

WELCOME STEP TO CLEAR ETHER

BUT LITTLE GAINED IN OVERSEAS TESTS

BLOOPERS AND WEATHER GREATEST OBSTACLES

Lax Cooperation of U. S. Stations Added to Poor Conditions Makes Reception Difficult

Bloopers, poor Radio weather made even worse by atmospheric conditions and the aurora borealis, steamship SOS calls and a few selfish American stations who persisted in going on the air during the silent hours, were responsible for the almost complete failure of the International Radio Week foreign reception tests. A final check-up by Radio Digest shows that probably 35,000 Radio listeners heard Europe or South America, but what they heard must have been very little and poor in quality in most cases.

No one will say that the 1926 international tests were an achievement worth boasting about. As one of the members of the International Radio week committee, Powell Crosley, Jr., put it:

"The committee arranged for the foreign transmissions and the silence periods in the United States, Canada and Mexico, but were unable to arrange the weather or insure climatic conditions."

Foreigners Have Poor Luck Too

Equal luck was shared by the English and Continental fans who attempted to hear the American, Canadian and Mexican stations. Cable messages from Radio Digest European staff correspondents were all the same. They reported, in brief:

"Almost total failure to receive American transmissions. This is attributed to the aurora borealis and damping by the full moon. Radiating sets also were annoying. At the best, the reception could be called moderately successful."

Lima, Peru, cabled that it was impossible to hear American or European stations on account of spark station interference. WAMD, Minneapolis, was logged.

American Broadcasters Disregard Tests

Reports from listeners from all sections of the country—only 16,794 letters and telegrams arrived at Radio Digest's offices—give a clear cross section of some of the difficulties. Chief among these were blooping or radiating receivers. Next in line were the stations who disregarded the test hours and broadcast to the great dismay of the trying listeners.

What hatred these stations brought upon themselves can only be shown by the letters from the fans. Transmitting during one or more silence periods was done by several stations. Among these were: KTAB, Oakland, Calif., 320 meters; KEON, Long Beach, Calif., 333 meters; KPSN, Pasadena, Calif., 315.5 meters; WGHP, Clearwater, Fla., 266 meters; and KNX, Hollywood, Calif., 336 meters.

WEAF, New York, 491.5 meters, got in bad with its audience Wednesday night of the week, when "Toxy" and Graham McNamee were heard after the silence period had begun. The two famous personalities did not help their popularity by continuing their broadcasting for fourteen and one-half minutes after they should have been off the air. Both the station and the impresario overestimated the degree of their popularity.

WNYC, another New York station, in fact, owned by the municipality of New York city, oversteered its welcome Thursday night, by remaining on seven minutes after the test silence period was supposed to have begun.

Conditions Bad; Best Foreign Stations

After all has been said and done, the European stations demonstrated their ability to get over, but conditions were bad. The foreign stations are better this year than ever before.

The official Radio Digest eastern listening post, located in the laboratory of E. K. "Jessie" James, Flushing, N. Y., reported best reception from OAX, Lima, Peru; 6BM, Bournemouth, England; 2LO, London, England; EAJ13, Barcelona, Spain; EAJ7, Madrid, Spain; and 5WA, Cardiff, Wales. Excellent quality and volume was reported by this post for 5XX, Daventry, which was received on a special long wave receiver.

Mistaken Fans Complain of WOC

On Friday, the various stations of the country were to transmit during four different fifteen-minute time periods according to the time band in which they are located. Exceptions, however, were made to this rule. The tests committee, to put a few more stations in the Mountain time test period, asked all stations in Iowa, Nebraska, Kansas and the Dakotas to broadcast at the same time as KOA and the other Mountain time stations.

Fans hearing WOC, WOI and other stations from the five states listed as excep-

STEPS ON IT AND WATCHES STEP



Miss Gladys Roy, Los Angeles daredevil aviatrix, provided the coast thrill lovers a treat recently when she Charlestone on the wing of an airplane under flight. The noise of the machine made the use of ear phones necessary.

tions, sending when they thought they should not be, had their ire aroused on a false alarm. However, regardless of the fact that these broadcasters were in the right according to the wishes of the International Radio Week committee, thousands upon thousands of letters poured in to WOC and the other Central time stations, calling them all sorts of nasty names and threatening to tune them out forever and a day.

Bungles Didn't Help Tests

Little bungles such as these made the week trying not alone for the broadcasters and the listeners, but for the newspaper and magazine editors who were attempting to give the public the facts about the tests. Complete advance programs were not forthcoming from the committee. Those in charge did not get them in time.

When it was desired to know what sta-

tions would be on each night, no one knew for sure. The committee was beseeched for information. They knew very little, although they were supposed to have made all preliminary and final arrangements.

When it came to getting confirmation programs, even these were prepared in haphazard fashion. Radio Digest relied upon its foreign correspondents and the meager information available at Radio Week headquarters. Finally, the confirmation programs appearing on page eight of this issue, were assembled after much effort.

It is to be hoped that the next foreign tests be arranged in a more business-like fashion.

The bloopers, aurora borealis, SOS signals, selfish-minded stations, etc., also are NOT invited to participate during silence periods next time.

STATIONS AND FANS JOIN IN BLOOPER WAR

Join I Won't Bloop Club

Response That Greet Campaign to Lessen Receiver Radiation Exceeds Expectations

Within one week after war was declared by the Radio Digest against the hundreds of thousands of bloopers who prevented reception of foreign programs during the international tests, the campaign is well under way. Thousands of Radio enthusiasts have pledged themselves to operate their sets so as to reduce radiation and limit interference and more than a score of broadcasting stations have offered their cooperation to help clear the air as individual chapters of the I WON'T BLOOP CLUB.

Situation Is Critical

The overseas tests plainly demonstrated that a situation exists that needs be corrected. Legislation cannot prevent blooping and a number of other forms of man-made static. It is the duty of each individual who considers the welfare of Radio to pledge himself to do what is within his power to keep his set from radiating; his share towards eliminating disturbances that could, with a little care, be prevented. With that end in view, the Radio Digest has inaugurated the I Won't Bloop Club, believing the cooperation of listeners will accomplish more than legal commands with threatening penalties.

Stations Sending Aid

Radio fans throughout the United States and Canada have been asked to join the I Won't Bloop club, the pledge card of which appears on page 10 of this issue. The leading broadcasting stations have requested to become chapters of the club and will accept memberships from their listeners. Numerous newspapers have endorsed the move and united in the campaign, which will continue until an improvement is gained.

To those fans who sign the pledge of membership in the I Won't Bloop club, a certificate will be issued suitable for a billfold or framing. Fans wishing to officiate in the club may do so through the offices of the Radio Digest or through any of the stations which have secured chapters in the club. To enable the members to carry out their pledges, the Radio Digest will publish a series of articles of a non-technical nature for the purpose of enabling fans to operate their sets with the minimum of interference to neighboring receivers. The first of these articles appears on page 10. Others are being prepared, and as the information and suggestions given are followed, it is believed the greatest problem of Radio reception will be solved.

Need Individual Cooperation

The response to the I Won't Bloop club movement has far exceeded highest expectations. With the large numbers of fans, stations and newspapers joining the campaign with full enthusiasm, it is certain that the congestion of needless squeals, howls and whistles will be reduced considerably.

Have you filled out the pledge card? Are you willing to do your part? If you are a real Radio fan you will want to do what you can to clear the air for the enjoyment of all. Become a member of the I Won't Bloop club.

FILL OUT YOUR PLEDGE CARD TODAY.

At the time this issue goes to press, a large number of the broadcasting stations, both in the United States and Canada, have offered to lend their aid in the performance of this great service to listeners in.

The following stations have already been issued chapters and been placed on the honor roll: WLW, Cincinnati, Ohio; WSM, Nashville, Tenn.; WMC, Memphis, Tenn.; WBAP, Fort Worth, Texas; KPNE, Shenandoah, Iowa; WOAW, Omaha; CKNC, Toronto, Ont.; WAFB, Richmond Hill, N. Y.; KGW, Portland, Ore.; WJAG, Norfolk, Neb.; WHO, Des Moines, Iowa; WFAA, Dallas, Texas; WHT, WJAZ, WGES and WBBM, Chicago.

Join the I Won't Bloop club. There are no dues, fees or restrictions—only a promise to help bring better enjoyment and greater happiness to the estimated 25,000,000 persons of the Radio audience.

Winners of the Gold Award for Foreign Tests

WINNERS of the \$100.00 in gold offered for best reports of foreign station reception during International Radio week tests, will be announced in the next issue of Radio Digest. Did you send in a program for verification? All reports were entered in the contest. You may have placed—you never can tell! Very few perfect reports were submitted. Watch for the winners in next week's issue.

KGO Leads with Radio Drama



WILDA WILSON CHURCH Relates Progress of Audio Play After Two Years Trial at San Francisco Studio. Predicts Future Greater Than the Stage. Requires Ability to Make Written Word Alive.

burned with a fire that motivates those who have a mission, a big work ahead in life, a consuming ambition.

The interviewer beheld the embodiment of a living character in the very person of the one who imbues others with play characters. He asked concerning her own life. She smiled back at him indulgently, patiently, as though he had failed to grasp her vision.

"I always wanted to be an actress," said Mrs. Church. "And I had many offers to go on the stage. But I never did so because it took me away from a home and my two children. Now I have my opportunity, through the medium of sound, perhaps more comprehensive than the old theater ever could become."

"MY EXPERIENCE as a school teacher, head of my own private school, and as an instructor of the Williams Institute, in Berkeley, comes in good stead in my KGO Radio dramatic work."

"I will say without blushing that we owe our growth of Radio drama technique almost altogether to the help we have had from listeners. Thousands of letters have been sent to us. From this great pile of writing we have learned about our short-comings and have found the way to go for future development of the Radio drama."

"I know there are many people, particularly those who have had rich experiences on the stage, who believe the Radio drama to have serious limitations. But I believe, when better Radio ears are developed and possessed by the mass of our listeners, that the audio drama over Radio will surpass any other form."

"In the theater, or even the home, the spoken drama loses much of the word value of its line because of the necessity of projecting voice tones into the farthest corners. Fine inflections are not possible under the stress of such projection. But in Radio drama, we speak right into the ears of our listeners. The other day I read an article stating that Radio drama technique differed from

stage technique in that words must be separated from each other by slight pauses to give the listener a chance. This is not true within a reasonable distance from a big broadcaster. Naturalness and spontaneity are the key words of our player's technique.

"YES, we have lots of fun giving our plays before the microphone. Not all the laughs are for our listeners. My whole company always feels a little nervous, and I do myself, when a new player comes with us. Among other things, we dread the terror of twisted phrases, or mispronounced words, which will distort their meaning."

"Not long ago, one of the men in my company, testifying in a murder case in the play, 'The Thirteenth Chair,' said: 'This girl was known to have taken tea with the man just half an hour after he was shot!' Many letters came in about it, and our Radio actor would not believe until the end of the play, that he had said it. The substitution of the word 'after' for 'before' did the trick."

"One of the women in the cast of another play, describing the simplicity and purity of an English home, said: 'There are pictures on the wall which no one could look at without blushing.' Poor girl, she was a little nervous, it being her first time before the microphone, and she slipped in the word 'no.'"

"One of our pretty ingenues, just before the Easteride, won the prize, however, for twisted phrases. She said: 'Immaculate conception' when it should have been 'Immaculate condition.'"

"NO ONE can doubt the way our audience listens in to our plays, after reading a few hundred letters, which we receive. Not long ago I read one from a family who had listened. Bert Horton, our leading man, said: 'Call the ambulance!' Just at that moment an
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SCANNING the horizon of the future for Radio, the Radio Digest is alert to the signs and portents of forthcoming developments. Existing in wave impulses, the growth and magnitude of Radio seem to spread in the same element. Today there are restraints as there were in the early days of the moving pictures. Presently huge billows will swell through and overwhelm those restraints.

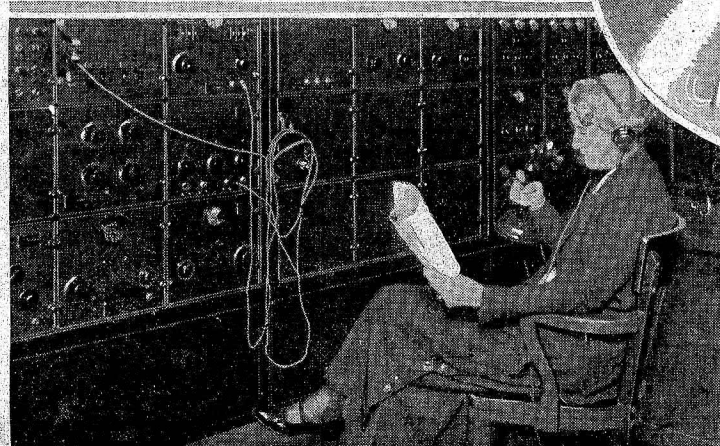
But aside from that there are forces gathering in certain salients which indicate specific trends. A short time ago there was printed in these columns an account of the impetus of the Radio drama. From the Pacific to the Atlantic various phases of the movement were described. Particularly was attention called to the work of Mrs. Wilda Wilson Church, director of the players at KGO, General Electric station, San Francisco.

In this issue we have an interview from a correspondent which gives a close-up view of Mrs. Church and her work.

"LET us consider Radio as a great, invisible channel into the homes of millions," said Mrs. Church, her head poised at a slight angle as she pointed with the tip of a pencil along a line that seemed entirely visible through her half-closed lids to her mind's eye.

"And through this channel," she continued, "flow the sounds that seem to emanate from actualities. That, in a few words, is the essence of Radio drama. Illusions, effects, situations must be fitted and floated through this stream of sound without visible substance. It is the work of the director to shape the material and guide it through this channel."

For a moment the deep, intelligent eyes of the silver-haired pioneer of this important phase of Radio



Wilda Wilson Church (upper left) as she appeared to an interviewer at the KGO Radio studio in San Francisco. Mrs. Church reads a script, then writes in the necessary alterations to make it most adaptable to the listening audience in the homes beyond the vision of the players. In the circle Mrs. Church is seen as she gives instructions to the players on the interpretation of their spoken lines. At the left, she is shown as she sits outside the studio following the script and listening to the rehearsal under the same conditions as the voices are transmitted to Radio listeners. She gives her instructions through the telephone.

Old Style Dances Win Favor

GRANDDAD FIDDLERS
*All the Rage As Colleges Join
 Movement to Displace Jazz.*
"Everybody's Doing It."



Henry Ford's Old Style Dance Orchestra playing over the WEAF chain at New York, seems to have stolen a march on jazz. (Left to right) W. Hallup, cymbaloniist; C. A. Perry; Maurice Castle and Edwin Baxter, dulcimer.



"Which ones?" asked Monti.
 "All four of 'em," said Dad.
 And before Graham McNamee at WEAF had time to shift microphones there were six "kids" doing the barn dance on the parlor floor. Typical—it really happened just about like that in many homes!

IF IT didn't happen during the Henry Ford recitals it may have been during one of the many other similar programs that have been growing in vogue over the Radio from one end of the country to the other for the past two years.
 "Why don't you put on those old-time fiddlers for a novelty," suggested a friend to Dick Haller, director at the KGW station, Portland, Ore., along at the beginning. Nobody knew off hand just where to find them, for they had been disbanded for about five years—the particular ones to whom the speaker had referred. But at last the old chaps were brought together. They dusted off their old fiddles and felt a trifle nervous at the moment of their first appearance before the microphone.
 But once they were tuned up and the announcer began calling the dances they felt as young and eager as ever. Listeners were enthusiastic and demanded more concert. Vaudeville managers sent for them. They were booked for a tour down through California. Business became so brisk for these old-time fiddlers that they opened an office in Portland and now have more bookings than they can fill.
 The popularity of their style of music spread eastward. Old-time fiddlers were jerked out of the privacy of their rural communities and stood before the microphones of scores of stations. They fiddled many golden hours off the programs with the saxophones and jazz bands.

Go around the dial any Saturday night and you will find an old-time fiddler's contest at one studio or barn dance at another. Big cities are following suit just as ardently as the country stations.

George Hay, when he was at WLS, Chicago, inaugurated the barn dance at that station. It became a rage with the WLS listeners. They still have it. When the Solemn Old Judge switched microphones from WLS and went to WSM, Nashville, he discovered Uncle Jimmy Thompson, 82 years old, who never yet has been defeated in more than one hundred fiddling contests and he has been fiddling for more than sixty years.
 Then (Continued on page 24)

HAS HENRY FORD reversed the dance pendulum?
 Is the Charleston the last convulsion of the wild and furious jazz?
 Are our feet already turning backward toward the old barn dance, the waltz, the square, polka, minuet—the gyrations of our fathers, grandfathers and still further back?
 Whatever may come of it, Radio is bound to be the medium to wield the most potent influence. Which means, of course, that you have been reading about or tuning in on the old-style dance orchestra which Mr. Ford assembled and put on the air over the WEAF chain.
 In a million or more homes this series of old-fashioned dance programs was heard—and, according to the applause letters, the old tunes must have held the dials very consistently throughout the series.

self into a shuffle. Grandmom, who was embroidering a doily for Sue's hope chest, peered over her glasses with a slight shock of surprise. Granddad sidled over and pulled her out of her chair.
 "Don't be silly," she said, but she smiled as she said it and joined with him.
 "Swing your partners to the right," came the voice from the loud speaker.
 And, ding bust it—away they went, granddad and grandmom!
 "Come on, Bud," commanded Sue. "We don't know what it is but we'll soon find out." Bud surrendered just as Dad and Momsey entered the room.
 "Look at the kids!"

"OH BUD! Listen! Don't turn it off—ain't it funny!" giggled the young flapper as the steady, vibrant fiddle song came galloping out of the loud speaker in strident measures.
 Granddad, sitting in the big Turkish chair looked up from his reading, beamed a juvenile smirk, placed his paper on the bookstand at his elbow and got to his feet with a jig pose.
 "Gee! That makes me feel young," he chortled, rubbing his palms together and working him-



Uncle Jimmy Thompson (center) and George Hay at WSM microphone, Nashville. Contestants at old fiddler's contest University of Arkansas (left). Colleges are backing old style dance fad.

Boy's Voice First Across Atlantic?

Harold Robinson, New Jersey Boy Scout, Maintains He Was First to Be Heard in Europe by 'Phone Transmission and Submits Letter to Prove He Was Tricked Out of Credit

By ARMSTRONG PERRY

DID Paul Godley and Edwin H. Armstrong STEAL the credit for the first amateur transmission and reception across the Atlantic ocean? Harold Robinson, an American Boy Scout, first claimed the record with what we believe are authenticated proofs. His 'phone transmitter was heard in Aberdeen, Scotland, according to George W. G. Benzie, who listened in. This occurred on October 6, 1920. Armstrong, aided by others, discredited Robinson. Read the story as written by a man who has followed the case for years.

WITH the sixteenth anniversary of the Boy Scouts of America due early in February, it is a fitting time to clear the name of the Boy Scout, who, according to the evidence, was the first Radio amateur to make his voice and music heard across the Atlantic. Harold Robinson, a scout living in Keyport, New Jersey, and his father, Hugh Robinson, superintendent of an airplane company, announced in November, 1920, that they had received a report from Aberdeen, Scotland, stating that George W. G. Benzie, also an amateur, had heard their music, voices and call letters on October 6, 1920. The first report was followed by others from Benzie and another amateur, James Miller. I was employed at the national headquarters of the Boy Scouts of America and was especially

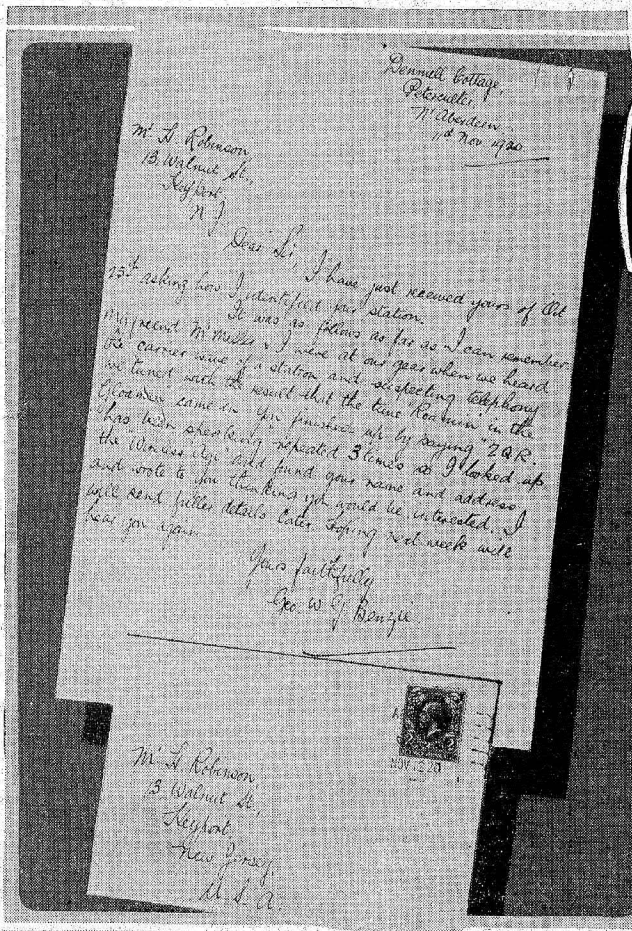
interested in the Radio activities of the scouts, so I visited the Robinsons at their station, 2QR. I discovered no reason for doubting their statements. The Radio Club of America (New York) had offered a prize for the first transatlantic transmission by an amateur. An investigating committee was appointed to consider the Robinson record. After a year had passed, this committee presented its report, in which it was stated: "We find that Station 2QR was not heard in Scotland as reported." With the report was published a letter from the Robinsons stating that they were convinced that, according to the evidence secured by the committee, the Scotchmen were in error in believing that they had heard the station. It was apparent that if the Robinsons made their report know-

ing that their station was not transmitting when it was reported to have been heard, Harold had violated the first Scout law: "A Scout is trustworthy." Wondering what evidence could be submitted to disprove their record, I asked a lawyer about it. He said the testimony of persons who were not at either station at the time of transmission would not have much weight, and that in a court action the testimony of the men who were at the stations, to-

his station heard across the Atlantic. Believing Mr. Armstrong and the others to be honest, they gave them the letter. They say they never saw the evidence Mr. Armstrong promised to show them. The next day Mr. Armstrong and some colleagues entered the A. R. R. L. tests with a station erected especially for the purpose. There is evidence that a wave length was used that was extraordinary and illegal under the terms of their license and improper under the



Above are shown Hugh Robinson and his son, Harold, the Boy Scout whose voice was heard in Aberdeenshire, Scotland, singing "Roamin' Thro the Gloamin'" in the fall of 1920. Photograph of letter (left) from Scotland which seems to uphold young Robinson's claim. At right is the transmitting set "guaranteed for 25 miles" which the Keyport youth developed to transmit 3,500 miles.



gether with testimony concerning their character, reputation and probable motives would, no doubt, govern the verdict thus reached.

I asked the Robinsons what had changed their minds concerning the reports from Scotland. They said they had not changed their minds, but that they had been tricked into giving the letter to the committee. E. H. Armstrong and other members of the committee, they said, called on them the night before the American Radio Relay league transatlantic tests started, in 1921, and told them the committee had evidence, which would be shown to them later, disproving the record. They asked the Robinsons, in the interest of the amateur game, to give them a letter that would show that the opportunity was still open for some amateur to be the first to make

rules of the contest. I am told they were threatened with legal action because of their violation of regulations. Nevertheless, they were credited with being the first amateurs to make their signals heard across the Atlantic. At the receiving station, in Scotland, was Paul Godley, representing the American Radio Relay league. To him went the credit of being the first amateur to receive amateur signals across the Atlantic. He stated in his report, published in QST, an amateur magazine and mouthpiece of the A. R. R. L., that he doubted whether he ever had his antenna properly adjusted for any wave length other than that of the Armstrong (Continued on page 24)

Organ Is Favorite at WEAR

VINCENT H. PERCY Takes Radio Listeners on World Tours via Music, Then Starts Second Jaunt into Realms of History. Cleveland Station Presents Programs of Interest to All Classes.

By MARSHAL TAYLOR



While one of the principal features of the WEAR station at Cleveland is its pipe organ concerts, there are plenty of other features to give the station general interest. Madam Susanne Dreger (above) is one of them. She plays classical piano solos and sometimes accompanies the singers.

Vincent H. Percy (below) is the WEAR organist.



Wingfoot male quartet (left top, down): Fred True, Albert Downing, Floyd Campbell and Chas. Pottier. Goodyear concert orchestra (below), Ivan Francisci, director.

Listeners who tuned in at the beginning of the series were waffled on the mellow notes of the organ to foreign shores by a variety of folk songs and national classics. As the numbers were introduced, Mr. Percy, acting as the guide and conductor, interpolated short verbal sidelights which created the atmosphere of the country to which the listener was to be transported. Ireland with its music, Scotland and its characteristic music, England—merry old England; France, Germany, Russia, Spain, Italy, Turkey, Greece, China, Japan—all distinctive in musical characteristics, were visited through the talented fingers and the keys of the famous Metcalf Memorial organ, at which Mr. Percy presided.

Of course, Mr. Percy is proud of his "vehicle" and attributes much of his success to its unusual power and scope. The organ is located in the Euclid Avenue Congregational church and was dedicated in May, 1920, to members of the congregation who were in the military service during the World War. It was named for Leslie I. Metcalf, whose personal gift and effort made it possible. It is comprised of six complete organs in one, including the great, swell, choir, solo, echo and pedal organs.

ORGAN recitals are becoming more popular over the Radio as receiving sets and loud speakers are improved. In trying out a new loud speaker in his home a few evenings ago the writer was overwhelmed with the faithfulness of the reproduction. Low notes that had hitherto been lost in the abyssal depths came floating into the room with gentle sweetness, exquisite in clarity and beauty.

In fact, the pipe organ had never before under any circumstances seemed so delightful, even in the studios and big auditoriums and we have heard some of the best of them from Salt Lake to New York. It was better than in the actual presence of the organ itself. We do not pretend to be an expert on acoustics, but it may have been that these particularly pleasing results were obtained not only because of the wider range in the timbre of the loud-speaker, but because in the studio the sounds coming from different points were blended together in the microphone and poured out at the terminal from one, small orifice that made each note equi-distant from the ear.

THIS, by way of organ prelude, brings us to Vincent H. Percy, organist at WEAR, Cleveland. Mr. Percy and his organ have made WEAR famous just as Al Carney at WHT, Chicago, also has made his station famous for its organ.

Mr. Percy started on his aerial road to fame last summer through a series of recitals he called a "Trip Around the World."



IN the construction of the Metcalf Memorial organ there are 100 miles of wire, 20,854 electrical connections and 3,505 pipes. Wind for the organ is supplied by the operation of a ten-horsepower electric motor.

These incidental details and many more are included in a pamphlet prepared by Mr. Percy for the listeners of WEAR, who frequently request information about the wonderful organ they hear from this station.

One thing about these organ tours, distance and time do not count. Mr. Percy would just as soon

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OFFICIAL AND FINAL CONFIRMATION PROGRAMS

Sunday Evening, January 24
OAX, Lima, Peru, 380 meters, special international broadcast; band greetings to United States; listeners' national music of the United States; orchestra; address; dance music.
LOW, Buenos Aires, Argentine, 300 meters, native music; announcements in Spanish, English and French.
LOX, Buenos Aires, Argentine, 375 meters, special program.
HA, "Norag," Hamburg, Germany, 292.5 meters, classical musical program.
2LO, London, England, 365 meters, Radio quartet; Charles Leggett, cornet solo; Clay Thomas, baritone.
GBM, Bournemouth, England, 385 meters, Wireless orchestra; Gerald Kaye, tenor; Philip Taylor, baritone; Winifred Scott, soprano.
EAJ13, Barcelona, Spain, 460 meters, program in Spanish music; "Las Corsarias," two-step; "Valencianas," "The Night of Love"; "La Verbenade la Paloma"; "Servillanas"; "La Dolores."
5XX, Daventry, England, 1601 meters, same program this night as 2LO.

Monday Evening, January 25
HFP, "Vox Haus," Berlin, Germany, 505 meters, special program of German airs.
"Radio Wien," Vienna, Austria, 530 meters, recital of chamber music by Sedlak Winkler; string quartet by Municipal Opera company, playing compositions of Haydn and Mozart.
EAJ7, Madrid, Spain, Radio Union, 373 meters, featuring Zacarias Areas, tenor; sextet, "Goyescas" by Grandos; tenor, "Le Partida" by Alzare; "Jota Del Trus De Los Tenorios" by Serrano; sextet, "Dona Fralsquitta"; "Grandinas" by Borrera; closing sextet, "Seville" by Alberrez.
EAJ13, Barcelona, Spain, 460 meters, program from famous operas; "Tosca"; "Sampson and Deliah"; "Faust"; "Carmen."
Prague, Czechoslovakia, 368 meters, "My Homeland," by Frederic Smetana.
HA, Hamburg, Germany, 292.5 meters, concert program, selections by Weber; Kreisler; Strauss; Schumann, Brahms.
Stuttgart, Germany, 450 meters, Wir Gehen In's theater, "from operetta Paganini"; "Glocken der Liebe"; "Boston Valse," by Lehar; "Ich Habe Nein Herz in Heidelberg Verloren," by Burke; "Der Schonnenschein," by Carl Struve; "Wenn der Liebe Nicht War," fox-trot, by King; "Teresina, Teresina," from the operetta by Strauss; "Die Kleine Pagode," by Benatzky; "Shanghai," by Nichols; "Hier Schlager War Dort," one and two ette-orchestra; "Im Prater Bluh Wieder die Baume"; "Das Wiener Falkerlied," by Stolz; "Besuchmich mal in Korsica," from operetta "Teresina," by Strauss; "So'ne Landpartie," shimmy dance, by King.

Munster, Germany, 410 meters, Wagner, Tannhauser, overture; Liszt preludes; Beethoven Romances in G for violin solo and orchestra; Grieg Nordische Weisen, One, Im Volkston, Two; Kuhreigen and Bauertanz for string orchestra; Strauss Rosekavaller waltz.
Munich, Germany, 485 meters, concert, Anny Rosenbergers' Chamber music, quartet; "Erlingsang and Kormungarsmarsch," from Die "Folkunger," by Kretschmer; "Grosse Fantaisie" on Melodies; Wagner, "Intermezzo" and "Barcarolle," from "Tales of Hoffmann," by Offenbach; "Hungarian Dance" and songs.
OAX, Lima, Peru, 380 meters, "International Law and Radio," talk in English, by Dr. Oscar Miro Quezada; "My Old Love," Mexican song, Esparza Otero, soprano; Serenade, Widor, piano; Harmonium, flute, violin, violin-cello; "Dance of the Witches," McDowell, piano; "El Berdo andro, Lontano," Srta. Consuelo Paernio; Impressions of the Evening, violin; "Piropos Limenos," poems; "Ollanta," Peruvian opera, Maestro Vallerriestra, soprano, contralto; "El Llanto del Inca," characteristic native waltz, orchestra OAX; "Ritorna Vincitor," Verdi, soprano; waltz, Moszkowsky, piano; Lima Girls, flirtation, orchestra OAX.
LOX, Buenos Aires, Argentine, Radio Yaitura, 375 meters, program of national Spanish music; announcements in Spanish, English and French.
LOW, Buenos Aires, Argentine, 300 meters, special musical program.
SER, Brussels, Belgium, 263 meters, program unconfirmed.
Breslau, Germany, 416 meters, program unconfirmed.

Tuesday Evening, January 26
5XX, Daventry, England, 1601 meters, station trio; Paul Specht's Canadian band; Cavallaria Rusticana; Frederick Hall, harpist; Walter Glenn, tenor.
SWA, Cardiff, Wales, 351.6 meters, same program as 5XX, Daventry, England, given above.
2BD, Aberdeen, Scotland, 497.1 meters, wireless orchestra; Dorothy Proest, mezzo-soprano; Robert Anderson, baritone.
LOW, Buenos Aires, Argentine, 300 meters, special musical program.
LOX, Buenos Aires, Argentine, 375 meters, special musical program.
EAJ13, Catalana, Barcelona, 460 meters, program from opera "La Geisha," by Jones; three numbers by Lehar, Count of Luxumburg; La Viuda Agegre, by Bva.
2LO, London, England, 365 meters, Paul Specht's Canadian dance orchestra, from the "Kit Kit Club," rendering "I, You Care," "Araby," "Brown Eyes," "Pretending," "Yes, Sir, That's My Baby," "Oh! Boy What a Girl!," "Melody in F," by Rubenstein, and "Indian Dawn."
OAX, Lima, Peru, 380 meters, "The Plebiscite of Tacna and Arica," short dissertation by Ing. Carlos Jiminez Correa; "Variations," light soprano.

Wednesday Evening, January 27
HA, "Norag," Hamburg, Germany, 292.5 meters, concert of Puccini numbers; Norag orchestra under direction of Adolph Secker; Arna Krell-Lang, singing arias from "Butterfly" and "Mimi."
HFP, "Vox Haus," Berlin, Germany, 505 meters, march; talk; songs; four Kreisler numbers by Max Rostal, vto.

Prague, Czechoslovakia, 368 meters, musical program.
Radio Wien, Vienna, Austria, 530 meters, chamber of music, Schonronner waltz by Lanner; second symphony by Schubert; Turkish March by Mozart; Peer Gynt suite I by Grieg; bits from opera by Strauss.
LOW, Buenos Aires, Argentine Republic, 300 meters, musical program.
LOX, Buenos Aires, Argentine Republic, 375 meters, special musical program and entertainment.
Wednesday Evening, January 27
OAX, Lima, Peru, 380 meters, group of poems recited by their author; "Dance Granados," piano; "In the Cloister," or-

linist; two duet numbers; song; Straus waltz by orchestra.
EAJ7, Madrid, Spain, 373 meters, jazz band and tango orchestra.
Breslau, Germany, 416 meters, violin solo, Dr. Alfred Laserstein; caprice for flute and piano, Herman Zanke; tarantella for cello, Curt Hasemann; duet for flute and violin with piano accompaniment.
Prague, Czechoslovakia, 368 meters, musical program.
Radio Wien, Vienna, Austria, 530 meters, chamber of music, Schonronner waltz by Lanner; second symphony by Schubert; Turkish March by Mozart; Peer Gynt suite I by Grieg; bits from opera by Strauss.
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WAHG Great Organists Series Continues

ONE OF the outstanding contributions to the popularity of the broadcasting art has been the "Grébe Great Organists" series, given through Station WAHG, the A. H. Grébe Co., at Richmond Hill, N. Y. This excellent series has introduced the Radio audience to the most able and talented organists of the nation. The photographs herewith are of the famous artists who will give organ recitals on the next six Friday evenings, from 8 to 9 p. m. Eastern time, beginning February 19.



Above, Dr. Palmer Christian, organist of University of Michigan, and noted composer, appears March 26. In small circle is Hugh Porter, Chautauqua Institution organist, and director of organ department of Mannes School of Music, who appears March 12. Harold Gleason (right) organist of the Eastman School of Music, broadcasts March 19.

Harry Rogers Pratt, (below) organist of the University of Virginia, broadcasts his recital Feb. 26.

In large circle in exact center of layout is shown John Priest, organist of the Colony theater, New York city. He was formerly organist at Oxford University, England. His date of appearance at WAHG is February 19. Louis Potter (above), organist of Baptist Temple, Charleston, W. Va., broadcasts March 5.

FINAL CONFIRMATIONS

(Continued from page 8)

chestra OAX; "Voices of Spring" by Strauss, sung by Elvira Sanchez, twelve-year-old soprano; "Sorrow," Indian song on primitive instrument; "Yaravi," "Zana," and "Marinera y Tondero," native airs, voice, guitar, piano, bandurria and cajon; "When the Soul is Lulled to Sleep," tenor solo; "The Little Black Girl and the Shoe Polish," native popular song, orchestral; temporary Peruvian poetry, recitation; "Little Princess," Spanish song, soprano; "The Little Peruvian Girl," two-step, orchestra OAX.

Munich, Germany, 465 meters, Professor Georg Baumgartner rendering "Schubert One Las Wandern," "Wich-In," "Halt," "Danksagung an den Bach," "Am Feiersabend, der Neugierige," "Morgengruss," "Des Muellers Blumen," "Tranenregen," "Der Mueller Und Der Bach," piano accompaniment; "Description of My Life as a Ship's Operator," talk.

Thursday Evening, January 28

HA, "Norag," Hamburg, Germany, 299.5 meters, Wagner concert, soloists, Ferdinand Schneider, Bernhard Jakschitz; Norag orchestra under direction of Adolph Secker.

HFF, Vox Haus, Berlin, Germany, 505 meters, overture, Mozart number, overture by orchestra; song, Wagner's "Lohengrin"; Straus "Danube Waltz" by Frinkstude orchestra.

LOX, Buenos Aires, Argentine, 375 meters, musical program and entertainment.

LOW, Buenos Aires, Argentine, 300 meters, special musical program.

"Radio Wien," Vienna, Austria, 530 meters, Silver band playing six numbers; Gold and Silver waltz by Lehar; "Fledermauss" overture by Strauss; Narcissus by Nevin; Liebestod and Liebesfreud by Kreisler; second Hungarian rhapsody by Liszt; Night in Vienna by Komsak.

Stuttgart, Germany, 446 meters, selections from Wagner's "Meistersinger"; overture to "Leonore"; Aria No. 3 by Beethoven; selections from Mozart's "The Magic Flute"; "Melody" by Gluck; song, "Land so Wunderbar" from Meyerbeer's "Die Afrikanerin"; overture and aria from Mozart's "Figaro"; overture from Weber's "Frelschuetz"; song from Flotow's "Martha"; "Invitation to the Dance" by Weber; aria from Nicolai's "The Merry Wives of Windsor"; "Rosekavaller" waltz by Strauss.

Breslau, Germany, 416 meters, Allegro Molto of Mendelssohn's violin concerto in E minor; capricio for flute and piano by Lothar Kempfner; tarentello for cello by David Oppel; duet for flute and violin with piano accompaniment by Caesar Qui.

Prague, Czechoslovakia, 368 meters, "Slavische Tanza," by Dvorak.

BAJ7, Madrid, Spain, 373 meters, concert artists Nino De Los Lobitos and Domingo Marin, with sextet and barrel organ; "Sextet Suspiros de Espana," by Alvarez; "Am Alborada Gallega," by Veiga; "Lobitos Song," by Soleares, entitled "Granadinas," guitar accompaniment by Domingo Marin; organ recital, "Pasodoble," Lobitos song by Dulerias and Caracoles, accompaniment by Domingo Marin; guitar; barrel organ schottische, Lobitos song by Guajiras and Pandanguillos, accompanied by Domingo Marin on guitar; sextet tango and Zapatiadode, entitled "Enseñanza Libre," by Gimenez, and "La Dolores Jota," by Breton.

MS, Muenster, Germany, 410 meters, "Hoch Heidecksburg March," by Herzer Rosen; "Aus Dem Suden Waltz," by Strauss; "Jones," from the operetta "Die Geisha," "O Tanz Du Kleine Geisha," "Goldschlied"; soloist, Lisa Hillow; "Waldtanzel Ganz Allerlieber," "A Merry Madly Willy Wittig," "Full Dollarprinzessin" Casa songs, sung by Anton Hinkamp, "Lacrima Christo," by Bohn; "In Der Waldschenke," by Simon; "Der Schimme Zecher," by Reissiger; Strauss Radetsky march.

OAX, Lima, Peru, 380 meters, "The Problem of Tacna and Arica After the Decision of President Coolidge," address; "Take the Ring I Gave You," soprano-tenor duet; "El Condor Pasa," prelude, Orchestra OAX; "Eight Variations on an Inca Theme," Rev. Father Pedro C. Aguilar; Sacred music by mixed chorus of three voices; Nocturne No. 3, Chopin, piano; "Lorelei," Orchestra OAX; "Prelude and Allegro," Pugnani-Kreisler, violin; "Sad Little Sister," tenor solo; "The Lima Today Which Likes Radio," talk; "She Is My Love," fox-trot, and hymns of Peru and the United States, Orchestra OAX.

Munich, Germany, 485 meters, orchestral concert, overture to "Die Belen Nusaren," by Doppler, and "Der Schonen Blauen Danau Waltz," Strauss;

Sport Broadcasts

Track Meet

Saturday, February 13

WOI, Ames, Iowa (270m-1110kc) Drake-Grinnell-Ames, 7:30 p. m., Central time.

Hockey

Tuesday, February 16

WBZ, Boston (333.1m-900kc) Boston Bruins-Pittsburgh, 8 p. m., Eastern time.

Wrestling

Friday, February 19

WOI, Ames (270m-1110kc) Oklahoma Aggies-Ames, 7:30 p. m., Central time.

Basketball Games

Saturday, February 13

WSUL, Iowa City (433.6m-620kc) Michigan-Iowa, 7:30 p. m., Central time.

WIP, Philadelphia (508.2m-590kc) University of Pennsylvania-West Point, 8:15 p. m., Central time.

Monday, February 15

KWSC, Pullman, Wash. (348.6m-860kc) University of Idaho-W. S. C., 7:30 p. m., Pacific time.

Tuesday, February 16

WNAD, Norman, Okla. (254m-1180kc) University of Oklahoma-Oklahoma A. & M. College (time to be announced).

WREO, Lansing, Mich. (285.5m-1050kc) Notre Dame-Michigan College, 8 p. m., Eastern time.

KFRU, Lawrence, Kan. (275m-1090kc) K. U.-Iowa State College, 7:30 p. m., Central time.

Friday, February 19

KWSC, Pullman, Wash. (348.6m-860kc) University of Washington-W. S. C., 7:30 p. m., Pacific time.

KUOM, Missoula, Mont. (244m-1230kc) Montana State College-University of Montana (no time given).

WKAR, East Lansing, Mich. (285.5m-1050kc) Michigan State College-Carnegie Tech., 8-9:15 p. m., Eastern time.

Intermezzo from "One Thousand and One Nights," by Strauss; Kunster-Leben Waltz," by Strauss; overture from "Die Schone Galathee," by Von Suppe; "Die Schonbrunner Waltz;" "Lanner Germania March," by Kral.

88C, Glasgow, Scotland, 422 meters, program unconfirmed.

5PY, Plymouth, England, 338 meters, program unconfirmed.

5IX, Birmingham, England, 479 meters, program unconfirmed.

2EH, Edinburgh, Scotland, 324 meters, program unconfirmed.

Germany Is 'Pipe' If You Know How

In Which Mr. Canaday Puts One Over on Mr. McCulloch, His Rival DX Friend

By S. J. Doss

FORT WAYNE, Ind.—There may be two more "bitter" Radio rivals in Fort Wayne than O. P. Canaday, of the Canaday Manufacturing company, and Robert McCulloch, assistant postmaster, but if there are they haven't come forward to be recognized.

Both are extremely proud of their respective sets and rivalry in tuning in on difficult stations to get is at a high pitch. Just now, Mr. Canaday is enjoying a good laugh at his friend's expense and "here's the how."

European test week naturally provided both fruitful ground. On one of the nights Mr. McCulloch received an invitation from his rival to "come over and hear Germany." "I've been getting it over my Radio," Mr. McCulloch was skeptical but willing to be convinced. Accordingly, he was on hand at the appointed hour. Mr. Canaday "tuned in on Stuttgart, Germany."

Musical unmistakably Teutonic came clearly through the loud speaker and a moment later, Mr. McCulloch and other hearers present were informed in German as to the station and the next selection.

"Wonderful, not a bit of static," grudgingly admitted Mr. McCulloch, reaching for his hat and coat with the words and almost dashing out of the Canaday home in his anxiety to tune in on Stuttgart with his own set.

He didn't get it, however. The answer was:

In order to hoax his friend and rival, Mr. Canaday had arranged a small talking machine in the basement of his home and had attached his loud speaker to it by means of a rubber hose running through a cold air duct near the receiver. Three wax records in German comprised the "foreign station's program" and Dr. Walter Kruse, local German-speaking physician and accomplice in the hoax, played the part of the "German announcer."

A new insignia for United States naval Radio electricians, until recently classified as gunners Radio, in the form of a jagged spark, has been adopted for uniform wear.

STOP Bloops and Human Static!

ARE You a Blooper and if so, Why? The Foreign Tests Showed the Evil of Blooping. You Can Prevent It Easily and Simply. This Article Tells How.

By the TECHNICAL STAFF

THE hour was that which occurs in every 24 known as 10 to 11 p. m. Central time. The day was the 26th of January—this year. Somewhere out in the darkness to the Eastward a score of European stations were shattering distance and atomic quiet with all the power available from great dynamos and acres of storage batteries, in the hope that some small part of their great power might reach American shores in the form of enjoyable entertainment. The tubes of three carefully adjusted super-heterodynes glowed dimly in the quiet of the laboratory. Each was attached to an antenna and the dials went relentlessly back and forth in patient search of fragments of the music and speech speeding Westward.

"Bloop, bloop, whur-r-r click, click, bloop," said the big special with the neutralized, honeycomb intermediates.

"Whistle, whistle, crash, bloop, bang and a couple 'bongs," answered the shorter but fatter special with the resistance coupled intermediates.

The third, not to be outdone, retaliated with a siren whistle that started high, went down to a grumble and again soared to a piercing screech. Suddenly the big



THE RACING DIALS.

special landed on an orchestra. For a moment the melody poured forth, clear and pure with but a slight background of the ever present static. Then it died, with the grumble of a nearby blooper as its swan song. The search went on. At 200 meters, at 350, at 425, at 500, always the chorus of whistles, bloops, grumbles and clicks. Occasionally, the hum of vibrator or violet ray machine varied the monotony. One more snatch of music, one announcement was all the reward for the hours of building, the hours of search. Reports that trickled in during the rest of the week indicated that such was the result of the international tests for about 2,000,000 other set owners.

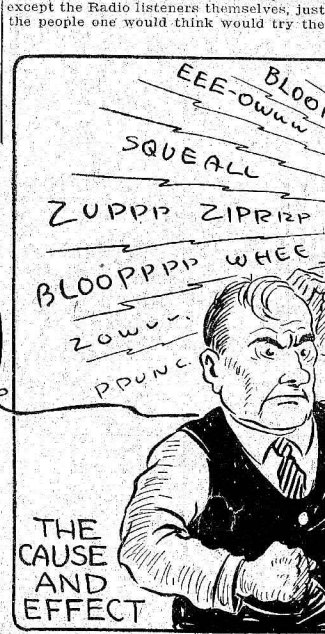
Who Is to Blame?

Many were the invectives used to comment on the condition of the atmosphere. New words were coined to properly express disappointment and chagrin. The older words were run to death. All of which has led to much speculation and argument on one technical staff as to who is to blame. Let's first take the stations. Surely, no one can logically lay the finger of blame on them; the Americans were quiet at the times requested, the Europeans and South Americans were on their waves and not heterodyning. Second, there are the makers of sets. You cannot blame them. The Radio public wants range, coast to coast reception and dance volume on everything from KFI to WEAFL. To even approach such needs, regeneration must be possible on from one to three tubes. You people wanted it, you got it.

A recent survey made by the Department of Marine and Fisheries of Canada relative to Radio broadcast conditions in the more populated centers in the Dominion indicates that approximately fifty per cent of the "preventable interference" which prevails is caused through the incorrect operation of regenerative receiving sets by the broadcast listeners themselves. An article prepared by Mr. Andrew J. Allen, secretary of the National Broadcast Listeners' League, states that the most difficult sources of interference to overcome and which create as much annoying and widespread interference to Radio reception in all cities at this time as any other cause, are the squeals, whines, whistles, squawks and howls of the radiating receivers.

"If the broadcast listeners would take effective steps to put a stop to the squealing of regenerative sets, probably 25 per cent of Radio interference would be removed in many localities," says the Interference Co-ordination committee's report of the National Electric Light Association. On this subject, Radio Guide states, "Apparently every one cooperates except the Radio listeners themselves; just the people one would think would try the

hardest to behave. Regenerative sets still hold all records for interference and practically every magazine and newspaper in the country has run articles warning about such outfits. Radio etiquette among broadcast listeners calls for the elimination of such interference. If each listener would remember that every time his set whistles coincidental with his tuning of it, he is sending out that same whistle to annoy all other listeners for a considerable area, it is believed that much of the trouble would soon be eliminated."



THE CAUSE AND EFFECT

So there you are; no matter what agency investigates the complaints of the Radio public as to squeals and howls during International Test week, or any other time, the blame comes right back to the aforementioned Radio public's own door. Part of this interference is due to igno-

Principle of Regeneration
The principle of regeneration, as used

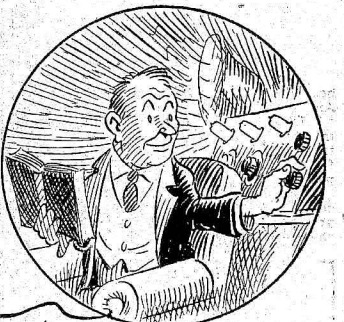
in Radio receiving sets, is that part of the output of the detector, or a radio frequency amplifier, tube which feeds back into its own input and thus greatly increases the volume of the signal. The electric waves reaching the receiving set from the transmitting (broadcasting) station travel down the aerial and its lead-in, through the first coil in the set and so to earth through the ground wire. The energy set up in this first coil is transferred, either directly or by induction, into the grid of the first tube and influences the resulting output from the plate circuit of this tube is fed back in such a manner as to set up a "field" or influence, in the part of the circuit connected, as mentioned above, to the input or grid of the tube. This "field" induces in the input

circuit a current of electricity of the same frequency as that of the received electric waves. The energy, therefore, which comes down the antenna wire is automatically strengthened by impulses from the output of the tube.

Unless properly controlled, this action will continue to build up until the saturation point or climax is reached, the tube being then said to be in a state of oscillation. When a receiving set is in oscillation, it causes howling and squealing in your own and your neighbor's receiving sets. Regeneration should therefore never be allowed to proceed to this point as it then constitutes a public nuisance.

Your Set Can Oscillate

You may be one of hundreds of thousands who can say, "But, my set is not a single circuit regenerative receiver. Mine is a five tube, so made that it cannot oscillate." That may be perfectly true, but if your set has tubes anywhere from one to ten, it can cause interference. That may upset all your ideas on the subject; it may not agree with statements you've seen elsewhere, but it CAN cause interference. This brings us to the point that whether your set is to be classed as a



CAN'T GET 'EM BRIGHTER

"blooper" depends upon the amount of the interference. So far in this article one would gather that interference is caused only when the set breaks into oscillation, to be recognized by the yowl in one's own set. That's the extreme; any tube set radiates, causing interference, when the regeneration is advanced to the point where distortion creeps in.

Some sets are supposedly "balanced" or neutralized so that high amplification can be had in the radio frequency amplifier tubes without the possibility of oscillation. Such construction is designed to set up a reverse feeding back around the radio frequency stages so that any regenerative feeding back will be offset and cannot build up into the condition known as oscillation. That is all very well at the particular wavelength at which the neutralizing was carried out but the further away in the broadcasting wavelength band that one gets, the greater the regeneration, and in most cases this closely approaches actual oscillation. These sets certainly can and do radiate.

Can "Bloop" 1,000 Miles

You and many others may question the extent to which such radiation interferes with others. It is this which determines whether one is a blooper or not. A lighthouse keeper in New York harbor, who is located several miles from shore, finds that his only form of interference is caused by whistling receivers whose interference must travel at least five miles to enable him to hear it. In another case an amateur is reported to have experimented with such a device and was actually able to exchange signals with another station over a distance of five miles with only a WD-11 tube used as a detector. An oscillatory circuit can be built around a 194-tube, with only 140 volts B battery, and transmission accomplished, at times, over 1,000 miles.

In Cleveland two tests were conducted under joint auspices of the Cleveland Plain-Dealer and the Cleveland Radio association, to determine the extent of the area affected by oscillating Radio receivers. In one of these tests the oscillating set was heard clearly within a radius of 50 miles. An interesting incident is contained in Mr. A. J. Allen's article, mentioned before. "I was trying to locate a neighborhood blooper which was a source

(Continued on page 24)

PLEDGE CARD		Radio Digest		I WON'T BLOOP CLUB	
<small>PROGRAMS Illustrated</small>					
<small>Reg. U. S. Pat. Off. & Dom. of Canada</small>					
<p>I pledge myself to operate my Radio set to reduce radiation or blooping. If I am unable to make my present set operate properly, I further pledge myself to replace it with a receiver that will create less interference.</p>					
Make of my set:	Signature				
Number of tubes is:	Address				
	City and State.....				
<p>I am cooperating in this campaign with Station.....</p>					
<p>Upon mailing this pledge to Radio Digest, "I Won't Bloop Club" membership card suitable for wallet or framing will be issued.</p>					

AN EVENING AT HOME WITH THE LISTENER IN CENTRAL TIME

Table listing radio stations by call letters and location, with columns for Saturday, Sunday, Monday, Tuesday, Wednesday, Thursday, and Friday.

Table listing radio stations by call letters and location, with columns for Saturday, Sunday, Monday, Tuesday, Wednesday, Thursday, and Friday.

STATIONS IN ORDER OF WAVE LENGTHS

Table listing radio stations in order of wave lengths, with columns for Meters and Call letters.

SHORT WAVES

By Marcello

(Continued from page 11)

There is oyster stew. It is all according to the way you make it. A certain chef in New York city is quite famous for his oyster stew. His secret is in the way he prepares the oysters. He cooks them in butter quite slowly for several minutes before adding to the milk. It is quite surprising what a difference that one thing makes in the flavor of the stew.

OYSTER AMERICAN DISH

(Continued from page 11)

Model Kitchen: One pint of oysters, 1/2 cup butter, 1 teaspoonful salt, 1 pint of milk, 1/2 cup of cream. Method: Pick over the oysters, removing any pieces of shell. Melt butter in a sauce pan. Add the oysters and cook gently until the edges curl. Scald the milk and cream. Add to the oysters. Season with salt and pepper. Let stand hot several minutes, then serve. This stew may be made with all milk, or with a larger proportion of cream, according to how rich you wish it.

The Hired Hand told me about Bessie, the Sunflower Girl, in a letter explaining about his married life. He is married, it seems, and his wife "raises h—" (the H. H.'s own words) most of the time because he refers to his home as his boarding house. Hard lines, aren't they, girls. Better write to him and sympathize.

Fried Oysters

I have discovered that many people think of fried oysters as a restaurant dish, and seldom, if ever, attempt to prepare them at home. Fried oysters are very easily prepared, and there is no reason why you cannot have a fried oyster supper at home whenever you wish. Drain off any liquor. Roll each oyster in flour so that it is entirely covered with a coating of flour; then dip in egg, roll in sifted bread crumbs and fry in deep fat.

This is not a WBAP column, but I must add one more thought. That delightful orchestral marvel who leads the band at the Texas hotel, heard from Fort Worth is not an Indian just because his name is Chief Gonzales. He's of Spanish decent, and dark—and HANDSOME.

The "Oh Henry" Boy, Walter Preston, known to thousands of WBAP listeners, is married, Sarah. Sorry, my dear, but he's very happy. No chance at all. He directs WIBO now, having been recently promoted, and has a beautiful tenor voice, as you know. Besides being married, he proves himself a model husband by liking to play bridge and winning a prize now and then. Very good looking, slender, "built for speed," weighs about 140 pounds, is about five feet eight inches tall, and Charleston's modestly but admirably.

You home-seeking fair ones, you experimental cooks, listen with Georgia to the facts regarding Wayne Meyers, the new announcer of WBAP. Wayne is a single. I place that first because that is the first question Georgia asks. He is also one of the most even-tempered men I have had the good fortune to meet. His hobbies are his mother and music. He supports his mother for his dad is dead. Went overseas for the big fight and there got acquainted with another very popular announcer, Pat Barnes of WHI. Wayne Meyers is now 27 years old, stretches up five feet five inches, weighs 135 pounds, has hair "betwixt and between" and looks at you through gray eyes. He is persistent and careful, nice and pleasant, is a very good looking, and an excellent matrimonial quality, I must add, he does not play golf.

The reason for rolling the oysters in flour first is that you must have a dry surface or else the egg will not stick. To prepare the eggs, beat the whole egg slightly and add one tablespoon water or milk for each egg. Dry crumbs are better than the soft ones for crumbing, and they should be sifted. The coarse crumbs will not stick as well as the fine sifted crumbs.

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Join the "I Won't Bloop Club"

LAST week marked the beginning by Radio Digest of a country-wide organization that will mean much to the future of Radio broadcast reception. It has been named the "I Won't Bloop Club" and its purpose is just what its name implies. There are no fees—it is absolutely free.

Have you joined? Do it today, and get your neighbor to do it likewise. Sign his name on the dotted line of the pledge card—either one clipped from page three of Radio Digest or obtained direct from your favorite broadcasting station.

Broadcasting stations are helping the club's campaign along by telling their respective audiences of the club and asking for memberships. Sign a pledge card, send it to Radio Digest, and receive a membership card. Simple as this arrangement may seem, many people may doubt the ability of this campaign to clarify the air of a few hundred thousand radiating receivers that are unnecessarily punctuating perfectly good broadcast programs with bothersome bloops and squeals.

But it will be effective, however, simple it seems. All we ask is that every listener sign the pledge and abide by the rules. After that the air will be better for broadcasting. You can depend on a man's word, and we are willing to wager that many an "I Won't Bloop Club" member will take steps to stop his radiation. He will either learn how to make his present set non-radiating or will buy a non-radiating receiver.

SIGN THAT PLEDGE NOW!

World Court Debate Makes Epoch

THE Chicago Tribune deserves credit for its enterprise in bringing the World Court controversy directly before the people through Radio. A debate on the question was staged in Washington by the leaders of the opposing factions before a microphone not far from the capitol itself.

People were enabled to hear both sides of the controversy by their respective strongest adherents. Afterward they were assisted in making a decision of their own by writing their vote on blanks printed in the Tribune.

It was a distinct step in advance both for newspaper enterprise and Radio service. It opens a new field of endeavor on the part of all newspapers. It was the logical sequence of Radio reports of the football games and other sports.

Why shouldn't the more momentous games that concern our national life be presented as directly and vividly?

It brought our statesmen who are on the firing line of our national front clearly and distinctly before their constituents. They became real. Their voices were physical and not third person reports in cold type. There was no opportunity of intentional or unintentional reportorial bias. They presented their own minds with their own voices directly into the ears of the voters.

This fine stroke on the part of the Tribune was a good thing for Radio. It cultivated a new class of listeners. Business leaders, too busy to take time to listen to the average Radio musical program, take keenly to this sort of service.

Internal problems such as the farmers' financial crisis could be placed vividly and directly before the people by the keenest thinkers and speakers. This, of course, has been done and is becoming more and more common but usually as an incidental talk to some public gathering infinitesimally small compared with the Radio audience.

The Tribune has seized the Radio possibilities with both hands—and strong hands they are. Col. R. R. McCormick, associate publisher, himself assisted in making this Washington enterprise a success. He even visited the president in the White House and the success of his mission there was manifest by the ensuing results.

This event of a direct personal debate between the strongest men in the United States senate specifically (not incidentally) into a microphone for the benefit of hundreds of thousands of listeners, might truthfully be said to mark an epoch—a new truth between the Radio broadcast and the daily press.

RADIO INDI-GEST

Consternations

Last week when all the nations
Were exchanging oscillations,
I sat beside this superest of mine,
All I got was radiations
Instead of foreign stations,
While the bloopers played the opera "Heterodyne."

There have often been occasions
When our European relations
Were muddled up and in a manner strained,
But ethereal gyrations,
Caused by DX animations,
Made the greatest foreign rumpus ever gained.

THE NIGHT HERD

Get Out the Gold Award

Dear Indy: A dear friend of mine said you was checking up on them there International Radio tests. I got a one and 1/2 tube (the 1/2 is a Radiotron) receiver what can't be beat, and the tests proved I was right. Please confirm the following what I tuned in:

A—10:00 to 10:25 p. m. Central time, Sunday. Nothing. I didn't have the set turned on. Please confirm.
B—10:25 to 10:26 p. m. Still nothing. Aerial disconnected. Please confirm.
E—10:26 to 10:30 p. m. Whizzz—wheee, s-s-cr-eeetch. Wave length variable. Believed to be Canary Islands. Please confirm.
G—10:30 to 10:45 p. m. More howls, shrieks, bloops, blams, zowies, bings, biffs and crashes. Believed to be static. Didn't have to tune set. Any wave worked. Please confirm.
O—10:45 to 10:50 p. m. 233 meters. Sermon, faint, but if you talked to yourself fast enough you could convince yourself it was loud. Finally worked up courage to tell wife. Please confirm.

R—10:50 to 10:55 p. m. Went to tell wife and get her back to the phones so she could hear Europe "over the loud speaker." Please confirm.
X—10:55 to denouement. Wife shrieks with laughter: "Hah, hah, you poor sap," says she. "This is KPON, the First Church of Christ, Scientist, at Long Beach, California. They haven't learned yet that the tests are on, acct. of being kinda slow out there." Please confirm.

GUM SHOE

Such an easy way to make money! If you don't get the Gold Award we'll sign a bill of complaint. We've been asked to confirm so many things we are beginning to feel like a bishop. Anyway, here's what you got: A-sia; B-muddled; E-gypt; G-whizz; O-he-ll; R-menta; X-cited.

Lost, Strayed or Stolen

Oh, Indi, I'm unhappy,
My eyes with tears are wet—
Tell me what has happened to
That Red-Head Gal, Bobette.

SHOBIE

Well, Shobie, we're sorry but just last week a letter mailed through Indi-Gest to Bobette was returned. Hope she comes back some day.

Or Put House on a Turn-Table

I have changed the direction of my aerial and now cannot tune in several of my old stations, although I have received many new ones. As I cannot change back to the old direction on account of lack of space, what would you suggest as a remedy? D. X. HUNTER

As the technical department couldn't solve that one, it was turned over to us. Our correspondence course, that made us wealthy, didn't think that an important question, but you might try to have the stations moved. (In next week's issue, Indi will describe and explain his first hook-up since becoming a member of the technical staff. It will show how to connect a player piano to a set with more or less tubes.—Editor's Note.)

There Is Blood in the Moon

It looks too bad for pesty announcers. Last week Bloopster got three lines of a poem and couldn't get the last one, so asked Indi to get the gang to help him. Here are the first three lines:

I Know of An Announcer
Who's a Pest Upon the Air—
If I Can Get a Bouncer

And here are some of the suggestions that have come into the office. Have you any? You know the prize is an autographed heterodyne squeal.

"I think murder would be fair." J. A. C.

"He'll want to say a prayer." PETE

"He'll be minus hide and hair." HANK

Be a Cake-Eater

Dear Indi: Please send some Radio Digests to me. My wife has been trying out recipes until, I'm sorry to confess, I have the Radio Indigest. So hurry please before I die from eating her pesky old Radio pie. A. MICHIGANDER

Englishman Loses Control?!

Hump: "Jones carries his loyalty a bit too far."
Bump: "How's that?"
Hump: "He smashed his new five-valve set by jumping to his feet when, at the end of the program, the band played 'God Save the King.'" LONDON BOBBY.

Two Kinds of Radio Bills



Condensed BY DIELECTRIC

Radio dramas may still require touching up, or toning down, here and there to meet the requirements of unseen action, yet there have been examples of such entertainment quite complete. The latest of these came through Station WJZ, New York, with the "screenless" Radio drama" called "Just Suppose." It was not difficult to follow the action of the plot as seasoned artists spoke their parts with good diction and histrionic ability; however, this could have been done more easily had the male voices sounded less alike. Listeners were confused at times to know if Prince Ruppert or Tony spoke.

In some of the correspondence addressed to the editor of Radio Digest, there have been decided preferences for jazz and dance music generally. It doesn't seem to me that programs are overbalanced with classical music, although the trend is toward more of the classics. Most stations devote a part of each evening to dance music alone. Improvement in broadcasting ballroom music is noticeable in that less time is consumed than formerly with announcements between numbers. Many stations have received comment to that effect in these columns and I wish to add another: WHT, Chicago, which seldom interjects more than the station call and possibly title of the succeeding selection.

Station WSM, Nashville, Tenn., conducted a special test night with evident success. Smith's dance orchestra furnished the main attraction with a full portfolio of popular hits rendered in an approved fashion. Such announcements as were made were given with pep, terse and interesting. It should be remarked, in fairness to both listener and broadcaster, that the call letters of this station should receive less speedy dispatch in order that one may be sure of the station to which he is tuned. This is an easy matter to correct and ranks as one of the most important items to receive attention.

Splendid organ recitals are heard now and then from the high school auditorium in Atlantic City, N. J., broadcast through Station WPG. A number of complaints have reached me from devotees of this instrument who were tuned to the World's Playground during a recent recital, stating their exasperation over a thirty-minute broadcast with no reference to the station's location. This is not habitual, I wish to say, and probably will not occur again. In the course of groups of musical numbers, it sometimes happens that no announcement is heard between selections in a group, but only at the beginning and end. In classical programs, the continuity of a symphony may be seriously interrupted by applause between movements; call letters can hardly be classed with that, and they should be announced slowly and often.

If you were tuned to Station KSD, St. Louis, while the Bankers Choral club was broadcasting, no need of my mentioning how profitable was the time spent listening to their harmonies. Choral singing should entertain as many people as any other feature broadcast and no one can truthfully deny the presence of exceptionally well trained choruses in the country. More of them should be on the air than are now heard.

These community concerts grow on one and cause wonder that we had to wait so long for them to join Radio entertainment. Another such program through Station WSAI, Cincinnati, gave opportunity for music lovers to rejoice in the artistic work of Miss Vreeland, Mr. Beddoe and the Cincinnati symphony orchestra.

ABC Radio Fundamentals for Everybody

Chapter VI—How Grid Functions

By Milo Gurney

BEFORE explaining the action of the third or grid element of a vacuum tube, and its associated essentials, the grid leak, grid condenser and C battery, it appears important that both the mechanical construction and electrical details of the Radio head phone or loud speaker be first explained. This is to enable the one to more fully realize the commanding part which the grid element assumes within the vacuum tube.

Without attempting to picture a particular make of apparatus, figure 17 is shown as typical of the interior and exterior mechanism of a head telephone. It is of interest to know that in general the head phones used in Radio resemble in every detail (but one), the receiver common to those used in wire telephony as a part of the universally used telephone. Electrically, Radio phones use much smaller magnets, while the turns of wire upon the pole pieces of the magnets are vastly greater in number.

Construction of Ear Phones

A-A in figure 18 is a bi-polar magnet, having both a positive and a negative pole. These poles represent the terminals of the magnet and are designated as E-E in the drawing. C-C pictures insulated spools which are slipped over the pole pieces B-B and upon which the wire used within the head phone is wound. D-D usually comprises a stamped, non-magnetic, metal cup which serves as a mounting support for the magnets A-A and their associated parts. E-E is a soft iron metal disk or diaphragm which is supported around its outer edge by the metal cup D-D, with its center directly above, but not in contact with the pole pieces B-B. Entrance openings are pierced through the metal cup D-D, to admit passage of the battery wires from the B battery to the coil windings upon the spools at B-B.

As the head phones are a part of the circuit through which battery current passes over the space charge, or electron flow within the tube. It is then obvious that as it flows through the wires upon

the magnet spools, it will energize the magnets and direct a steady magnetic pull upon the receiver diaphragm. Unless the value of this current flow can be automatically varied vibration of the diaphragm cannot occur and sound cannot be produced.

Importance of Grid

By this slow process of reasoning, we arrive at the importance of the grid, whose function is to vary the value of the current flow, through automatically varying the volume of the electron flow from the filament to the plate.

This valve-like action of the grid is little understood, and only about five per cent of those constructing Radio re-

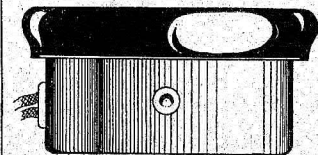


Figure 17

ceivers, outside of the engineering fraternity, have the slightest conception of what it is all about. Surely Radio suffers through having too many cooks to spoil the broth. Radio reception suffers, while the B battery manufacturers are doing quite well thank you, because of the heavy drain upon B batteries, although they are spending a lot of money trying to get designers to cut this uncalled for drain down, through the insertion of C batteries.

Getting back to our subject, you will recall, earlier in the articles, that the current which reaches the tube is alternating, or two-way in character, and is guided on one side to the grid terminal of the tube socket, and on the other to the filament terminal. In action, it is then evident that in each cycle or period the grid is alternately charged, negative

and positive. Thus, as the grid receives its negative charge, the flow of electrons which would normally be attracted to the plate are in part arrested, or interrupted in this travel and attach themselves to the grid. This effect reduces the plate space charge, and offers a resistance to the normal flow of current, or in effect, varies its value. This varying value, in turn, creates a varying pull upon the phone diaphragm, and it is this varying pull which causes the sound to be reproduced in unison with the modulated received signal.

The Grid Leak

The electrons thus stored upon the grid are, in part, neutralized when the current swings to positive, while the surplus are returned home to the filament through passing over the grid leak. The grid leak is, as the name implies, but a resistance of a sufficient value to admit a predetermined volume of negative electrons to pass through it to filament. Were it not of a correct value, the grid would not retain the electrons, but would permit them to flow uninterruptedly to the filament and thus destroy the automatic grid control or valve action so important for successful operation.

It is apparent that the grid valve action is created through the alternate positive and negative value of the current reaching it. However, these alternate charges are not sufficient to furnish the nicety of control which is desired. Therefore, a negative booster, or C battery is placed in series with the grid circuit, and just ahead of the grid leak. This is usually of a 4-volt value, with the negative pole of the battery connecting to the grid leak. The purpose of this applied voltage is to counteract the effect of the positive alternating signal voltage, in order that the grid may be maintained at a predetermined negative bias, consistent with securing the best operating point on the curve of the tube. As a discussion of this point involves much that is foreign to an article of this type, it will not

be gone into for fear of adding complications.

A Simpler Explanation

The above then is how the grid functions, and I quite realize that it is as meaningless to you as it was to me when first explained in a similar manner—so I won't let it go at that. I will give you, in a very few words, my boy Jack's explanation, as all fathers of boys have "very bright" boys. One evening, after drawing numerous diagrams picturing grid action, and exhausting every known means for the conveyance of intelligence to him, with side remarks which included "dumb," "no brains" etc., etc., he piped up with "Oh, yes, I've got it, and under-

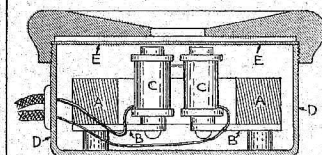


Figure 18

stand it better than you do. Now, listen, here is the way a grid works. The little electrons which leave the filament can't jump as far as the big ones, so they make, just half a jump and land on the grid. Then old man positive sees a bunch of them on there, and cracking his whip says: 'Get outta here,' and they being scared almost stiff, take another jump to the plate. So you see, daddy, part of the time the little and the big ones are jumping and part of the time they ain't, and that's why the current varies.' Which explanation after all is pretty close to the truth and surely utterly devoid of technical verbiage. So I take it back—Jack's explanation is the one to believe.

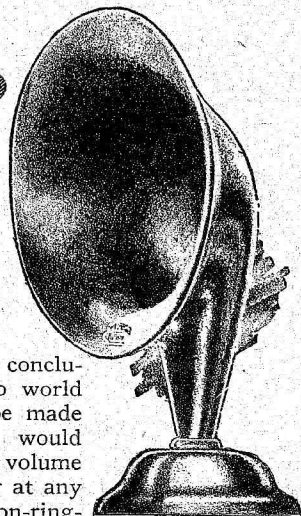
Without doubt, any attempt to explain the action of the grid must of necessity (Continued on page 24)

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Fultone Loud Speaker has conclusively proven to the radio world that a reproducer could be made and sold at \$6.50 which would handle music or speech in volume as perfectly as any speaker at any price. The horn is solid, non-ringing and wide-throated enough to handle the powerful reproduction from super-heterodyne or reflex. The adjustable diaphragm permits matching Fultone to any receiver and "B" battery voltage.

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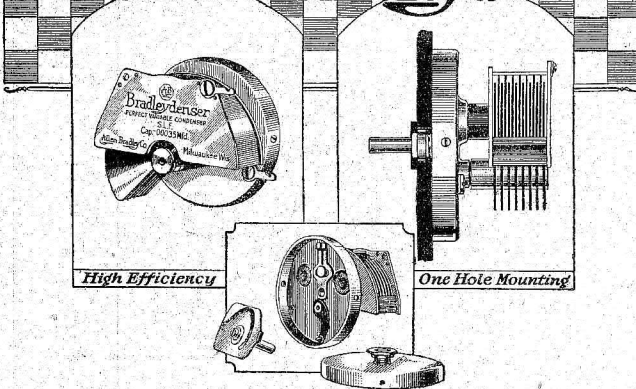
The Fultone speaker will be shipped on a satisfaction or money back basis on receipt of price in money order or currency. The coupon is provided for your convenience in ordering if your dealer cannot supply you.

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The New S.L.F. Bradleydenser



A Compact Straight-Line-Frequency Condenser

THE new S. L. F. Bradleydenser is the outcome of long, careful research in condenser design. It provides straight-line-frequency tuning over the entire circumference of a 360-degree dial. Stations are widely and evenly spaced over twice the dial-spacing of ordinary condensers. This unique control is obtained by using a special cam on the condenser shaft which provides the straight-line-frequency tuning now demanded by all set builders.

ANOTHER feature of the new S. L. F. Bradleydenser is the compact design which eliminates the long eccentric rotor plates. The Bradleydenser can be substituted for any condenser on a set without interfering with other parts on the panel. The one-hole mounting also simplifies installation. Be sure to bring your set up-to-date by getting a set of S. L. F. Bradleydensers from your nearest dealer.



Use Allen-Bradley Radio Devices in your radio sets

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Allen-Bradley Company, 200 Greenfield Ave., Milwaukee, Wisconsin
Please send us your latest literature on the new S.L.F. Bradleydenser and other items of the Allen-Bradley line.
Name.....
Address.....

WAS BOY SCOUT FIRST?

(Continued from page 5)

station. After letting Armstrong in for the record, he acknowledged receiving signals from others.

Mr. Godley reported that he had interviewed Benzie and Miller about their record and that they had taken the matter in a spontaneous manner, but I have been unable to find that either he or they ever stated that they contradicted the reports sent to the Robinsons.

I have investigated the Robinsons and the Scotchmen. They all have excellent reputations for truthfulness and honesty, as I can prove by letters from unprejudiced persons. Benzie's father states that the Robinson station was heard as reported. I have investigated Armstrong and Godley. They are, and were at the time of the 1921 A. R. R. L. tests, professional Radio men. They made good use of the publicity gained by their "record," for their own benefit.

Armstrong was engaged in litigation against Dr. Lee DeForest, who manufactured the transmitter used by the Robinsons. Armstrong won, and some years later, after it was reported that he had received a million dollars for his regenerative circuit patent, another court decided in favor of Dr. DeForest. I wrote to Armstrong, telling him what the Robinsons said about the way in which he obtained the letter from them. I received no reply.

I have asked all the members of the investigating committee, that discredited the Robinson record, including Mr. Armstrong, A. A. Hebert and L. G. Pacent, where the evidence might be seen on which their decision was based. I also asked President Burleigh (presiding at that time) of the Radio Club of America.

The evidence has not been made available. President Maxim of the American Radio Relay league says he never saw it. Mr. Armstrong said that Benzie and Miller made a mistake in reporting the time the Robinson station was heard.

The evidence in my possession has been submitted to the editor of Radio Digest and he states that it appears to be conclusive in establishing the Robinson record. Their station succeeded in getting across again in later A. R. R. L. tests. Benzie, now in India, where he became an engineer on a tea plantation, has verified the reception of broadcasts from the British Isles, and his reception has been confirmed.

Did Armstrong and Godley steal the Robinson record?

Has the Radio Club of America the evidence that Armstrong promised to show the Robinsons? Is it conclusive? Will it be made public?

If not? You say it!

"BLOOPER" WAR OPENS

(Continued from page 10)

of terrific annoyance and interference to myself and many other listeners. I tuned my set to the station the other fellow was trying to receive that night, and then I shut off my set and went calling. At a neighbor's house a square away, I found him sitting there toying with the dials while his highly oscillating set with brightly lighted tubes, was squealing all over 'Kingdom Come.' He was trying to get the station for which I had left my set tuned, and I said to him: 'Let your dials remain as they are, don't turn off your set, and come up to my house.' My friend did as I suggested and when I turned on my set in his presence, it came his squealing interference. Then I said: 'Now call your wife on the telephone and tell her to move the dials back and forth, and let's see what happens.' Every time she turned the dials past the point of resonance for the station we both had tuned in, you can imagine the terrific howls, yelps, whistles, squawks and squeals that surged in through my loud-speaker, since my set has enough volume to fill an auditorium.

"My friend was convinced that he was a 'Radio disturber,' and promised to get a non-radiating receiver, but he still uses that interfering 'blooper' although the occurrence happened some time ago, and he goes on disturbing other listeners within a radius of many miles. He is not a member of the Broadcast Listeners' association of our city, but should be for his own good as well as that of other listeners whose enjoyment he spoils."

Such situations as this are retarding the use of Radio. The sooner a compulsory remedy is found to prevent "radiated regenerative interferences" of this character from interfering with broadcast reception, the sooner will the art of Radio come into general favor for all around usefulness as an indispensable scientific utility for social and economic advancement, in furtherance of private and public education, entertainment and human progress.

(Having shown where the blame lies for this unfortunate condition of the atmosphere and the extent to which a few can spoil the pleasure of hundreds of others, this discussion will be continued next week and for several issues to come and will take in preventive measures on various types of receivers.—Editor's Note).

ORGAN WEAR FAVORITE

(Continued from page 7)

take you back to the trumpets of King Tut and can do it just as easily as he can to the Oriental fantasias of modern Arabia. At present he is on the air with a tour into the historical past. He has organized an historical society for those who accompany him—membership cards are issued to those who write for them. They travel each Thursday evening back to music of past generations.

AT WEAR it seems that sincere effort has been made to plan programs which will, in their general course, please all classes of listeners. The regular weekly features include classical, semi-classical, jazz and talks by prominent speakers. New York relays, including the Atwater Kent hour on Sunday evenings, also are broadcast from WEAR.

The Goodyear concert orchestra entertains during Sunday afternoons, under the direction of Ivan Francis.

Sunday evenings from 7:50 to 8:30, the WEAR quartet, which is composed of Leona Brown Woodcock, soprano and accompanist; Edith McArt, contralto; Albert Downing, tenor and director, and Gay Donaldson, baritone, offer songs and song cycles particularly suited to this Fireside hour.

The dinner concerts from 7 to 8 every evening are furnished by the well-known orchestras from the Hotel Cleveland and Hotel Statler, under the direction of Frederick Jansen and Maurice Spitalny, respectively.

The jazz music of the station is furnished by Warmack's singing syncopators. This orchestra offers a program late each Tuesday and Friday, along with a half hour dinner concert from 7:00 to 7:30, on this latter evening. They also offer a program on the first and third Saturdays of the month from midnight to 1:30 a. m.

The WEAR studio instrumental ensemble, which just recently made its debut before the Radio audience, is composed of Leona Brown Woodcock, staff pianist and director; Howard DeGant, violin; E. E. Sommer, cello; Bruce McAdoo, viola, and Herman Walter, flute. This ensemble is to be one of the regular features on the WEAR programs.

A B C'S OF RADIO SETS

(Continued from page 23)

be clouded as it involves so much of the technical in order to treat the subject fairly. I trust that those of you who are sufficiently interested seek out the public library. A most fruitful evening can be spent in learning more about this wonder of Radio.

(In the article on A B C fundamentals next week Mr. Gurney will explain the different types of audio frequency amplification, which when added to the detector serve the loud speaker.—Editor's Note.)

OLD DANCES WIN FAVOR

(Continued from page 5)

Henry Ford produced Mellie Dunham of Maine, and Mellie, at the foot of the fiver king's throne in Detroit, challenged the world to take away his claim as the grand champion fiddler. Uncle Jimmy heard about it and was shocked.

"You tell that up-Maine fiddler," said Uncle Jimmy to Hizzoner the S. O. J., "that any time he wants to meet a real fiddlin' champion, I'll be listenin' to proposals. But it ain't fair for a youngster like him to hope for to beat a real ol' timer like me whose been fiddlin' at the dance since he was a baby on his mother's knee. Why he's only seventy-two. I was plowin' a field 'fore he was born."

Latest advices from the front fail to state whether Mellie and Uncle Jimmy have signed up for a match with Mike as the referee.

WHEN the honors have been decided between Mellie and Uncle Jimmy the winner will doubtless be confronted by a score of new challengers. For instance there will be Mr. John Baltzell who, according to a letter signed by Wm. L. Baltzell, 502 E. Ohio avenue, Mt. Vernon, O., is the "champion old-time fiddler of Ohio, Indiana and Kentucky; also Edison and Okah artist and very well-known as a Radio entertainer." He plays every Friday, 1 p. m., at WDAO, Ohio State University, Columbus, and has played at WRAM, WLW, WTPM and WHR.

It is probable the winner will have to settle with the champion of Connecticut, declared at the finals of a state contest for old-timers, over fifty years old, at Hartford, January 28, sponsored by the Hartford Courant and the Capitol theater.

And Michigan will have to be reckoned with, according to a letter from the Michigan State college at East Lansing. It says: "One hundred letters in one day as the result of a single program is the record made at WKAR, the college Radio station. An old-time dance program played by an

(Continued on page 26)



The Eveready Hour

LIKE the fabled ship in which Jason brought home the enchanted fleece of gold, the Eveready Hour brings a rich treasure of entertainment to chosen harbor-homes of its hearers.

Inaugurated two years ago, the Eveready Hour was an adventure in broadcasting—an hour of connected entertainment, uninterrupted by the frequent injection of the name of the broadcaster.

Many of these programs have become famous. Thousands of letters voice the appreciation of our audience and ask for repetition of favorites. We make no requests for these letters, but they mean much to our artists and to us, and are of great value in helping us in our efforts to arrange programs of a distinctive nature and pleasing to the vast audience.

Radio has already become a highly specialized art worthy of the most scrupulous code of ethics, and the Eveready Hour represents a sincere effort to pioneer in providing the most acceptable form of radio entertainment.

Eveready programs cover a wide range of entertainment and human interest, transporting us to periods of wholesome simplicity; to barren islands where marooned sailors meet adventure, starvation and death; to battle-scarred France with singing dough-boys; to emotional heights by telling with music the stories of the seasons; and to memories of yesteryear aroused by old ballad and musical comedy favorites.

Eveready Hour begins at 9 p. m. each Tuesday night, Eastern Standard Time.

NATIONAL CARBON Co., Inc., New York — San Francisco
Canadian National Carbon Co., Limited, Toronto, Ontario

Tuesday night means Eveready Hour—
9 p. m., Eastern Standard Time, through
the following stations:

WEAF—New York	WSAT—Cincinnati
WJAR—Providence	WWJ—Detroit
WEBC—Boston	WOC—Davenport
WTAG—Worcester	WEAR—Cleveland
WFL—Philadelphia	WCCO—Minneapolis
WGR—Buffalo	WGN—St. Paul
WCAE—Pittsburgh	WGN—Chicago
	KSD—St. Louis

EVEREADY
Radio Batteries
—they last longer

OPERATING AND TROUBLE SHOOTING

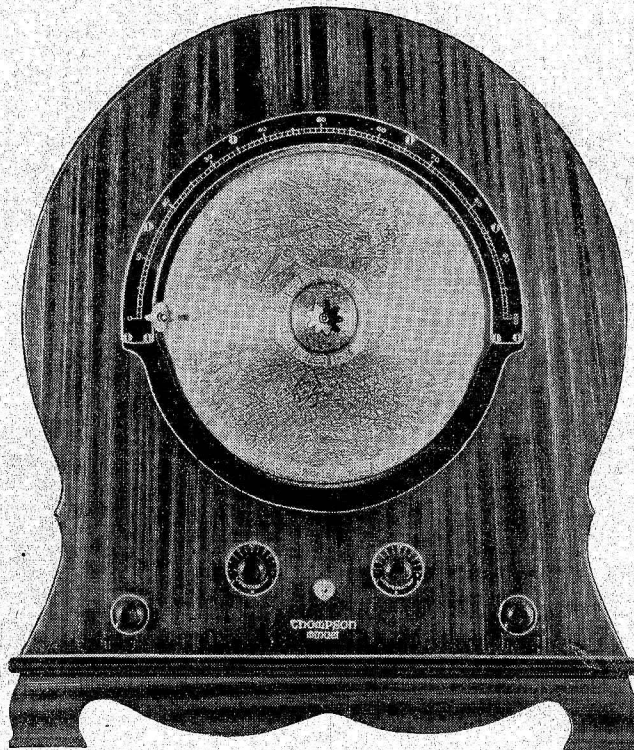
OPERATING and Trouble Shooting, is a Radio Digest feature, the purpose of which is to give practical information on the operation, care and cure of simple troubles in every kind of receiver. Standard Radio receivers of wide distribution and use are studied from the standpoint of instructions for installing and connecting, tuning and operating, and remedying little difficulties. The suggestions below, if executed faithfully, will make winter broadcast listening yield all there is to yield to the reader and give your set a fair chance to show its worth.

For the Owner of a Thompson Minuet Receiver

THIS is a five tube radio frequency receiver of unique design both as to external appearance and internal mechanical assembly. It employs a straight circuit (non-reflex) which includes two tubes operated as radio frequency amplifiers, a detector and two stages of audio frequency amplification. In appearance, the Minuet is distinctly unlike any other receiver and its compact construction and simple operation represent a most successful combination of two goals long sought for by engineers. A cone type speaker is built into the front of the cabinet and internal compartments are provided for the necessary batteries. The tuning arrangement is about as close to single control as one can get at this stage of Radio's development and the major tuning is accomplished with the Station Selector Pointer which travels around the upper edge of the speaker diaphragm.

Uses New Power Tubes

This is one of the first sets on the market to use tubes of the UX type and the new power tubes. The user has two choices as to tubes and batteries although in either case dry cells furnish the filament power. When this receiver is operated at what the manufacturers choose to call "Regular Volume," five UX-199 tubes are to be used and this combination will provide ample volume for all practical purposes. To meet special conditions, a combination of tubes is possible which gives "Extra Volume" and here the user inserts four UX-199s and one UX-120. As we tried out the set in the laboratory, the "Extra Volume" combination was used which makes necessary the following batteries: 6 Columbia Ignitor dry cells, 3 Eveready No. 772 B battery units and 1



Eveready No. 766 B battery used as a C battery.

To connect the Eveready Ignitor dry cells use the short wires provided with the set. The center terminal of one is connected to the edge terminal of a second and the center terminal of this second one is connected to the edge terminal of a third. This makes up one series group. The other three cells are connected this way to form another series group. Place the two rows of three close together so that the open edge terminals of each group are at the same end and the open center terminals at the other. Now connect the center terminal of one group to the center terminal of the other and likewise the edge terminals. With a heavy cord or tape tie the six cells together and place them in the bottom compartment at the right side (looking at the set from the rear).

Connecting Batteries

Wires are provided coming down from the set into the battery compartment and the wire with black and yellow covering

connects to one of the center terminals at the other end of the series. The three number 772 B units are placed flat one on top of the other at the left side of the compartment with negative terminals to the left and plus terminals to the right. The bright red wire from the set goes to the bottom plus post, a short connector goes from the bottom negative post to the center battery's plus post and to this same plus post connect the maroon and red lead. The center negative post must be connected with a short connector to the top plus and to this top plus post we also connect the maroon lead. This leaves only the minus of the top battery open and the lead which is black and red connects to that.

The C battery, which in this case is an Eveready B unit, is placed on the shelf in the very top of the set with minus to the left. Three leads come up through from the set to this shelf and the solid black one goes to the negative battery terminal. The black and green goes to the plus 18 post and the pure green lead is connected to the plus 22 1/2 post of the battery.

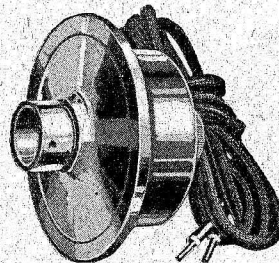
Rigging the Aerial

Binding posts for the connection of aerial and ground are directly behind the set proper. The ground connection is made as usual, to a water pipe and with a ground clamp. About two inches of the pipe are to be scraped shiny and the ground clamp secured at this point with a wire from the set, run to it as directly as possible, fastened to the clamp. The antenna can be erected either indoors or outdoors but the latter is preferable. The total length of the ground wire, the lead-in and the antenna proper should not exceed 125 feet. A single wire stretched between two chimneys, two trees or the house and the garage, and insulated from the supports at each end by a small Pyrex or porcelain insulator will give the best results. If, for example, the ground wire is 10 feet long and the lead-in from aerial to set will be 25 feet long, the wire between insulators should be about 65 feet long. Should the supports be further apart than this, the remainder of the distance can be filled in with rope or wire between the insulator and the further support.

(Continued on page 26)

Big Price Reduction

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Fits Any Make

Now Only
\$3.00

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TRADE MARK
LOUD SPEAKER UNIT
\$3.00

The unit will be shipped on a satisfaction or money back basis on receipt of price in money order or currency.

This unit is the secret behind the unparalleled success of Fultone Speaker. Its large diaphragm and bobbins of fine wire are protected from injury by a heavy nickel-plated case through the back of which adjustment is made by means of a special key. The pole pieces are not made from a solid piece of iron but are assembled from 15 laminations of carefully chosen steel.

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Enclosed is \$..... for which ship me.....
() Fultone Unit at once, my money to be refunded if I am not satisfied and return this merchandise within 5 days.
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Fred W. Stein.

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No Radio Set Complete Without It

Select stations at will. With music and voices clear through the air the average set fails to bring in the desired stations properly. The Steinite Interference Eliminator shuts out local and other interference. You get one station at a time, the one you want, and tune in loud and clear. Operates on any set—attach to aerial wire and to set—no changes—no extra tubes or batteries. Greatest Dollar Value in Radio Today. Over 150,000 Sold



Improved Results with Tube or Crystal

Try entirely at my risk the wonderful improvement this inexpensive little device will make in the reception of your set. Improves results on both crystal and tube sets that use any kind of aerial except loop antenna. Clears up reception wonderfully, increases volume, and partially absorbs static. Money Back Guarantee.

Mrs. Famous 1,500 MI. Steinite 1-Tube Set, \$5; Long Distance Crystal Set, \$8; Steinite Crystal Set—Three for \$1.

Steinite 5-Tube Set **\$29.75**

FREE Descriptive Literature on request.

Put this interference eliminator on your set and note amazing improvement. No tools needed—install in a moment's time. Connect wires and follow simple instructions. Money back promptly if not delighted. \$1.00 postpaid anywhere in U. S. when each with order.

References: Exchange National Bank, Atchison Savings Bank. Order today—a dollar bill will do.

STEINITE LABORATORIES, 161 Radio Bldg., ATCHISON, KANSAS

\$1 Postpaid If you are not delighted with results you get your dollar back

REAL NEWSBOY ADDS REALISM TO DRAMAS



Mrs. Wilda Wilson Church wanted a real newsboy to take the part of "Puffy" in "Just Boys," which was broadcast over Radio Station KGO, San Francisco, so she picked Reginald Wood (above), who was selling papers on the corner near the studio. All Reggie had to do before the microphone was be himself and act natural.

KGO AND RADIO DRAMA
(Continued from page 4)

ambulance whizzed past the house where the family was gathered. The mother ran to the door crying—"My! That ambulance certainly got here quick!"

"The KGO players have given a drama each week for almost two years. Our repertoire has included almost all kinds of plays, but mostly those written for the stage—farce, comedy, melodrama, and the more serious heavy dramas.

"Every time we broadcast we are sure to get letters from entirely opposite reactions. Some will say, "This is the best play you have put on yet!" Others will say, "It was all bunk!" Between these two extremes range the variety of opinions and appreciations of this multiple-minded ear, into which we pour our audio dramas every Thursday night. Letters have come from hospitals, shut-ins, ninety-year-olders, from San Quentin penitentiary, from men working on the roads in the mountains of the west, and from children just learning to write.

"In time, I believe, dramas will be written just for the radio. In fact, it is being done to a certain extent today; although no one, to my knowledge, has been able to establish a veritable Radio technique.

"The person who cannot enunciate clearly, phrase correctly, make the printed word come ALIVE—who cannot make stories LIVE by the spoken word—will soon have no public voice. I believe the Radio audience wants sincerity and naturalness. In other words, the Radio drama must seem like life itself, coming out of ear-phones and loud-speakers. For all the listeners know, it may be real life itself, instead of a spoken play in a studio before a microphone."

A newsboy on the streets of San Francisco, yelling out his wares, was recently selected by Mrs. Church to take the star part in the Radio drama. The boy made good, created a sensation among listeners for his newsboy talk and realism, and is now one of the regular members of the cast of KGO players.

The boy's name is Reginald Wood, and he took the part of "Puffy" in the drama, "The Delinquents," written by Catherine Browning Miller, was produced on the New York stage under the name "Just Boys." In the stage production of the

play the part of "Puffy" was taken by Ernest Truex.

According to Mrs. Church, listeners are becoming more and more insistent on realism in the play over the air. Her experience with Reginald Wood has convinced her that the way to get realism is to go out and select people in real life to take the parts in plays produced before the microphone.

OPERATING THE MINUET

(Continued from page 25)

One can now install the tubes and ears should be taken to see that the UX-120 is placed in the proper socket. Being in a hurry, the writer did not watch this point carefully and looked for the resulting distortion for half an hour before finding that the UX-120 was in a radio frequency socket. Looking at the set from the rear and reading from left to right, the first three tubes are UX-199, the fourth is the UX-120 and the last is another UX-199. It will be found that two of the holes in the sockets are larger than the other two and that two of the pins in the bottoms of the tubes are somewhat larger. Turn the tube until the proper pins are just above the proper holes and then a firm, steady push downward will set the tube firmly.

Behind the fifth socket mentioned above, there is a coil with three binding posts marked 1, 2 and 3 with a flexible lead coming up to them which may be secured to any one. If your antenna and ground system is close to 125 feet overall, slip this lead on post number 1; if the length is about 75 to 90 feet use post number 2 and, if an indoor aerial or very short outdoor aerial is employed, use post 3. The back can now be replaced on the cabinet and we are ready to put the set into operation.

Operating the Minuet

Below the speaker on the front of the set are four small knobs; the two in the center are called "Compensators," while that at the extreme left is a volume control and that at the right is the filament control. Turn the two end knobs toward the right so the small pointers are about horizontal and to the right. Set the Compensator knobs at 0 position. Insert the small key provided in the battery switch (between the Compensator knobs) and push it inward until it stops, then lock in position with a slight turn either left or right. This operation lights the filaments of the tubes and must be done each time the set is put into operation.

Slowly move the Station Selector Pointer over the tuning scale from 9 to 1 and back until a broadcast station is heard. Adjust position of this pointer as closely as possible for maximum volume. The small Compensator knobs are then adjusted separately for maximum strength—and that's all there is to tuning in a station. On this first trial, however, it will be necessary to adjust the Volume and Filament Controls for best results. If these knobs are turned unnecessarily far to the right, the life of both the batteries and tubes will be considerably shortened. With a distant station tuned in with Station Selector and Compensators, turn the Volume and Filament knobs back to the left until a diminution of volume is noticed, then back to the right just a bit. At this adjustment the tubes are giving maximum possible results and increase in filament brilliancy resulting from turning the knobs to right would do no good.

To Shift Antenna Lead

While presumably the Compensator knobs would have to be readjusted slightly for each station we did not find this the case. With the left Compensator at 0 and that at the right at 2 to the left, all stations were brought in at maximum and no adjusting of the Compensators from these positions did any good. If excessive interference is encountered from powerful locals and no amount of fine tuning will completely separate them, open the back of the set and shift the antenna lead, on the coil, from post 3 to post 2 or from post 2 to 1, as the case may be. More range and volume may be secured on 3 but the selectivity will be increased, making reception more pleasant and tuning easier with this wire on post 1. The set is turned off by turning key to point where it springs out and it can either be left partly out or entirely withdrawn as you prefer.

OLD DANCES WIN FAVOR

(Continued from page 24)

orchestra composed of employes at the college brought forth this deluge.

"With the beginning of Henry Ford's old-time dance music fad, the "Power House Gang" at the college decided to form an orchestra. Fred Sherman, sixty-eight years old, claims the local championship, which he has held for the past forty years. He has been challenged by Jop Disbee. Two states were represented in the letters received."

Station KFMQ of the University of Arkansas considers its program incomplete without an occasional contest between old-time fiddlers.

So it seems that Mr. Ford is in a fair way to claim immortal fame for reasons

(Continued on page 28)

Tower



Wherever There Are Ears to Hear—

There's a Tower Speaker or Headset to fit every taste, every pocketbook. The Meistersinger Speakers, the Scientific Speaker and the famous Tower Phonograph Attachment are equipped with the wonderful new double diaphragm—the greatest single contribution to sound reproduction since Bell invented the telephone receiver. These Tower Units re-create all the instruments of the orchestra—as well as choral singing and the spoken word—in their original, living vividness with full resonance, color and shading. Before you buy—Hear a Tower Speaker.

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WORLD'S GREATEST SPEAKER VALUES

Construction of B Current Power Supplies

Part III—Thordarson UX-213 Tube Type

By George Walters

IN PRESENTING this series of B power supply units the writer presented the most popular but the largest in size first, then the next most widely used type constructed along more compact lines, and we have saved for the last a type of which very few have as yet been made, but having the advantage of extremely small size and absolutely no hum. This combination about to be described measures but 6 inches from the tip of its UX-213 tube to underside of baseboard, 8 inches in depth and 10 1/4 inches in width. Not much bigger than a large capacity B battery. Tested

Price Correction

IN THE list of parts presented in the last issue with the Moilformer B Power Unit, the price of the kit from C. E. Jacobs was given as \$17. This is the price of FW4 kit, a four jar assembly, while the kit used was the FWS, containing eight jars and listing at \$22.50. The total cost of parts is therefore \$27.70.

on the Unitrola receiver, recently described in Radio Digest, not a trace of hum could be found, even with the head receivers connected after the second stage.

The Special Transformer
This type has not been widely constructed chiefly because few transformer makers have brought out suitable transformers for use with this new RCA tube. There are plenty of transformers for the Raytheon tube, but this one was ignored. Requests began to come in to Thordarson, however, so the transformer and chokes used in this third unit were designed and are now available. The transformer is known as type R107 and comes complete with twisted cord and light plug as input and six binding posts for output. There are two secondaries needed, one to light the filament and one to supply the high voltage. The filament secondary develops 5 volts between the outer terminals and has a center tap which is the positive output point. The large secondary develops 200 volts between each outer terminal and the center point, this last point being the negative output connection.

The chokes are both compact and neat in appearance with an inductance value each of 30 Henries. They are known as type R196 and two are necessary. The filter used in this layout is the same as that provided for the Raytheon-Acme combination, which was the first type described. Again we use some of the most excellent high voltage condensers marketed by Tobe Deutschmann, neatly encased, easily mounted and available in the desired sizes. Allen-Bradley's line is called upon for a number 10 Bradleyohm and a 10,000 ohm Bradleyunit. Daven of Newark supplies the mounting, available everywhere now, for mounting the Bradleyunit. The socket is Benjamin's justly well-known spring-cushioned Cleratone, while the binding posts can be either Walnut or Eby Ensign.

The front panel size will depend largely upon whether you intend placing this equipment in a cabinet. If you are going to use a 7x12x3/16 piece of Formica, but if it will be left in the open you can do as the writer did and use a 6x7 scrap. It should be remembered that this tube is going to get pretty warm in operation, so, if the unit is enclosed, provide plenty of holes around top and bottom for circulation of air.

Getting down to actual construction, the layout of the apparatus can be seen

clearly from study of the top view photograph. No matter what size front panel is used, the hole for the Bradleyohm is 4 1/2 inches from the bottom and centered, while the binding posts are 3 1/4 inches from the bottom and 1 1/2 inches apart. The writer's baseboard is 5/8 inch thick, so the holes for the three screws holding panel to baseboard are 5/16 inch from bottom. It is advisable to carefully place all parts on baseboard, mark where each wood screw is going, then drill a fine hole at each point but do not screw down each part as yet. For the transformer, the left rear and front right mounting holes are used, for the first choke to right, the rear right and front left holes are used and for second choke the rear left and front right holes take screws.

For the rear 4 mfd. condenser use the rear right and front left lugs and for the front 4 mfd. condenser use the rear left and front right lugs. The reason for all this will be seen when you get to grounding cases. The wiring of the trans-

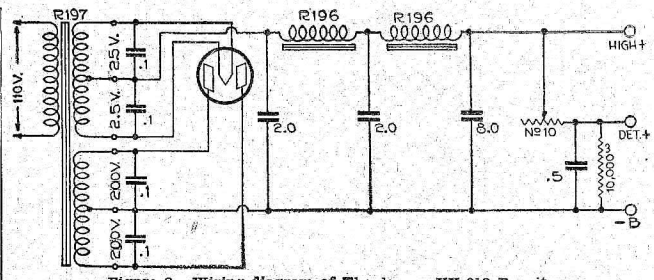


Figure 3. Wiring diagram of Thordarson UX-213 B unit.

denser and this wire will touch the soldering lug on center rear row post of transformer.

The same connection scheme is followed between the upper pair of con-

choke coils placing a soldering lug on rear right screw of the first, and rear left screw of second, adjusted so they touch.

The socket is screwed down with P and G terminals to the front. The extra soldering lug on each outer front transformer binding post is now turned to front and nut tightened. Connect front row outer left post to rear left post of socket and front row outer right post to rear right post on socket. The second soldering lug on each outer rear transformer binding post is now turned outward and nut tightened. A wire is put in from rear outer left post to front left post on socket and another from rear outer right post on transformer to front right post on socket.

The soldering lug on left terminal of first choke is to point upward and is connected, by wire going up and over, to front center post on transformer. The lower 2 mfd. condenser is now screwed down in center of board with terminals to right. A soldering lug is placed on the front mounting lug pointing toward transformer. Put in a wire from the rear connecting lug to the left post on second choke. The second 2 mfd. condenser is then placed on the first and a wire is put in from front lug of one down to front connecting lug of the other. The rear connecting lug of the upper one is then connected back to the left terminal of first choke. Connect the right terminal of first choke to left terminal of second. Now put in a wire, passing between the chokes, from the mounting screw soldering lugs at rear of chokes to the front terminal of the lower 2 mfd. condenser.

Then place the two 4 mfd. condensers in position with a soldering lug on the front left screw of the rear one and the rear left screw of the front one. These should touch. Run a wire up from right terminal of second choke to rear connection lug of rear condenser, then up and forward to front connection lug on front 4 mfd. condenser. The Daven mounting goes in next with two soldering lugs on the rear terminal. One should point to right and touch the two on the mounting screws of the 4 mfd. condensers while the other points to left to make contact with the front terminal on the lower 2 mfd. condenser. The 5 mfd. condenser is then set in place with terminals to the right and a soldering lug on the rear mounting screw pointing toward transformer. The mounting

(Continued on page 28)



Figure 2. Looking down on assembled and wired eliminator.

former and the four .1 mfd. condensers is handled before securing transformer. Place two .1 units face down and side by side on transformer, then two more face down squarely on top of them. For the time being hold them in place with a large rubber band or string. Two soldering lugs are placed on each of the six transformer posts. In the rear row of three posts turn one lug on each toward the rear, which will bring the lug on each outer post against the outer lug on each of the lower condensers; solder to these. A short piece of wire can connect the inner lug on each lower .1 con-

densers and the front three binding posts, except that short leads will be necessary to reach from lugs on posts to lugs on condensers. Transformer can now be screwed down and the band or string removed. A soldering lug should be slipped on the screw holding front right corner of transformer. Now screw down the

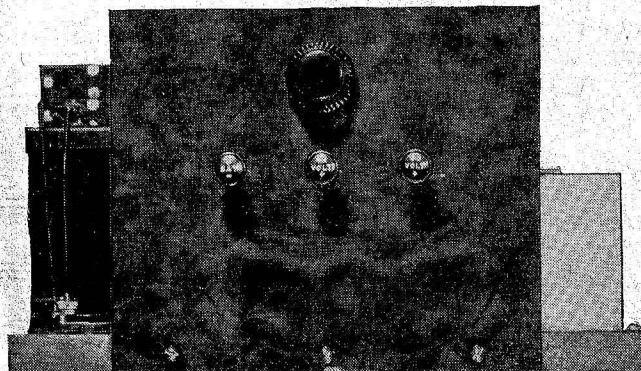


Figure 1. Front view of completed Thordarson UX-213 B eliminator.

R. F. Heinrich, an artist of international reputation, created the exquisite panel decoration that lifts the new Crosley RFL sets into the realm of the truly beautiful—and makes them objects of art in addition to instruments of marked technical superiority.

Two RFL models, \$60 and \$75 without accessories

Add 10 per cent to all prices west of the Rockies

THE CROSLLEY RADIO CORPORATION, Cincinnati, Ohio

CROSLLEY RADIO

BETTER · COSTS LESS

THORDARSON—UX-213 TUBE B UNIT

List of Parts		
1 Thordarson Transformer R197	Thordarson Elec. Mfg. Co., Chicago	\$ 7.00
2 Thordarson Choke Coils R196	Thordarson Elec. Mfg. Co., Chicago	10.00
2 Tube 4 mfd. Condensers	Tohe Deutschmann Co., Boston, Mass.	7.50
2 Tube 2 mfd. Condensers	Tohe Deutschmann Co., Boston, Mass.	3.50
4 Tube .1 mfd. Condensers	Tohe Deutschmann Co., Boston, Mass.	2.80
1 Tube .5 mfd. Condensers	Tohe Deutschmann Co., Boston, Mass.	.90
1 Cier-a-tone Tube Socket	Benjamin Elec. Mfg. Co., Chicago	1.00
1 Bradleyohm No. 10	Allen-Bradley Co., Milwaukee, Wis.	2.00
1 Bradleyohm 10,000 ohms	Allen-Bradley Co., Milwaukee, Wis.	.75
1 Daven Mounting No. 60	Daven Radio Corp., Newark, N. J.	.35
3 Ensign Binding Posts	H. H. Eby Mfg. Co., Philadelphia	.45
1 Baseboard 7 3/4" by 10 1/2"	Local lumber yard	.35
1 Piece bakelite 7" by 6" min.	Formica Insulation Co., Indianapolis	.75
1 Radiotron UX-213 tube	Radio Corp. of America, New York City	7.00
Miscellaneous, such as screws, wire, etc.		1.50
Total cost		\$45.95

THORDARSON B POWER

(Continued from page 27)

screw soldering lug on the lower 2 mfd. condenser, on the .5 mfd. condenser and on the transformer can now all three be connected together.

A short wire is then put in connecting the rear connection lug on the .5 mfd. condenser with the rear terminal of the Daven mounting and the front terminal of the 2 mfd. condensers. Another wire connects from front terminal of the lower 2 mfd. condenser, across to left to the three soldering lugs on the case of the 2 mfd., the case of the .5 mfd. and the case of the transformer. From these three grouped soldering lugs run a wire straight up, and then back to the center rear terminal of the transformer.

Connect the rear connection lug of front 4 mfd. condenser with the front connection lug of the rear 4 mfd. condenser and connect this last named point to the front lug on the upper 2 mfd. condenser. We now go to the back of the four .1 mfd. condensers on the transformer. The inner mounting lugs on the two upper condensers are connected together with a short piece of wire. Now put in a long piece from the grouped soldering lugs on the adjacent mounting screws of the chokes, up to, and soldered to, the inner mounting lugs on the two lower .1 mfd. condensers. A very short piece can now connect these two inner lugs of the lower two with the connected inner lugs of the upper two.

Connections to Panel

A wire is now bent to touch, at its lower end, the front connection lug on the .5 mfd. condenser and the front terminal on the Daven mounting, touch the center panel binding post soldering lug, then around to upper side of the Bradleyohm to the left terminal. Now bend a wire so it will connect from the right terminal of the Bradleyohm down to the soldering lug on the right panel binding post, then across to the front connection lug on the front 4 mfd. condenser. The last wire to be put in goes from the rear connection lug of the front 4 mfd. condenser

OLD DANCES WIN FAVOR

(Continued from page 26)

other than the manufacture of a universal gadster. With the collegians themselves joining in the movement, "back to normalcy with the dance," jazz seems to have received a severe kick in the corns.

Perhaps the next step will be a national contest for an Old-Time Fiddler's championship. Would the readers of Radio Digest like to see such a contest organized between leading broadcast stations? Let's have a vote on it.

30 Days FREE TRIAL
New and Better Radio Set



JUST OUT! New Wonder Radio! At Lowest Factory Prices.

Why are satisfied with any but the NEWEST radio set? Why pay high prices? Why take chances when you can put the NEWEST 5-Tube Westinghouse Model in your home for 30 Days Trial on the absolute guarantee that if you don't find it the most beautiful in appearance—the most reasonable in price and the best radio set you have ever seen or heard—You Don't Have To Keep It! Start in the new style brown walnut cabinet with sloping front panel, gold embossed in Renaissance design.

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Don't buy any radio until you get our FREE Folder, which describes the newest of all radio sets and gives our

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over to the left binding post in the row of three on panel.

If the above connections have been carefully followed the posts are negative B, plus detector and plus amplifiers, reading from left to right. The Bradleyohm adjusts the detector voltage smoothly and evenly over a wide range.

Here's Work That is Almost ROMANCE!

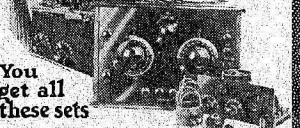


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Photogravures of Your Favorite Artists
GALLERY of RADIO STARS

Suitable for Framing or Placing in Your Album

BY SPECIAL arrangement. Radio Digest is able to offer its readers a great opportunity to secure fine photogravures of their favorite Radio stars at practically no cost.

Radio fans will be able now, by this very special offer, to have pictures of their favorite artists and announcers before them when they listen in. All that is necessary to secure photogravures from the Gallery of Radio Stars is to send the coupon published each week in Radio Digest, accompanied by ten cents to cover the cost of mailing and postage. Where a series of three photogravures is desired, it will only be necessary to send twenty-five cents and three consecutively numbered coupons clipped from Radio Digest. Remittance must accompany the coupon. Cash at your risk. Add 5 cents to personal checks for exchange.

WITH COUPONS Only 10c Each--3 for 25c To cover cost of mailing and postage



Size Eleven by Fourteen Inches

Select Your Favorites from the Gallery of Radio Stars

- 1 Wendell Hall, king of ukulele ditties
- 2 Graham McNamee, 1925 Gold Cup announcer
- 3 Jack Little, popular wandering balladist
- 4 Paul Small, who won fame through Radio
- 5 Coop-Sanders "Nighthawks" at KYW
- 6 George Hay, 1924 Gold Cup announcer
- 7 Harmony Girls, Edith Carpenter, Grace Ingram
- 8 Ford and Glenn, Lullaby Boys of WLS
- 9 "Roxy" Rothafel of WEAF chain fame
- 10 The Hired Hand, famous "Substitute Announcer" of WBAP
- 11 Britt and Finch, popular songsters
- 12 Bob Emery, Big Brother of WEEL
- 13 "Bill" W. G. Hay, ex-KFKX, now of WLIE
- 14 Happiness Boys, jovial singers of WEAF
- 15 Lambdin Kay, "Little Colonel" of WSB
- 16 Leo Fitzpatrick, "Merry Old Chief" WJR
- 17 Henry Field, 1925 Gold Cup runner-up
- 18 Al Carney, organ favorite at WHT
- 19 Aunt Jane, ladies' adviser at WOC
- 20 Vincent Lopez, No. 1 Pennsylvania orchestra
- 21 E. L. Tyson, pleasing voice at WVVJ
- 22 S. W. Barnett, ex-WOC, now WBAL
- 23 Art Gillham, "The Whispering Pianist"
- 24 Paul Greene, announcer at WSAI, "bridge voice"
- 25 Harry Ehrhart, "Dream Daddy" of WLIT
- 26 Correll and Gosden of "Kinky Kids Parade" fame, at WEBB and other stations
- 27 Norman Brokenshire, popular at WRC, WJZ
- 28 Indiana Male Quartet, popular at WEBB
- 29 Jane Novak, Blues Singer of Twin Cities, WCCO
- 30 Jean Sargent, the original, now at WHT
- 31 Ralph Emerson, popular organist at WLS
- 32 Edna Adams, "Sweetheart of the Air" at KPRC
- 33 Pat Barnes, vaudeville announcer at WHT
- 34 R. V. Haller of KGW Hoot Owl's fame
- 35 Henry L. Dixon, ukulele wizard of KYW
- 36 Quin Ryan, WGN's Uncle Walt and sports announcer
- 37 "Willie the Weeper," Ernest Rogers, WSB
- 38 Walter Wilson, "Uncle Bob" of KYW
- 39 Jack Chapman of Drake hotel repeats
- 40 Ray-O-Vac Twins, known country-wide
- 41 Art Linick, KYW's Mrs. Schlagenhauer
- 42 Fred Hamm of WTAS, now WLIE, fame
- 43 Meyer Davis' Le Paradis orchestra of WRC
- 44 "Senator" Schultz, WLW's illiterate comic
- 45 "Uncle John" Daggett of KHL
- 46 D. R. P. Coats, 1925 Silver Cup announcer
- 47 Gene Rouse, WOAW's popular announcer
- 48 Freda Sanker, WKRC jazz orchestra director
- 49 Irish Ruth Payne, KOA's invisible stage beauty
- 50 Queen Tania, star of KHL Fairland
- 51 Inana Troubadours, on the WEAF Chain.

If your favorites are not in this list, send in a request to have them included in the Gallery of Radio Stars.

COUPON NO. 8

This coupon entitles the holder to one photogravure selected from the Radio Digest Gallery of Radio Stars when accompanied by ten cents to pay the cost of mailing and postage.

Three consecutively numbered coupons entitle the holder to three photogravures when accompanied by 25 cents. Remittance must accompany the coupon. Cash at your risk. Add 5 cents to personal checks for exchange.

Order by Number.....
Radio Digest Publishing Co., 510 N. Dearborn St., Chicago

Two-Tube Short Wave 15-130 Meter Receiver

Part I—The Parts Required

By John G. Ryan

SHORT WAVE RECEIVER

List of Parts

1 Short Wave Coil System	Aero Products, Inc., Chicago	\$12.50
1 Karas Variable Condenser, .00014	Karas Electric Co., Chicago	6.50
1 Karas Audio Transformer, .00025	Karas Electric Co., Chicago	6.50
2 Eby Cushion Sockets	H. H. Eby Mfg. Co., Philadelphia	7.00
4 Ensign Binding Posts	H. H. Eby Mfg. Co., Philadelphia	1.20
1 Bradleystat	Allen-Bradley Co., Milwaukee	1.85
1 Benckondenser, 7 megohms	Daven Radio Corp., Newark, N. J.	1.00
1 Pair Brackets	Benjamin Elec. Mfg. Co., Chicago	.70
1 Amperite Unit, 1-A	The Radiall Co., New York City	1.10
2 Mar-co Dials, Nickel Plated	Martin-Copeland Co., Providence, R. I.	5.00
1 Formica Panel 7"x18"x3/16"	Formica Insulation Co., Indianapolis	3.15
1 Formica Panel 5"x17"x3/16"	Formica Insulation Co., Indianapolis	2.05
Miscellaneous, such as screws, bus bar, solder lugs, etc.		2.00
Total cost		\$51.15

TO THE average broadcast listener, the voices of the air are confined to that territory bounded, at one end, by 200 meters, and at the other, by 550 meters. There we find the efforts at entertainment of over 600 broadcasters, some of them clear and sharp, others blurred and fuzzy with the overlap in carrier wave from other stations. Did it ever occur to you that in other wave length ranges below or above this band there might be other voices spreading out without interference and with far better carrying power than those you hear?

and 105 meters. There is 2YT at Poldhu, Ireland. GENM at London and LEZ at Buenos Aires.

Receiving these short wave stations is not quite the simple act that one might first think of, namely, putting different coils in your present set or different condensers. Smaller coils must be used, of course, and smaller capacity condensers, but, in addition, there must be a different circuit and a different arrangement of parts. The Radio amateurs, who are really responsible for most of Radio's progress, and who have been confined to these shorter waves for years, long since

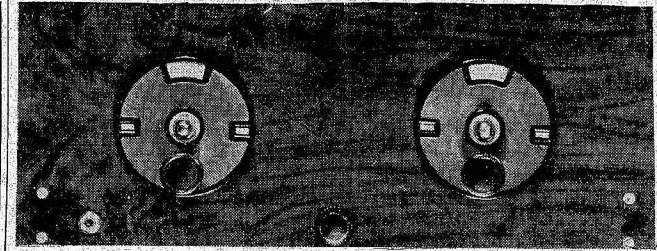


Figure 1

For those who do not care to wind their own, or do not know how, it was necessary for some manufacturer to develop an efficient inductance that could be made commercially, yet be sold at a reasonable price. Mr. F. J. Marco has developed for Aero Products a most excellent set of coils for use in the Weagant hook-up that are now available in all territories. This is really an interchangeable coil system which, with a variable condenser of .0014 mfd. capacity, will cover the range between 15 and 130 meters. A small base is provided on one end of which there is an adjustable primary. Into this base, by means of a clever plug-in arrangement, three different sets of secondaries and feedback coils are plugged.

Three Channels Bunched

It would be possible to design and construct a single coil that could be used with a variable condenser of correct size, which would operate over the range mentioned above but the tuning would be so critical and the three most popular channels would be so bunched together that

the result would be very disappointing. It was decided to use plug-in coils so designed that there would be slight overlap in the ranges each would cover. As the set of coils is now made, there are 19 turns on the largest grid coil and, with the Karas .00014 mfd. condenser, it covers 57 to 133 meters. On the intermediate coil there are 8 turns to cover 31.5 to 68 meters and, on the smallest coil, there are 3 turns covering 15 to 33.5 meters. The plate coils have 6, 4 and 2 turns, respectively.

In order that the tuning sensitivity would be equally critical from end to end of the dial, no matter which coil was used, a straight line frequency condenser is to be used with this system and, naturally, it must be of rugged mechanical strength, with electrical losses as low as possible. The Karas construction meets all these requirements perfectly and the .00014 mfd. size is made especially for this work. In addition, there is required one of Karas standard .00025 mfd. condensers. The writer advises the use of

(Continued on page 30)

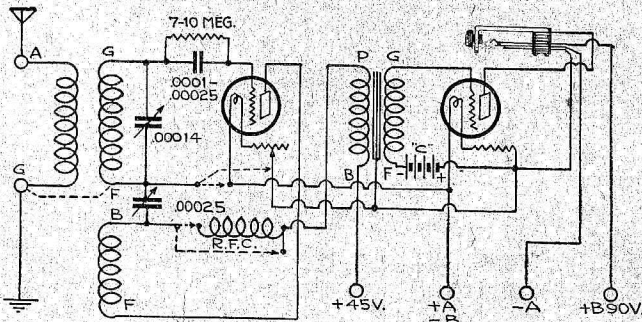


Figure 2

Below 200 meters there is an interesting land well worth exploring, full of voices in several languages including French, Spanish, code and "ham amateur. The harmonics of scores of broadcasters wander in this short wave territory, frequently coming through in much better shape than the fundamental it is intended one should receive. The mighty KDKA that one usually finds on 399.1 meters has an equally mighty twin brother on 64 meters that spreads out over the country in great shape. The well-known WGY that talks on 379.5 meters for your broadcast receiver has a whole family of brothers that are found on half a dozen waves between 15 meters

found that a regenerative circuit devised by Roy Weagant, now engineer for De Forest, best fitted their needs. The "hams," to use their own name for themselves, developed coils of their own, using all the forms of winding known such as Lorenze, spiderweb, honeycomb, diamond-weave, banked turns and spaced turns.



Super-Ball Antenna

LIST \$10.00

There is a reason for its popularity, because it has proven every claim we make for it.

Dealers and Jobbers, the Super-Ball Antenna is the fastest selling patented Antenna in the world today.

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"Grand Haven, Mich. January 25, 1926.

Kane Antennae Co., Gentlemen:

Received the Kane Antennae Saturday and by Sunday noon had it installed. Was pleasantly surprised at results obtained. Much more volume and selectivity. During European tests, the night of January 24, I had 3 foreign stations. When I omitted the Kane Aerial, I could not get a sound.

P. M. Boeck"

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and full instructions for creating this wonderful Antenna. Just send \$1.00 (a check will do. Stamps not accepted). A limited number available. Send TODAY.

KANE ANTENNAE CO.

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Dealers—Send at Once for Attractive Proposition



\$2.75 World Storage "B" Battery

12 Cells, 24 Volt units. Equipped with Solid Rubber Case, an insurance against acid and leakage. Extra heavy glass jars. Heavy rugged plates. Built with the same care and precision as the famous World Radio "A" Batteries.

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Just state number of batteries wanted and we will ship day order is received. Extra Offer: 4 batteries in series (96 volts), \$10.50. Pay expressman after examining batteries. 5 percent discount for cash with order. Save 60 percent—get a trial and proven battery of merit, by mailing your order in NOW!

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OVER sixteen thousand readers of Radio Digest responded to our request to send in evidence of international radio reception. To be exact, during the course of the week we received 15,332 letters and 1,462 telegrams asking verification of reception. All telegrams were promptly answered and we endeavored to reply to letters as quickly as possible. In many instances, however, readers did not give us sufficient information to enable our International Test department to determine definitely the stations received.

All communications are being acknowledged, and a staff of experts have been at work during the past ten days verifying reports of reception, and preparing official verifications of international reception.

If your communication was not handled as promptly as you might expect, please be patient with us and bear in mind that nearly seventeen thousand other readers responded to our request. If your evidence of reception justifies, an Official Certificate of International Reception will be mailed in due course.

SHORT WAVE RECEIVER

(Continued from page 29)

these, even though you may have others on hand, since the kit was designed by Marco especially for them and those you have may not meet the minimum and maximum capacity requirements. The audio transformer is a Karas also; it was one of the very first to come out with large primary and large iron core giving the improved, and now accepted standard, reproduction.

Spring Type Sockets

The sockets chosen are the new spring type made by H. F. Eby company and they are picked for three very good reasons. First, they have a three point wiping contact that gives a positive contact regardless of the prong diameter or amount of solder on the prong. Second, the tube floats, reducing microphonic noises in much the same way as the Benjamin socket. Third, you have a choice of three types of tubes possible since the UV-201A, the UV-201A or the UV-199 can be used in this socket. The UV-199 cannot be employed in these sockets. The binding posts also are Eby's, and a minus A, Plus 45 and Plus 90 are used. The fourth is, lettered Plus A and Minus B.

Detector filament voltage is regulated by a Bradleystat on the front panel, while the single stage amplifier voltage is governed by an Amperite. If your dealer has

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Will show by your dial readings the wave length to which set is tuned, and tell where to place dials for each station in America.

March edition now ready
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no Amperites, see if he hasn't Daven ballast resistors, which are similar. The grid leak and condenser specified are the Daven Leakcondensers, the condenser being .00025 mfd. and the resistor part, 7 megohms. On this set the matter of grid leak and condenser values is very critical. To quote Marco, "The smallest capacity possible on the highest resistance leak should be used, providing howling can be avoided. The writer has used 20 micro-microfarads and 12 megohms to good advantage with an ordinary 202A tube, but such values usually cause the tube to snap into oscillation with a long drawn howl. . . . You will usually end up with a positive grid return, about .0001 to .0002 mfd. grid condenser and a 7 to 10 megohm leak."

Try Different Resistances

The Daven Leakcondensers come in several sizes, with 7 megohms as the likely size. If you wish to experiment further on this, however, connect a .0001 or .00015 mfd. fixed condenser across the clips under sub base and try different cartridges of straight resistance in the clips.

The choke coil may or may not prove necessary. The receiver pictured here works very well without a choke as the impedance of the primary of the Karas transformer seems sufficient to force the radio frequency current into the feedback coil, rather than permit it to pass through the transformer. If you find that such a choke is desirable it can be readily made. A wooden rod or cardboard tube from 3/8 inch to 1 inch in diameter is wound with 200 turns of fine wire, preferably double silk covered of any size such as numbers 36, 38 or 40. On this model the choke was number 38.

(In this article, Mr. Ryan has covered the circuit and his choice of parts. Next week, the assembly and drilling will be covered as is usual with the Digest system of presentation.—Editor's Note.)

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See what you can do. We know you can play it. That's why we want you to try. 3 free lessons with each new instrument give you a quick, easy start. Practicing is fun because you learn so fast. Play Jazz in a week, maintaining music that sets them some. Be the life of the party, always welcome. Get into the big fun, 6 days free trial, any instrument. No obligation. If you like it pay a little each month. Send now for beautiful free literature. Get our liberal proposition. Send postpaid today.
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2260 W. Ohio St. Chicago, Ill.

Radio Illustrated



How would you like to dance to Radio music while on a tight rope suspended twenty-five stories above the street level? That is just what "Bird" Millman, world's premier tight rope walker, is doing and she seems to be enjoying it. Miss Millman is listening in with a miniature crystal receiving set and is using the tight rope for an aerial. This happened in New York city, as will be seen by the Woolworth tower in the background, while thousands of people stood breathlessly watching her. © K. & H.



Girls' Glee Club of Public School 76, New York city, singing over the Radio from the Board of Education offices as part of the first program broadcast by the Board. P. & A. Photo

"It's a bear of a Radio," says Mr. Bear, one of Breker's trained animals, who spends his leisure moments between acts listening in. P. & A. Photo