LARGE RADIO MANUFACTURERS NOW ACKNOWLEDGE SUPERIORITY OF SUPERHETERODYNE

The superiority of the SUPERHETERODYNE circuit has at last been acknowledged by the larger radio manufacturers, for during the past few weeks most of them have announced SUPERHETERODYNE models for the coming season and are busy dumping their TRF sets just as fast as they can. In Chicago last week, the TRF 1931 models of no less than three prominent manufacturers were being sold at half list prices, and new SUPERHETERODYNE models announced for TRF.

Why this sudden change from TRF to SUPERHET? It can be summed up in one word—COMPETITION. During the last two or three years a number of large scale radio manufacturers have sprung up. They have produced radios by the million, using the same methods that Engersoll uses to produce his $4.50 watch. That's a good watch for $1.50, but it is NOT as good as a $50 watch and Mr. Engersoll does not say it is. But in the radio business it is different for the manufacturer of even the cheapest TRF production sets claim to have everything—the finest tone—knife edge selectivity—bare nerve sensitivity.

Millions of these cheap sets have now been sold because Mr. RADIO BUYER, not being a radio engineer believed what was told him WHEN HE BOUGHT HIS FIRST SET. Then he found out that the beautiful tone he was told about was slightly exaggerated—selectivity often so poor that eight or ten points was necessary to tune out a local station—and the reception of a distant station was an event.

Today It's Performance That Counts

Today conditions are different and the buyers must be shown. Thousands of people are now in the market for their SECOND set, but this time they know more about choosing a set. They have been educated. They now demand PERFORMANCE not PROMISES. They know how to test a set for selectivity and demand fine tone and it is going to be hard to sell them anything this fall but a REAL receiver. THAT'S why the wise manufacturer knows that this year to have a chance with his competitors, he MUST build a SUPERHETERODYNE, and for this season he must deliver PERFORMANCE.

Only Superheterodynes Used for Transatlantic Reception

One very strong proof of the superiority of the superheterodyne is shown by the fact that it is the standard circuit used in the high power receivers used in the Navy and Army and in the receivers used to pick up signals from foreign countries to be re-broadcasted here.

Here is an article of extreme interest to every thinking man engaged in the business of selling radio receivers. When no one but a number of prominent manufacturers suddenly stop production on their TRF models for 1931, and start dumping them on the market at half list price or less and announce superheterodyne models, you can figure it out for yourself.

Read this article carefully, it will give you the latest dope on the superheterodyne situation and also on the new superheterodyne that's at least 12 months ahead of any other superheterodyne you can buy today.

All Superheterodynes Not Performers

But because a receiver uses the superheterodyne circuit, does not guarantee that it will be an exceptional set. There is as much difference in quality in superheterodyne receivers as there is in suits of clothes. One suit may cost $25, while another may cost you $75. But you KNOW that the $25 suit is NOT as good as the $75 one.

The same principle holds true in buying a radio receiver as it does when buying a suit of clothes. A $100 radio set will never equal the performance of one costing $300. This season will see on the market a large number of cheap superheterodynes. They will sell for a time on the strength of the fact that they are "superheterodynes."

High Quality Parts Must Be Used

A super is essentially a high gain receiver and every part used in it must be of the highest quality if it is to be efficient. The small losses in cheap parts that have little or no effect when used in TRF receivers make a tremendous difference in performance when used in a superheterodyne. Then again, if the maximum in performance is to be secured, all parts must be PERFECTLY matched.

New 1931 Screen Grid $129.50

Less Than 1/2 Former Price!

Above is an example of the advertisements dumping TRF 1931 Models. This advertisement appeared in a leading Chicago paper Oct. 5th, 1930.
ANNOUNCING THE NEW
1931 SCOTT ALL WAVE SUPERHETERODYNE

Nothing But Superheterodynes for Over Six Years

A superheterodyne is a specialty in the field of radio, and to design and build it right requires experience and lots of it. A superhet is a totally different proposition to a TRP set. Because an engineer can design a TRP receiver does not necessarily mean he can design a good superheterodyne. Mr. Scott and his engineering staff have specialized in designing and building nothing but high power, tuned superhet superheterodynes FOR SIX YEARS. Doesn't it stand to reason that a firm with a wealth of experience like that behind it will know more about designing and building of superhet than the firm just starting out to produce one?

Here's the story behind the Scott Superheterodyne. During 1922, 1923, and 1924 Mr. Scott wrote a daily radio article that was published in over 100 newspapers in U. S. A. and Canada. During this time he actually built, then described the circuit, construction and operation of over 150 different receivers. From the experiments made in testing and observing these receivers, he selected the most efficient of all for his own personal set: a superheterodyne now known to radio fans all over the world as the SCOTT WORLD'S RECORD SUPER.

Outstanding Records Made by the Scott Superheterodynes

The performance of this receiver startled the radio world, for in a test period of thirteen weeks it established no less than FOUR WORLD'S RECORDS for the consistent, night after night, reception of stations 6,000 miles or more distant. Fancy listening during ONE EVENING to SIX stations all over 6,000 miles away, and later having that reception verified. During the 13 weeks the receiver was being tested 117 programs were heard, logged and verified, and not one of these stations was closer than 6,000 miles to the receiver. In fact, 19 of these programs were received from stations over 8,000 miles away. Such was the record of the FIRST SCOTT WORLD'S RECORD SUPERHETERODYNE way back in 1924.

During the succeeding years we have made nothing but superheterodyne receivers. All of the worthwhile developments have been incorporated in Scott Superheterodynes, usually months before they were available in other sets.

The World's Records established by Mr. Scott were not the result of mere chance, but were made because he put into his receiver features never before used in a set. He has continually improved on the original design, making each successive receiver even more selective and more sensitive to distant signals.

The Modern 1931 Receivers Must Tune All Waves

Today broadcasting is different to what it was even twelve or eighteen months ago. Now there is plenty going on the short wave band, not all dots and dashes or code. With the right kind of a short wave receiver, you can listen to concerts broadcast from England, Germany, Italy, Holland, South America, Australia, New Zealand and many other foreign countries. Here in Chicago with this new model we have, between 5 and 8 P. M., listened to a program from London that was broadcast on the short waves. You don't need to wait for evening to bring in distant stations, in fact many short wave stations 3,000 and 4,000 miles distant come in better in broad daylight than they do at night.

Tremendous Advance in Radio Reception

Radio is advancing so fast that few people realize the tremendous strides that have been made during the last 12 months on short waves. The short waves between 20 and 30 meters are now being used on the Transatlantic Telephone Service.

Pope Pius Will Talk to World on Short Waves

At Vatican City has just been erected one of the most powerful short wave stations in the world through which Pope
Daylight Reception From 500 to 5,000 Miles Now Possible

Just a few weeks ago the value of the short waves was brought out very clearly. The Columbia Broadcasting System was putting on a regular program DIRECT from the City of Chicago. Unfortunately the broadcast was during daylight with the nearest station over 500 miles away and daylight reception over that distance on the broadcast band from the City of Chicago is simply not possible—at present anyway. The Columbia people called our laboratory and asked us if we could help them with their broadcast. We said, “Come on out and bring your clients.” They did—and for half an hour they all listened to Mr. Ripley as he came in clear and strong with much more volume than we could use from a station 900 miles away in daylight on THE SHORT WAVES.

DX-ing Now International Sport

This Fall will see rebroadcasts from foreign countries a common event. Already a rebroadcast from London excites little comment. But think what a kick you would get if you could tune in a program DIRECT from the station 2,000 to 5,000 miles away. That’s what you can do with this new equipment. Both old you take back to the good old days when DX-ing was a sport, but instead of fishing for DX in U. S. you have stations spread over the whole world at your fingertips.

The Circuit

The circuit is a Superhetodyne with a stage of R.F. ahead of detector, three stages of high gain intermediate frequency amplification power detection, and with both first and second audio stages push pull.

The Intermediate Frequency Amplifier

In the I.F. stages lies one of the secrets of the performance of the new SCOTT ALL WAVE SUPERHETERO-DYNES. The secondary is wound on a bakelite form, then specially treated to make sure that intermodulation products will remain constant over a period of years and not be affected by climatic conditions. The primary is a universal winding treated in the same manner. The secondary being secondary. Both primary and secondary are completely shielded from each other and a special method used to couple the primary to the secondary and the system has evolved to secure tremendous amplification without oscillation. In these new I.F. transformers we have accomplished something engineers have been striving for years, that is, a high gain transformer with a flat top curve.

The Radio Frequency Amplifier

A special bank wound coil using Litzen-draft wire is used as the R.F. Transformer. So efficient is its design that the gain is increased from one stage to two stages of R.F. as used in the standard set. This stage not only increases the sensitivity but also the overall selectivity without introducing side band cutting.

Both Stages of Audio Push Pull

No matter how selective and sensitive a receiver may be, today it is no good UNLESS IT HAS GOOD TONE. The output from the 2nd detector in this model is fed into the second push pull stage using two 227s and from this it feeds into the second push pull stage using two 245s. This gives perfect undistorted tone from the slightest whisper to full auditorium volume.

The effect of using push pull in the 1st as well as the 2nd audio stage does more, however, than simply improve the tone. Distant stations so weak as to be hardly audible when a single tube 1st audio is used, are brought in with 100 per cent better tone and LOUDER SPEAKERS than with the single tube. You get all the benefits of a push pull setup.

Wave Lengths Covered

The range is from 15 to 550 meters, the different ranges being covered by means of plug-in coils.

Tubes Used

Five 244s, four 227s, two 245s, and one 280.

Shielding Very Complete

You will notice that the new model appears to be well shielded, yet the photograph does not reveal just HOW completely it is shielded. Each section of the condensers is independently shielded, then a complete shielding goes over each stage of the audio. The scheme and nageless tuning each section is pigtailed and the shafts run on ball bearings.

Each of the I.F. stages are TRIPLE shielded. The secondary being in one shield can be the primary in another and the shield is located underground the base. This system of shielding together with our method of coupling the primary to the secondary has enabled us to reduce the gain of each I.F. stage two or three times more than was ever possible with an I.F. transformer coupled in the usual way. Yet with this increased gain in stability and free from oscillation at any degree of volume.

The R.F. stage ahead of the 1st detector, the antenna coupler and the oscillator are shielded in separate cans to prevent coupling between circuits, and also to prevent pick-up from stations other than the one tuned in.

Some tube engineers believe that sensitivity as well as the completeness of the shielding can be obtained when I tell you that with the antenna disconnected the receiver is about as sensitive as you can expect under any circumstances. Yet, take the can off the 1st R.F. and not only locals but outside stations four and five hundred miles away can be tuned in with good loud speaker volume.

Now connect a piece of wire about 10 feet long to the antenna post and a good ground and in will come stations on both coasts. This little experiment will not only show the completeness of the shielding but will also demonstrate the remarkable sensitivity.

Tuning

To secure maximum selectivity and sensitivity from the top to bottom of the scale we use two dials which are placed so close together as to make it easy to watch as one dial. No trimmers are required. The two dials work in such a way that tuning is easy and as easy with two stations as with a single dial. It would have been quite easy to gang both condensers to a single dial and get very good results, but we believe the receiver is looking for the most efficient receiver he can find, and will prefer a set with two dials if it makes it possible to get better reception.

Easy to Tune on Short Waves

It is well known that the average short wave receiver requires considerable skill to use and this is true. In addition to the tuning dial you have a regeneration control as well, which is usually quite critical. In our receiver, regeneration is fixed, and all you have to do in short waves is turn the dial and in they come. Volume is controlled on the short waves with the same knob that controls it on the broadcast band. When I tell you that it is as easy to tune in stations on the short waves as on the broadcast band I am simply stating a fact.

Power Amplifier

The power amplifier is a separate unit which supplies current for the receiver and also has the last push pull stage of audio.

No front panel is shown on photo. We can, however, supply a front panel fitted to suit your order. The chassis measures 21 1/4 x 11 3/4 inches.

About Screen Grid Tubes

Ever since screen grid tubes were first introduced three years ago, engineers have been trying to find a circuit that would enable them to use the tremendous amplification these tubes are capable of giving. In 1927 we introduced the Scott Screen Grid, a superhetodyne receiver using screen grid tubes, and since that time all Scott receivers have used them.

In the design of the 1931 SCOTT ALL WAVE SUPERHETERO-DYNE we have succeeded beyond our fondest hopes. For it has such tremendous power that it does not seem possible it’s all coming out of one tube.

Here is the receiver we have all been waiting for. There’s no tricky regeneration control to adjust. Simply turn the tuning dial and zipp, zipp, in some stations one after the other with enough volume to make the speaker walk away, and you don’t know whether it’s a station in U. S. or Australia until you hear the call letters. That’s not an exaggeration, but a simple fact, for you can’t realize the tremendous kick a short wave signal has until you have actually listened to some of these foreign stations coming in.
Mr. C. C. Robertson Tells
How He Sells Scott Radio

This month I received a very interesting letter from Mr. C. C. Robertson of Ashland, Oregon. Charley and I have at least two things in common—we both are bald as bats—and we both think Scott Receivers are the finest in the world. I believe he knows as much about them as I do myself—read some of the selling talks he makes to his prospects about them.

He uses two antennae—one outdoor, an inverted L 35x35 ft., and another in the attic facing west. For a ground connection he has a 2-ft length of galvanized pipe in moist soil.

He has his demonstrating room specially fitted with a number of framed cards:

- SCOTT—not how CHEAP, but how GOOD.
- SCOTT—Built to a STANDARD, not to a PRICE.
- SCOTT—The BEST things are always hand made.

Difficulties Found by Robertson

"Prices inserted in folders are a guarantee to the prospect, but I mail no folders until I make a personal call as it seems advisable to sell them the set before price is mentioned. They must be made to realize the difference, in hook-up, in custom building and in performance, before they are eased off by a higher price, especially now."

NOTE—I wonder how many of our representatives have found the prices marked on the folders a difficulty. Would you sooner have the price left off the folders and the list prices given on a separate price sheet? I would like to hear from everyone selling Scott sets, giving your ideas about this.

EDITOR

Now, here are some of the selling talks Charley makes. I think they are very good.

Makes Competitive Tests

"I will put a Scott alongside any other set you may have in your home. The Scott will beat it on any and every count. I will only do this if you want a QUALITY set. If you are going to buy a "price" set there would be no use I can compete on a PERFORMANCE basis but not on a PRICE basis—the Scott isn't that kind of a set."

"The Scott Laboratories have been building sets continuously for the past seven years, and to explain why, I'll have to start by telling you what the Scott is. It has been building SU-PERS for that seven (six) years—the Scott is not something that is "being tried on the dog", but is a proven set. The Scott is Custom Built to order in a laboratory—it is not massed out by the thousands, in a factory."

"To those who are technically inclined or who care to know WHY a Super is better than a Common, the three divisions of the Super—mixer stage, IF stage, and Audio Stage"

Tells Why Custom Built Receiver Best

"A Superheterodyne is the most selective and the most sensitive circuit that it is possible to build—PROVIDED it is properly designed and is carefully built of precision parts. This practically means that it must be CUSTOM BUILT if it is to give the results a Super should give. If the Scott were not properly designed they could not have continued in business for seven (six) years. If it were not carefully built it would not give the performance you have just witnessed."

Explains Difference Between "Custom Built" and "Factory Built"

"Building a radio is simply the mathematical working out of a problem, using the four tables—addition, subtraction, multiplication and division. Suppose you work out some imaginary problem using certain numerals found in those tables and note the answer. Now work out that same problem but change some of the factors and you have an entirely different result. So it is with a radio set—if the component parts are not identically alike in every set—the performance will not be the same. In a Scott they are as near alike as it is humanly possible to make them. If you should listen to six factory built sets—one after the other—all of the same model and make—you would pick one out of a particular set as being the best. WHY? They are all SUPPOSED to be alike. You would pick out the certain one because they are NOT all alike. If I had six Scott receivers and turned them on at one a time, you could not tell one from the other. WHY? Because they ARE all alike, due to the fact that the parts are carefully tested and matched."

Here’s my argument for the man who says: "I have never heard of a Scott."

"You have not heard of a Scott over the radio and you have never seen it advertised on a bill-board—when you pay your money for a Scott it goes into the SSB—not on a bill-board or for some expensive national advertising—it is IN THE SSB and you got it."

Now, that’s what I call some good arguments, and I want to thank Mr. Robertson for writing us. I hope we will have another letter as good as it for our next issue."

EDITOR