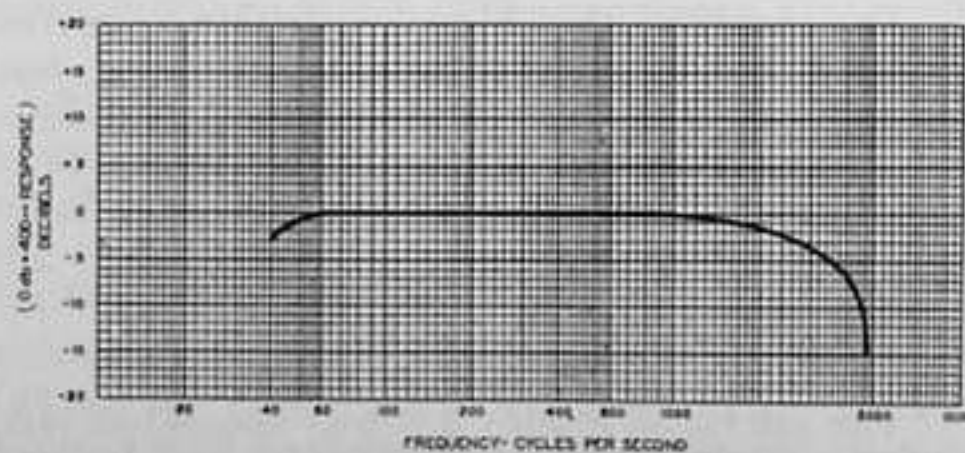


Fig. III—Fidelity

fundamental music and speech tone range. From an academic standpoint this is not perfect. From a practical standpoint it is, for the 6 db. droop at 4000 cycles is very slight to begin with, and it is completely offset by the loud speaker, which rises 10 db. at 4000 cycles, actually lifting the treble response 4 db. in the interest of greater brilliance of reproduction. This lift can be leveled off, and the 4 db. rise can be progressively pressed down into a 20 db. droop by simply turning the tone control knob to any intermediate point desired to suit individual tone taste.

The sharp cut-off above 4000 cycles, the top limit of the fundamental musical tone range, is what accounts for the very great selectivity of the WORLD WIDE NINE.

### Automatic Volume Control

Figure 4 shows how the power output varies with the strength of received signals. The 45 degree rise of the curve from less than .01 watts (output) up to seven watts, where it begins to flatten off gradually, is the evidence of perfect A.V.C. action—the ideal curve slope obtained only from a perfect A.V.C. system.

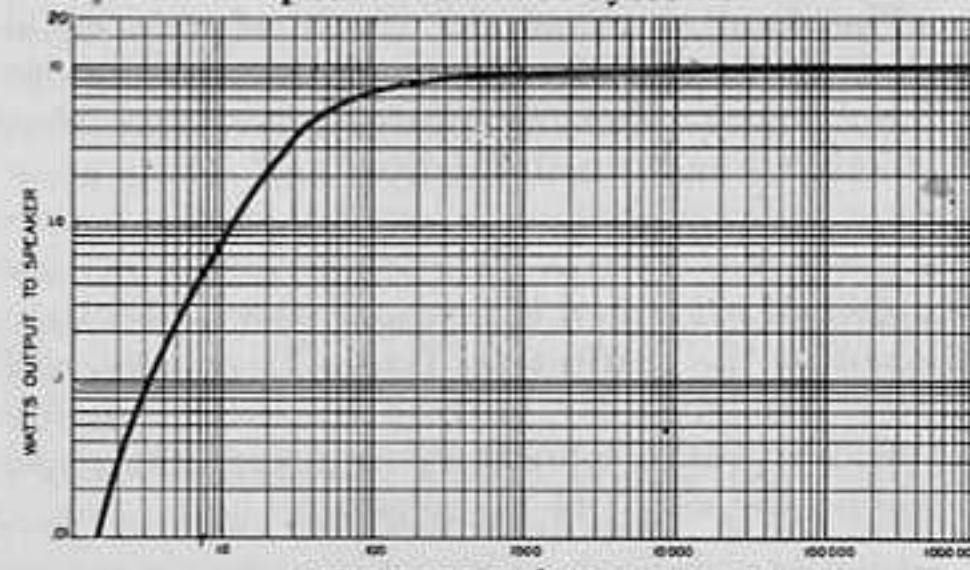


Fig. IV—Undistorted Power Output

This curve is seen to reach constant output volume (to the ear) at 50 microvolts absolute input, or 12.5 microvolts per meter. The output is seven watts at 50 microvolts input, rising gradually to full ten watts output for signals of 10,000 microvolts and stronger. The difference between seven and ten watts output is very slight to the ear, and it is correct, therefore, to state that all signals of 50 microvolts and stronger will produce constant output volume to the ear.

The only receiver on the American or world market showing as good or better A.V.C. action is the MASTERPIECE III.

It will be noted that the A.V.C. system also absolutely prevents overloading of the audio amplifier, as any system which can be designated an automatic volume control should, by holding the maximum output with volume control turned full on, to ten watts. It does not allow audio overloading and annoying distortion, as do practically all competitive A.V.C. systems that have been checked in the laboratory.

## OPTIONAL EXTRA FEATURES

Besides a choice of speakers, which is determined entirely by cost, the Studio model being superior to the Concert, several other features are optional, since there is no point in burdening the cost of every receiver with them unless they are specifically desired.

### Polished Walnut Front Panel

A polished, hand-rubbed walnut front panel nine inches square and one-quarter inch thick is available to finish up the appearance of the front of the WORLD WIDE NINE and to permit of its being installed in cabinet having a front panel cutout at least 8 $\frac{3}{4}$  in. high and 7 in. wide. If the receiver is to be installed in a cabinet having a one-quarter to three-eighths inch thick front panel, which can be drilled for the five control shafts and the dial, or if it is to be installed in any MASTERPIECE cabinet, this panel is not necessary.

### 25 Cycle and 200 to 250 Volt Model

The WORLD WIDE NINE is intended to operate on 105 to 125 volt, 50 to 60 cycle power lines, but a special model can be had for operation on 105 to 125 volt, 25 to 40 cycle power lines, at a nominal increase in price.

In addition, for 200 to 250 volt, 50 to 60 cycle operation, a special reducing transformer is available permitting operation of the regular model on such power lines.

### Head Phone Jack

For those desiring to use headphones, a jack can be provided on special order located on the rear of the chassis only into which headphones may be plugged when their use is desired. Inserting the headphone plug into this jack automatically silences the loud speaker (which may not be disconnected, however) and substitutes the headphones connected to the output of the first audio stage.

### Phonograph Pickup Provision

Where it is desired to use the WORLD WIDE NINE in a combination phonograph cabinet, or to reproduce records using a good high impedance magnetic or crystal phonograph pickup, the WORLD WIDE NINE can be had with pickup connections located on the rear of the chassis together with a phono-radio changeover switch. This switch can be had mounted on the rear of the chassis only, or on 24 in. flexible leads for final mounting in the phonograph compartment of a combination cabinet if preferred.

## EUROPEAN MODEL for Long Wave Lengths

All-wave Radio broadcast receivers to be used in America, or anywhere in the world except Europe, require full coverage of the wavelength range of 13 to 560 meters and no more, as no broadcast stations will be found outside this range. In Europe, however, additional broadcast stations will be found on wavelengths between 750 and 2000 meters which cannot be heard on ordinary American receivers.

Therefore, upon special order, the WORLD WIDE NINE can be had with a fifth wave band incorporated in it for coverage of this 750 to 2000 meter range. This band is tuned and selected just as are the other four bands—by the single airplane dial and a fifth position on

the wave change switch. It requires no external units or parts not incorporated in this special European model of the WORLD WIDE NINE.

Unless you are in Europe, or within the normal receiving range of European long wave broadcast stations, this fifth band is of absolutely no use to you. In North America it is so close to utterly impossible to hear long wave European stations (although easy to hear short wave Europeans) that the additional cost of this fifth band is of absolutely no value, except for reception of long wave American airport weather reports. Unless long wave airport weather data is specially desired, the European model is emphatically not worth its additional cost, except for use in Europe.



# HOW THE WORLD-WIDE 9 IS

My Laboratory is a laboratory—not a radio factory. We have no production schedules—no piece workers. My staff is a small organization of specialized experts—practical radio artisans who have devoted their entire lives to this calling. As nearly as conscientious human endeavor may do it, we have striven to lift radio to an art—the art of custom-building or hand craftsmanship.



Research Engineer. Here constant experimentation is made to the end that every WORLD WIDE NINE receiver will be all that the radio art may provide today.

For only at the hands of interested skilled workers can the creative engineer's model receiver be recreated.

As soon as any attempt is made to reproduce the perfect model radio receiver by quantity production methods, necessarily employing unskilled labor, even though trained to robot-like accuracy, the product ceases to duplicate the original creation.

In a radio receiver, the excellence of the original design may be attained in each reproduction only if each duplicate is made an exact duplicate. This necessitates the skill of trained engi-

Construction. Each receiver is completely built by one skilled, experienced engineer. Each step of construction is a precision job.

neers and craftsmen at every step. The WORLD WIDE NINE is so built, each craftsman building an entire set on a weekly salary, not piece work basis. Thus he may, and does, devote every bit of time necessary to insure the absolute perfection of the final result. At no point is he hurried but is encouraged to take plenty of time and care to perform his task perfectly.

His work is then closely inspected, a preliminary Structural-Strength test given to all connections and mountings. The receiver then goes to a seasoned, skilled, testing engineer who minutely checks every circuit, balances it to exact accuracy with precision laboratory instruments. There is no hurry at any step, only painstaking care.

It will be observed that we maintain our own coil department, wherein every coil is wound to the same precision accuracy followed throughout. Here also you observe the same slow, studied, painstaking care.

Scrutiny of the underside of the finished receiver will show you the result



# CUSTOM BUILT IN MY LABORATORY

of laboratory construction. You do not see the mass of inter-lacing wires found in the conventional factory-built set. There appears to be very little wiring at all. That is true—minimum length leads are used throughout and a carefully planned cable system, so that you have to take a second look to see the wiring at all!

This method, of course, consumes far more time and requires vastly more skill than the simple mass production method of placing one wire on or over another by unskilled laborers. Even the solder joints are a precision job in McMurdo Silver receivers!

Space will not permit to enumerate here each step through which your WORLD WIDE NINE receiver must go before it is finally okehed and sent on its way to you. The accompanying illustrations may aid you in visualizing the procedure. What you may not grasp is the years of toil, reading, research, observation and study on the part of almost every member of my staff that has made this whole picture possible. If you were here in person, I'm sure you would feel the spirit and

competence represented in each member of my staff—men and women who have embraced this work as their life's profession. It is not just their living but their life—they love it.

In your ownership of a McMurdo Silver laboratory built receiver, I hope



Assembling the small "trimmer" condensers, a part of the special air-tuned I.F. units used in the WORLD WIDE NINE.

you capture some of this spirit—our steadfast purpose not merely to build good radio receivers but radio that represents all that human knowledge, experience, skill, might produce in conscientious, loving effort—a fine musical instrument in which both we and you will take lasting pride.



Test and Alignment. A skilled, experienced engineer checks every connection for Structural Strength, rigidity and endurance. With the aid of precision Laboratory Test Meters, every circuit is traced and checked. No tolerances are accepted—only perfection passes! Signal generator and audio oscillator, intricate laboratory apparatus is employed. Finally the receiver is tested on the air, over all bands, before approval.



# WELL KNOWN EDITOR PRAISES WORLD-WIDE 9 ENTHUSIASTICALLY

Robert Hertzberg, editor of SHORT WAVE RADIO magazine is too well known to need introduction.

The fact that Mr. Hertzberg is "hard-boiled," and not easily given to enthusiasm about new products, is also well known. Hence this letter reproduced herewith and written just after he had tested the WORLD WIDE NINE is so eloquent that we need not comment further, except to add that Mr. Hertzberg has tested every well known allwave radio on the market, but he has never seen fit to comment so enthusiastically before.

He *knows* his radio!

## Further Competent Approval

As this book goes to press, we have received the letter reproduced on the opposite page relative to the results obtained from one of the first WORLD

WIDE NINE receivers to be delivered.

This letter speaks for itself, while to those who have followed the progress of short wave radio reception for the past several years, its author needs no introduction, having been widely publicized as the winner of first prize in an International short wave reception contest of several years ago.

This in itself is proof of Mr. Luoma's competence to judge of the performance of allwave receivers, and we are more than complimented that the WORLD WIDE NINE is now the choice of the preeminently competent short wave tuner for his daily trips around the world. Mr. Luoma has owned and operated practically all of the popular and widely advertised custom-built and quantity production all-wave receivers during the past several years, hence his opinion is not the re-

## SHORT WAVE RADIO

Published by STANDARD PUBLICATIONS, Inc.

1123 BROADWAY, NEW YORK, N. Y. - Telephone: CHelsea 2-6620

June 28th, 1934

Mr. Melurdo Silver  
Melurdo-Silver, Inc.  
3360 N. Paulina  
Chicago, Ill.

Dear Mac:

I am very glad to state that your new receiver is a "honey". Mr. Martin and I played with it for several nights and we were highly pleased with its performance. We would like to have had the thing a little longer, but Mr. Kamps seemed to be very anxious to lay his hands on it. What particularly impressed us was the low noise level. I could not believe the set was on until we ran into a signal.

Cordially yours,

SHORT WAVE RADIO

*Robert Hertzberg*  
Editor

Robert Hertzberg  
rho



ALFRED G. LUOMA  
GRAND PRIZE WINNER 1932  
INTERNATIONAL DX CONTEST  
3851 North Kedvale Avenue, Chicago  
TEL. AVENUE 4403

Melurdo Silver, Inc.,  
3364 N. Paulina Street,  
Chicago, Illinois.

Dear Sir:

During the four years that I have operated a large number and variety of custom built all-wave superheterodynes, I have definitely gained the impression that it took a large and complicated custom built set to really bring in foreign stations well. My tests not only of practically all available custom built receivers, as well as many commercial all wave sets, had indicated this belief to be absolutely correct.

That idea was knocked out of me yesterday afternoon, when I set up the WORLD WIDE NINE and started tuning. I pulled in every station that my big, expensive custom built receiver did, with extremely good volume and clarity.

Undoubtedly you know I won an International DX contest in 1932. If I had had a receiver equal to this one, I am sure I could have made a very much better record.

I heard PHI, GSG and DJE on 16 meters. KKP on 18 meters. DJB, France, GSF and HVJ - 19 meters. K4SA and W6CNE - 20 meters. I2RO, GSE, GSD, DJD and both French stations - 25 meters. LSX - 28 meters. VRT - 29 meters. EAQ - 30 meters. XETE, GSC, VK3LR, GSB, DJA - 31 meters. PSK - 36 meters. El Prado-45 meters. HJ5ABD, HJLABB - 46 meters. HJ3ABF, YV2RC, YV1RC, XEBT, YV5BMO, DJC - 49 meters. TGX, HJ2ABA, HJ4ABE - 50-51 meters. Thirty seven foreign stations in less than 24 hours. Twenty stations a day, in the contest was very good.

The broadcast band is correspondingly as good, very selective. In all, I heard call letters from 78 stations on this band. Also airport and police calls all over the country.

My hat's off to you for developing such a good receiver for such a remarkably low price. In closing may I wish you continued success.

Cordially yours,

*Alfred G. Luoma*



CABLE ADDRESS  
"CHIRACLUB"

CHICAGO SHORT WAVE RADIO CLUB

CHICAGO, ILL., U. S. A.

June 11, 1934

sult of inexperienced enthusiasm—it is the result of careful comparison of results obtained with many receivers over a period of years—unquestionably as competent an operating opinion as can be had today.





# HOW DO THE MASTERPIECE III

## A FRANK ANSWER TO A QUESTION

This question will naturally be in the mind of every reader and a frank answer is in order. Neither receiver can be properly compared with any other radio receivers offered today, since each possesses features found in no other sets now made. Each in its price class represents far greater value than any supposedly competitive receivers whatsoever, since each is precision custom built and sold in the most economical manner possible—direct to the user without wasteful jobber (middleman) profits to boost prices to what would be prohibitive figures if they were sold through conventional jobber channels.

Both the WORLD WIDE NINE and the MASTERPIECE III being the products of a precision engineering laboratory rather than a manufacturing shop, and possessing more engineering advances than any and all other radios now made, it is evident that neither receiver may be intelligently or fairly compared with "run of the mill" quantity production radios.

The differences between the WORLD WIDE NINE and the MASTERPIECE III are essentially ones of refinement—almost of "gilding the lily."

The MASTERPIECE III is built in three units for convenience of handling primarily. Its power supply and power amplifier are separate from the tuner because of their large size, which in turn gives the MASTERPIECE III

about 80% more undistorted power output. Yet both receivers have more than enough power for home entertainment—or even small dance hall coverage.

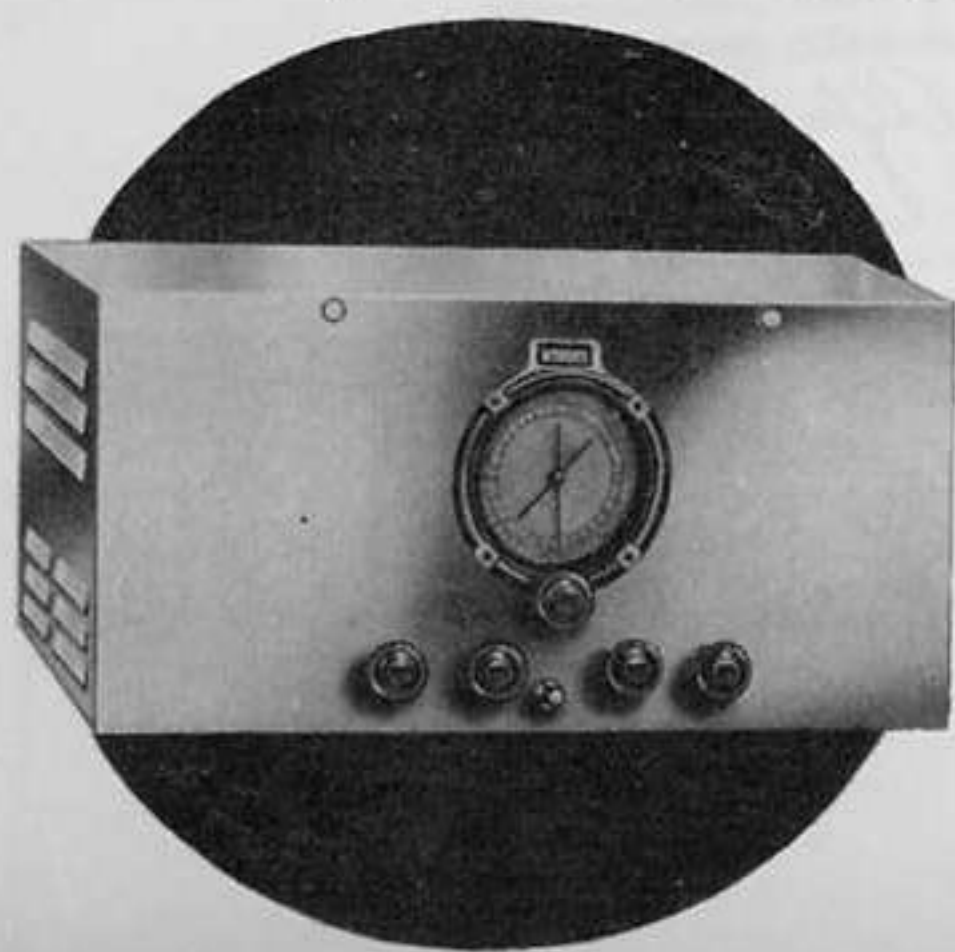
The MASTERPIECE III has a polished chromium cover shield—a feature valuable only in extremely noisy or congested neighborhoods, but not vitally essential in average residential locations. This cover shield is omitted from the WORLD WIDE NINE for reasons of cost and lack of absolute necessity.

The MASTERPIECE III is furnished with either the 12 in. Studio or Giant 14 in. speakers, while the WORLD WIDE NINE is supplied with either a special 12 in. Jensen Concert speaker, or the larger, high efficiency Studio model. Here the speaker difference is optional, the special 12 in. Concert speaker being not only entirely satisfactory for home entertainment, but appreciably superior to speakers found in competitive all wave radios.

So much for the more evident physical differences. Electrically the WORLD WIDE NINE differs from the MASTERPIECE III only in having one less intermediate frequency stage, in using a single '55 three purpose tube for second detector, automatic volume control and first audio stage, in having a pair of 2A5's operated Class A Prime for ten instead of eighteen watts undistorted output, and in having the conventional type of tone control which progressively attenuates the higher audio frequencies if desired for mellowness and noise suppression.

The WORLD WIDE NINE uses nine tubes—that is, nine separate glass bulbs. But as one of these tubes is actually a separate first detector and electron coupled oscillator in one bulb, and as another is actually three separate sets of tube elements in one bulb, the WORLD WIDE NINE actually has twelve separate and distinct sets of tube functions, and is correctly termed a twelve tube receiver. (By virtue of one dual purpose tube, the MASTERPIECE III actually has thirteen tube functions.)

Comparing the two receivers for sensitivity, the MASTERPIECE III needs only less than  $\frac{1}{2}$  microvolt absolute to produce standard 50 milliwatt or armchair volume output. The



# AND THE WORLD-WIDE 9 COMPARE?

## YOU MIGHT LOGICALLY ASK ME

WORLD WIDE NINE requires an average signal of one microvolt to produce equal volume. From this the MASTERPIECE III appears to be about twice as sensitive, and such is the case. In average practice, however, the WORLD WIDE NINE will go down to any but the very lowest of isolated residential local noise levels. Hence it can be said that in any average American home the WORLD WIDE NINE will get any stations, broadcast band or short wave, that the MASTERPIECE III will get, although the MASTERPIECE III will bring in very weak stations somewhat louder.

As for selectivity, either receiver will bring in weak out of town stations immediately adjacent to powerful locals, as, for example WOR in Newark, N. J., at 710 kc. which can be brought through 50,000 watt local WGN at 720 kc. and 500,000 watt WLW at 700 ks., perfectly easily in Chicago—only a few miles from WGN. The MASTERPIECE III shows somewhat better than absolute 10 kc. selectivity, while the WORLD WIDE NINE shows absolute 10 kc. selectivity—ample for anywhere in the United States or Europe.

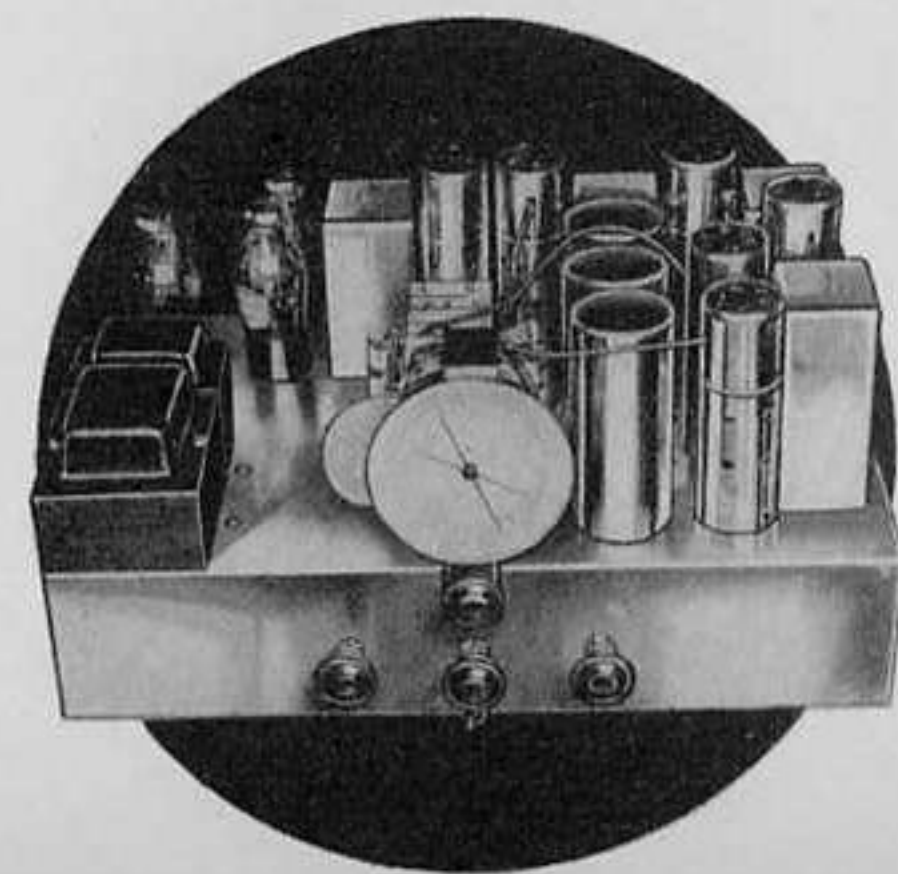
The two receivers differ most in fidelity of reproduction. The WORLD WIDE NINE has an audio response flat to 6 db. from antenna to speaker over the musical tone range of 40 to 4000 cycles, the 6 db. drop between 1000 and 4000 cycles being offset to the ear by the rising response characteristic of its loud speaker. Thus the WORLD WIDE NINE gives absolutely faithful music and speech reproduction, much more faithful than does any competitive receiver. By means of its tone control treble response can be softened as desired. The MASTERPIECE III will produce the same response characteristic as the WORLD WIDE NINE, but in addition will allow of greater so-called "high fidelity" treble accentuation to suit rather extreme variations of individual taste.

In terms of undistorted volume either receiver has more than will ever be needed in any home. Each is provided with reserve power to insure faithful, not flatted reproduction of any type of program at any desired home volume level. It is true that the MASTERPIECE III has about 80% more output than

the WORLD WIDE NINE, but this means very little for home entertainment, as neither receiver will ever be operated at full volume in the home.

Last but far from least—inherent noise. Both receivers have sufficiently low inherent tube and circuit noise so that their effective sensitivity is in no way vitiated. In this respect both are far superior to competitive receivers, for some of which greater sensitivity is claimed, but which claims neglect noise entirely. Sensitivity is of no value if in obtaining it so much noise is introduced as to vitiate it, which is the case with all equally sensitive competitive all wave receivers. This is not a failing of either the WORLD WIDE NINE or the MASTERPIECE III, in either of which volume and sensitivity may be turned full on without the usual deafening din of noise, which means that their full sensitivity is useful to bring in weak signals. In both the MASTERPIECE III and the WORLD WIDE NINE, their full sensitivity is available with so low an inherent noise level as to make their full sensitivity useful for reception of signals, not just to produce a din of noise as in other sensitive receivers.

Summarizing, the difference between the MASTERPIECE III and the WORLD WIDE NINE is seen to be essentially the difference between a Deussenberg car and a Lincoln—each tops the list, differing only in refinements, not in day in and day out performance and results.





# THE ENGINEERING BACKGROUND BEHIND THE WORLD-WIDE 9

In the eight and one-half years of its existence, the firm of Silver-Marshall, Inc., under my guidance built up an engineering reputation which I believe to be second to none in the world today for new developments. During this period some thirty-seven new and distinct engineering advances were either originated or first utilized by my laboratories.

Even before this, the radio kit set, or complete assortment of parts with directions for building a radio set, was my idea, first marketed by The Haynes-Griffin Radio Service for whom I worked in 1922. For some years this idea was the back-bone of the entire radio business. For the same company in 1923 I developed the Haynes superheterodyne, the first practical superheterodyne receiver or kit ever offered in the whole world.

These two developments have often caused me to be referred to as the "father" of the kit set and of the practical superheterodyne, and I feel that the reference is not wholly unjustified, since I was directly responsible for the first of both ever to see the light of day. So much for the period before Silver-Marshall, Inc.



Commander George Dyott operating portable short-wave transmitter-receiver, designed by McMurdo Silver in Brazilian jungle during his expedition to the "River of Doubt" early in 1928. See Commander Dyott's book, "Man Hunting in the Jungle" by Bobbs-Merrill.

Below is an interesting partial list of some of these developments, some classifying definitely as inventions. (It will be noted that the title numbers do not run consecutively—refer to the MASTERPIECE III Blue Book for the complete list if you are interested.)

1. First practical and popular superheterodynes in the world—1923.
4. First all wave t.r.f. receiver—1925.
5. First all wave superhet, 15 to 3000 meters—1925.
6. First high quality audio transformer with 5000 cycle cut-off—1926.
10. First plug-in coil short wave receiver—1926.
12. First shielded all wave superhet, 15 to 3000 meters—1927.
15. First screen grid t.r.f. receiver—1927.
16. First screen grid shielded superhet—1927.
18. First tuned i.f. amplifier unit—1927.
20. First A.C. superhet—1927.
25. First tuned audio transformers eliminating hysteretic distortion—1928.
26. First audio transformer for screen grid tubes—1928.
28. First A.C. screen grid receiver—1929.
29. First band selector receiver—1929.
31. First receiver having now universally used practical tone control—1929.
32. First A.C. short wave receiver—1929.
35. First 15 to 550 meter receiver not to use plug-in coils—1931.
36. First dual tone control system—1931.
38. First 16 to 550 meter superhet with single accurately calibrated dial—1932.
40. First "Class A prime" high quality audio power amplifier.
43. First all wave broadcast receiver to use self-contained tuned r.f. stage on all bands—1933.

The Masterpiece II installed on the SS Jacob Ruppert, flagship of the Byrd Antarctic Expedition II. At left is Clyde Bailey, Chief Operator, and at right is Guy Hutchinson, associate. Four Masterpiece II receivers were furnished to the Expedition. One is on the SS Oakland, two at Little America and one at the U. S. A. radio base. The Masterpiece II was selected by Admiral Byrd's radio advisor in preference to all other allwave receivers in the market.



44. First all wave receiver with band spread tuning—1933.
45. First all wave broadcast receiver to use three stages of air-tuned i.f. amplification—1933.
46. First "high fidelity receiver"—1934.
48. First all wave receiver with band spread and main tuning on one dial—1934.

I feel that this definitely proves my engineering leadership, for here are more new developments than have come from all other American, if not world, radio laboratories put together in the same space of time. Such a record is the best evidence, I feel, of the advanced and competent design of my new receivers.

These are only the more outstanding developments, some or all of which you will find in every radio on the market today which originated in by laboratories. While this may sound like idle boasting, I can prove every statement. I think they are borne out by a few of the letters from the foremost radio editors in the world, which were received by me immediately my decision to return to specialized radio engineering became known. They were, of course, familiar with my radio work over a period of ten years and more as a result of having checked all of my developments preparatory to publishing what I believe to be more technical papers than have come from the pen of any other one radio engineer.

This record means that when you buy a radio from me, you are getting the product of a man who is known to have been first with practically

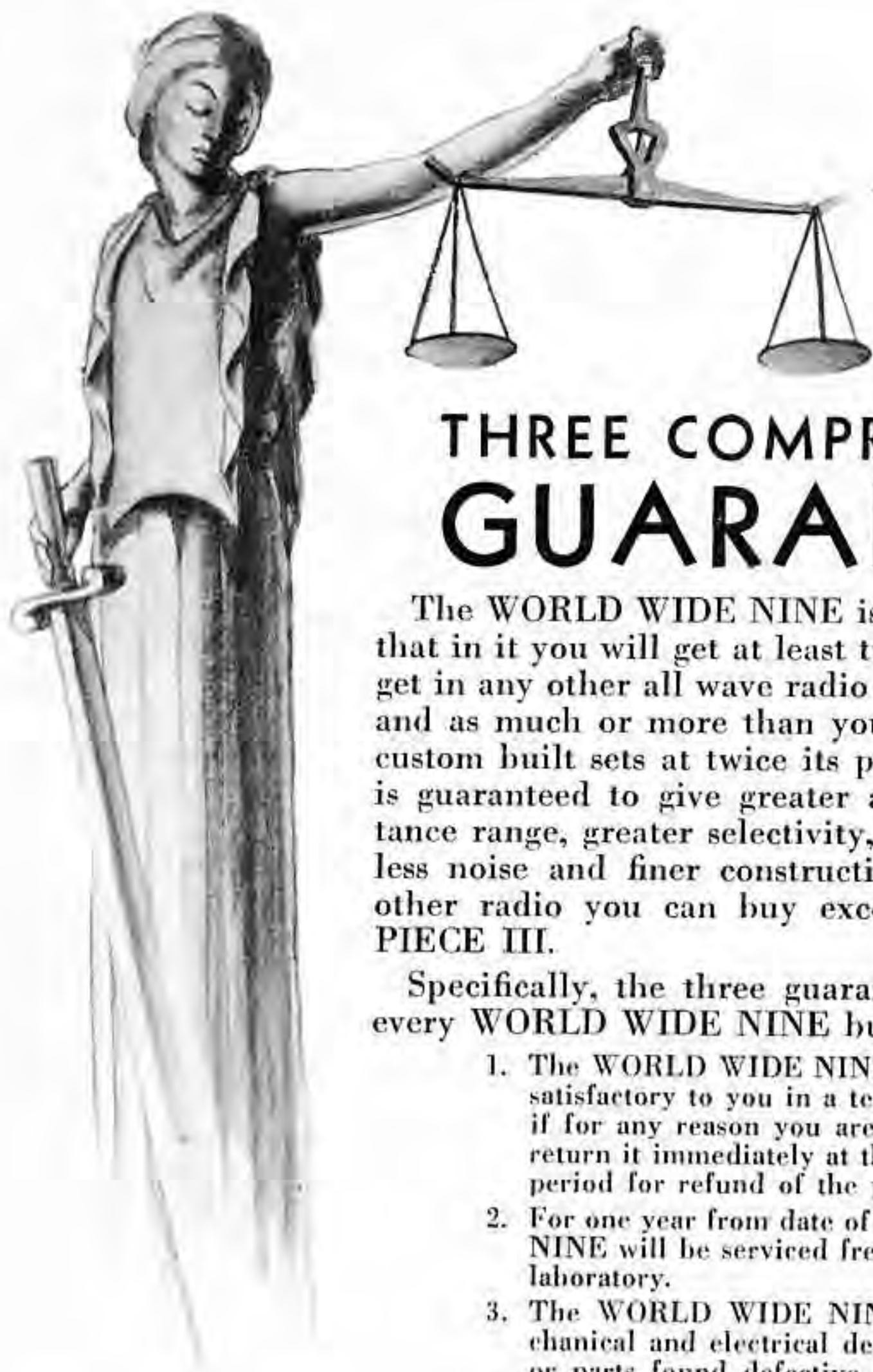
every new development in radio in the past ten years. This in itself is assurance that you are getting the last word in engineering design in a set that you can be certain will still be the last word in radio three or four years hence, exactly as thousands of sets engineered by me years ago are today giving satisfactory service to owners who even today would not part with them.

If this were not true, why would you find equipment I have designed in use by the U. S. Navy and Army, on the dirigible Akron, and on ships at sea, taken on scientific expeditions into unexplored jungles as the sole means of communication with the outside world for months at a time, used by the engineers of many broadcasting stations, and why would such an engineer as Greenleaf Whittier Pickard, world famous authority on transmission phenomena, select out of all radios available to him, a set of my design in 1931 for important measurements of natural atmospheric phenomena? Why would Admiral Byrd, with the guidance of a great engineering university, select five MASTERPIECE II Receivers of my design—out of all the radios available to him—for his second Antarctic Expedition in 1933?

These are just a few of the reasons why you can be certain that when you buy my receivers you are making the wisest decision you can make.

If you are curious, I invite you to look me up in "Who's Who of Engineering"—I alone of all custom builders am recognized therein—I alone of all custom builders am engaged in consulting engineering for other manufacturers.





## THREE COMPREHENSIVE GUARANTEES

The **WORLD WIDE NINE** is sold with the guarantee that in it you will get at least twice as much as you will get in any other all wave radio you can buy at its price, and as much or more than you can get in competitive custom built sets at twice its price. This means that it is guaranteed to give greater and more consistent distance range, greater selectivity, finer tone, more power, less noise and finer construction and finish than any other radio you can buy except only the **MASTERPIECE III**.

Specifically, the three guarantees herewith apply to every **WORLD WIDE NINE** built and sold.

1. The **WORLD WIDE NINE** is guaranteed to be entirely satisfactory to you in a ten-day trial in your home, and if for any reason you are dissatisfied with it, you may return it immediately at the expiration of ten days trial period for refund of the purchase price.
2. For one year from date of shipment the **WORLD WIDE NINE** will be serviced free of charge if returned to the laboratory.
3. The **WORLD WIDE NINE** is guaranteed against mechanical and electrical defects for five years. Any part or parts found defective (except tubes, guaranteed by their manufacturers for ninety days) will be replaced free of charge if returned to the laboratory.

No other radio receiver in the world except the **MASTERPIECE III** is backed by such strong, positive and simple guarantees. On a few other expensive sets you can get ambiguous free trial guarantees, and ninety day parts guarantees, but only the **WORLD WIDE NINE** and the **MASTERPIECE** are so good that they can be guaranteed to absolutely satisfy you, be serviced free for one year, and to have defective parts replaced free for five years.

And remember, when you buy by mail, Uncle Sam's post office inspectors protect you. In the event of possible disagreement, we will abide by the decision of the U. S. post office. The U. S. government with all its resources protects you absolutely.

There must be a reason why they alone can be offered with guarantees that absolutely protect you. There is—quality, and the experience and excellence of their design and components.

**McMURDO SILVER, Inc.**  
3354 NO. PAULINA ST., CHICAGO, U. S. A.