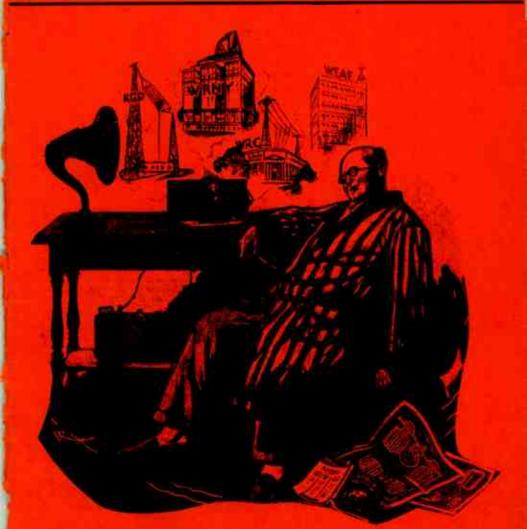


VOL. 20

FALL 1991

NO. 3





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THES BURINESS ATT VITIES FUELINITY BOX 246 CARTHAGE IN. 46114

LEGAL NATTERS INDIANAPOLIS, IN 46 824

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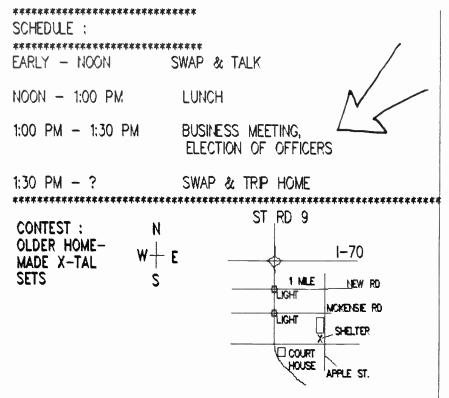
IHES IS A NON-PROFIT OBGANILATION FOUNDED IN 1971. ANNU IL MEMBERSHIF DUES ARE 18.00 WHICH INCLUDES QUARTERLY IHES BULLETIK. (ADIOADS ARE FREE TO ALL MEMBERS) PLEASE INCLUDE S A S E. WHEN REQUE TING INFORMATION.)

- 1 -

COVER : 1925 POPULAR RADIO

2ND NOTICE !!

FALL FOLIAGE MEET ! SATURDAY 19-OCT-1991 10-19-91 IHRS FALL RADIO MEET 10-19-91 GREENFIELD, INDIANA CHIPS-NAPEINS-PAPER PLATES SUPPLIED RILEY PARK (PITCH-IN DINNER, BRING YOUR FAVORITE DISH TO SHARE)



WE HAVE A LARGE SHELTER HOUSE WITH PLENTY OF CHAIRS AND TABLES IN CASE OF BAD WEATHER. GLENN FITCH 317-565-6911



The Sparks-Withington Company

1929 seemed to be a good year for radios. That of course depends on how you measure good, but there seemed to be a lot of manufacturers making high quality, high performance, high priced sets in 1929. This was the time when broadcasting was really going strong, much development of radio technology had taken place over the last decade and things like the electrodynamic speaker, AC power, and the superheterodyne circuit were making radio sound good, and the programming was there to support it. This was radio's Golden Age.

Radios of this time were often in handsome wooden cabinets, fine furniture to adorn any home; lowboys, highboys, consoles, etc. Then after the stock market crash of 1929, manufacturers seemed to move into the table models aimed at a more economy market. Proliferation of small sets led to the concept of "a radio in every room". -

Many manufacturers were in the Midwestern states and one of interest is the Sparks-Withington company of Jackson, Michigan. Perhaps you don't recognize that name but surely you do their trade name "Sparton". I found a service bulletin in an antique shop near Jackson, and it is very interesting in deed. Please see photo 1. The documents in this manual were headed "The Pathfinder for Sparton Radio Dealers." See photo 2.

There were 4 radios described in this little manual, all from 1929. They were given the elegant name of Sparton Equasonne and appear to be built on the same basic circuit concept. They used multiple stage RF amplifiers, usually 6, broad band, and the tuning was done in the antenna input circuit.



The model 931 was a console model with 9 tubes and 1 dial tuning. There was a highboy, very elaborate design, the model 301. My searches indicate it is worth \$500 plus today. Both of these came in DC and AC models, the difference being in the "power converter" part of the circuit. Then there was the model 49, an 8 tube version, a table model. It is clearly a battery set.

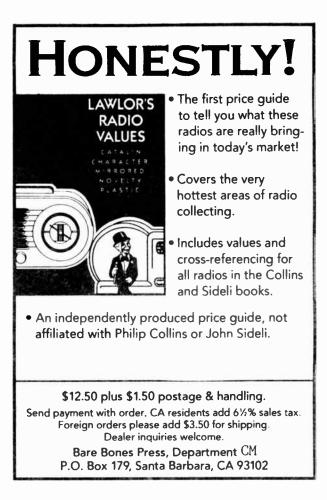
Finally the model 110AC, you guessed it, for AC, was a 12 tube single dial console.

As you would expect, there were servicing and trouble shooting directions for each model. But the fascinating part of this manual was the letters for dealers to send to their prospects. There were five of these letters, each written to be typed on the dealer's letter head and signed by him. There was a caption at the bottom of this section saying "You will be surprised how they will work for you. Enclose a Sparton Folder of some kind with each mailing."

Then there was the letter of testimonial from a blind owner, Louis Miller of Portland, Oregon. "Mr. Miller is blind, but, as is often the case, evidently has a highly developed sense of hearing that is unerring in its judgement." Such accolades should certainly sell many radio sets.

Such was the state of Sparton and the Sparks-Withington Company in 1929. I have no notion as to what became of them over the years since then.

Staff Stafford, NJ8F



BOOK REVIEW/BOOK REVIEW/BOOK REVIEW

"LAWLOR'S RADIO VALUES"

I'VE READ THROUGH THE BOOK SUPPLIED FOR REVIEW TWO TIMES, AND SHOWED IT TO THREE OTHER COLLECTORS. WE ALL THOUGHT THE PRICES WERE PRETTY HIGH. I AM WONDERING HOW MANY OF THOSE \$30,000.00 AND UP SETS ACTUALLY EXIST??

MECHANICALLY AND GRAPHICALLY THE BOOK IS VERY WELL DONE. (ALTHOUGH A LACK OF PHOTOGRAPHS FORCES US TO BUY TWO MORE BOOKS! ONE RADIO I FOUND MISSING WAS THE "GILLETTE" MADE IN 1939, WHOSE CABINET WAS USED AFTER WWII TO HOUSE AN "AIR FRESHNER". FOR ANYONE NEEDING THIS INFORMATION, THIS BOOK IS A WORTHWHILE ADDITION TO HIS LIBRARY.

-JAMES A. FRED



Eric:

Enclosed are pictures from our IHRS radio display at the Northern Indiana Historical Soc. Museum at 112 S. Lafayette Street in South Bend. Featured are area made radios such as Lyraoion, Diamond "T" and Kennedy AC radios.

This display is extended until Jan. 1992, with possible extensions beyond that. The Rochester Auseum is now closed. IHRS sets from Rochester are being taken to South Bend.

Best regards, **Aluminum Scanning Disc** Size of Disc 12" Dis. line, ßň square hole, double spiral, made of special alloy aluminum, Ross Smith One of the finest scanning disks made. I. C. A. Television Amplifier JING ... Model 115 The I.C.A. Television, Cat. No. 1354 three-stage amplifier is Can also quote on 45 most advanced in fea-tures and construction. or 48 line aluminum scanning disks. Weight: 41% lbs. It is complete with all resistors and construction. Weight: 41% lbs. It is complete with all resistors and coupling condensers thereby taking the pince of all ap-paratus after the detector. Inasmuch as the bril-liancy of the Neon lamp is contingent upon the current output of the last amplifier tube or tubes. the amplifier is so wired that it is possible to use two power tubes in parallel. - 6 less tubes. Cat. No. 1405

World Radio History

History of radio challenged

an million considerations and

Country singer Troy Cory has spent 10 years and almost \$1 miltion trying to change history.

"I just want to set the record straight," he said. "I want kids to know that it was an American who invented radio."

That American, coincidentally, was his grandfather — the "true father of redlo," he says. Not so, say the history books, who long have given the credit to an italian physicist.

But Mr. Cory believes that his grandfather's discovery came four years before Guglielmo Marconi's. And on Monday, his seem-

"If people would take the time, they would find out that Marconi transmitted dots and dashes four years after my grandfather broadcast a human voice."

- Troy Cory,

ingly quixotic quest to prove as much brought him to Las Colinas and the National Museum of Communicators.

There be announced that Nathan Beverly Stubblefield, a Kentucky manufactures of telephone equipment, transmitted the first voice without wires during a demonstration in his hometown of Murray. The year, he said, was 1892.

"If people would take the time, they would find out that Marconi transmitted dots and dashes four years after my grandfatber broadcast a buman voice," be said.

"They've got to change the history books — there's no question about it." The inventor's 44-year-old grandson isn't going to give up anytime soon. Two months ago, he purchased a radio station in Murray for the express purpose of promoting his relative's fame. Now he, his publicist and attorney Melvin Belli are traveling around the country touting Mr. Sr: bhelfield's grandest achieveback

They even have an official poclamation to support them. Is-

sued by Kentucky's governor, it proclaims 1992 as "Nathan B. Stubblefield Year."

Mr. Corp. of Pasadena, Calif., also has proposed that the federal government commemorate the 100th anniversary of radio by printing a U.S. stamp with Mr. Stubblefield's face on it.

The outdoor demonstration Monday in Irving was conducted using a replica of the original

Stubblefield invention. Museum officials then inducted Mr. Stubblefield into the museum as redio's true founder.

"If this does not draw attention, then I don't know what will," said Christopher Harris, the publicist.

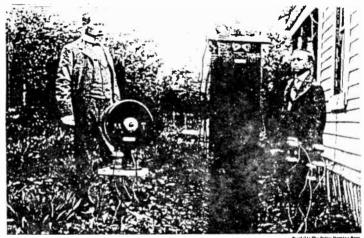
The Smithsonian Institution in Washington remains unconvinced. Elliot Sivowitch, a museum specialist at the Smithsonian, said that although he has heard of Mr. Stubblefield and some of his inventions, "I would not say that he invented radio."

Mr. Sivowitch said Mr. Stubblefield invented a wireless telephone system "of a somewhat more limited commercial application," whereas Mr. Marconi who would go on to win a Nobel Prise — created "a practical wireless telegraph system."

"There was a group of people who did some work with wireless systems in the 1890s," said Mr. Sivowitch. "Had he stuck with his work, he might have developed something with a longer range."

Yet Mr. Stubblefield's Tragedy was not just obscurity, his promoters said Monday. He died of starvation in 1928 after struggling for nearly three decades to gain recognition. Rejected by townspeople in Murray, he had retreated to his work lab and become a recluse.

"History has been most unkind to the self-educated genius from Murray, Kentucky," Mr. Harris said. "He has been depicted as someone incapable of doing anything but growing meions."



In an undated photo released by Troy Cory, his grandfather, Kentucky inventor Nathan B. Stubblefield (left), and an unidentified assistant stand beside equipment that Mr. Cory says was the forerunner of modern radio.

CRANKSHAFT



ALIGNING SUPERHETERODYNE SETS PART TWO ... by Ross Smith *

Before beginning the Antenna and Front-end alignment, the following points should be considered: (1) Circuit restoration should be completed and the radio working well. (2) I.F. alignment should be completed, as covered in part one in IHRS Bulletin Volume 20, No. 1. (3) For safety, hot chassis precautions must be followed, as outlined in part one. (4) If factory alignment instructions are available, it is best to follow them.

Let us begin with a standard 5-tube radio for broadcast only that does not have a padder variable capacitor for peaking the low frequency end of the band. There will be two trimmer adjustments, normally located on top of the two-gang tuning capacitor. A few early sets from the 1930's, with an antenna coil and a permanently attached antenna wire, may have a third trimmer for peaking the antenna primary circuit. In this case, the antenna wire must be uncoiled out to its full length before peaking the triamer. Most all of the Later sets have a loop antenna connected directly to the grid of the converter or RF amplifier tube. The loop antenna trimmer will be located on top of the converter section of the gang tuning capacitor or it will be on the back of the loop antenna assembly.

THE FOLLOWING PROCEDURE IS SUGGESTED:

1. Turn to a station around 1400 Kc (Now KHz). Connect a peak output indicator meter as described in part one. Note the output level, the station frequency and the tuning dial frequency reading. Be sure the dial pointer is set for the correct Cw and CCw end positions. ADJUST THE ANTENNA TRIMMER FOR PEAK OUTPUT. 2. Tune to a station on the low end of the dial around 600 to 700 Kc that will provide adequate signal strength for a good output meter reading. Note the station frequency and the dial reading, which may not be the same. In order to align sets on the low frequency end. without the help of a padder capacitor, first place a large knob on the tuning snaft for ease in rocking the dial back and forth. Now "chase" the maximum output point by alternately rocking the dial both Cw and CCw while turning the oscillator trimmer very slowly. By turning the trimmer clockwise, the dial reading will be lower. By turning CCw, the dial reading will be higher. Try one way, and as soon as the signal decreases, turn the other way for peak output. For best stability, approach final adjustment of the trimmer in the Cw or compressed direction.

The oscillator trimmer will be located on top of the oscillator section of the tuning capacitor, which is the smaller section having fewer plates. Older sets may have equal size sections. In this case, you may find the oscillator section by placing your finger on the stator section plates, which will change the frequency and de-tune the station or even pick up another station. Touching the antenna section plates will only reduce the output. You will be surprized at the increase in volume on the low frequency end of the dial by making this adjustment. AGAIN, note the station frequency vs. dial reading. They may not be the same.

3. Go back to the first high frequency adjustment and re-peak the antenna trimmer. Note the station frequency vs. dial reading. The dial pointer may need to be moved for correct dial calibration and maximum output at this point. 4. Go back to the low frequency end again and re-peak by using the rocking operation. If the dial is off calibration, see if you can bring the station frequency closer to the dial reading and still nave maximum output.

5. Always re-peak the high end after each low end adjustment. You may have room to arrive at a good compromise of low and nigh end calibration. If not, set the correct calibration at the high end and let the low end fall where it may at the maximum output level. 6. Sets with series padder capacitors in the oscillator circuit are more flexible and easier to calibrate at the low and high ends of the dial. The procedure is the same, except the padder is used for peaking the low end frequency instead of using the trimmer on top of the oscillator section of the tuning capacitor. Use the oscillator trimmer on top for the high end adjustment only. GOING BACK AND FORTH BET-WEEN THE LOW AND HIGH END A COUPLE OF TIMES WILL FINE-TUNE THE ALIGNMENT.

In order to identify sets using the series padder capacitor, observe the schematic of the oscillator circuit or look for it on the chassis. It will be a large, usually square or rectangular, multi- plate mica type ceramic base trimmer mounted on the inside of the chassis on top or side.

7. For larger sets with one tuned RF stage and a three-gang tuning capacitor, there will be three trimmers on top of the tuning capacitor, or they will be located inside the chassis top or side. Adjust the antenna and RF trimmers together, using the same procedure as for the two-gang capacitor. Uscillator peaking is also the same. It is usually not necessary to move the dial pointer from the end-point stops on larger sets with padders.

NOTES: (1) Be sure to record the position of an unknown trimmer before you turn it. If no increase in gain is noted, better to leave it where it was. It may be for other adjustments such as short wave or may be an I.F. trap adjustment. (2) A quick check for loop antenna sets: Tune to a station on the high end of the dial and place your fingers on the loop. This should cause a decrease in gain. If you have an increase, go back to square one and try again!
(3) If the radio has variable selectivity for high fidelity, such as Scott, Zenith, Silvertone and others, place the selectivity switch or variable adjustment on the "sharp" or narrow band position.

(4) An RF signal generator may be used in place of radio signals with care to avoid harmonics or heterodyning with radio stations.

ALIGNMENT OF SHORT-WAVE BANDS:

For short-wave alignment, original manufacturer's instructions or service instructions are required. Due to the many varied short-wave band circuit designs, it is not practical to suggest a universal method. As an example of the variations, some Zenith circuits of the mid-1930's having three-gang tuning capacitors use section three top antenna trimmer for peaking short-wave at 15 Mc. Then section two center section top trimmer is used for peaking the broadcast band at 1600 Kc. and section one/ top trimmer is for oscillator alignment. All other trimmers for short-wave and the broadcast padder are inside the chassis with holes for outside adjustments.



PETER YANCZER TELLS ME THAT IN THE 1951-53 ERA. SEVERAL SMALL OUTFITS OFFERED THE PUBLIC "COLOR" TV AT A VERY LOW PRICE. ALTHOUGH THE TECHNOLOGY FOR PRODUCING "TRUE" COLOR TV WAS ALREADY AVAILABLE FROM RCA, THE GENERAL PUBLIC COULD NOT AFFORD IT. JUST HOW WELL THESE MECHANICAL WONDERS WORKED IS A MYSTERY. HOWEVER, PETE PLANS TO REPRODUCE A FEW OF THESE TO FIND OUT. I CAN HARDLY WAIT PETE ...

TE LE VI SI OR

Good practical COLOR TELEVISION is still a long way off ..., The NEW YORK TIMES, June 24, 1951 way off . . . The NEW YORK TIMPS, sum at, and a sha securities are no better equipped to sit at home and watch color broadcasts than is the general public . . ." Waiting for color TV only deprives you of the world's greatest pleasure . . Hardly anyone hesitates to see a movie in black and white . . . For those who want to experiment with color TV, we have the following items:



Brings in color programs in black and white from all stations. Easy to in-stall to any TV set. Complete with \$13.30

Specify make of your TV set.



Solid one-plece product, Matched for true color. Balanced for smooth per-formance. CBS specifications

COLDR WHEEL

7". 1514" Diam. \$13.36 10". 22" Diam. 17.69 121/2" 2714" Diam. 29.47



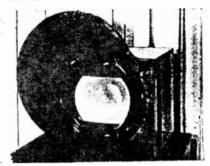
COLOH MOTOR WHEEL MOTOR 110V.-50/60 Cycle. Type pictured superseding it (which-ever is botter) will be delivered.

\$19.16 Including rheostat

CROSLEY COLOR CONVERTER

The Crosley Division of Arco Manufacturing Corporation has recently demonstrated a color converter designed to be used with the company's standard television receivers.

The new unit is housed in a mahog-



any finished cabinet and employs a 10" picture tube. The picture is enlarged by a magnifier to about the size of those seen on a 121_2 " tube. The color wheel is 221_2 " in diameter and is constructed of laminated plastic. Sound for the color reception is received through the master set.

Production of these converter units will be started when public demand and program schedules warrant it.

NOW! COLOR TELEVISION <165 **ON YOUR PRESENT SET!**

Sensational New Tri-Colored Film, will bring you colored pictures on all black and white broadcasts. Brings in any TV program in glarious color, on any TV set. Anybody can attack in less than one minute. Greatest development since advent of television. Send for yours today. Start selling this red hot item at once. When your customers see color programs with Ray Vision you will be swamped with orders.

RAY CO. TOLEDO, OHIO

10 IN	CH
Retail	Your Cest
	\$1.65
121/2" 5.95	
14" 6.95	
16 1 17" 7.95	2.55
19 & 20" 8.95	2.85
ADD 15c SING ORDERS WE PI SIX DR MOR	GLE Repay
Immedia	te

Deliverv



World Radio History

American **Grandfather Clock Badio**

6 Tube Variable Mu, Push-Pull Pentode Uses two 235, one 224, two 217, one 280 tubes llas

a Sessions Electric,

Notseless Clock; Rohn 8" Dy-namic S p o a k e r ; Caswell-Runyon Cabinet of Matched 100 Oriental Striped Walnut. Size 68 x 15 x 11". 3 gang Condensers (3 tuned volume Control, Phono At-tachment, with "Phono Radio" switch. Full vision dial with traveling Pilot Light and Indicator. Selective sensitive, hunless operation with ample volume. For 110 volt, 60 cycle A. C. \$43.50 Cat. No. 1083 For 110 volt, 25 cycle A.C. \$46.50 Cat. No. 1383 For 220 volt, 60 cycle A. C. \$45.50 Cat. No. 1384 For 110 or 220 volts D. C., | using three 236, one 237, two 238 tubes (Push-Pull Pentodo)

> \$45.50 Cat. No. 1385

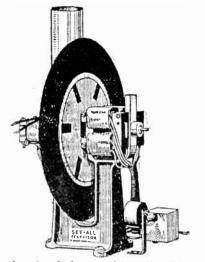
Grandfather Clock Radio

with 7-tube Super-Het Chassis (Described on other page)

110 volt, 60 cycle A.C. \$47.75 Cat. No. 3705 110 volt, 25 cycle A.C...... \$51.50

Cat. No. 3706

"See-All" Television Kit



The lowest priced successful quality Televisor being sold.

Easily assembled in less than 30 minutes by anyone.

one. Get in on the ground floor of this amazing new industry. Be among the first to see as well as hear your radio entertainment. You get all this in this kit: Complete eddy current motor; 60 line square hole double spiral scanning disc made of special alloy aluminum; Rheostat; Con-denser; adjustable lamp housing and bracket; Svuchronizing wheel; all necessary wiring; com-plete blue prints of televisor; complete blue prints of short wave receiver; detailed assembling instructions. instructions.

Unconditionally gnaranteed against mechanical or electrical defects. For 110 volt, 60 cycle. A.C. S11.61

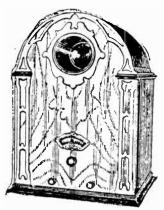
Cat. No. 1414

THE ADS ON THIS PAGE, AND THE NEXT COUPLE, ARE FROM A 1932 AMERICAN SALES COMPANY (NEW YORK) CATALOG (#67).



World Recto History

I. C. A. COMBINATION 5 TUBE SHORT WAVE **RADIO AND TELEVISOR**



For 110 v., 60 cycle A. C.

Wave Length: 75-200 Meters

Uses Two 235's, One 224, One 247, One 280 Tubes

Complete with Synchronous Motor; 110 V., 60 Cycle, 1200 r. p. m. Anuninum senning disc 60 holes. Magnifying lens, hmp and adjustable staud, dynamic speaker. Neon

Here is the ideal complete radio and television outfit for the home. Everything self-contained in a beautiful walnut cabinet. Just snap on the switch and tune in the television station you prefer, or switch over to receive regular short-wave broadcasting.

Single Full Vision Dial Tuning Control, Volume Control and on Off Switch on same knob. Phonograph Jack connections and switch for changing grid bias of detector to more suitable and switch for changing grid bins of deteror to hore sumone value for phonograph annihilfcation, Special Inpedance match-ing Transformer between Pentode Output tube and Neon Lamp for maximum transfer of energy at all frequencies encountered in television reception. Realstance coupling between Power Detector and Pentode Power Amplifier.

The receiver can also be used for the reception of other than television stations which operate between 75 to 200 meters, such as Amateur Phone Stations, Police Call Signals, Coast \$117.

Guard, Weather Bureau Avlation Sta-tions, and Ship to Shore Telephone Stations. Weight; 50 lbs. Icas tubes Stations.

Cat No. 1406

"See-All" Combination Short Waye Radio and Televisor

Wave Longth 85-220 Meters Wave Longin op-220 moves Uses two 235, two 224, one 245, one 280 tubes This combination is a

complete radio and Television outfit for the home

Combines all the fea-tures of the "Sce-All" Televisor and receiver, in a beautiful walnut eddaet, size 26 x 18 x 10 inches.

Full vision dial, tone and volume control, and volume control, with 6" lens. Factory wired.

Less tubes and Neon Bulb.

\$40.87

Pioneer 7 Tube Television Receiver Chassis

100-200 Meters

Uses - two 235, three 227, one 217, one 280 tubes A fine Television Receiver using 3 stages of resistance coupled amplification (two 227's and one 247). Uses two 235 as R. F. tubes and one 227 as detector

Has a fine audio frequency response from 15-40000 cycles, and incorporates a double filter.

Less tubes

Does not use any plug-in coils, Furnishes field current of 2500. ohms for a dynamic peaker. \$19.75 Completely assembled and

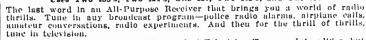
Cat., No. 3993

Forest -Jenkins 8 Tube Television and **Broadcast Receiver**

wared.

Wavelength 80 to 600 Meters





Not only is this receiver primarily an ideal Television Tuner and Ampliner, but In addition it serves as a broadcast receiver by simply turning a switch. Tuning Bange: 80 to 600 meters, divided into two bands.

Audio Amplifier: 20 to 40000 cycles for full-tone reproduction of sound or picture. Two -45's in parallel deliver 4000 milliwatts of undistorted output. Non-motor-boating, Humless, Self-healing electrolytic condensers. Full vision illuminated dial. Combination tone control aud speaker-radiovisor switch. Attractive cubinet. "Hola" dynamic speaker.



MODEL J. D. 30

Weight: 32 lbs. Dimensions: 21 x 12".

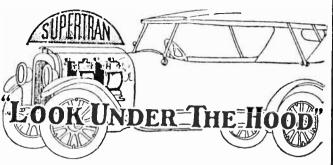
JD-30 Receiver Complete for broadcast or television bands and set of matched DeForest tubes. For 110 volt, 60 cycle A. C.



Some Important Features of SUPERTRAN Audio Frequency Transformers Operate successfully with any amplifying tube. Preserves natural tone of broadcasting.

Gives greater distance.





IN better sets you will find Supertran Transformers. They are specified by the larger manufacturers because their mechanical superiority increases the efficiency of the set-no matter what the circuit.

Supertran on your set means greater amplification, clearer reception and volume that will make the programmes more enjoyable than ever! Use this audio. Its price is low and its gratifying results are lasting.

Eastern Dist. WETMORE-SAVAGE CO. Boston, Mass. West & Southwest Dist. BECKLY-RALSTON CO. Chicago, Ill.

FORD MICA CO., INC. 33 E. 8th St. N. Y. C.



ARE YOU A COLLECTOR OF NOVELTY RADIOS ?? HERE IS ONE THAT YOU MAY CUT WOOD WITH !!!!!



PRESIDENT'S CORNER

GLENN SAY'S HI AND REMEMBER TO ATTEND THE FALL MEET IN GREENFIELD. HE ALSO WANTS EVER YONE TO KNOW THAT THERE WILL NOT BE ABSENTEE BALLOTS FOR THE 1992 ELECTIONS. IT TURNS OUT THAT HE FOUND OUT THERE WAS A RULE AGAINST THIS IN OUR CONSTITUTION. IF YOU CAN ATTEND THE MEET, THEN YOU WILL HAVE A CHANCE TO BE HEARD. ALSO THERE WILL BE A DISCUSSION ABOUT THE POSSIBILITY OF CREATING REGIONAL CHAPTERS OF IHRS AT THIS MEETING. -ERIC SEE THE SUMMER BULLETIN TO REVIEW THE CANDIDATES...



Emorson model 400-2. Being white with red and blue tries.

A luxuriously-designed radio worthy of a place of honor in your home or office ... or as a Christmas Gift

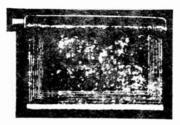
- 17 -

World Radio History

A New Pathé Product CURTANTENNA The Only Variable Loop



Showing Collapsibility and Portability of Curtantanna



Showing How Curtantenna Can Be Varied In Sise



Patent Pending

Showing Curtantenna Fully Extended in Conjunction with Set and Pethé Loud Speeker

A REVOLUTIONARY development in radio aerials for indoor use.

When fully opened is one of the largest and most efficient loops for broadcast reception.

Is instantly collapsible without kinking or tangling the wire.

Ideal for sharp tuning—unsurpassed for distance—reduces static to a minimum. Particularly effective in large cities where several stations are broadcasting at same time. Gives a degree of selectivity hitherto unobtainable.

When closed is as portable as a walking stick.

Comes with wall bracket and swivel or may be attached to any door in house.

Positive in results—very attractive in appearance—casy to handle.

Size can be varied at will.

Over 1500 miles have been covered by users of the CURTANTENNA.

A quarter of a century of highly specialized experience in the manufacture of scientific devices is behind the Curtantenna.

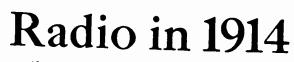
Price \$8.50

On sale at leading radio stores. If your dealer has neglected to stock the Curtantenna, send remittance direct and shipment will be made, charges prepaid, immediately.

Other Pathé products such as the famous Pathé Loud Speaker, Pathé Dials and Pathé Variometers and Variocouplers have already established themselves as standards among users of the best radio material.

Catalogue of Pathé radio products, together with a detailed wiring diagram of a loop receiving set which covered 1500 miles using a CURTANTENNA, will be mailed on receipt of 4 cents postage. Address Dept. 197

PATHÉ PHONOGRAPH & RADIO CORPORATION 20 GRAND AVE., BROOKLYN, N. Y.



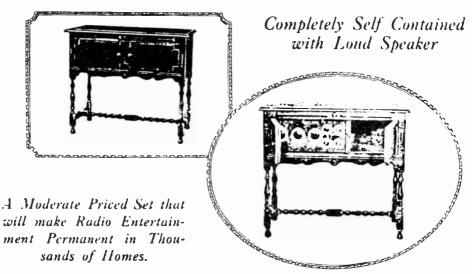
1914 model, Cutting & Washington Receiver, one of the first commercial sets in America, and-

A present Cutting & Washington model, the standard for simplicity and sound design.

and today



The New C & W Console Receiver



Higher selectivity than any other instrument in its class---clearer signals by actual test-this three tube, double circuit Receiver is the last word in radio for the home.

Set is complete with 3UV 199 tubes: 3 large A Batteries: 3 B Batteries and Loud Speaker-ready for antennae and ground connections. Ask your Cutting and Washington dealer or write for illustrated catalog.



Cutting and Washington Receiver 11.1-similar in mechanical design to console model, but of regular cabinet type. This C. W Model has enthusiastic users all over the United States. Write for illustrated catalog.

Dealers: Write for full details of C & W Line and Dealer Plan, and copy of interesting book, "The Future of Radio Retailing." No obligation.



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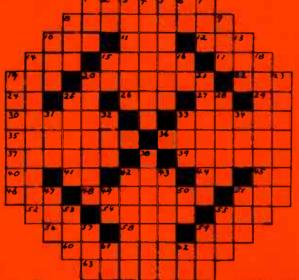
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COUNTRY CROSS ROADS Composed by Helen F. Dittus

Solutions mailed to WIRELESS AGE will be checked and the correct ones listed in August issue



HORIZONTAL

- I of instead of head-et. Lieurical censuring instru-
- mint
- Top Dit Dit Dit Dit, Da Da, Dit

- Dit 12—Put on 14—Perioli 15—Not suitable 17—Bippole song station in New

- Process 22.-- Authors 22.-- Press 24.-- Press 24.-- Parture 25.-- Parture

- 35 According to the second second

- 46-Dit Da Dit D Dit, Dit Dit 8-Kind of h.h. Dit. 12
- 51- Chilling.
 - To soller seei
- 54-Astronomia

- 50-Astronomic 50-Newton 50-Form of verb to be 90-To lubra to 10-Collector of le trial ers
- 63-A tailor

VERTICAL

- Tort Poet Laure te. Pertaining to tasts of perple Measures correct. Prevent of the select man net.
- Suffic measing hitle, Version
- Strive for sol really
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 Higgin fed

- 13 Negative conjunction
 14 Converte on III (train on direct current
 15 Iteland (Alobr)

- Instance-ould for provident fe-port
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 Captulated being cut.
 Data and being cut.
 Data and the first cut.

- Destructed server Destruction of the Address Served of the Address Served
- 4
- 1

- Brondenet

- Manufacture
 Signature
 Signature
 Destain frances total
 Destain frances
 Destain frances

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