

New Six Tube Superdyne Receiver; Advance Programs All Large Stations; Gold Cup Award Standings; Combination Radio Frequency and Regeneration

Radio Digest

EVERY WEEK PROGRAMS Illustrated TEN CENTS

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TO RADIO HORSE RACES



Above are shown Lucille and Genevieve Fisher, aged 6 and 5 respectively, who recently appeared on a juvenile program Radiocast from WGY. Right, is Ilse Forster, mezzo-contralto, who made her first appearance at WGN, recently.

ARMY WORLD FLYER INSTALLS RADIO SET

TO AID AERIAL VOYAGERS ON FINAL LAP OF TRIP

Amateurs and Radiophans Will Be Able to Pick Up Signals Upon Arrival Here

WASHINGTON. — When the Army World Flyers reached Hull, England, a complete Radio transmitting and receiving set was installed on Lieut. Smith's plane, the "Chicago." This apparatus will aid the aerial voyagers on the final lap of their long trip, crossing the North Atlantic with stops at the Orkney's, Iceland, Greenland, Labrador, Newfoundland, and Nova Scotia. They will be able to communicate with shore and ship stations constantly and be ready to call for aid in the event of an accident.

By the time the flyers reach the coast of this continent, amateurs, and fans acquainted with the code may be able to pick up messages from Smith as to his progress or even his communications with naval vessels en route.

Capt. Harold McClellan, a Radio expert of the Air Service, until recently on leave in London, installed the Radio equipment at Hull. The receiver, is one of the new Army super-heterodyne sets recently perfected by the Signal Corps for the Air Service. It operates on eight tubes and includes four special intermediate transformers invented by Jackson H. Pressley, Chief Engineer of the Signal Corps Radio laboratory at Camp Alfred Vail, N. J.

The airplane transmitter is a 100 watt set with a range of about 500 miles, which should carry from the airplanes to shore stations even on the longest jumps on the home stretch. The wave length to be used is 600 meters and the call assigned to Smith's ship is WYZ.

Want Radiocasting Plant on Leviathan

Will Send Programs at Sea Each Night to Radiophans

WASHINGTON, D. C.—It is understood that the United States Shipping Board is contemplating asking the Radio section of the Department of Commerce for a license to erect a Radiocasting plant on the Leviathan.

While officials of the Shipping Board will not discuss the matter at this time it is understood that the purpose of such a plant would be to Radiocast the programs on board ship each night.

It is said that the Board wants to erect a plant of about 500 watts which would have a range of some thousand miles. While the matter has not yet been gone into fully it is thought that the only objection is that Radio operators on the sea would probably be listening in on entertainment programs instead of attending to their work. The matter, however, has not yet been formally presented to the Department of Commerce for decision.

MAJOR WHITE TO ANNOUNCE SPORT EVENT

Famous French Four-Year-Old Gelding Will Be Star Attraction

Radiocast From Track

NEW YORK.—For the first time since horse-racing became a favorite sport, track enthusiasts will be able to follow the progress of the horses, even though they are miles removed from the track, during the forthcoming International Races at Belmont Park and Aqueduct on September 4 and 27, for through the co-operation of Major August Belmont and the Westchester Racing Association, Station WJZ will Radiocast running descriptions of both races direct from the Belmont and Aqueduct tracks.

Epinard, the famous four-year-old which Pierre Wertheimer has recently brought to this country, and who is now in training for the series of three races scheduled for the early fall, will be the star attraction of the first racing Radiocasting in history, and the best horses of this country will be "seen" in competition with the foreign favorite by the Radio listeners.

J. Andrew White Will Be Announcer

J. Andrew White, who has described every type of sporting event which the Radio has so far carried to the distant fans, will be at WJZ's microphone in the judges stand, and direct wires, especially installed for the event, will carry his voice to the Radiocasting studio, where it will be "put on the air."

The Belmont Park race, on September 4, will be over the six-furlong distance, and will see such American horses as Wilderness, Miss Star, Snob II, Baffling, and Sun Pal pitted against Epinarad. At Aqueduct, on September 27, it is expected that Princess Doreen, Wilderness, My Own, Sun Pal, Little Chief, and Snob II will race the French horse over the mile distance.

These International Races, which are the result of the interest and enthusiasm aroused in racing circles both here and

(Continued on page 4)



WQJ RADIOCASTS AN INDIAN WAR DANCE

CHICAGO.—Station WQJ, located in the Rainbo Gardens in this city, Radiocast a unique program recently when Princess Red Feather, a full-blooded Blackfoot Indian, gave an impersonation of her tribal war dance. Although the audience of Radiophans could not see her, they heard the tinkling of bells which decorated her costume, and the war whoop with which she ended the dance.

MYSTERIOUS SOS IS VERY ELUSIVE HERE

LONDON.—The mysterious SOS call reported here, is still bothering the public. Some explain it as poor transmission of the Brazilian station SOH, which has already been known to create some confusion. This mysterious call was picked up by many British amateurs on 120 meters and has been ascribed to everything from a sinking pleasure boat to an attempt at signals from Mars.

No. 12 OFFICIAL BALLOT

Announcers' Contest

RADIO DIGEST FIRST ANNUAL GOLD CUP AWARD

Gold Cup Award Editor, Radio Digest,
510 North Dearborn St., Chicago, Ill.

Please credit this ballot as one vote for:

.....of Station.....
(Announcer's name) (Call letters)

Signed

Address

City.....State.....

If you desire, tell below in five or less words what you most like about the announcer for whom you have cast this ballot:

GOLD CUP STANDING REMAINS THE SAME

SOME ANNOUNCERS MAKE ROOM TO RECEIVE CUP

Close Finish Expected as Announcers Draw Fans to Their Support; Plenty of Surprises

Here we are again! This week the leaders remain in the same position as last week, except for the fact that they have advanced in the number of votes. George Hay, WLS, the "Solemn Old Judge," is still going strong and refuses to give up the lead he has acquired to any of the other contestants.

There has been a couple of the tail enders jump up into the limelight. W. A. Fay, WGY, has come from obscurity until he is now running Lambdin Kay, WSB a good race. Another nominee who is now in the running is C. A. Entrikin, WCAH, formerly among the also-rans, who is stepping right out.

Word has been received from the Hired Hand that he wants to be classed as a "dark horse." He expects to spring a big surprise on the rest of the crowd very soon. He is so dark that the lightning bugs chase him around in the daytime. That's saying a lot for Texas.

Plenty of Surprises Expected

From all reports, it seems that every announcer has his pet scheme for winning the Gold Cup. The end of the contest will be nothing but surprises, for most of the announcers are calling upon their admirers for support. Radiophans should get together and pool their votes for their favorite announcer, thereby getting the benefit of the added bonus which is offered.

Station WQJ has had a pedestal made and covered with velvet which will hold the Gold Cup. They are making preparations for it anyway. Although Jerry Sullivan, announcer at this station, is not listed among the leaders, he certainly has a dandy plan for annexing the Cup.

Standings at Present

The positions of the nominees who have fifty or more votes to their credit is given below:

Name	Station	Votes
George Hay	WLS	3008
Bill Hay	KFKX	2779
J. M. Witten	WOS	2018
Leo Fitzpatrick	WDAF	1777
Hired Hand	WBAP	1110
Jack Nelson	WGN	1043
H. W. Arlin	KDKA	827
Gene Rouse	WOAW	820
Richard Haller	KGW	753
S. W. Barnett	WOC	693
Fred Smith	WLW	676
John Daggett	KHJ	663
Kolin Hager	WGY	554
Graham McNamee	WEAF	486
Sen Kaney	WGN	465
Lambdin Kay	WSB	450
W. A. Fay	WGY	330
Maj. Andrew White	WJZ	298
Maj. J. J. Fanning	WNAC	260
J. T. Shilling	WHB	255
E. W. Tyson	WWJ	251
C. R. Emery	WGI	229
Paul Johnson	WLAG	221
Miss V. A. L. Jones	KSB	218
H. E. Ehrhart	WDAR	216
N. T. Granland	WHN	208
Jennings Pierce	KDO	198
S. L. Rothafel (Roxie)	WEAF	188
C. A. Entrikin	WCAH	182
Paul Reese	KFI	162
A. O. Coggesil	WGY	161
Elmer Johnson	WJAX	152
N. D. Cole	WHO	141
John Reilly	WJAR	106
Charles Erbstein	WTAS	101
A. R. Herske	WTAM	99

Harold Selyer	WHAS	96
Joseph Sartory	WCAE	88
F. W. Johnson	CHYC	79
Wm. Ludgate	KSD	78
Howard Milholland	KGO	76
C. A. Gaal	KUO	67
Henry Field	KFNF	67
Eleanor Poehler	WLAG	65
Chas. H. Messter	WCBR	64
Otto Beeker	WGR	60
Milton Cross	WJZ	59
J. Lewis Reid	WJZ	54
Victor Martin	WHAM	53
Wm. F. Holiday	WWJ	52
Morgan Eastman	KYW	51
F. A. Buhlert	KFJC	50
A. F. Edes	WBZ	50
E. A. Greene	WSAI	50
Walter Wilson	KYW	50

The new nominees who have jumped up into the list of leaders since last week are as follows:

Name	Station	Position
W. A. Fay	WGX	17th
C. A. Entrikin	WCAH	30th

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Looking Ahead

How Far Can I Hear? This is the feature of the next A-B-C of Radio in Mr. Edelman's articles. He tells of the range, day and night; occasional and reliable results. A list of sets and what they should do. Logging, fishing and reradiocast programs.

A Combination of Radio Frequency and Regeneration. Constructional data of the parts for Combination Radio Frequency and Regenerative set by Brainard Foote will appear in the next issue. The circuit will be given; also its operation.

Three in One Utility Piece. This is another article by Bertha Graves Morey on the home construction of useful furniture especially adapted to the Radiophans' needs. The description is for a combination chair, tool chest and table.

Latest Standing of the Gold Cup Race. The end of the contest is drawing near, and all the "dark horses" are beginning to send in their ballots. This will change the standing of the various nominees, and make for a close race. Boost your favorite announcer by sending in your ballots to be credited to his name. Watch the standings next week!

Take Radio Digest with You on Your Vacation

WHEN YOU WANT

Radio Digest

YOU WANT IT!

BE SURE OF YOUR WEEKLY COPY BY SUBSCRIBING NOW

Paul Reese	KFI	31st
A. O. Coggesil	WGY	32nd
N. D. Cole	WHO	33rd
Chas. H. Messter	WCBR	44th
Otto Beeker	WGR	46th

This number added to that given last week now makes a total of 55 nominees now listed with fifty or more votes.

More New Nominations

The following list of new nominations have come in since last week:

Name	Location	Station
W. E. Branch	Ft. Worth	WBAP
Chas. H. Meester	Providence	WCBR
Maj. Jack DuFresne	Vancouver	CFCQ
Arthur E. Poorman	Harrisburg	WBAK
E. J. Bowers	Toronto	CFCA
John T. Griffin	Joplin	WHAH

The Gold Cup Contest is nearing the end, as there are only four more ballots to be published. This will bring about a decided change in the standing of the nominees, and will bring out all the "dark horses." Watch for the standing next week.

Radio Concert Sends Edison Home on Time

Only Thing Which Insures Prompt Arrival for Dinner

NEW YORK.—Thomas A. Edison is Joseph Knecht's greatest admirer and an enthusiastic listener every evening when Mr. Knecht's orchestra Radiocasts from the Rose room of the Waldorf-Astoria. Furthermore, Mr. Knecht's music Radiocast nightly through Station WEAH is the one thing which insures his prompt arrival at home for dinner. Mr. Knecht learned of this one evening recently when the great inventor's daughter-in-law who was dining at the Waldorf came up between numbers to congratulate and thank the conductor and his orchestra.

For years the Edison family has despaired of getting the inventor home from his laboratory in time for 7 o'clock dinner, so great is his devotion to work. One night he listened in during dinner and heard the last number of a Rose room concert. Upon learning that the concert had been going on since 6 o'clock he gave orders that dinner in the Edison household would be served at 6 o'clock thereafter and he hasn't been late to dinner since.

AT \$60.00

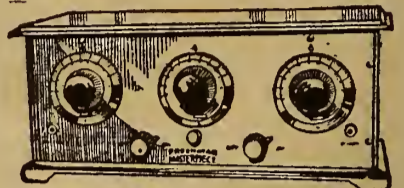
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FRESHMAN MASTERPIECE

a

Self-Balanced

five tube tuned radio-frequency receiving set is the greatest value ever offered.



Tests made by leading radio engineers and technical editors of the important newspapers in various sections of the country, have proven that the FRESHMAN MASTERPIECE is the equal, if not the superior to any five tube receiving set on the market.

BEAUTY!

Fine, genuine solid mahogany cabinet, attractive front panel of three ply mahogany veneer—such as is only found in very expensive sets—large heavy Bakelite 4 inch dials, entire assembly is on the sub-panel, eliminating all body capacity and panel leakage.

Ask your dealer for a demonstration—You will be convinced of its remarkable reproduction qualities. Free literature on request.

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Radio & Condenser Products
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HANSEN BIRD CAGE LINE



4-TUBE PORTABLE RECEIVER

\$92.50 COMPLETE



"Don't forget that this is not an ear phone—but a loud speaker portable." Here is the "NIGHTINGALE PORTABLE" in a fine case ready to walk away with. Take it with you on your Vacation, Auto Trip or to your Summer Camp or Home. When you come back with it, take it out of the case and use it as a home Radio Receiving Set. It is complete in all details including aerial, batteries and collapsible loud speaker. It is only 16 1/2 x 9 1/2 x 8 1/2 inches in size and weighs 25 pounds. It is ready to operate when you get it and costs.....\$92.50
NIGHTINGALE—4-Tube Radio Receiver without accessories..... 32.50
MOCKING-BIRD—6-Tube Indoor-Loop Radio Receiver without accessories..... 90.00
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SEE NEED OF WORLD RADIO CONFERENCE

INTERNATIONAL PROBLEMS WAIT FOR SOLUTION

Wave Length Reservations and Universal Language Adoption Are to Be Considered

By W. R. Service

WASHINGTON.—The need for an international conference on Radiophony, a universal language, more latitude for amateurs, and exclusive wave bands for distress and time signals is recommended in resolutions adopted by the preliminary conference for an international Radio agreement held at Geneva in April, and just received by the department of commerce.

The preliminary conference, at which many European nations were officially represented, endorsed the belief that the London convention of 1912 and the Washington conference in 1920 were not adequate to meet the present needs of Radiophonic communications between nations. Urging that a new intergovernmental conference on Radiophony be called soon, the delegates look to the free development of this new means of communication for popular instruction, universal information and social art.

Among the recommendations endorsed are the following:

That certain bands of wave lengths be reserved exclusively for Radiophony, and that they be distinct from Radio telegraphy channels.

Would Protect Amateurs

Because of the contributions of amateurs to the art, that their rights be given consideration and that certain wave bands be reserved for their experiments.

That the use of distress wave lengths should be exclusively limited to danger signals from ships and for time signals.

It was pointed out at the conference that Radiophony spreads the human voice over all borders but encounters the use of many different languages, and that therefore a universal or auxiliary language is needed for foreign transmissions. Some station in America and abroad have already undertaken instruction in such a universal means of communications. It is recommended that Radiocast stations devote at least one evening a week to transmission in Ilo.

States and countries which have forbidden the use of Radio, were urged to reconsider their decisions in the interest of development, especially in the amateur field.

STATION WSB HAS OWN CONVENTION

Burlesque on One Held in Madison Square Garden, New York, Recently

ATLANTA, GA.—A burlesque political convention at which the mythical American Radio party named its standard bearers for the presidential race was held in this city recently from Station WSB.

Actual delegates, recruited from Atlanta Radio circles, assembled and elected temporary and permanent officers, offered resolutions, adopted a platform, conducted a balloting by roll call, staged demonstrations, fell into a deadlock and otherwise satirized the procedure familiar to millions of fans who "attended" the Madison Square Garden marathon.

The successful candidates will wage an aerial campaign from WSB until the November elections.

Bitter debate is prophesied concerning the wording of "static" and "spark" planks in the platform. Lambdin Kay, WSB director-announcer and Ernest Rogers, Atlanta Journal troubador-reporter, are running for the presidential and vice-presidential nominations. Numerous dark horses are in the running, however.

"BILLY LAG" CROWS AS MANSION BURNS

MINNEAPOLIS.—"Billy Lag," nationally famous rooster used by Radiocast WLAG, to sign off and on the air, lost his home by fire recently. He was heroically rescued by C. E. Dahlstrom, flew to the top of the fence, and crowed ecstatically while firemen extinguished the blaze. The personnel of WLAG is rejoicing at his escape with his life and all of his beautiful white tail feathers.

PORTABLES NOT SO PORTABLE IN FRANCE

PARIS.—When the people of the United States want to go on a vacation and take their Radio set along, they pack it up and move wherever they care to go. When a Frenchman decides to take his Radio set into the country for the summer, he must first go to the P. T. T. bureau and register his change of address for his set as well as for himself. This is a police precaution.

COMPANY FOR LIFE GUARDS



The young man sitting above is an ardent Radiophan. When he started his job as life guard at Dreamland Park, Newark, N. J., he brought his set along with him. Daily he sits and listens in for the doings throughout the country while he is on duty.

Do Radiophans Want Organ Recitals? Tell It to WGR

BUFFALO, N. Y.—The question is: Do the Radio audiences like organ recitals? Yes, or no. Do they or don't they?

That is what the general manager of WGR wants to know. And also, Lawrence H. Montague, who is responsible for the Sunday afternoon organ recital from 4 to 5 o'clock on alternate weeks from WGR wants to know.

Mr. Montague's request program recently, was the last one to be given before his vacation. Whether or not the organ programs by Mr. Montague will be continued after vacation will be determined by the Radio mail received.

Prize Offered for Radio Plays; Open to Everyone

LONDON.—An interesting prize has been offered by the British Broadcasting company, through the London Play company, 51 Piccadilly, London N. 1 It is 50 pounds sterling (about \$225) for the best play written especially for Radiocasting purposes. The writer is to surrender all Radiocasting rights to the B. B. C. for one year. If at the end of that time the play is still being Radiocast from any one of the B. B. C. stations, the author will receive a royalty of two guineas (\$10) per performance until it stops.

This contest is open to Britishers and all other nationalities.

BUILDING LARGEST STATION AT RUGBY

WORLD'S LARGEST PLANS 1000-KILOWATT POWER

Is for Radio Telegraph Only—Towers So Big Special Transportation Is Required

By A. C. Blackall

LONDON.—The largest and most powerful Radio telegraph station in the world is now being erected at Hillmorton, a few miles south of Rugby, England.

The great aerial—one and a half miles long and half a mile wide—will be supported on twelve steel masts, each 820 feet high, or more than twice the height of St. Paul's Cathedral and but little less than that of the Woolworth building. There are 300 tons of steelwork in each mast, and the London, Midland and Scottish railway, responsible for the transport of the material, have had to make special traffic arrangements for their conveyance. The sections of the masts are so huge as to be wider than the gauge of the railway, so they have to be transported on Sundays or at nights, with adjoining tracks blocked to other train traffic. Inside the masts elevators to hold four men will be installed.

To Reach Remote Corners of Earth

The station is to be under the control of the government and it will be capable of maintaining communication with the most remote corners of the earth. Several of the masts are already in place on the 950-acre site of the station, and, section by section, are rising skywards. It is hoped that it will be possible to begin a Radio service from the station by the end of the year.

Power for the station will be obtained from public supply mains, arranged to give a high tension direct current output of 1,000 kilowatts at any voltage between 4,000 and 18,000.

ENLARGE KFNF STUDIO RANGE IS INCREASED

Radiophans Surprised at Change in Volume and Clarity

SHENANDOAH, IOWA.—Radiophans throughout the country were very much surprised recently when Station KFNF started Radiocasting with such volume that the fans were compelled to diminish the power that they were using.

Letters started to pour into the studio asking what had taken place. Never before had KFNF come in with such clarity and volume. The Henry Field Seed company has at last divulged the cause.

The studio has been enlarged to twice its size. The main object in doing this was to get better ventilation, to provide for larger programs, such as choruses, bands and orchestras, and to provide seating room for visitors in the back end of the room. It had the surprising result, however, of increasing the volume and quality of tone very much.

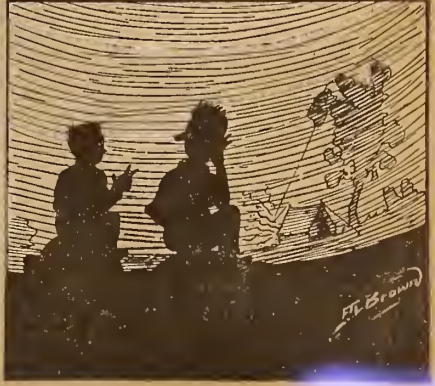
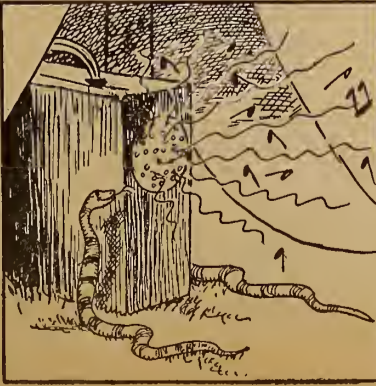
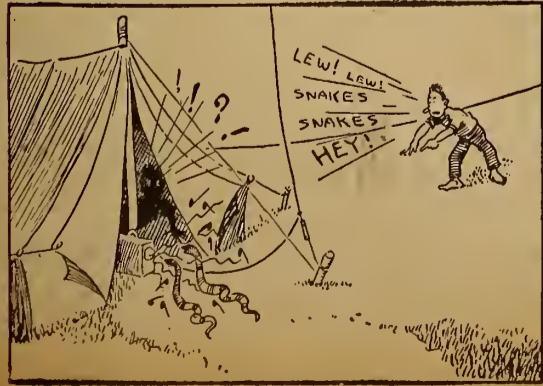
The studio is of the ordinary type of construction, with padded walls, carpeted floors and draped ceiling. The microphone, piano, etc., being at the end, close to the wall.

It has been estimated that the volume has been increased from two to four times, which does not seem at all reasonable or possible, as there has been no change whatever in the transmission. This is another of the many Radio mysteries yet to be cleared up.

French Link Possessions

PARIS.—A new Radio station is to be opened soon in Noumea (French New Caledonia) which will be used for direct relay from France to Tahiti. At present Noumea is receiving messages via the big station recently opened at Saigon. France is rapidly linking herself to her colonies by a great chain of powerful Radio stations.

THE ANTENNA BROTHERS Spir L. and Lew P. Wanted—a Hindu



AFRICA TUNES IN TO STATION WGY

Entire Performance of "The Mikado" Received with Excellent Clarity and Volume

SCHENECTADY.—Reports have come to Station WGY, located in this city that N. Grant Dalton, an amateur at Johannesburg, Transvaal, South Africa, received through 2X1, the entire performance of "The Mikado," Radiocast on the evening of May 22.

The Johannesburg Star, to which Mr. Dalton in his delight reported his reception, apparently doubted the young amateur, but the management of the publication was interested to such an extent that they cabled WGY, to check the claims of Mr. Dalton.

Mr. Dalton stated: "It is the best reception I have ever had. It was excellent both in regards to clarity and strength. The spoken words sounded muffled, but, solo and duet voices were particularly good." He used a four tube set, one stage of Radio frequency amplification, detector, and two stages of audio frequency. Due to the absence of atmospherics, an extra stage of Radio frequency was added.

Johannesburg is 8,043 miles from Schenectady. This is a record distance for the station. The reception was the more remarkable because of the warm weather at the transmitting end and the heavy static that had to be penetrated to reach southern Africa now experiencing the winter season.

Use Radio to Locate Lost Boy; Found Same Evening

MONTREAL.—Little boys, suffering from an irrepressible impulse to wander away from the front-porch or back-yard, in search of adventure, must nowadays take Radio into account when formulating plans for a safe get-away. Otherwise Radio upsets everything.

Little Marcel Plourde, aged 5, left his parents' home one morning recently in this city, and failed to return. The police were duly notified and CKAC, La Presse, Radiocast at 10 p. m., a description of the diminutive adventurer. Less than an hour later he was spotted by a Radiophan who was putting out some empty milk bottles at his door. After twelve hours of unalloyed freedom and bliss, Marcel was restored to loving arms.

TO RADIO HORSE RACES

(Continued from page 1)

abroad by the Zev-Papyrus race last year, have aroused even more attention than did the former match, for Epinard is profiting greatly by the example of Papyrus. He has arrived in time for a much longer training period here, allowing him to become completely familiar with our tracks, and is being handled by Jasper Leigh, a former American horseman who knows our methods of racing thoroughly. The three races which have been scheduled will allow the visitor to display his form at a variety of distances and over three different tracks.

Washington Opens a New Radio Station

Will Be Used for Emergency When Phones Fail

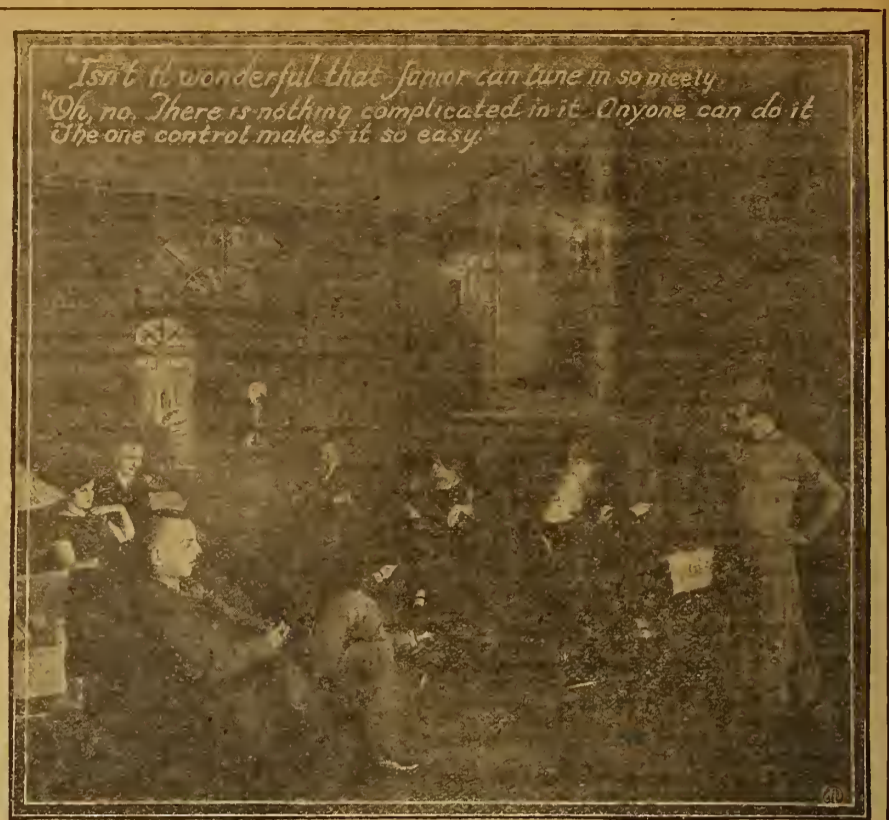
WASHINGTON, D. C.—A Radio transmitting station has been erected by the Potomac Electric Power company at its headquarters here for emergency purposes it has just become known through the issuance of an amateur's license by the Radio section of the Department of Commerce. The call letters of the new station are 3XAV.

Although not as powerful as Washington's two other Radio stations WCAP and WRC the power company station during recent tests was heard in Ohio. The wave band on which it will transmit will be too low for the average receiving set to pick up the messages.

The primary purpose of the station it is explained is to communicate with the company's power plant in the outskirts of the city in the event of an emergency which might paralyze telephonic communication. A receiving set has been installed in the power station and it has successfully picked up messages sent out from the transmitting station.

Officials of the electric company also are considering plans it is said for equipping some of its repair trucks with receiving sets in order that communication may be established with them when the crews are working in suburban communities and not within range of telephone.

Application has been made to the Paraguayan chamber of deputies for a concession giving one company the exclusive right to Radiocast and sell Radio equipment in Paraguay for five years.



*Isn't it wonderful that Junior can tune in so nicely?
Oh, no. There is nothing complicated in it. Anyone can do it.
The one control makes it so easy.*

Bristol Single Control Radio Receiver

Complicated combinations are eliminated when tuning in with Bristol Single Control Radio Receiver—every station is on the one dial. It gives the joys of radio with technicalities left out.

The well-known Grimes Inverse Duplex System (non reradiating) is utilized in this Receiving Set. Because of the reflex, only four tubes are required to give power equivalent to six. The price, without accessories, \$190.00.

Audiophone Loud Speaker

You forget the radio equipment when listening thru the Audiophone Loud Speaker. The tone is full, clear and pleasing. It gives a true reproduction of the original. Made in three models—Senior \$30.00, Junior \$22.50, and Baby \$12.50.

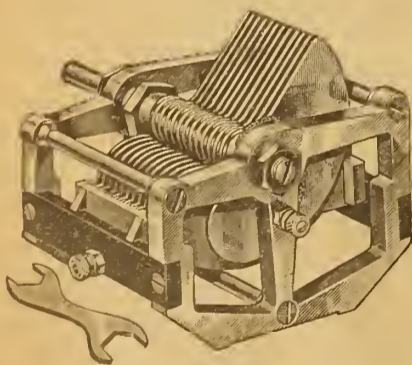
Ask for Bulletins Nos. 3014 and Ay-3015

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Every Fan Can Afford



A laboratory type at a commercial price. We'll guarantee you'll find in the Bremer-Tully "Lifetime" condenser, more vital improvements, more advanced features, more essential advantages than any other.

Bremer-Tully "Lifetime" Condenser

Electrically Perfect Mechanically Beyond Comparison

Low loss, high ratio, straight line wave length, Superior B-T. Exclusive method of die casting stator and rotor plates. Pigtail connection. Grounded Rotor. Unique design, cast aluminum end plates.


"Lifetime" two-step thrust bearing, adjustable to any degree of friction, without disturbing plate alignment or changing capacity. "20 point" folder gives full details. Write for copy.

Watch for announcement of new Bremer-Tully Low Loss Tuner. Special new features. Longer range of wave lengths. Adjustable primary and many other features. This tuner gives results heretofore impossible.


BREMER-TULLY MFG. CO.

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Filament Rheostat



No. 95 Vario-Coupler



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Standard RADIO Products

THE Federal iron-clad performance guarantee does more than protect you from loss or disappointment when building your pet hook-up. It is a pledge of perfection which a manufacturer would not dare to give unless he had Federal's background of over a quarter-century experience in radio and kindred fields.


There are over 130 standard radio parts bearing the Federal iron-clad performance guarantee.

FEDERAL TELEPHONE & TELEGRAPH CO.
BUFFALO, N. Y.

Boston New York Philadelphia Pittsburgh Chicago
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No. 65 Audio Transformer



Variable Condenser

BEFORE THEY THOUGHT OF "MIKES"



Left, is Paul J. Miller who is announcer at Station KQV. This young man has been in the Radio Game since 1913, and he is still going strong. Above to the left is a photograph of the announcer at Station K— out on the Pacific coast. Upper right, crying for all he is worth, is the famous announcer at Station W—, located in the south. Watch for his grown-up next week, as this is a good likeness of him. Right, is N. Dean Cole, announcer at Station WHO, Des Moines, Iowa.

Paul J. Miller, KQV

MUSIC is the avocation of Paul J. Miller, the youngest operator and announcer of Station KQV, Pittsburgh, Pa. He began to play the piano before he could touch his feet to the floor from the piano stool, and at the shining age of eight years, was the feature performer before an audience of some six hundred people.

Playing ball is his summer pastime and during the past season, he suddenly rose to fame as an amateur theatrical "producer." (Please note the word—and he also played "juvenile lead for the show.") Incidentally, he plays the church organ on Sundays.

This aspiring young Radio salesman, announcer and operator, hopes to add "Electrical Engineering" to his list of real achievements. He is studiously pursuing a correspondence course to this end. But—city life does not appeal to him, he prefers the open country and simple life, and will be found helping to develop the great wide-space communications of the U. S. in the electrical field.

Small of stature, Paul Miller commands attention none the less and with brown hair and large blue eyes, a radiating smile of good humor and a pleasing address he is surely one of the big assets of KQV. He started in the Radio game way back in 1914, when his total assets in the way of Radio apparatus consisted of a coherer and a couple of nails, which were used as the electrodes of a spark gap.

N. Dean Cole, WHO

THE grown up picture of N. Dean Cole while taken some four years ago still shows quite a likeness to the chief announcer and studio director of WHO except for the fact that he has

since added bone rimmed glasses. He was born in New York City twenty-seven years ago.

Being asked for a short description of himself this is what he had to say: Height, about five feet and eleven inches. Weight, not so good, only about one hundred and fifty pounds. Complexion, light; color of hair, light brown (prefers not to be called a blonde). Eyes, sort of a mixture of a blue and a gray. Habits, we couldn't get him to mention this subject. Married some three years, success-

fully. Talents, speaking and singing occasionally.

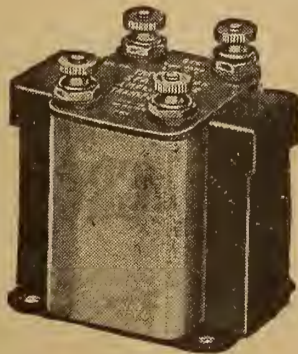
Mr. Cole has spent about nine years in the telephone business beginning in 1916. He worked until he enlisted in the Signal Corp, United States Army, April, 1917. After enlisting in the Signal Corp he was sent to Camp Dodge, where he met the girl who was later to become Mrs. Cole. After leaving Camp Dodge he spent a year with the A. E. F., during which time he was in France, Belgium, Luxemburg, Germany, England and Scot-

land. Returning from Europe he continued his associations with the New York Telephone company. After being married he returned to New York where he spent a year and one-half. Until affiliated with WHO he was with the North Western Bell Telephone company employed in Des Moines. Mr. Cole's only reason for thinking that he could qualify as an announcer was the fact that he has been using a microphone for about nine years. We will leave it to you to decide whether he has made a success of it or not.

When you find a better Transformer it will bear the name

THORDARSON

- 2-1 Ratio \$5.00
- 3 1/2-1 Ratio \$4.00
- 6-1 Ratio \$4.50



The mirror of the Broadcasting Studio

SUPER TRANSFORMER—2 to 1 Ratio (audio frequency)

The Thordarson 2 to 1 ratio amplifying transformer is indeed the mirror of the broadcasting studio. It seemingly brings the artists direct to your home. Install a pair—it will take you but a few moments—and you will marvel at the richness of the musical qualities obtained.

THORDARSON ELECTRIC MFG. CO.

500 W. HURON STREET

CHICAGO, ILL.

TELL ARTIST EDITOR OF YOUR FAVORITES

DO YOU have a favorite Radiocast artist whose picture has not appeared in Radio Digest? If so tell the Artist Photo editor about it. Write him a little note mentioning the artist's name and station and he will attempt to give you what you want. The photographs, however, will be restricted to those artists for whom there are a number of requests. Space limitations demand the latter provision. Just write your note to the Artist Photo editor, care of Radio Digest, Chicago.

Radio Station Destroyed by Fire; Damage \$25,000

BREMERTON, WASH.—One of the powerful Radio stations of the United States navy located in Cordova, Alaska, and used commercially, was destroyed by fire on the night of July 3, it was revealed here from the office of communications of the Puget Sound navy yard, which is located at this point. The loss is placed at \$25,000.

RADIO COMPLAINTS CLASSIFIED; SPARK WORST OFFENDERS

WHISTLES HOLD SECOND, AND CROSS TALK THIRD

Listeners Give Valuable Data Which Helps Radio Engineers; Change of Wave Lengths Likely

NEW YORK.—The final talk of the series by John V. L. Hogan, past president of the Institute of Radio engineers, before WEAF's microphone, concluded with a request for specific data regarding interference difficulties experienced by WEAF's listeners. These have yielded very valuable figures regarding the problems to be met before Radio's ills are entirely cured. The sources of greatest interference were spark telegraph signals, which were rated as the worst source of interference by 39% of those complying with Mr. Hogan's request. Whistles came second, with 31.4% and cross talk (that is, interference from other Radiocasting stations) 29.6%.

Radio listeners were also requested to indicate their second and third choice as to the most troublesome sources of interference. Whistles were the second cause of interference on 43% of the questionnaires, spark on 37% and cross talk on 20%. Third choice was assigned to cross talk by 60%, whistles by 22.5% and spark by 17.5% of those replying to the questionnaire.

The consistency of these figures are quite notable, spark interference holding first place in the first choice, second place in the second choice and third place in the third choice. Although whistles hold only second place in the first choice, the analysis show it to be quite preponderant as the second worst cause of trouble.

When the first changes in wave length were made, cross talk was, perhaps, the most serious difficulty but improvements in the design of sets and increased experience on the part of those operating them has made this trouble rank third in both first and second choice.

Arrangements are being made with the principal Radio telegraph companies for reducing the amount of traffic handled on wave lengths which are likely to interfere with Radiocast reception.

Radio Conference to Be Held Next Month

Questionnaire Submitted to Supervisors to Ascertain Views

WASHINGTON, D. C.—The wheels of the department of commerce have started to move toward preliminary arrangements for the third Radio conference which it is expected will be held in this city the latter part of September under the auspices of Secretary of Commerce Hoover.

A preliminary list of twelve questions has been prepared by officials of the department which will be a nucleus for a complete program to be prepared later.

At the present time officials of the department are unwilling to discuss the questions because they feel that the program should be in a little more definite form before any publicity is given to it. It is understood, however, that these questions deal with such matters as wave lengths, the betterment of Radiocast programs, the question of super-power stations and many other matters of particular interest to Radiophans of the country.

Lady Asks Shutdown of Plants to Halt Rain

Asks President to Issue Proclamation—Folly Shown

WASHINGTON, D. C.—The presidential mail contains many curious requests, but one of the most peculiar has just been received from an Ohio lady who asks the president to issue a proclamation shutting down all of the Radiocasting stations in the United States in order to obtain better weather.

The letter goes on to say that the writer is of the opinion that the great quantities of rain which have been experienced in this country this summer have been caused by Radio and the lady states that she believes that the listeners in of the country would be willing to forego their after dinner amusement for the sake of the poor, downtrodden farmer who is unable to harvest his crops.

The Radio section department of commerce, called attention to the fact that if Radio had anything to do with the rain it would be natural to assume that the rainfall would be greatest where there are the greatest number of Radiocasting stations. This is not so.

Prof. Jansky with Signal Corps WASHINGTON, D. C.—Prof. C. M. Jansky, formerly of the University of Minnesota, was appointed Assistant Consulting Radio engineer of the Signal Corps recently. His duties will include research problems in Radio telegraphy and telephony in the Signal Corps Radio laboratory at Camp Alfred Vail, N. J.

Chicago Has Another Station CHICAGO.—Another new station opened on the roof of the Webster hotel, located in this city recently. The call letters assigned to it are WTL, and their power is 10 watts. Lem Brosseau, is chief announcer. They are operating on a wave length of 268 meters. They expect to increase the power of this station soon.

Thrills from Radio

No. 25 of a Series Featuring Experiences of "ALL-AMERICAN" Users

"Los Angeles to Quebec—All-Americans Cannot Be Beat"

By C. G. Miles, Fort Wayne, Ind.

"I have been using a single circuit regenerative (detector and two stages of audio frequency) employing two of your 5 to 1 ratio audio transformers and have had the pleasure of listening to KFI and KHJ at Los Angeles, KPO at San Francisco, CFCN at Calgary, KGO at Oakland and KJCM at Mont Joli, Quebec, Canada. Of course these stations were not brought in at this time of the year, but all were heard on a small loud speaker during the fore part of April of this year. As I said before, your transformers cannot be beat, and this is the opinion of most of the owners of receiving sets that I have talked to."



All-American Audio-Frequency Transformers come in three ratios: the 3 to 1 at \$4.50, and the 5 to 1 and 10 to 1 at \$4.75. There are no better instruments on the market at any price.

THE KEY BOOK IS OUT!

If your copy hasn't come, it will very soon. If you haven't ordered it, don't delay another day, for it's "the best hook-up" book ever published" — there's nothing else like it! Send 10c today, coin or stamps.

All the better dealers sell the "ALL-AMERICAN"

RAULAND MFG. CO., 2640 Coyne St., CHICAGO PIONEERS IN THE INDUSTRY

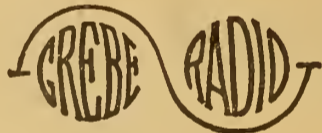
Audio and Radio Frequency; Power Amplifying (input and output)



Over three-quarter million in use. Standard on the better sets

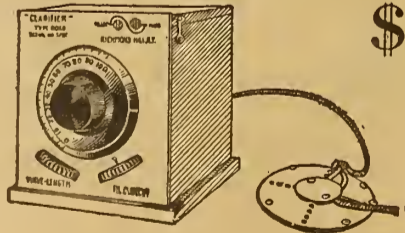
ALL-AMERICAN AMPLIFYING TRANSFORMERS

Largest Selling Transformers in the World



The GREBE CLARIFIER

THE first practical, workable solution of the problem of radiation from regenerative receivers. Unlike the "wave-trap" it increases signal intensity.



\$30

- Increases Selectivity
- Increases Signal Intensity
- Improves Quality
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Is Easily Connected

Ask your dealer or write for literature

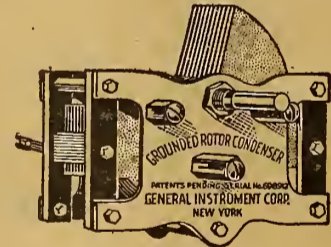
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Are You Ready?

The biggest radio season of all is now opening. Politics, opera, comedy, fights, speeches, games, sermons—every form of entertainment and education will be at your command. Make ready now. Insure increased power for your set by replacing your old condenser with the new



THE LOW LOSS GENERAL INSTRUMENT CORPORATION GROUNDED ROTOR CONDENSER

Actual tests have proved that dielectric losses have been practically eliminated by this marvelous condenser. Greater selectivity, more distance and a remarkable increase in volume naturally follow its use.

	Minimum	Maximum	
Type 46X 11 Plate	5 MMFD.	.00025 MFD.	\$4.50
Type 46A 13 Plate	6 MMFD.	.0003 MFD.	4.50
Type 46D 21 Plate	9 MMFD.	.0005 MFD.	5.00
Type 46F 43 Plate	15 MMFD.	.001 MFD.	5.50

AT YOUR DEALER

Otherwise send purchase price direct to us and you will be supplied.

GENERAL INSTRUMENT CORP.

423 Broome Street NEW YORK CITY



Combination Radio Frequency and Regeneration

Part I—Simplicity and Convenience Are the Chief Points in the Design

By Brainard Foote

THE general trend of set building seems to be along the lines of simplification. And this is but a natural reaction to the prevalence of receivers involving a multitude of dials and knobs to "wind" every time the set is used. A neutrodyne, for instance, already having three tuning dials, ought not to be complicated with a rheostat for every tube inside the cabinet, for such practice means a lot of extra work when you want to listen in.

With the universal use of quarter ampere tubes in the sockets other than that for the detector comes the possibility of cutting out the filament regulators to a large extent. The C-301A and the UV-201A are not critical tubes—you can swing the rheostat knob quite a way back and forth without noticing any difference in signal strength. Why bother with rheostats on the panel, then?

Filament Control Jacks

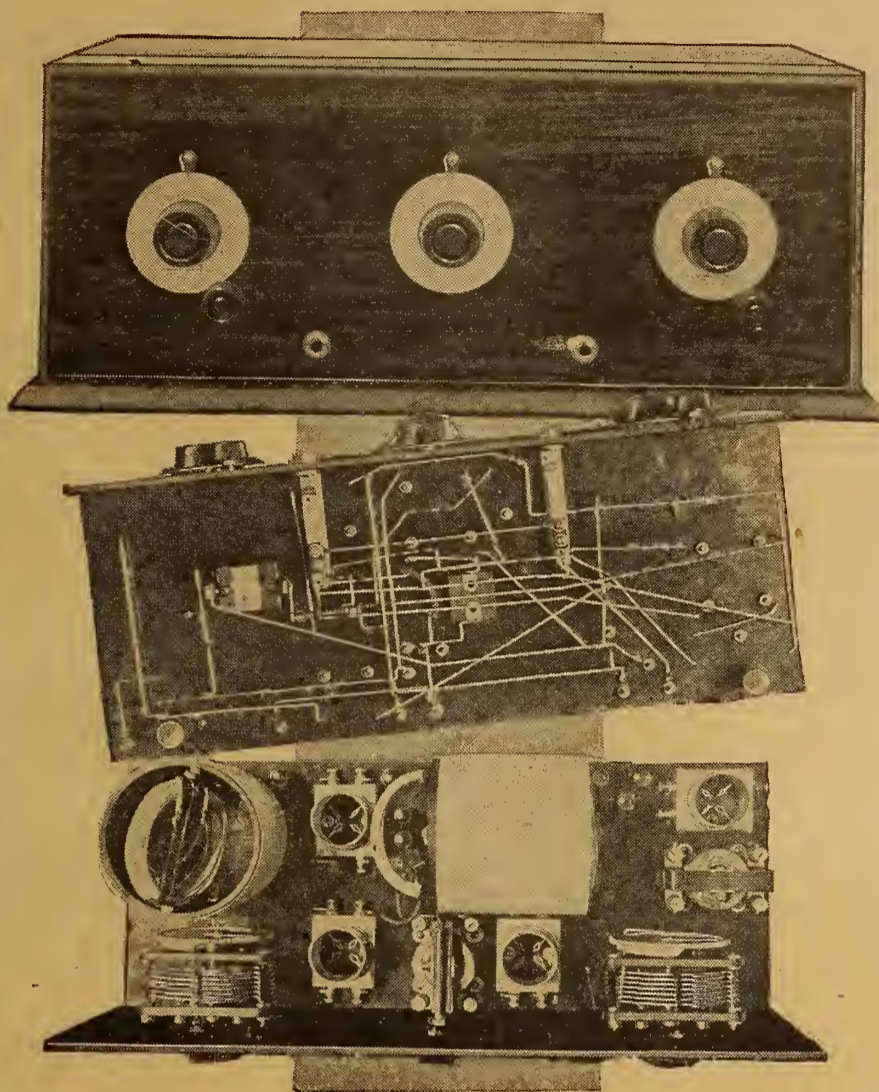
The panel for a four-tube set may be made to have the appearance of the set shown in the illustration. There are two tuning controls and one regeneration control. Two jacks complete the exterior. Instead of employing rheostats at all, a fixed resistance is employed, and two filament control jacks permit the use of either one or two steps of audio amplification. When you're through with this sort of a set, just pull out the phone plug and the tubes go out. Insert the plug in the first jack, and three tubes light up; in the second jack, and all of them are illuminated. Don't you think that's better in every way than cranking five "handles" instead? If you're a believer in a soft tube as the detector, you will probably retain a rheostat for such a tube, but, as a matter of fact, the difference is so slight that it's scarcely worth while to use a soft tube as detector. No doubt it is worth while in a plain detector circuit, but with Radio frequency ahead of it, you'll gain but little. Then, besides, you save three-quarters of an ampere by using the other kind of tube, and your A battery lasts a good deal longer.

There are other worth-while improvements to be suggested, too. All wiring is placed on a sub-base made of panel material, as shown in the second picture. The base is supported by two jacks and two standards. The coils and sockets are mounted on top of the base and the wiring beneath. The use of a base in this manner is electrically much superior to screwing the parts to a wooden base board. It's far easier, also, because you merely use 1/2 or 1-inch 6-32 machine screws and nuts for fastening the parts in place. The wiring is thus concealed beneath the sub-base, and the appearance of the set bettered in that way, too. Dust cannot settle on the connections, either.

Variable Features

Many manufacturers are now bringing out receiving sets using one step of Radio frequency, detector, and two of audio frequency. Some of the sets are adjusted so they are near the point of oscillation—others have regeneration controls. A regenerative detector circuit preceded by a step of tuned Radio frequency is surely a combination of high sensitivity. What is more, it does not radiate appreciably on account of the blocking action of the Radio frequency amplifier tube.

The circuit used for this set is not at all complicated despite the filament control jacks. The antenna is coupled to the Radio frequency amplifier tube by the variable coupling coil inside of the sta-



tionary coil shown at the upper left corner of the bottom picture. The coil may be rotated and left set at the best point of the coupling. This depends entirely upon the capacity of the antenna used with the set; a large aerial requiring less coupling than a small one.

The coil lying on the base in the center is the plate coil of the Radio frequency tube and couples it to the detector grid circuit. The coupling may be varied, so that the Radio frequency tube is supplied with a definite and fixed amount of feedback. It is set near the point of oscillation, but there is not quite enough coupling between to permit the Radio frequency tube to actually oscillate. That coupling is then left set.

Now comes the unusual feature—the tickler coil. Instead of securing regeneration in the Radio frequency tube, as is done with many circuits (the Superdyne, for instance) and which practice makes the first tube a strong transmitter and interferer, the regeneration is obtained wholly in the detector. This is but evenly dividing the work of the two tubes anyway.

The tickler coil is mounted at the left

end of the plate coil—the detector grid circuit—and it is mounted so that it can be controlled from the panel front. The center dial shown moves the tickler through a semi-circle. Hence, not only can you get regeneration and oscillation if you want it, in the detector tube, but you can also turn the tickler "backwards" so as to oppose oscillation and reduce signal strength when using headphones on a local Radiocast.

Parts Necessary

You may depart from the recommendations listed below, but these are given in order that the reader may know and recognize them in the photographs:

About 1/4-inch will have to come off the 7 by 18 sub-panel in order to make it fit inside the cabinet. Any good apparatus may be chosen as desired, provided the constants are not different. This is especially true of the variable condensers, for a smaller size would not cover the Radio-

- One—7x18 cabinet
- One—7x18 panel (Mahogany, illustrated)
- One—7x18 panel (black) as the sub-panel
- Two—Vernier variable condensers, .00025 mfd.
- Two—Audio transformers
- Four—Sockets
- Two—Pieces 4x4 hard rubber tubing
- Two—Pounds Number 16 double covered magnet wire
- Nine—Binding posts
- Two—Filament control jacks, 6 and 4 contact
- Three—3-inch dials
- Eight—Lengths bus bar for connections
- One—Grid condenser .00001 mfd.
- One—2 megohm grid leak and mounting
- One—Fixed condenser .001

cast band, while a larger size will give too "crowded" an arrangement of the dial settings. The 13-plate condenser with about .00025 mfd. capacity is correct.

(Construction of the coils for the superdyne will be told in the next issue. A complete wiring diagram will be given and an explanation of the circuit as well as the assembly.—Editor's Note.)

Doubly-Grounded Antenna

To avoid trouble from power lines and local electrical machinery one ingenious French amateur has devised an interesting scheme of aerial connections which has received much approval.

The principle consists in connecting the free end of the usual horizontal aerial to a ground. This connection should be made by a wire large enough to have practically no resistance. With the ground connection itself, the average resistance should be not more than 40 ohms.

The other end of the aerial is connected to the receiving set and thence to the ground in the usual fashion. At this end, also, the total aerial-to-ground resistance should be low, preferably not more than 40 ohms. The ground connections themselves must be efficient ones, made preferably by burying zinc or aluminum plates about a yard square and about four feet under ground.

If possible the ground plates should be placed where the soil is continually moist, even in summer. If it is unavoidable to place the ground plates in dry earth, they may be buried in beds of coke, which should be wet down by the garden hose every so often. In this case a larger piece of metal should be used.

In ordinary moist soil the dimension of one square yard mentioned above will produce very good results and under these conditions, it is not necessary to make any measure of the resistance of the ground. No matter what the ground plates may be, the resistance of the ground must not be more than 80 ohms. Otherwise the mounting will have little effect in eliminating parasitic interference.

POZ at Nauen, which formerly transmitted its time signals on 1300 meters spark, is now working on CW at 1800 meters.

*You'll say
De Forest Audions
are mighty
good tubes!
Try Them!*

DE FOREST RADIO TEL. & TEL. CO., Dept. R. D. 12, Jersey City, N. J.

Coto
"Built First to Last"

"VERY MUCH BETTER THAN YOUR ADVERTISING CLAIMED"

Range 200 to 600 meters

These words from a user's letter are just a sample of nation-wide favor. Wherever your favorite circuit calls for a variometer, Coto Compact Moulded Variometer, with the honeycomb wound stator coils is your first choice. Also available for portable sets because of small size.

If your dealer fails you write us, giving his name and address and list of Coto parts you need.

COTO-COIL CO.
87 WILLARD AVE. PROVIDENCE, R. I.

BRANCH OFFICES: Los Angeles, 329 Union League Bldg.; Minneapolis, Geo. F. Darling, 705 Plymouth Bldg.; Atlanta, C. P. Atkinson, Atlanta Tr. Co. Bldg. Canada, Perkins Elec. Co., Ltd., Montreal, Toronto, Winnipeg.

AN EVENING AT HOME WITH THE LISTENER IN (SEE INSTRUCTIONS FOR USE BELOW)

Table with columns: Station and City, Met., Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday. Lists broadcast schedules for various stations like CFCN, CHYC, CKAC, etc.

Instructions for Use.—All the hours above are given in Central Standard Time. If your city uses Eastern Time, add one hour to each of the periods stated; if your city uses Mountain Time, subtract one hour; if your city uses Pacific Time, subtract two hours.

Column Conductor Speaks to Radiophans from WOR

NEWARK, N. J.—Mr. Edward Anthony, who formerly did the humorous column in the literary section of a New York daily newspaper, spoke recently from Station WOR, located in this city.

Special Talks for Amateurs

MEDFORD HILLSIDE, MASS.—Following the usual code practice which is Radiocast from Station WGL, twice a week there will be an amateur Radio period, during which special announcements of interest to amateurs will be made.

Advertisement for Radiotron WD-11. Includes image of the tube, text describing its features (price \$5.00, RCA logo), and contact information for Radio Corporation of America.

Free Proof

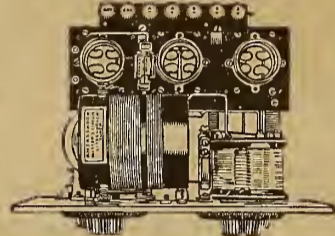
Never once has The Radio Shack failed to deliver the goods expected by our customers. Never once have we advertised any set or kit without FIRST making TESTS that we PUBLISH.

DE LUXE AMBASSADOR

Let The Radio Shack furnish you the PROOFS of hearing London, England on the synchronized De-Luxe 3-Tube Ambassador, the incomparable portable radio for the peak of ideal summer DX reception.

SET CONSISTS OF

- 1 DRILLED 7 x 10 Radion Mahogany Panel, engraved in Gold.
1 Genuine Ambassador Master 3-Circuit Litzendracht Tuning Coil.
1 Genuine Comsco Bakelite-End Condenser.



\$27.95 C.O.D.



Special Suit Case Cabinet

Space for set, "A" and "B" Batteries and Antenna. Covered with fine automobile leather Fabrikoid, reinforced genuine leather corners and handle, special convenient doors.

\$12.00

ACCESSORIES

- Everything needed to operate after building is listed here—
3 Type 201-A Tested Tubes\$11.70
1 60-Ampere Hour Storage Battery \$11.25
2 45-Volt Extra Large Enco "B" Batteries \$6.50

SPLENDID CABINET FREE

Order Building Kit and Accessory Outfit together, and we will send Fine Mahogany Finish Cabinet FREE.

The Deductible NEUTRODYNE

SET CONSISTS OF

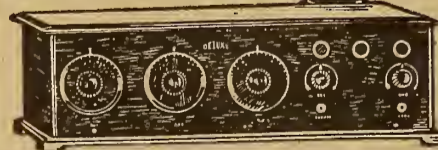
- 1 Drilled Mahogany Panel, polished mahogany effect, engraved in gold.
3 Four-inch Mahoganyite Dials, gold engraved.
2 Gold Plated Jacks.
3 Genuine Hazeltine Neutrodyne mounted on the famous Comsco-Bakelite End Condensers.

Let The Radio Shack furnish you with PUBLISHED PROOFS which PROVE our synchronized De-Luxe 5-Tube Neutrodyne superior to all others using neutrodyne circuits.

\$34.49 C.O.D.



Complete Building Kit, \$34.49 C. O. D.



- OPERATING OUTFIT
5 Tested Tubes (Type 201A).....\$19.50
2 45-Volt Extra Large Variable "B" Batteries for Neutrodyne 6.50
1 60-Ampere Hour Storage Battery, guaranteed 2 yrs. 11.25
1 pr. 3000-ohm Head Phones and Cord 3.75
1 Phone Plug, double.....1.90
1 Antenna Equipment.....1.50
Complete Outfit, \$43.40, C.O.D. (Parts Also Sold Separately)

The RADIO-SHACK Send No Money. We ship C. O. D. When shipment arrives pay your postman. Then enjoy your purchase under our WRITTEN MONEY-BACK GUARANTEE.

ING AT WSB; FILM STARS AT KFI



Harrison Coles will sing the tenor roles in the Japanese romance given from KPO, Thursday, August 7. Mme. Hana Shimazumi Iki, Japanese prima donna will sing with him.

hour conducted by Doris Claire Secord, daughter of "Uncle Ross" of World-Herald; 9, classical program. WOC, Davenport, Iowa (Central, 484), 12 m., chimes; 8 p. m., program, artists from Galva.

WDD, Philadelphia, Pa. (Eastern, Daylight, 509), 11 a. m., organ recital, Mary E. Vogt; 12:02 p. m., Wanamaker crystal tea room orchestra; Robert E. Golden, director; 4:45, organ recital, Mary E. Vogt; 7:30, A. Candelieri and his orchestra from Hotel Adelphia; 8:30, WOO orchestra, Robert E. Golden, director; 9:30, organ recital, Mary E. Vogt; 10, Hotel Adelphia dance orchestra.

WOB, Newark, N. J. (Eastern, Daylight, 405), 2:30-2:45 p. m., Carl Fischer, flutist; 2:45-3, Frances B. Pehl, pianist; 3:15-3:30, Carl Fischer; 3:45-4, Frances B. Pehl; 6:15-6:30, songs for children, Arnes Leonard; 6:30-7, "Man in the Moon Stories" for children; 7-7:20, P. George Ou & His Peerless trio; 7:20-7:30, resume of the day's sports.

Saturday, August 9

Silent night for: KSD, WBAV, WCAP, WCX, WDAR, WEAD, WFI, WGR, WHD, WLV, WDD, WOS. CKAC, Montreal, Can. (Eastern, Daylight, 425), 7 p. m., kiddie stories in French and English; 7:30, Rex Battle and his Mount Royal Hotel orchestra; Napoleon Dansereau, cellist; 8:30, studio entertainment; 10:30, Joseph C. Smith and his Mount Royal hotel roof garden dance orchestra.

Sellander, soprano; Margaret Avery, cellist; 10-1, Henry Halstead's Hotel St. Francis dance orchestra. KGW, Portland, Ore. (Pacific, 492), 3 p. m., children's musical program; 10, George Olsen's Metropolitan orchestra. KHJ, Los Angeles, Calif. (Pacific, 395), 12:30-1:15 p. m., concert; 6-6:30, Art Hickman's concert orchestra; 6:45-7:30, children's hour; Prof. Walter Sylvester Hertzog; bedtime story, Uncle John; 8-10, U. S. Naval Reserve band, M. L. Brock, director; 10-11, Art Hickman's dance orchestra. KPO, San Francisco, Calif. (Pacific, 423), 1-2 p. m., Rudy Seiger's dance orchestra; 2:30-3:30, violin duets, John Afendras, Edna Ballser; 4:30-5:30, Rudy Seiger's dance orchestra; 8-12, Art Weidner's orchestra. KYW, Chicago, Ill. (Central, Daylight, 536), 7-7:30 p. m., dinner concert, Congress hotel; 8:30-8:58, Rose Meyers, soprano; Sallie Menkes, accompanist; Herman Essak, violinist; Nell Gwynn, soprano; 9:05, Youth's Companion. WBAV, Columbus, Ohio (Eastern, 423), 12 m., Ila Lorbach Owens, pianist. WBBR, New York, N. Y. (Eastern, Daylight, 273), 8 p. m., George Twarosch; 8:15, Bible questions and answers, Judge J. F. Rutherford; 8:45, string duet. WBZ, Springfield, Mass. (Eastern, Daylight, 337), 6 p. m., Leo Reisman Hotel Lenox ensemble; 7:30, bedtime story for the kiddies; 7:40, Hotel Kimball trio. WCAE, Pittsburgh, Pa. (Eastern, Daylight, 462), 3 p. m., Prolet Otto Kalteis, pianist; 6:30, dinner concert, William Penn hotel; 7:45, Lew Kennedy, baritone; 9:30, musicale. WCX, Detroit, Mich. (Eastern, 517), 4:15 p. m., musical program; 6, dinner concert. WDAF, Kansas City, Mo. (Central, 411), 3:30-4:30 p. m., the Star's Radio orchestra; 6-7, School of the Air, piano tuning in number on the Duo-Art; address, speaker from the editorial staff of the Star; the Tell-Me-a-Story lady; music, Carl Norberg's Plantation players, Hotel Muehlebach; 11:45 p. m.-1 a. m., nighthawk irolic, Charles Dornberger's orchestra, K. C. A. C. roof garden; Plantation players, Hotel Muehlebach. WEA, New York, N. Y. (Eastern, Daylight, 492), 6-7 p. m., dinner music, Waldorf-Astoria hotel; 7:30-7:45, Jean Austin, harmonica soloist; 9-9:20, 8 Volga Singers; 9:35-10, 8 Volga Singers; 10-11, Vincent Lopez and his Hotel Pennsylvania orchestra. WEAD, Columbus, Ohio (Eastern, 360), 1:30 p. m., educational lecture, member Ohio State university faculty. WEBB, Chicago, Ill. (Central, Daylight, 370), 7:30-8:30 p. m., Harold Lyon, pianist; Nick Lucas, songs with guitar; Edgewater Beach Orle orchestra; 9:30-10:30, Rosemary Hughes, soprano; man with a thousand stories, William H. Hunt; Orle orchestra; 11:30-12:30, steel guitar duets, Langdon brothers; Paul Locker, tenor; Orle orchestra. WFAA, Dallas, Texas (Central, 476), 12:30-1 p. m., "The Place of Music in Summer-time"; Robert N. Watkins; 8:30-9:30, Eudoxia Butler, contralto; Nelva Boren, violinist; 11-12, Adolphus Hotel orchestra, Lawrence Morrell, director. WGI, Medford Hillside, Mass. (Eastern, Daylight, 360), 7:30-8, talk on current events, David M. Cheney; musicale. WGN, Chicago, Ill. (Central, Daylight, 370), 6:30-7:30 p. m., Duke Concert Ensemble and Blackstone String quintet; 8:30-9:30, Homer A. Rodeheaver; 10:30-11:30, Jack Nelson, Bert Davis, Jack Chapman's orchestra. WGR, Buffalo, N. Y. (Eastern, Daylight, 319), 12:30-1 p. m., George Albert Bouchard, organist. WGY, Schenectady, N. Y. (Eastern, 380), 9:30 p. m., dance music, Joseph A. Chickenc and his Clover Club orchestra; popular songs, Frank Davis. WHAS, Louisville, Ky. (Central, 400), 4-5 p. m., Dick Quinlan's Golden Derby orchestra; Alamo theater orchestra; 7:30-9, Sylvan trio. WHN, New York, N. Y. (Eastern, Daylight, 360), 2:15-2:30 p. m., Benny Cogert and Sol Hirst, singers; 2:45-3:30, Tom Banks and his orchestra; 3:45-4:15, Elmer Montague Cross company; 6:30-7:30, Alama fastive board; 8-8:15, Jimmy Flynn, tenor; 8:30-8:45, Kathryn R. Behnke, contralto; 9-9:15, Kitzpatrick bro.; 9:15-10, Jack Fox and his orchestra; 11:30-12, Jimmy Clark and his entertainers. WIP, Philadelphia, Pa. (Eastern, Daylight, 509), 10 a. m., seashore gossip; 10:10, Bernard MacFadden's health talks and practical exercises; 1 p. m., Karl Bonavitic, organist; 3, "What the wild waves are saying"; 3:30, Comfort's philharmonic orchestra; 6:05, Kentucky Serenaders dance orchestra; 7, Uncle Wip's bedtime stories; 8, Comfort's philharmonic orchestra; 8:50, Vessella's concert band; 10, Bob Leman's dance orchestra; 11:05, Karl Bonavitic, organist. WJZ, New York, N. Y. (Eastern, Daylight, 455), 1-2 p. m., Hotel Vanderbilt orchestra; 4-4:30, Herman Diedrick, Jr., bass; 4:30-5:30, Roger Wolfe's Biltmore tea room orchestra; 7-8, Waldorf-Astoria roof orchestra; 8-8: Ned Jakobs presents Alexis Kudisch ensemble; Ruth Ardun, soprano; 10-10:15, talk, Museum of Natural history; 10:30-11:30, Hotel Astor dance orchestra. WLS, Chicago, Ill. (Central, Daylight, 345), 7:45 p. m., lullaby time, Glenn Rowell, Ford Rush; 8-1, national hura dance, Alfred Edstrom, accordian soloist; C. A. Penwright, violinist; John Knoll, F. D. Richmond, fiddlers; Walter Peterson, "The Kentucky Wonder-Bean"; Tom Owen, caller; Ralph Whitlock, pianist. WMAQ, Chicago, Ill. (Central, Daylight, 447.5), 6:30 p. m., Hotel LaSalle orchestra; 8, Auburn Park Lions Boys' band; 9, weekly Balaban & Katz Chicago theater revue. WMH, Cincinnati, Ohio (Central, Daylight, 309), 10

Where to Hear Talks

TALKS, instructive, serious, humorous and even frivolous, are broadcast daily and below are listed the stations.

Wednesday: CKCH, KFOA, KGO, KHJ, KYW, KQV, WAAW, WBAH, WBBR, WCX, WDAF, WDAW, WEA, WGI, WGY, WHA, WHN, WJZ, WLAG, WLS, WMAQ, WOS.

Thursday: CKAC, KDKA, KHJ, KYW, WBBR, WBZ, WCAE, WDAF, WGI, WGY, WHAS, WHB, WIP, WJAX, WJY, WLAG, WLS, WLW, WMAQ, WOR, WQJ, WRC.

Friday: CKY, CNRT, KYW, WBAV, WBZ, WDAF, WDAW, WGI, WGY, WHB, WHN, WJY, WJZ, WLAG, WLS, WMAQ, WOS, WRC.

Saturday: CNRO, KDKA, PWX, WBAH, WBAW, WBBR, WDAF, WFI, WGI, WJZ, WOA, WRC.

Monday: KGO, WBBR, WBZ, WDAF, WDAW, WFAA, WGR, WGY, WHN, WLAG, WOR, WOS, WQJ.

Tuesday: KPSG, KGO, KYW, WAAW, WCAE, WDAF, WEA, WFAA, WGI, WGY, WHAA, WHAS, WJY, WJZ, WLAG, WMAQ, WQJ, WRC.

WEDNESDAY: 11, Eddie Sidney's Middle orchestra. WDAW, Omaha, Neb. (Central, 526), 6 p. m., popular hall hour; 6:30, dinner program, Baxter's orchestra; 9, program, auspices of Omaha Printing company. WOC, Davenport, Iowa (Central, 484), 12 m. chimes; 9 p. m., The Palmer School Radio orchestra; Ralph W. Fuller, baritone. WOO, Kansas City, Mo. (Central, 360), 7-7:30 p. m., International Sunday school lesson, Dr. Walter A. Wilson; 8-9:30, program arranged and presented by Grace Nelson and others; 11-11:30, services, Unity School of Christianity. WDR, Newark, N. J. (Eastern, Daylight, 405), 2:30-2:45 p. m., Howard C. Townley, baritone; 2:45-3, Edw. Cohen, yllonist; 3:30-3:45, Howard C. Townley; 3:45-4, Edw. Cohen; 6:15-7:15, Ernie Krickett's Cinderella orchestra; 7:20-7:30, resume of the day's sports; 8-8:15, concert, Park City four; 8:15-8:30, James Macdonald, baritone; 9:30-9:45, Park City four; 9:45-10, James Macdonald; 10-11, American Legion of New Jersey. WQJ, Chicago, Ill. (Central, Daylight, 448), 3-4 p. m., "Koffee Klatsch"; 7-8, Bert Jacobson, Swedish impersonator; Roland D. Hinkle, baritone; 10-2, Ralph Williams and his Rainbo Garden orchestra; songs, Jerry Sullivan; Lester, Cook, Burns, harmony singers; George A. Little, Harry Shay, composers. WTAM, Cleveland, Ohio (Eastern, 390), 9 p. m., WTAM dance orchestra, Ev Jones, director; Rex Heller, soprano. WTAS, Elgin, Ill. (Central, 286), 7:30-7:45 p. m., bedtime stories, Olivia; 7:45-8, Dell Lampe's Trianon ballroom orchestra; Alan Hooker, pianist; 8-8:30, WTAS artists; 8:30-12:30, Lampe's Trianon orchestra. WJL, Detroit, Mich. (Eastern, 517), 9:30 a. m., Detroit News orchestra; 3 p. m., Schmeman's band; 7, Schmeman's band.

Monday, August 11

Silent night for: CKAC, KFNF, KFSG, KHJ, KYW, WBAV, WEAD, WEBB, WFI, WGI, WGN, WHAS, WIP, WLS, WMAQ, WQJ.

CKAC, Montreal, Can. (Eastern, Daylight, 425), 1:45 p. m., Mount Royal hotel luncheon concert.

KFI, Los Angeles, Calif. (Pacific, 469), 8-9 p. m., Evening Herald, Radioland dance orchestra; 9-10, Examiner program; 10-11, Ambassador hotel Cocoanut Grove orchestra.

KFKX, Hastings, Nehr. (Central, 341), 9 p. m., Hastonians dance orchestra.

KFOA, Seattle, Wash. (Pacific, 455), 8:30 p. m., orchestra, President Madison of the Admiral Oriental line.

KGO, Oakland, Calif. (Pacific, 312), 3 p. m., studio musical program; 4-5:30, Henry Halstead and his dance orchestra; 8, educational program.

KGW, Portland, Ore. (Pacific, 492), 8 p. m., Percy A. Campbell and his American band.

KHJ, Los Angeles, Calif. (Pacific, 395), 2:30-1:15 p. m., Carl Allen and Rendezvous ballroom orchestra, from Crystal Pier.

KLX, Oakland, Calif. (Pacific, 509), 8-10 p. m., program, University of California.

KSD, St. Louis, Mo. (Central, 546), 7 p. m., Abergh's concert ensemble; Arne Arncsen, violinist; 8:30, program, direction of M. I. Epstein, Gladys Entenman, Antonio Kotthoff, Bernadette Bostick, Dora Rubin, pianists; Emma Marie Wenzel, Inez Baker, accompanist; 9:45, Crow's band.

WBAV, Columbus, Ohio (Eastern, 423), 12 m., Ila Lorbach Owens, pianist.

WBBR, New York, N. Y. (Eastern, Daylight, 273), 8 p. m., Irene Klinepeter, soprano; 8:15, world news digest, editor of Golden Age magazine; 8:45, Irene Klinepeter.

WCAY, Milwaukee, Wis. (Central, 266), 8 p. m., Hole-proof Hosiery night, Evelyn Pendegast, soprano; Hazel Cullen, violinist; Cecelia Cullen, pianist; McCue trio, xylophone, saxophone and piano.

WCBB, Zion, Ill. (Central, Daylight, 345), 8 p. m., male quartet; Mrs. H. E. Mayfield, soprano; Mrs. P. M. I. Rose, contralto; Mrs. LaRose, contralto; R. F. Reid, tenor; Lois Wiedman, reader.

WCX, Detroit, Mich. (Eastern, 517), 4:15 p. m., musical program; 6, dinner concert; 7, musical program.

WDAF, Kansas City, Mo. (Central, 411), 3:30-4:30 p. m., the Star's Radio trio; 5:30, weekly Boy Scout program; 6-7, School of the Air, piano tuning in number on the Duo-Art; address, speaker from the University of Kansas; the Tell-Me-a-Story lady; music, Carl Norberg's Plantation players, Hotel Muehlebach; 8-9:15, the Star's Radio orchestra with the WDAF minstrels; 11-11:45 p. m.-1 a. m., nighthawk irolic, the Riley-Ehrhart Winwood Beach orchestra.

WDAR, Philadelphia, Pa. (Eastern, Daylight, 395), 11:45 a. m., daily almanac; 12:02 p. m., Stanley theater organ recital; 12:30, Arcadia cafe concert orchestra; 2, Arcadia cafe concert orchestra; 4:30, Mrs. Louis Love, talk on reducing; 7:30, Dream Daddy's bedtime stories; 7:50, movie review, James A. Nassau; 9:30, Stanley theater symphony orchestra, Sidney Lowenstein, director; 10, Arcadia cafe, Fry's Million Dollar Pier and Benson's Chicago dance orchestra.

WEAF, New York, N. Y. (Eastern, Daylight, 492), 4:15-4:30 p. m., Miriam Vicens, soprano; 5-5:30, women's program, United Synagogues of America; 6-7, dinner music, Waldorf-Astoria hotel; 8:15-8:30, Pennsylvania Mutual Life insurance company; 8:30-10, Marine band.

WEAD, Columbus, Ohio (Eastern, 360), 1:30 p. m., educational lecture, member Ohio State university faculty.

WFAA, Dallas, Tex. (Central, 476), 12:30-1 p. m., address, Dr. J. D. Boon; 8:30-9:30, songs, Earle D. Behrens, Mrs. A. Behrens; Mrs. M. C. Hull, pianist.

WFI, Philadelphia, Pa. (Eastern, Daylight, 395), 1 p. m., Meyer Davis Bellevue Stratford concert orchestra; 3, John Vandervloot, bass, Loretta Kerk, pianist; 6:30, Meyer Davis Bellevue Stratford concert orchestra.

WGR, Buffalo, N. Y. (Eastern, Daylight, 319), 12:30-1 p. m., George Albert Bouchard, organist; 6:30-7:30, piano music; 9-10, concert, Isabelle Wheaton-Stranach, mezzo-soprano; Ethel McMullen, accompanist; 10-11, Lafayette Harmony orchestra; 11:30, supper-dance music, Vincent Lopez, Hotel Statler dance orchestra, direction of Harold Gieser.

WGY, Schenectady, N. Y. (Eastern, 380), 7:15 p. m., talks, New York State Farm Bureau Federation, New York State College of Agriculture; 7:45, "Movie Notions"; Quinn Martin, Fort Orange Society dance orchestra; solos, Leo Pearlman; "Pused Quartz," Edward R. Berry; Edward Dillon, tenor.

WHAS, Louisville, Ky. (Central, 400), 4-5 p. m., Alamo Theater orchestra; Dick Quinlan's Golden Derby orchestra; 7:30-9, Zur Schmelde Harmony Diggers.

WHAZ, Troy, N. Y. (Eastern, 380), 9 p. m., pupils of Gretta M. McComber; dance music, Tony Flush and his orchestra.

WHB, Kansas City, Mo. (Central, 411), 7-8 p. m., vocal and piano solos; readings, Lorraine Shirts.

WHN, New York, N. Y. (Eastern, Daylight, 360), 2:15-2:45 p. m., Jimmy Clark and his entertainers; 3-3:15, Harry Hock entertainers; 3:45-4, Uncle Robert's chat.

(Continued on page 12)

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6 p. m., sacred
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William Ander-

7 p. m., Detroit
7:30, services,

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G. KHI, KYW,
WGN, WHAS,

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9 p. m., Haston-

30 p. m., orches-
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2:30-1:15 p. m.,
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10 p. m., pro-

p. m., Abergh's
tunist; 8:30, pro-
ladys Entenman,
s. Dora Rubin,
Baker, accom-

3), 12 m., Ha

Daylight, 273),
3:15, world news
ine; 8:45, Irene

8 p. m., Holo-
soprano; Hazel
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345), 8 p. m.,
oprano; Mrs. P.
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411), 3:30-4:30
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Daylight, 395)
l. Stanley thea-
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5-5:30 women's
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Hull, pianist.
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Kerk, pianist;
concert orchestra.
t, 319), 12:30-1
unist; 6:30-7:30,
Wheaton-Strana-
accompanist; 10-
30, supper-dance
er dance orchestra,

KFI, Los Angeles, Calif. (Pacific, 469), 8:45-8 p. m., Hennessey's Paramount players; 8-9, concert, Althea Oliver, mezzo-soprano; 9-10, Examiner program; 10-11, popular song program; 11-12, Ambassador hotel Coconut Grove orchestra.

KFSG, Los Angeles, Calif. (Pacific, 278), 3:30-5:30 p. m., John H. Kennedy, baritone; Grace Waldron, soprano; half-hour organ recital, Roy Reid Brignall; 6:30-7:30, Cozy hour, junior crusaders; Gertrude Wilding, child soprano; pre-view I. S. S. lesson, Mother.

KGO, Oakland, Calif. (Pacific, 312), 4-5:30 p. m., concert orchestra, Hotel St. Francis; 8, Arlon trio; Chan-son quartet; Helen F. Halst, contralto; Morton H. Gleason, bass; Phillip Ashcraft, tenor; Bessie H. Woods, pianist; Josephine Holub, violinist; Mirlam

Diedrick, Jr., bass; 4:30-5:30, Roger Wolfe's Biltmore tea room orchestra; 7-8, Waldorf-Astoria roof orchestra; 8-9, Ned Jakobs presents Alexis Kudsch ensemble; Ruth Arden, soprano; 10-10:15, talk, Museum of Natural history; 10:30-11:30, Hotel Astor dance orchestra.

WLS, Chicago, Ill. (Central, Daylight, 345), 7:45 p. m., lullaby time, Glenn Rowell, Ford Rush; 8-1, national barn dance, Alfred Edstrom, accordion soloist; C. A. Penwright, violinist; John Knoll, F. D. Richmond, fiddlers; Walter Peterson, "The Kentucky Wonder-Bean"; Tom Owen, caller; Ralph Whitlock, pianist.

WMAQ, Chicago, Ill. (Central, Daylight, 447.5), 6:30 p. m., Hotel LaSalle orchestra; 8, Auburn Park Lions Boys' band; 9, weekly Balaban & Katz Chicago theater revue.

WMH, Cincinnati, Ohio (Central, Daylight, 309), 10

program.

WHN, New York, N. Y. (Eastern, Daylight, 360), 10-11 p. m., Paul Specht's Post Lodge orchestra.

WHO, Des Moines, Iowa (Central, 526), 7:30-9 p. m., 133rd Inf. Military band.

WIP, Philadelphia, Pa. (Eastern, Daylight, 509), 10:45 a. m., services, Holy Trinity chapel; 3:35 p. m., Com-fort's Philharmonic orchestra.

WIZ, New York, N. Y. (Eastern, Daylight, 455), 9-11 a. m., children's program; 8:20-10:15 p. m., New York Philharmonic orchestra at Lewisohn Stadium.

WLW, Cincinnati, Ohio (Central, Daylight, 423), 9:30 a. m., Sunday school; 11, sermon, Rev. Frank Steven-son, Church of the Covenant; 7 p. m., program con-vention National Evangelical Young People's convention, Dr. E. A. R. Torsch and Dr. Daniel Blasberg,

arm Bureau federation, New tions," Quinn Martin; Fort Orange Society dance orchestra; solos, Leo Pearlman; "Fused Quartz," Edward R. Berry; Edward Dillon, tenor.

WHAS, Louisville, Ky. (Central, 400), 4-5 p. m., Alamo Theater orchestra; Dick Quinlan's Golden Derby or-chestra; 7:30-9, Zur Schmiede Harmony Diggers.

WHAZ, Troy, N. Y. (Eastern, 380), 9 p. m., pupils of Gretta M. McOmber; dance music, Tony Flush and his orchestra.

WHB, Kansas City, Mo. (Central, 411), 7-8 p. m., vocal and piano solos; readings, Lorraine Shirts.

WHN, New York, N. Y. (Eastern, Daylight, 360), 2:15-2:45 p. m., Jimmy Clarko and his entertainers; 3-3:15, Harry Hock entertainers; 3:45-4, Uncle Robert's chat

(Continued on page 12)

Monday, August 11

(Continued from page 11)

with children; 4:15-4:30, Leon Steln, baritone; 6:30-7:30, Alamac festive board; 8-8:30, People's popular concert, conducted by Marcia Schupeck; 8:45-9, boy's period, Wm. J. Stuart; 9-9:30, Chas. Strickland's Palisades Park orchestra; 9:45-10, Vincent Lane, tenor; 10-11, Jack Shack orchestra; 12-2 a. m., midnite Bohemia show with entire Alabam club revue. WHO, Des Moines, Iowa (Central, 526), 7:30-9 p. m., Theresa Bello pianist; Williams brothers, Harmony singers; Howard Harden, baritone; Don Merchant, trumpeter; Lee Lorluor, bagpiper. WIP, Philadelphia, Pa. (Eastern, Daylight, 509), 10 a. m., seashore gossip; 10:10, Bernard MacFadden's daily health suggestions and practical exercises; 3, "What the wild waves are saying"; 3:30, Comfort's Philharmonic orchestra; 6:05, Frisco Srenaders dance orchestra; 7, Uncle Wip's bedtime stories. WLW, Cincinnati, Ohio (Central, Daylight, 423), 8 p. m., grand opera, Ralph Lyford, director. WMAQ, Chicago, Ill. (Central, Daylight, 447.5), 6 p. m., Chicago theater organ; 6:30, Hotel LaSalle orchestra. WOAW, Omaha, Nebr. (Central, 526), 6 p. m., popular half hour; 6:30, dinner program, Randall's Royal orchestra of Brandels Store restaurants; 9, artist program, arranged by Adeline Wyckoff. WOC, Davenport, Iowa (Central, 484), 12 m., chimes; 8 p. m., musical program; 10, musical program. WOO, Philadelphia, Pa. (Eastern, Daylight, 509), 11 a. m., organ recital, Mary E. Vogt; 12:02 p. m., Wana-maker crystal tea room orchestra, Robert E. Golden, director; 4:45, organ recital, Mary E. Vogt; 7:30, A. Candelori and his orchestra from Hotel Adelphi; 8:30, Harriet G. Riddle, pianist; 9-10, Fox theater grand orchestra, Erno Lampe, director; 10, organ recital, Mary E. Vogt; 10:30, A. Candelori and his dance orchestra. WOR, Newark, N. J. (Eastern, Daylight, 405), 8:15-8:30 p. m., "I See by the Papers," says "Hollywood" McCoker. WOS, Jefferson City, Mo. (Central, 440.9), 8 p. m., "State Marketing Exhibit at the State Fair," D. C. Rogers; 8:15, The People versus the Scrub Bull and Farmers' Co-operators, A. T. Nelson; 8:30, Varsity Players orchestra, Hurley Kaylor, director. WQJ, Chicago, Ill. (Central, Daylight, 448), 3-4 p. m., "Frozen Desserts," Helen H. Downing; "What the High School Girl Has Taught Me," Adah H. Hess; talk on yeast, Hannah Vessling. WSAI, Cincinnati, Ohio (Central, Daylight, 309), 10 p. m., Jack Kiefer's orchestra. WSB, Atlanta, Ga. (Central, 429), 8-9 p. m., Elk Royal Purple band; 10:45, classic hour, Helen Knox Spain. WTAM, Cleveland, Ohio (Eastern, 390), 8 p. m., concert program, favorite entertainers. WTAS, Elgin, Ill. (Central, 286), 7:15 p. m., Alan Hooker, organ; 7:20-7:45, Dell Lampe's Trioan orchestra; 7:45-8, Mary Jayne, soloist; Albert Wilbur, Gomey, composers; Vernon Buck, Jimmy Eggert; 8:15-8:30, Dell Lampe's orchestra; 8:30-8:45, Hill, Hirsh, composer; Egbert Van Alstyne, Clem Dacy, composers; 9, Dell Lampe's orchestra; 10-11, Alan Hooker, pianist; WJ, Detroit, Mich. (Eastern, 517), 8 a. m., setting-up numbers, Mary Jayne, Betty Holmes. WJL, Elgin, Ill. (Central, 286), 7:15 p. m., Gomey; encore old-fashioned medley, Hill, Hirsh. WJL, Elgin, Ill. (Central, 286), 9:30, "Tonight's dinner," women's editor, Detroit News; 12 m., Detroit News orchestra; 8:30 p. m., Schmeman's band; 8:30, Detroit News orchestra. Thomson, cello; Dorris H. Nott, violin; Frances E. Wooler, piano; "Meditation." KGO, Oakland, Calif. (Pacific, 312), 4-5:30 p. m., concert orchestra, Hotel St. Francis; S. Arlon trio; Margaret N. Bunting, soprano; Jose E. Corral, bass; Edward Mundi, oboe soloist; Oris Osborne, contralto; Vera Frances Morse, reader; Homer Henley, baritone; Ethel Barnes Karneel, soprano; Esther Hale Sittig, pianist; "Crossing the Equator," J. E. Barnes; Mrs. Homer Henley, soprano; 10-2, Henry Halstead and his dance orchestra. KGW, Portland, Ore. (Pacific, 492), 8 p. m., George Weber and his orchestra. KHJ, Los Angeles, Calif. (Pacific, 395), 12:30-1:15 p. m., concert; 6-6:30, Art Hickman's concert orchestra; 6:45-7:30, children's hour, Prof. Walter Sylvester Hertzer; the Sandman and Queen Titania; bedtime story, Uncle John; 8-10, de luxe concert; 10-11, Art Hickman's dance orchestra. WBAV, Columbus, Ohio (Eastern, 423), 12 m., Ila Lorbach Owens, pianist; 8 p. m., Charley Mobley's dance orchestra. WCAV, Milwaukee, Wis. (Central, 266), 10:30 p. m., "Late program," E. Thatcher, baritone; Adeline Skoolis, soprano; Illini Srenaders; request frolic, R. L. Northrop, entertainer. WCX, Detroit, Mich. (Eastern, 517), 4:15 p. m., musical program; 6, dinner concert; 10, Red Apple club. WDAF, Kansas City, Mo. (Central, 411), 3:30-4:30 p. m., the Star's Radio trio; 5-5:30, weekly child program presented by the pupils of the Gertrude Conannon School of Music; 6-7, School of the Air, piano tuning in number on the Duo-Art; tenth of a series of piano lessons, Maudellen Littlefield; address, Clerin Zumwalt, M. A.; the Tell-Me-a-Story lady; music, Carl Norberg's Plantation players, Hotel Muehlebach. WDAV, Philadelphia, Pa. (Eastern, Daylight, 395), 11:45 a. m., daily almanac; 12:02 p. m., Stanley theater organ recital; 12:30, Arcadia cafe concert orchestra; 2, Arcadia cafe concert orchestra; 5, educational talk, Pierce School; 7:30, Dream Daddy's bedtime stories. WEA, New York, N. Y. (Eastern, Daylight, 492), 11-11:15 a. m., Board of education; 11:15-11:30, motion picture forecast, Adelle Woodard; 5-5:30, Arthur Bamb, pianist; 5-5:30, children's program; 6-7, dinner music, Waldorf-Astoria hotel; 7-7:30, Wm. H. Stamm, tenor; 7:30-7:45, Eslie McGall Parson, soprano; 8:30-9, Gold Duet twins. WEAQ, Columbus, Ohio (Eastern, 360), 1:30 p. m., educational lecture, member Ohio State university faculty. WFAX, Dallas, Tex. (Central, 476), 12:30-1 p. m., Mrs. Y. G. Rosser, Mrs. Eugene Duggan; 11-12, Helen Hall, violinist. WFI, Philadelphia, Pa. (Eastern, Daylight, 395), 1 p. m., Meyer Davis Bellevue Stratford concert orchestra; 3, talk, Baby Welfare association; Caroline Hoffman, pianist; 6:30, Meyer Davis Bellevue Stratford concert orchestra; 7, Sunny Jlu, the kiddies' pal. WGN, Chicago, Ill. (Central, Daylight, 370), 6:30-7:30 p. m., Drake Concert Ensemble and Blackstone String quintette; 8:30-9:30, Rosemary Hughes, soprano; 10:30-11:30, Jack Nelson, Bert Davis, Jack Chapman's orchestra. WGR, Buffalo, N. Y. (Eastern, Daylight, 319), 12:30-1 p. m., George Albert Bouchard, organist; 6:30-7:30, dinner music. WGY, Schenectady, N. Y. (Eastern, 380), 7:45 p. m., Jahan Goldberg, pianist; Ernest Bliss, baritone. WHAA, Iowa City, Iowa (Central, 484), 8 p. m., joint recital, Mrs. William Mueller, violinist; Mrs. Louise Suettel, pianist. WHAS, Louisville, Ky. (Central, 400), 4-5 p. m., Alamo theater orchestra; 7:30-9, Happy Hoosier harmonists. WHB, Kansas City, Mo. (Central, 411), 8-9:30 p. m., play broadcast from the town hall, Indian Village, Indian Village players; 10:30-11:30, dance music, Frank R. Marks orchestra. WHN, New York, N. Y. (Eastern, Daylight, 360), 2:15-3:15 p. m., overture and vaudeville, State theatre; 3:45-4, Irving Miller, baritone; 5-5:30, Original St. Louis Rhythm Kings; 6:30-7:30, Alamac Festive Board; 9:30-10, Chas. Strickland's Park orchestra; 10:30-11, Rose-land dance orchestra; 11:30-12, Club Alabama revue. WIP, Philadelphia, Pa. (Eastern, Daylight, 509), 10 a. m., seashore gossip; 10:10, Bernard MacFadden's daily health suggestions and practical exercises; 1 p. m., Karl Bonavitz, organist; 3:30, Comfort's phil-

harmonic orchestra; 8:50, Vessella's concert band; 10, Hot Lemon's dance orchestra. WJAX, Cleveland, Ohio (Eastern, 390), program arranged, Cleveland News-Leader; 7:30 p. m., E. G. Johnson, bedtime story; Don Palmor, radio talk cartoon; Joe Smith-Marthe Lee Club orchestra; Jackie Coogan, talk to boys and girls; Thimble Theatre Guild, play; musical specialties by popular artists. WLW, Cincinnati, Ohio (Central, Daylight, 423), 10 p. m., dance music, Cummins-Gennett orchestra; 10:30, special features. WMAQ, Chicago, Ill. (Central, Daylight, 447.5), 6 p. m., Chicago theater organ recital; 6:30, Hotel LaSalle orchestra; 8:30, travel talk, Clara E. Laughlin; 9, talk, civil service commission, 9:15, music. WOAW, Omaha, Nebr. (Central, 526), 6 p. m., popular half hour; 6:30, dinner program, Russ Townsend's orchestra; 9, Hendrecon, Iowa. WOO, Philadelphia, Pa. (Eastern, Daylight, 509), 11 a. m., organ recital, Mary E. Vogt; 12:02 p. m., Wana-maker crystal tea room orchestra, Robert E. Golden, director; 4:45, organ recital, Mary E. Vogt. WOR, Newark, N. J. (Eastern, Daylight, 405), 6:15-6:30 p. m., Halsey Miller and his orchestra; 6:30-7, "Man in Moon Stories" for children; 7-7:30, Halsey Miller and his orchestra. WQJ, Chicago, Ill. (Central, Daylight, 448), 3-4 p. m., talk, Helen H. Downing; "Canning with a Pressure Cooker," Mabel E. Waggoner; "Care of the Infant in Hot Weather," Dr. Edward W. Westland; "How Club Work Benefits the Woman of Today," Mrs. Joseph J. Worker; 7-8, Tony Corcoran, tenor; Margaret Garrity, pianist; La Von Hall, reader; "Past, Present, Future of Chicago Real Estate," A. W. Etanmeyer; 10-2, Ralph Williams and his Rainbo Garden orchestra; Paul Loughor, tenor; Harry Geise, pianist; "How to Get Better Radio Reception," Harry J. Marx. WSAI, Cincinnati, Ohio (Central, Daylight, 309), 7 p. m., concert, Hotel Gibson orchestra, Robert M. Visconti, director; 7:30, chimes concert; 8, Gibson orchestra; 9, musical program, tenor solos, Ellis Wiley; soprano solos, Florence Braun; violin solos, Robert Badgley. WSB, Atlanta, Ga. (Central, 429), 8-9 p. m., Vick Meyer's Melody orchestra; 10:45, Warner's Seven Aces orchestra. WTAS, Elgin, Ill. (Central, 286), 7:30-7:45 p. m., bedtime stories, Olivia; 7:45-8, Dell Lampe's Trioan orchestra; 8-8:30, WTAS, artists; 8:30-12:30, Lampe's orchestra; Alan Hooker, pianist. WWJ, Detroit, Mich. (Eastern, 517), 9:30 a. m., "Tonight's dinner," women's editor Detroit News; 9:45, Fred Shaw, pianist and ensembler; 12 m., Detroit News orchestra; 3 p. m., Schmeman's band; 8:30, Schmeman's band; 9:30, Detroit News orchestra.

Make More Money with STARR

"Install Your Own Radio Phonograph"

This is more than a mere phonograph-radio combination. It offers you the most flexible selling proposition in the world—a phonograph that will improve any radio. With it you can offer something to suit every purse and purpose.

To the dyed-in-the-wool radio fan you can offer the marvelous, pure-toned Starr Phonograph with cabinet ready to install any radio of his own particular devising, or you can install any radio to suit your customer's taste and sell a complete Starr Radio-Phonograph.

Starr Improves Any Radio

Just as the faithful reproducer of the Starr Phonograph improves any record, so does Starr amplification improve the tones of any radio. Take a radio set by itself; then take the same set installed in the Starr style XIX-A, and make a side-by-side comparison. You'll find all the difference in the world, and all that difference is in favor of the Starr.

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The Starr duplex horn is double-throated. No adjustments are required to change from phonograph to radio and back. In fact, both phonograph and radio can operate at once if you wish.

Conceals Largest Radio

All batteries A and B of the largest radio set will fit in the concealed compartment, leaving room for records too, if required.

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The Starr "install your own radio" cabinet is made to suit absolutely every taste. Sell it to the man who likes to put in his own—or install any radio you like, and sell as a complete radio-phonograph.

Increase Profits by Increasing Selling Field

The flexibility of this proposition warrants your earnest consideration. We shall be glad to give you full particulars of our "more sales" plan without obligating you in any way. If more business interests you, send coupon today.

MAIL THIS

THE STARR PIANO COMPANY, Richmond, Indiana. Gentlemen: Without obligation, send me full particulars of your "Install Your Own" Radio selling plan. Name Address

Tuesday, August 12

Silent night for: KSD, WBBR, WDAR, WEAQ, WGR, WHO, WOC, WOO, WOS. CKAC, Montreal, Can. (Eastern, Daylight, 425), 7 p. m., Kiddies' stories in French and English; 7:30, Rex Battle and his Mount Royal hotel concert orchestra; Herbert Spencer, organist; 8:30, studio program; 10:30, Joseph C. Smith and his Roof Garden dance orchestra; George Fishburne. KFI, Los Angeles, Calif. (Pacific, 469), 6:45-8 p. m., Aeolian organ recital; 8-9, Ambassador hotel Cocoonut Grove orchestra; 9-10, Examiner program; 10-11, concert. KFNF, Shenandoah, Iowa (Central, 266), 7:30 p. m., concert, Howe, Nebr., C. C. Tucker, director. KFSG, Los Angeles, Calif. (Pacific, 278), 3:30-5:30 p. m., half-hour organ recital, Esther Fricke Green; Ruth Woods, soprano; Blanche Scott, soprano; John Walker, tenor; Alfred C. Green, tenor; Marion McClashan-Muller, soprano; Dorothy Sauter, cellist; Sarah Karcher, violinist; 6:30-7:30, Kozy hour, Alice Ross Treadwell, girl whistler; Frank E. Brown, evangelistic singer; Mrs. V. D. Clare, soprano; bible story, mother; baby Jean DeBarb, age 5, singing, playing own accompaniment; Roy Reid Brignall, accompanist and soloist; 8-9, Angelus Temple revival service, sermon, Almee Semple McPherson; 9-10, old southern melodies, the Swannee Jubilee singers; the Sierra trio; M. Daisy

\$2.00 At All Dealers. Image of a Bradleyohm resistor. THE PERFECT RESISTOR. RANGE 10,000 TO 100,000 OHMS.

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Send 10 cents for Shamrock's "Radio Builder's Guide Book". Also contains 10 sets that you can build from \$15 to \$50. SHAMROCK FOR SELECTIVE TUNING. SHAMROCK MANUFACTURING CO. Dept. 24-A, Market St. Newark, N. J.

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Remember this mark and look for it. It is your GUARANTEE of reliable radio apparatus. Walnart "Trouble-Proof" Radio Products include: Unbreakable unconditionally guaranteed tube sockets, "B" Battery and Inductance Switches, Variable Condensers (plain and vernier), Vernier Adjusters, Dials, Variable Grid Resistances, Lettered Binding Posts, etc. Write for Literature. "Makers of good goods only" WALNART ELECTRIC MFG CO. Dept. 447 Chicago

30 Minute A-B-C Lessons for Radio Beginners

Chapter XIX, Part II—What Is Doing in Complicated Circuits

By P. E. Edelman

IN THIS series of articles the story of Radio is told in so simple a manner that the uninitiated can follow theory and practice whether or not he knows anything about electricity or its application to Radiocasting and reception. The series consists of twenty-five chapters, of which the five next will be:

- Chapter XX—How Far Can I Hear?
- Chapter XXI—Choosing a Radio outfit.
- Chapter XXII—Making Your Own Radio.
- Chapter XXIII—Fixing Up the Radio Set.
- Chapter XXIV—The Radiocast Listener's Brief History.

A MUCH advertised form of tuned Radio frequency amplification circuit is shown by Figure 195, and avoids self oscillation of the amplifier tubes by means of small neutralizing capacitors, which connect opposing windings of coupled coils. For example if the primary coil has fifteen turns of wire the secondary may have sixty turns but

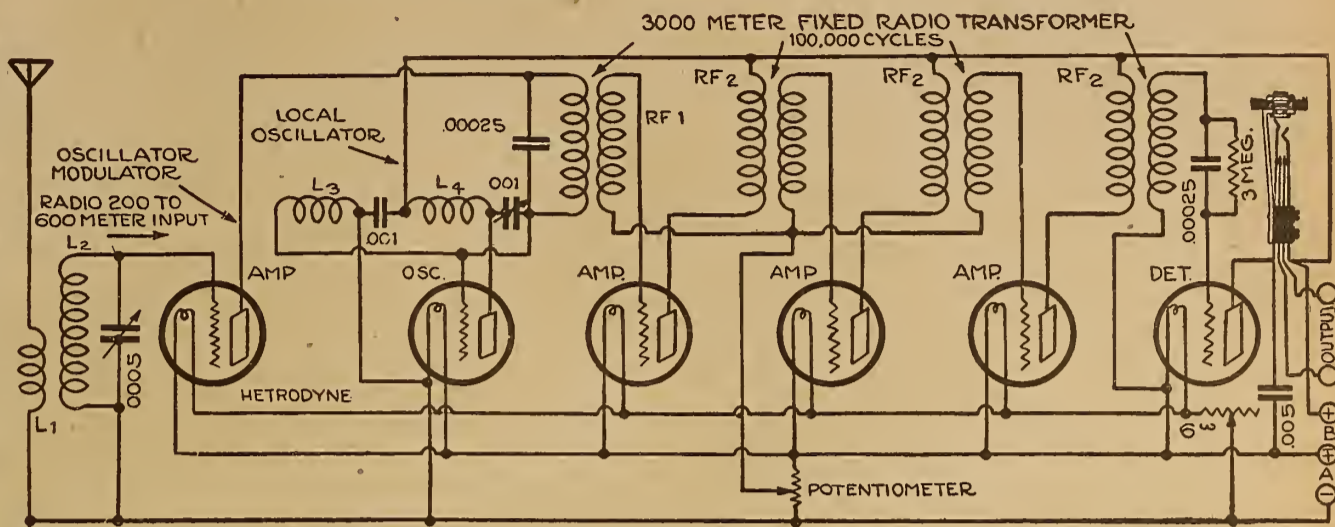


Figure 196

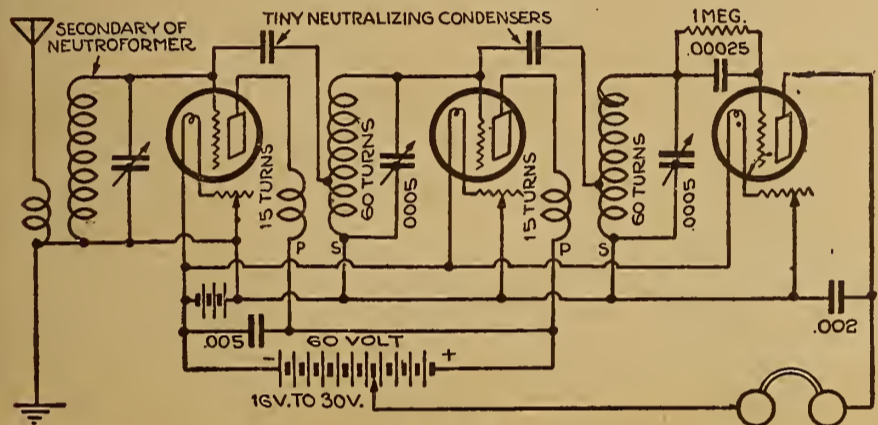


Figure 195

a tap will be taken off at the fifteenth turn and run to the small neutralizing condenser to oppose the potential of the primary coil acting through the natural tube capacity.

Super-Heterodyne

Another type of circuit designed to get around the difficulty of Radio amplification at short wave lengths caused by intertube capacity between the grid and plate of a tube, is called the super-heterodyne. The general scheme is to heterodyne a locally generated Radio frequency with the incoming Radio frequency to change the frequency to a slower Radio frequency which may be amplified. This third Radio frequency is selected at some frequency at which the natural tube capacity has slight if any detrimental effect. The third frequency is then amplified through transformer or resistance or impedance coupled tubes which can amplify the third frequency but have no appreciable effect with the initial high frequency of the incoming waves. Figure 196 indicates one form of this circuit and Figure 197 shows the principle. Usually one dial is used to tune

100,000 cycles. Most outfits of this kind use from 6 to 10 tubes altogether.

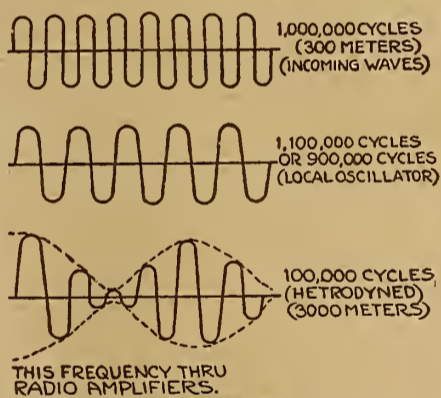
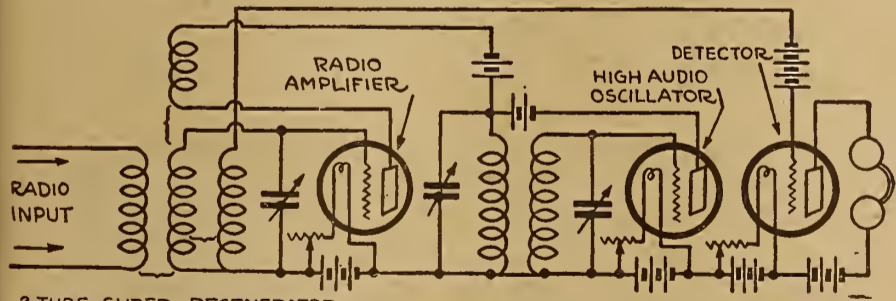


Figure 197

Super-Regenerator

A super-regenerative circuit is illus-



3 TUBE SUPER-REGENERATOR (BOLITHO - ARMSTRONG)

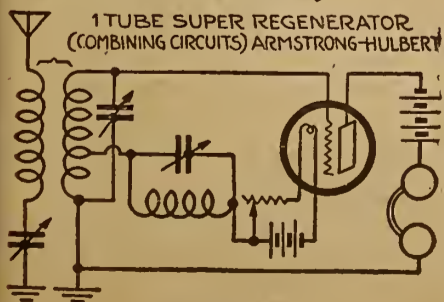


Figure 198

to the incoming frequency and a second dial is used to tune the local oscillator up or down from this frequency by an amount for which the Radio amplifier is designed, in this example 3000 meters or

trated in Figure 198 and its general purpose is to modify the grid potential to permit increase of regeneration beyond the normal limit. Such circuits usually are difficult to operate without having a high pitch constant note caused by the gride control frequency used.

Reflex Circuits

Multi-tube reflex circuits are shown by Figures 199 and 200. It is sometimes an advantage to have the first stage Radio amplifying only the last stage as an audio amplifier only. There are combinations with other forms of circuits, and in general the main difference is in saving tubes and operating current to use them. The cost of assembling a reflex circuit is about as much as if more tubes were used.

Super-Heteroflex

In Figure 201, I show a possible combination for amplifying two different Radio frequencies in the same tubes. One

advantage of amplifying at Radio frequencies is that the range is increased and audio frequency distortion losses avoided.

Getting Back to Simplicity

There is such a thing as too much complexity in receiver design. At one time navy designers were favorable to twelve or more control dials, and difficulty was found in training operators to manipulate them.

Three control dials tax the average broadcast listeners' ability. Two are easier to run. One dial is simpler.

Another thing about very sensitive circuits is that they are sometimes too sensitive for best practical results. In listening to very distant stations with such a receiver you not only get the program but much else; static, reradiating squealers, etc., so that at times the results may be disappointing.

Mechanical Coupling for Simplicity

One way to retain the advantage of

multiple tuned circuits with fewer dial controls is suggested by Figure 202 and could for example be applied to the last two tuned Radio stages of a set such as is called "neurodyne." As shown, two insulated condensers are simultaneously varied to tune two different circuits. In order that slight variations may be taken care of, the motion of one condenser has five to ten degrees play each way before carrying the other to the next position. This can be accomplished as shown by Figure 203 or embodied in the control dial.

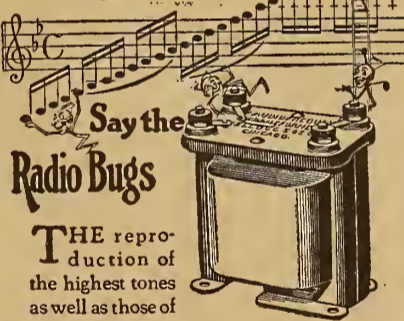
Some Possible Combinations

Radio amplification and regeneration, reflex and regeneration, tuned Radio and reflex, super-heterodyne and reflex, reflex and super-regeneration and double super-heterodyne.

Tube Characteristic Limits Circuits

The operating ability of a tube limits (Continued on page 16)

Clarity and Tone Range with Kellogg Transformer.



THE reproduction of the highest tones as well as those of the lower extreme of the scale, with faithful, pure quality is essentially the spirit of Kellogg transformer design.

The lover of better music searches for a rendition simulating the original orchestra. The ringing tones of brass, the mellowness of wood, the shrill of wind and the fan fare of reed, all in their individual expression.

The Kellogg transformer accomplishes this to a wonderful degree because of its perfect magnetic properties accomplished with the silicon steel laminations without punched holes

This feature, distinctly Kellogg, eliminates losses to a greater degree than could be otherwise obtained. A transformer is as good as its absence of losses.

Plainly marked terminals, brass shielding, moulded Bakelite tops, perfect finish, are further quality and design expressions.

Amplify your pleasure with perfect amplifiers.

USE—Is the Test

No. 501—4 1/2 to 1 } Equally efficient. Price \$4.50
No. 502—3 to 1 }

KELLOGG SWITCHBOARD & SUPPLY COMPANY
1066 W. Adams St., Chicago, Ill.

Complete Radio Satisfaction



Crosley Trirdyn 3R3

This three tube receiver is built to give the efficiency of a five tube set. It represents the triumph of excellence in the radio field. The first tube furnishes non-reradiating, non-oscillating radio frequency amplification. The second tube is a regenerative detector and further is so coupled up as to reflex back on the first tube for one stage of audio frequency amplification. The third tube furnishes a second stage of Audio frequency amplification. Thus the three great powers in radio, Regenerative, and Reflex, give both the name and the wonderfully efficient performance to the Crosley Trirdyn 3R3.

\$65

CROSLEY Better - Cost Less Radio Products

In the complete Crosley line are receiving sets to satisfy every pocketbook and preference covering a purchase range from

\$14.00 to \$120.00

All Crosley regenerative sets are licensed under the Armstrong U. S. Patent No. 1,113,149. Every Crosley receiver is a leader in its line. You are assured of satisfaction when you purchase a Crosley.

See the complete Crosley line. For Sale by Good Dealers Everywhere

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The Crosley Radio Corporation owns and operates broadcasting station WLW

Radio Digest

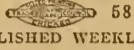
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Politics Become More Popular

You Know Your Candidate Better Since Radio Came
DURING the two great National political conventions of this year, untold families gathered around the little boxes in their homes and with their neighbors and friends followed the varying fortunes of the candidates for nomination for the president of the United States.

This is the greatest service that Radio has rendered since it has come into general use. It has passed the stage of novelty. It has passed the period when but few mechanically inclined people could install and operate a machine satisfactorily. It has passed the period when to get the time signals and the weather report from Arlington gave a thrill to every operator and a chance to pick up a little snatch of music from Chicago or a lecture from the coast, which was a thing to be boasted about. People now tune in for what they want—and get it, mostly. They have the mastery of all the air and there is little mechanical trouble with getting clearly anything they want.

Before the time a nominee is elected thousands of people feel that they know him. They become familiar with the details of his election and know his supporters and his enemies, they know his tricks and his weaknesses.

This is a good thing for it will create better informed voters when the time comes to elect the president. It tends to develop more popular control of the great party systems of the country and it will make subterfuge and secret compacts increasingly difficult for the politicians to carry into effect.

We talk a great deal about the sovereign people of this country, but the people have been sovereign in theory. It has been their own fault, for their indifference and ignorance of public men and affairs has left the way open for those who make politics their business to step in and run the government to suit themselves. And, too often, their way has not been for the best of all the people.

Little enough the average man or woman voter knows how the candidate for the chief office of the United States for his party is chosen. Somehow a man is picked to run on the ticket he is in the habit of voting. Perhaps the man is well known; perhaps he isn't. In any event the voter has only the choice between voting for the man his party had nominated for him or to vote the other ticket. Very little popular control has the man or woman who did not make politics his particular business or hobby or vocation under such a system.

But now with thousands of Radiophans listening in on the proceedings of their party leaders every day and every night, people are learning things about how affairs are run. They are interested in National politics. And when they become interested they will again take the control of the parties and of the government and run it by the people and for the people. Then possibly there will be less oil scandals, fewer grafts, less partisanship and less spoils.

Aid to Scientific Farming

Radiocast Talks on the Preparation of the Soil

RADIOCASTING stations in some states are sending out on Tuesday and Wednesday evenings of each week, tabloid talks on agriculture, the last work of the scientist and the scientific farmer expressed in crisp and interesting form.

When it is considered that with proper preparations of the soil, the revenue from the farms might be doubled, the value of the movement is quite apparent. Agents of experiment stations preaching this doctrine of scientific agriculture are making much headway, but the dissemination of such knowledge requires ceaseless effort and constant pounding. The tabloid talks by Radio thus come to the assistance of the county agents and the farmers.

The Radio stations will present these facts not only to the farmer but to the boys and girls on the farm. It will aim to make the farmer appreciate to the fullest extent his investment in his acres.

RADIO INDI-GEST

'Twas an Electric Eel, Sezee!

Now, Hiram Hay he warn't no fool,
No sir, no fool was he.
Sezee, "To the city I'm goin' to go,
An' they better not try to kid me."

So he visited his Sis in the bright big town,
An' he saw all the wonder there;
But he wouldn't admit that a bit in it
Was better'n the county fair.

So his Sis she thought she had him once
When she showed him her Radio set;
An' he'd admit here was something good
That he hadn't seen the ekal of yet.

But betchaboots he'd heard as good,
He'd heard the ekal of that;
His pigs could squeal and grunt as loud
An' his kid could sing in G flat.

So his Sis's hubby tried his hand,
An' shocked him good and thorough,
To the tune of several hundred volts
That knocked him for a hip, hip, hooraa!

When he came to he giggled hard,
"It's no use to try to kid me.
You've been fishing, yes you have."
Sezee, "You can't fool me!"

5XV.

To Cut Out the Body Capacity

Dear Indi: I have yet to understand why it is necessary for a girl to wear a one-piece bathing suit to listen in on a set. Possibly the magazines could explain?
W. B. P.

Mrs. Partington Speaks Out

Dear Indi: Mizz Partington says she's listened at the Democrats big race down to the Gardens track to New York until she fears her set has got as bad spavined and stringhalted as all them "Dark Hosses" has, but, she says, the race managers of this meet might have knowed that 48 was too many to start on a inside track in one race. She says her score card now shows 77 false starts, while all the listeners has knowed, for the last 76, that the two favorites in this free for all handicap was carrying too much weight; she thinks the Humane Society should have had 'em both withdrawn long ago. She says, that experienced racer, W. J. B., saddled eight entries, and hollered for "apprentice allowance" on his choice, but his dope was too weak. She says, a "Windsucker" Hoss named Befuddle, won a record race at Latonia, Saturday, but she thinks there's no entry at the Garden track with that blemish, though they might be "Bellowsed" and "Befuddled." Naturally, some rough stuff and accidents has occurred at the starting post; one female attendant got "erowned" with a banner staff, and the starters mallet flew off the handle and "beaned" another guy, but so far, only one fatality has been reported, and that, no doubt, was due to old age.
SIGNING OFF.



Radiophans' Privilege

Never question the word of a Radiophan.
'Cause he hears what he hears—I'll say.
If he thinks it's Hawaii, when It's only St. Loo;
If he's riding re-Radiocast to Kalamazoo
Ten chances to one he has more Fun than you.
So "move on" get out of his way.
CACTUS JACK.

Eesa Ona Good Sta. Sho!

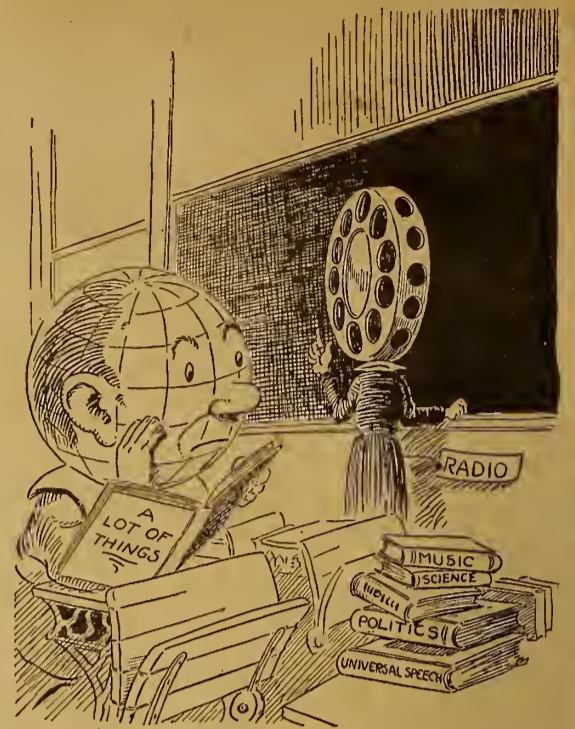
Meester Indigestive Radio: I hopa da digestion e esa betta today, mine heesa gone. My brudda an' me, we getta piece ofa da pape what say we have musta pay fiva hun dolla to da American Telefunny and Takalaf comp. for da Radiocast sta. dat belonga to us.
We no hava da mon so we go backa to our beeze and sella da bootlega, to make da mon queek. Da poliee he grabba us and da judge he fina us fiva hun dol what me mak. Thees is no fair. We no can pay now so hava to closa down.
Hera ees da point, if Meesta Henry Forda would maka da tax ona da keeds who usa hees spark coils and raisa hella with da programa, well I feel ver happy.
I closa da let fore I loosa temp and breaka up my Radiocast set. Yours, SAM BONANO.
P. S. My brud an me, we stell in biz. sena da stamp for da bootlega cataloga.

Your Aerial Needs Painting

Dear Indi: Whasa matter with my Ultra Tublower? Wen I stuek a blow toreh in my set to light the filaments of the vacuum bottles something went wrong and the glass broke. I put electrick lites in their places and connectked the fones between the 110v. filament supply wires and now I cant hear nuthin.
This is a very deep mystery. Bein as youve solved some very queer cases for us Radioknuts I'm sending this one to you. Yours trulic, BUSS BARR.

Mrs. Julius Schwarzbrot has the following to offer of interest to housewives. She mixes her bread dough in the horn of the loud speaker, then tunes in on WQJ. The stirring strains from that station will make any dough rise, thus saving the price of a can of Calumet baking powder.

The New Teacher



Condensed

By DIELECTRIC

News comes to us from Berlin of an advance in the use of Radio by German railway managers which would place that country among the most progressive in this department of science. Numerous attempts to receive Radiocast programs aboard passenger trains in this country and Canada have met with success, a feature enlarged upon by the Germans. They propose to have some of their trains equipped by next fall so that passengers thereon may talk to any telephone owner through a central Radio station located in the large cities. Another attraction to be offered is the use of a headset to anyone dropping a coin in a slot placed in front of their seats, enabling them to listen to music en route.

We have seen examples of the work done in transmitting photographs by Radio. True, it is not a new idea, but it has only of late advanced to its present accuracy which insures a genuine likeness to the original subject. There is a distinct value to news gathering organizations in this modern method where speed and absence of the usual facilities enter into it. Not only may photographs of individuals be thus transmitted but, of perhaps even greater importance, whole pages of manuscript placed at the disposal of the receiver in an incredibly short space of time. The revolutionary effect of Radio is yet ahead of us, how near none of us can say, but it is coming nevertheless.

In a few days now the great majority of Radio listeners in the United States will avail themselves of the opportunity to listen to John W. Davis and Calvin Coolidge give their speeches of acceptance to the respective nominations for President of the Democratic and Republican parties. The Radiocasting companies are attempting to figure out the most advisable manner in which this campaign directed to listeners in may be pursued. It is an entirely new problem, reaching several million listeners with material unappealing to a portion of them and hoping to gain their favor. If the speeches are too long, the stations will suffer along with the spellbinders. Something else new for us fans. Maybe we will learn politics better and know who is best fitted for public offices.

Dr. Lee DeForest, who is responsible for the tremendous growth of interest in Radiophony during these few short years, has offered a suggestion whereby he thinks the problem of supporting Radiocasting could be solved. His idca consists in placing a tax on every tube used in our sets to go toward a fund maintained to meet the expense of Radiocasting. Considering the vast number of these needed to operate receiving sets, no doubt the amount necessary to collect from each individual owner would not be exorbitant, yet I believe the plan would meet with more popular approval if the cost of these tubes were to approximate more nearly a fair profit to the manufacturer.

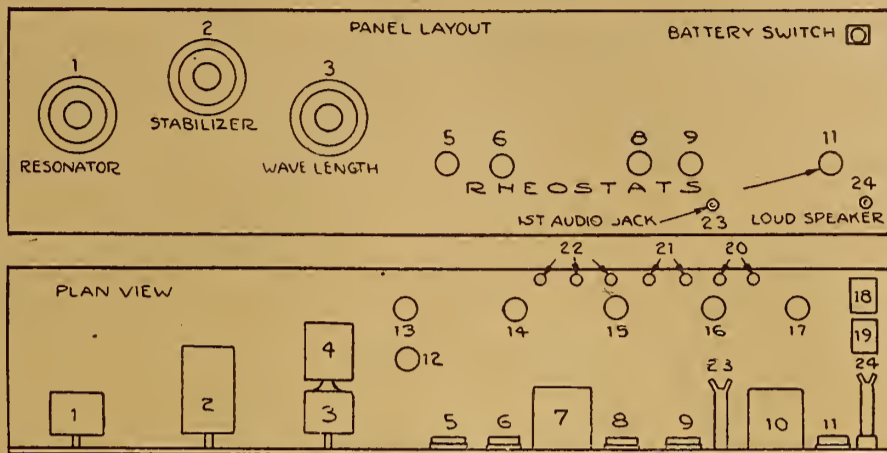
Predictions pertaining to the future in Radiophony were of quite frequent occurrence a year ago and many of them seemed to carry a little conviction to the ordinary layman, yet time has proved the sagacity of the prophets in many instances. Few, today, will contest the plausibility of a prediction made recently before the World Power Conference held in London, that the whole civilized world will eventually be served by a single system of Radiocasting based on the use of inaudible short waves sent out by large stations and re-Radiocast on audible wave lengths by local small stations. That this can be done has been proved already though not to the extent suggested here.

A Homemade Six Tube Superdyne Receiver

Part II—Operating Suggestions

By M. C. Williams

THE operation is apt to be a bit puzzling at first. With the aerial connected, also ground, etc., set the resonator dial (condenser) to the left and the wave length dial to the right, say at about 20, and advance the stabilizer from the zero or full reversed position until a click is heard in the phones or loud speaker, this denotes oscillation. Work slowly on the edge of this point coming forward with the resonator and wave length dials until the old familiar squeal of a station is heard. Tune this in at the loudest and then reduce the stabilizer little by little and follow up with the resonator, keeping the squeal at a low tone until finally the squeal is entirely lost and speech comes in clear. Then try the wave length dial for micrometer adjustment to refine the music or speech. Experience alone is the best teacher with this most sensitive receiver.



Resonator, condenser .0005, stabilizer, special coupler with stabilizing rotor, wave length, condenser .0005, rheostats 1 and 2 for amplifier and detector tubes, 3 and 4 rheostats for two audio tubes and 5 for two push and pull tubes. 1 resonator condenser, 2 special coupler and stabilizer, 3 wave length condenser, 4 plate resonance coil, 5 rheostat for amplifier tube, 6 rheostat for detector tube, 7 first audio transformer, 8 rheostat first audio tube, 9 rheostat second audio tube, 10 second audio transformer, 11 rheostat for two push and pull tubes, 12 Radio amplifier tube, 13 detector tube, 14 first audio tube, 15 second audio tube, 16 and 17 push and pull tubes, 18 and 19 push and pull transformers, 20 C battery binding posts, 21 A battery binding posts, 22 B battery binding posts, 23 jack for first audio stage, and 24 loud speaker jack.

which will work under existing circumstances.

Twenty feet of wire strung around the room under molding, around a picture, or run straight through the attic makes a very good aerial. But the best aerial is a single wire about seventy feet in length.

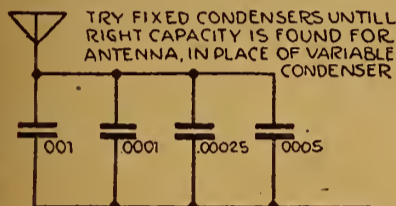
Do not touch the wave length condenser after it has once been tuned or balanced with the aerial for this will throw the entire set out of tune.

Stations 1,000 miles away can be heard at any time through any interference and loud enough to be heard on a loud speaker one city block.

Very much care indeed must be taken in the wiring and in the selection of instruments. It is always better to select the very best instruments and save the later purchase, for eventually, better grades must be installed.

(THE END)

Don't buy a cheaply constructed set. It is better to have a good crystal set than a bad tube set.



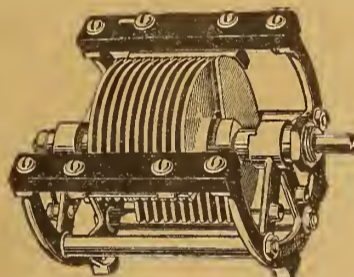
Some tubes have a tendency to block or choke when resonance is passed. This condition may be removed by touching the moistened finger tip to the grid terminal on the socket of the detector tube. However, if this becomes annoying it may be further remedied by using a better grid condenser or using a grid leak. One very important thing to remember is never connect a grid leak across the grid in-

duating condenser. If a grid leak is needed it should be connected from the grid terminal of the detector socket to the positive terminal of the same socket. From two to three megohms are used with hard tubes, while it is not necessary with soft tubes. The grid condenser should be about .00025 and well insulated. With the old-fashioned VT-1 tubes as

detector and all stages of amplification this is the most sensitive set obtainable

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INTRODUCTORY PRICE

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Consists of 1-type "A" Ultraformer, 3-type "B" Ultraformers, 1 tuning coil, and 1 oscillator coil (coils silk on BAKELITE).....\$16.76
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Plain, 11-Pit., \$3.78 23-Pit., \$4.19 43-Pit., \$5.04
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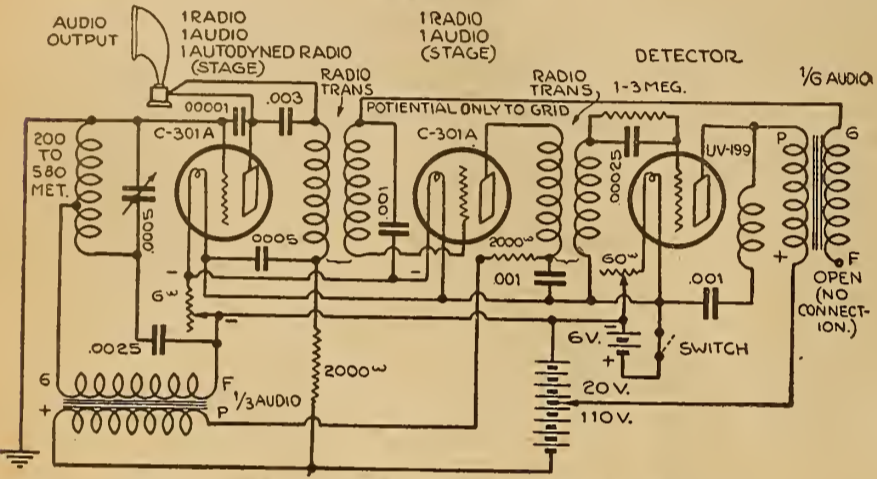
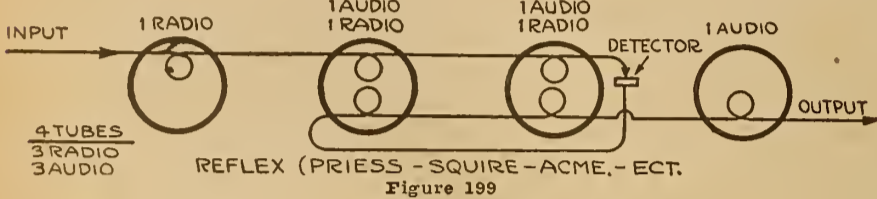
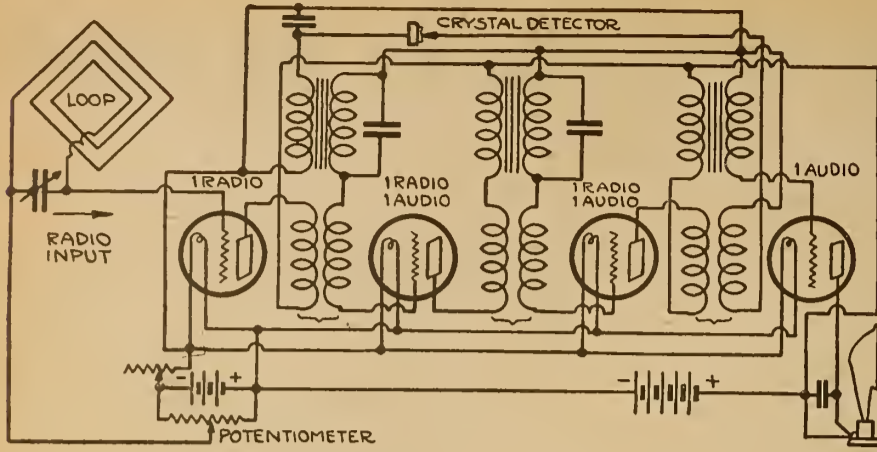
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proves satisfactory World performance. Mail this ad with your name and address—we will ship battery day order received; and give you your choice of "B" Storage Battery or a handsome nickel finish Auto Spotlite, FREE. Write TODAY.

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The FREE "B" Storage Battery takes the place of dry cell "B" batteries. Can be recharged and will last indefinitely. To be sold retail for \$6.00. It is the only battery of its kind equipped with solid rubber case—and insurance against acid and leakage. This advantage of this remarkable introductory offer NOW. (To those who prefer it, we will send FREE a handsome nickel finish Auto Spotlite, instead of the "B" Battery. Be sure to specify which is wanted.)

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To introduce this new and superior World "B" Storage Battery to the Public



EDELMAN SUPERFLEX (SELF STABILIZED)
2 RADIO, 1 AUTODYNE RADIO, DETECTOR, 2 AUDIO
(3 TUBES LONG RANGE, ONE DIAL TUNER, WORKS THROUGH LOCAL.)
Figure 200

THIRTY-MINUTE A-B-C

(Continued from page 13)
The circuits which can be practically applied. The plate current due to the plate battery limits the output current. A certain minimum operating energy is necessary to actuate the grid and after a certain increase in the energy applied to the grid circuit, the tube overloads, when its limit is passed. The choice of complicated circuits thus depends on various factors and complex circuits are best left to those with the experience to handle such sets.
One general aim is to get maximum output with the smallest possible radio input. The other general aim is to get loudest clear response in output. Usually these two aims must be adjusted.

Dry Cell Circuits
Dry cell filament operated tubes such as UV-199 have smaller outputs than storage battery filament tubes such as C-301A, but are often more satisfactory for Radiocast sets, as all batteries may be enclosed in the receiving cabinet. The current required for say six tubes UV-199 is less than for two or three tubes such as C-301A, so circuits using UV-199 tubes will usually have at least one or two tubes which perform one function only. Thus the first tube may be a Radio

amplifier and the last tube an audio amplifier, with possibly one or two intermediate tubes used for more than one

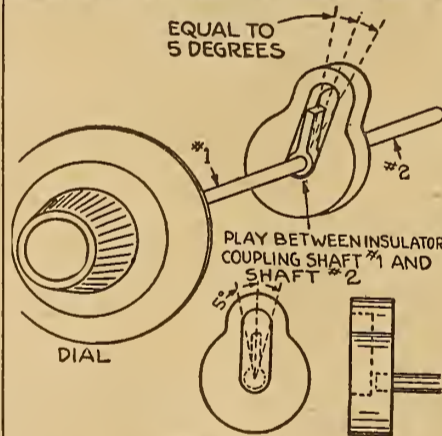
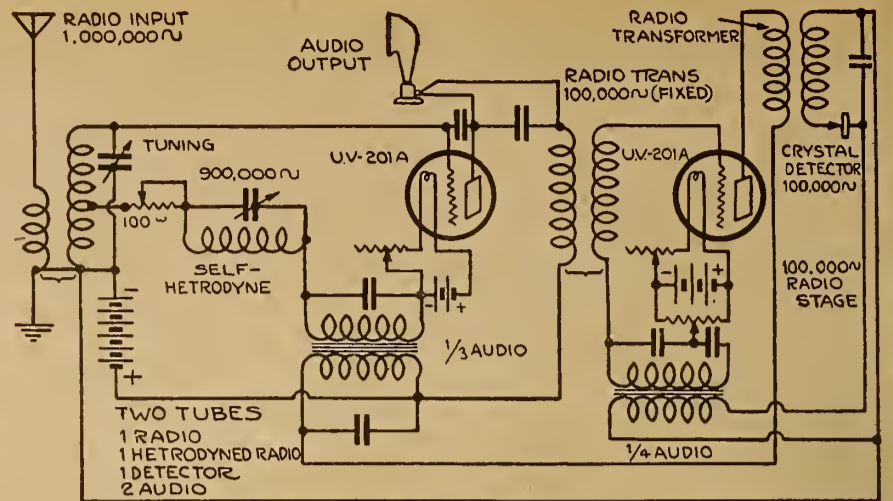


Figure 203
purpose. Such circuits using a tube for one purpose are easier to build and get going and aside from initial tube cost will take no more material parts and assembly time than the average reflex combination.



EDELMANS SUPERHETEROFLEX
Figure 201

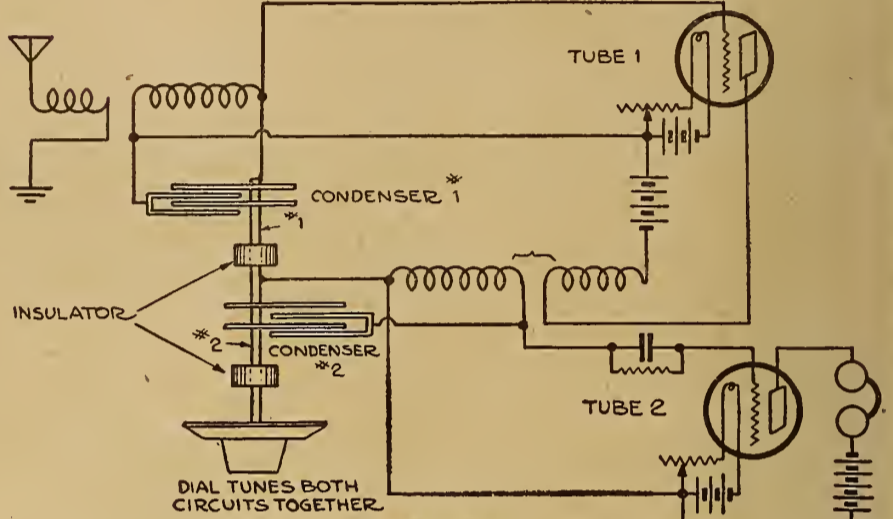


Figure 202

(Looking ahead in Radio. Wired Wire-less. Re-Radiocasting. A BCL is a Radio voter, and in letting the other fellow do all his voting must take what is given. Why Radiocasters do it. Influence of movies and the phonograph development. Radio impresarios coming. What BCL's think Radio is good for. Does Radio effect ear trouble? How deaf people hear, all in the next issue.—Editor's Note.)

Test for B Battery Circuit
A good way to make a test for a short in the B battery circuit is to connect the A battery to the + and - B battery binding posts. If the tube lights do not connect the B battery as there is a short in the circuit.

HAVE YOU SEEN?
THE NEW
CARTER
"ONE WAY" PLUG

Simplest, fastest and easiest plug to attach or detach to head set, loud speaker, etc.
Adopted by the better Loud Speaker Manufacturers as standard equipment everywhere.
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For Sale at First Class Dealers
Pat. Pending
A compact No-Loss Inductance for that summer portable
Pfanstiehl Variometer, P-301.....\$4.75
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Stagger-wound coils for every circuit
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Two-o-One
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All "GOODE" Tubes Sold Direct to the Consumer—No Dealer Profits
ONE—"Goode" Detector-Amplifier..... \$2.39
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The "Goode" Two-o-One A Tube amplifies or detects. It is a quarter ampere, six volts, standard base silvered tube.
Send express or postal money order or New York draft to—
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Save at Modell's
Some of Our Many Bargains

LOOP AERIAL
D76. Can be assembled by anyone in five minutes; all wood parts, wire and binding posts included, complete, 69c

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Indispensable for the man who builds his own sets
D109.....\$1.95
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D80—22½ Volt Small.....\$1.15
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WOOD CABINETS
Highest grade Mahogany finish Cabinets. Hinged top. These cabinets are being sold at less than one-half regular value.
D57—Wood Cabinet; panel size 7"x10", each.....\$2.50
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D61—Wood Cabinet; panel size 7"x21", each..... 3.75
D62—Wood Cabinet; panel size 7"x24", each..... 4.00
Baseboards (Mahogany Stained) for use with above cabinets
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7x12.....30c 7x18.....40c 7x24.....50c

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Homemade Variable Grid Resistance

Different Resistances Controlled by a Knob

As most every Radio experimenter has more or less tubular fixed grid resistances on hand, he may construct very easily and with little time a variable grid resistance,

WORKSHOP KINKS EARN A DOLLAR—

THERE are many little kinks worked out at home that would aid your fellow Radio worker if only he knew about them. There are new hook-ups, new ways of making parts and various unique ways of operating sets that are discovered every day. Radio Digest is very much interested in obtaining such material. Send them in with full details, including stamped envelope, so rejected copy may be returned. The work must be entirely original, not copied.

RADIO KINKS DEPARTMENT,
Radio Digest,
510 North Dearborn St., Chicago

combining a condenser which will prove very satisfactory.

By carefully studying the drawings, it will be found that this resistance consists of two angular brackets and a switch blade which should be constructed from spring brass.

As the principle dimensions are included on the drawings, I believe it unnecessary to go into details of the construction of these parts excepting to mention that the two angular pieces A should be made from fairly stiff spring brass. The switch blade is constructed from the same material except it may be lighter.

As the panel affords support to one end of the resistance units, holes for these are laid off on the panel the same as on the angular piece A. Holes 3/16-inch in diameter are first drilled through the panel and then countersunk from the back so as to permit the resistance units to project beyond the front surface of the panel to afford a contact with the switch blade.—Wm. J. Edmonds, Jr., Whitehall, N. Y.

Use for Old B Batteries

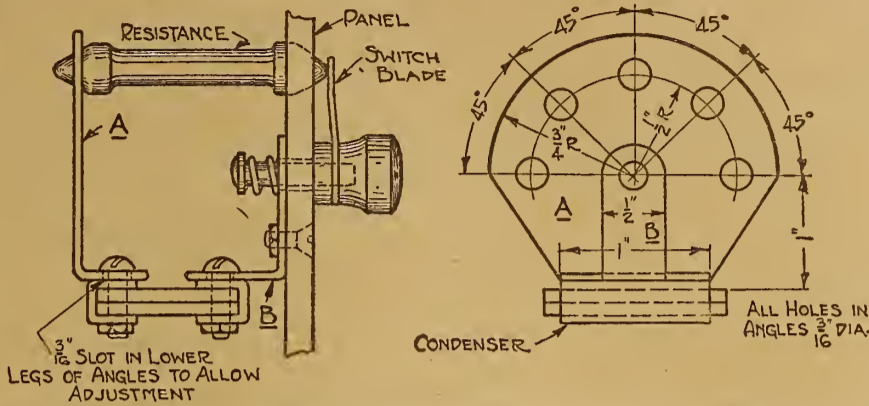
When a B battery is run down and its of no more use for the set, take it apart and you will find several cells that have plenty of pep in them. If you have no voltmeter test each cell out with a bulb taken from a two-cell flash light by placing two cells end to end, as they are the same kind of a cell as used in flashlights. They can be used for a C battery by placing four or six of them in series. They also make good batteries for your flashlight by inserting them in the old paper inclosure or wrapping thick paper around them. J. E. Baker, Siloam Springs, Ark.

Large Radio Wall Map

FREE The very latest up-to-date radio wall map 23 by 34 inches. Shows call letters, locations, wave lengths, and kilocycles of all radio broadcasting stations, U. S., Canada, and Mexico, relay divisions and radio districts. Also a scale for measuring distance. This wonderful map postage paid. **ABSOLUTELY FREE.** Merely send us a list of stores in your city which handle radio apparatus. Be sure and give the street address, and if you know the manager's name, give it also. **DO IT TODAY** before this offer is withdrawn.

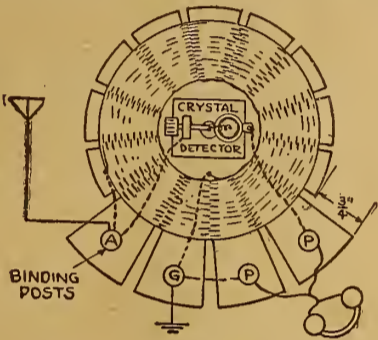
OZARKA INCORPORATED
808 Washington Blvd. Chicago

TUBULAR FORM OF LEAK USED



Homemade Crystal Set

The coil for this set is wound on a form 5 inches in diameter having four sections 1/4 inch longer than the form proper. Fifty turns of number 24 sec. wire are



required. A base is attached to the center of the coil form. The longer sections provide a place for the binding posts.—Max Bauer, Cleveland, Ohio.

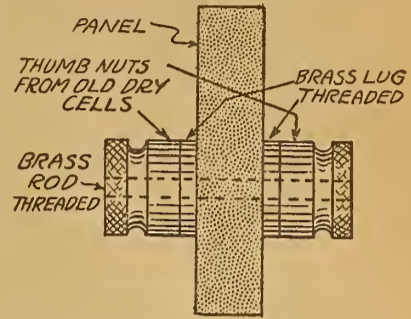
A Few Tube Tips

Many amateur operators try to get strong signals by seeing how brightly they can make the vacuum tubes burn. This is a mistake. While it is true that turning on tubes at maximum brilliancy may mean, in some instances, maximum signals, the test of the correct amount of voltage to be used in making the tubes light is not the degree of brilliancy of the light, but the quality of the sounds produced in the headphones. The light given off by the heated filament of the tube has nothing to do with the operation of the tube. It is the amount of heat produced in the filament by the resistance offered by the filament to the flow of electricity through it that controls the action of the tube. In many instances tubes operate better when the filament is giving off little light; that is, when the tube is turned down.

The call letters "DEUT" have been assigned to all German vessels as a general call. It means for all German ships to listen.

Battery Binding Posts Made of Dry Cell Nuts

Thumbnuts taken from discarded dry cells make good binding posts for various connections in Radio apparatus. This is the way I constructed the ones for my set: I used a threaded rod run through the



panel and a brass threaded collar turned on either side. This allowed a threaded end extending on either side for the thumbnut. The illustration shows the construction.—W. N. Rudy, Covington, Ky.

Bankrupt Stock

Cunningham Regenerative one tube long range sets
\$9.00 Each
Formerly sold at \$32.50

No Circulars. Order from This Ad. This set with tube, phones, all batteries and aerial complete, **\$21.00** ready to use, for.....

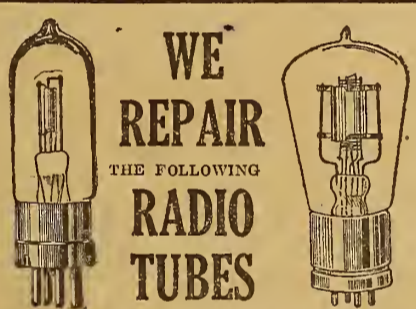
Prepaid while they last.
S. A. TWITCHELL
1925 Western Av., Minneapolis, Minn.

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Crystals of Quality

Trade Mark Reg. U. S. Patent Office. The B-METAL Loud Talking Crystal was the first really standard crystal offered under a reliable "complete satisfaction guarantee," and it springs into immediate popularity, remaining at present in its third season, the best seller of any standard priced and quality crystal. B-METAL has kept pace with developments and has constantly been improved by the use of purer base materials, scientific treatment, and more care in inspecting and testing. The quality has gone up 100% and the price is still 50 cents. No premiums are offered to sell B-METAL, nor can Genuine B-METAL Crystals be bought at less than standard price. If your dealer cannot supply you, send to us. We will send one only to anyone writing us and agreeing to pay promptly if satisfied. We want every Radio owner to know what B-METAL Crystals are. Write today. Dealers and Jobbers please get our proposition

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DETROIT, MICHIGAN



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WD-12	2.50	UV-199	2.50
UV-200	2.50	C-299	2.50
UV-201	2.50	UV-201A	2.50
C-300	2.50	C-301A	2.50
C-301	2.50	Marconi	2.50
DV-6	2.50	Moorhead	2.50
DV-1	2.50	6 V. Plain Det	2.50
DV-2	2.50	6 V. Plain Amp	2.50

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Clinton Hill Station NEWARK, N. J.

AUXILIARY TUNER



connected to your instrument will positively eliminate all local interference and enable you to bring in distant stations at any time. They are in successful use within 400 feet of large broadcasting stations. They also enable you to receive on longer wave length than you can get without it.

Copyrighted diagram \$.50
All parts including cabinet..... 9.00
Complete Tuner, Walnut cabinet..... 15.00
All Goods Prepaid
S. A. TWITCHELL
1925 Western Ave. MINNEAPOLIS, MINN.

Workman Radio Service

"THE ACCENT IS ON SERVICE"

- 14-16 Vesey St. NEW YORK
- VARIOCOUPLES**
- \$3.50 Workrite 180° Silk Wound.....\$2.95
 - 3.50 Fisher, Large, 90°..... 2.75
 - 2.75 Fisher, 180°..... 2.25
 - 4.25 Special Bank Wound Coupler for Haynes Circuit (with diagram)..... 3.25
 - 7.00 Ambassador Coil (with diagram)..... 5.50
- VARIOMETERS**
- \$3.50 Workrite.....\$2.95
 - 5.00 Pathe Moulded..... 2.25
 - 3.50 Fisher, Large..... 2.85
- CONDENSERS**
- \$2.00 R. C. 11 plate.....\$1.05
 - 2.25 R. C. 23 plate..... 1.35
 - 2.75 R. C. 43 plate..... 1.65
- VERNIER CONDENSERS**
- \$4.00 R. C. 23 plate.....\$2.25
 - 5.00 R. C. 43 plate..... 2.95
- PHONES**
- \$18.00 DR. SEIBT IMPORTED "SUPER HEADSET".....\$6.90
 - \$12.00 N. & K., Imported.....\$6.90

The above items are just a few of our numerous attractive priced articles, which are contained in our BULLETIN OF RADIO PARTS. Gladly sent to you upon request. We are headquarters for "Radion" and "Bakelite Directo" Panels. The best panel material available. Mail orders promptly attended to. Will ship C. O. D. unless remittance accompanies order.

Duo-Reflex

Tube for Tube—the Most Powerful Circuits Ever Built. Write for free Bulletin No. 16

Electrical Research Laboratories
CHICAGO.

E. F. L. A.

Build a FADA 5 tube Neutrodyne Receiver

You can assemble one in a few hours. For distance, selectivity and loud speaker volume there's nothing better. The FADA 5-tube Neutrodyne outfit No. 167-A contains everything needed—the finest Neutrodyne parts that can be purchased. The FADA "How to Build It" book makes everything as simple as A, B, C. Buy the original FADA No. 167-A in the sealed package, \$65.60.

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1581 Jerome Ave. New York

FADA Radio

S. HAMMER RADIO CO.

303 Atkins Ave., Brooklyn, N. Y.

PHOENIX ULTRADYNE \$24.50

LIST PRICE \$26.00, SPECIAL.....

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- 8.50 N. & K. 4000 ohms.....\$ 5.85
- 12.00 Western Electric..... 8.75
- 6.00 Brandes Superior..... 4.70
- 12.00 Baldwin Type C..... 7.85
- 7.00 Federal..... 4.85
- 5.50 Stromberg Carlson..... 4.50
- 12.00 Dr. Seibt 6000 ohms..... 5.75

LOUD SPEAKERS

- 30.00 Music Master.....\$24.00
- 35.00 Magnavox, New Type..... 28.50
- 25.00 Baldwin Original..... 21.50
- 10.00 Brandes Table Talker..... 8.50
- Baldwin Unit..... 4.65

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- 7.00 Federal No. 65.....\$ 5.25
- 5.00 Acme..... 3.75
- 5.00 All-American, New Type..... 3.80
- 7.00 Amerdun..... 5.50
- 12.50 Comtrax P. P..... 9.75
- 12.50 Modern Push-Pull..... 9.75
- 5.00 Erla..... 4.15
- 5.00 Erla Selector..... 4.25
- 12.00 All-American P. P..... 9.75

MISCELLANEOUS

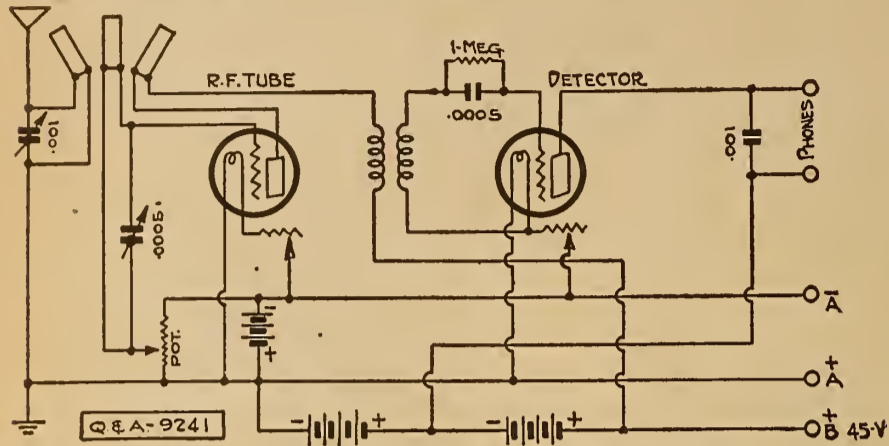
- Pathe Phusiformer \$7.95
- \$5.50 Amco 26-P1 (4" dial)..... 4.10
- 1.00 Amco 6 ohm .85
- 1.25 Amco 20 ohm 1.00
- 1.30 Amco 30 ohm 1.10
- Amco Potentiometer 400 ohm..... 1.25
- Ambassador Coils..... 4.95
- Cockaday Coils, Precision..... 4.50
- Cockaday Coils, Eastern..... 3.35
- \$2.00 Reinartz Coil 1.40
- Erla Crystals..... .90
- Brach Lightning Arrestors..... 1.75
- Genuine Lavite Resistance..... 1.10
- Amplex Grid Denser .80
- Superdyne Coils..... 4.95

Orders over \$5.00 will be shipped prepaid. Money orders or C. O. D. Not insured unless insurance charges included. Write for Price List

Questions and Answers

Radio Frequency
(9241) IF, Girard, Ill.
As a reader of your paper, I wish to have a sketch showing how I can add one

We are, however, giving the circuit diagram showing the addition of Radio frequency for your convenience in making the hook-up right.



stage of Radio frequency. I have a Radio corporation frequency transformer. What I am using now is three honeycomb set with two stages of audio. I have tried to put that transformer in with no success.

A.—A diagram of a honeycomb coil circuit using one stage of audio frequency, detector and two stages of audio frequency amplification appeared in the Jan. 26, 1923, issue of Radio Digest.

"CRYSTAL Sets Tested 600 Miles." You can now get a genuine Lambert Long Distance Crystal Radio Set for only \$4.98. Particulars free. Leon Lambert, 501 Volusia, Wichita, Kansas.

Don't You Get Tired

of only hearing LOCAL stations on your Crystal Set? There's music on your aerial every night from stations far away. If you want to hear it without buying a tube set, WRITE ME TODAY.

LEON LAMBERT
501 South Volusia Wichita, Kansas

Reflex Troubles
(07999) DJW, Atlanta, Ill.
I have built an Erla Duo-reflex three-tube set, and fail to get the results I have reason to believe I ought to get. I am using mostly Erla parts throughout, but the three tubes don't deliver properly. I

PATENTS Procured. Send sketch or model today for examination, prompt report and advice. No charge for preliminary advice. Write for free Booklets "How to Obtain a Patent" and "Invention and Industry" and blank form on which to disclose your idea. Highest references. Promptness assured. Clarence A. O'Brien, Registered Patent Lawyer, 2003 Security Bank Building, Directly across the street from Patent Office, Washington, D. C.

Panel Shielding After Your Set Is Finished

A liquid metal; cuts out body capacity, brings in music clear and sweet. Done in 5 minutes. One can will shield 5 or more sets; 50c per can. Also a liquid spaghetti can be put on after set is finished, fine for insulating the base board, 50c per can. Post paid.
WALKER MANUFACTURING CO.
247 Scott St. San Francisco, Cal.

Guaranteed Head-Sets

RED-HEADS are guaranteed radio phones. You run no risk when you buy them. Money back if, after 7 days' trial, you're not satisfied that they're the best receivers on the market at the price. Why not act right now and get a pair? It'll mean getting the maximum from broadcasting from the day you put them into use.



RED-HEAD RADIO RECEIVERS NOW READY

The new 1924 Model F | The new "Red-Head" Jr.
\$6.50 Per Pair Complete | \$5.00 Per Pair Complete

"Red-Heads" sent prepaid on receipt of price if you are unable to get them at your dealers.

THE NEWMAN-STERN COMPANY
DEPT. R. D., NEWMAN-STERN BUILDING, CLEVELAND, OHIO

have changed rectifiers, have had two Erla fixed, and one Erla semi-fixed, and two Star fixed crystals, and still fail to get loud signals. Sometimes, and with some of the crystals, with all contacts tight, I get nothing but a loud howl, worse than any regenerative howl I ever heard. And the only way I can get halfway decent signals at all is to wire across the grid and plate terminals of the first socket, omitting that tube, and then some of the crystals at times will deliver loud speaker service. How do you account for this phenomena, and what do you think is my trouble?

A.—The results obtained by shorting the first tube would indicate that condenser is lacking across the secondary of first audio frequency transformer. This should have attention.

To test the circuit, lift the cat whisker from the detector. If the circuit is functioning normally a howl, the louder the better, will announce that fact. If crystal is effective when the catwhisker is replaced the howling will cease. If only fairly so a faint howl or whistle will still be noticeable.

Inductance
(05941) G. W. M., New York City.
Please give me the following data:
How many turns of wire will it take, wound on a 3-inch tube to cover a 600-meter wave length? I have a 100-foot aerial, 60 feet above the ground.
A.—The number of turns of wire on a coil for a specific wave length depends, of course, upon the circuit in which it is employed. Probably 60 turns on the tube will be sufficient.

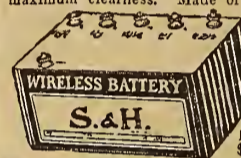
WD-11 and 12 Tubes
(8820) CE, Humboldt, Minn.
Would a Radio set using a WD-11 tube as a detector and a WD-12 tube as an amplifier give as good results as a WD-11 tube in each socket?
A.—The WD-11 and 12 tubes are identical in characteristic, the only difference being in the socket and base.

WHOLESALE ONLY!!

If you are contemplating going into the **RADIO BUSINESS**
SEND FOR OUR NEW ILLUSTRATED CATALOG, WITH BARGAIN PRICES
MANHATTAN RADIO CO.
112 Trinity Pl. New York City

S. & H. "B" BATTERY

"Will Keep Your Set Alive"
Is "NOISELESS," increases volume and range with maximum clearness. Made of the finest material to give extra service. Are not two days old when they're sent to you.
22½ V. Variable. Large M'd'm Small \$1.80 \$1.60 \$1.00
45 V. Variable. Large Medium Small \$3.60 \$2.75
Sold With a Money-Back Guarantee—We Pay Postage
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Sells only Guaranteed Radio Apparatus.
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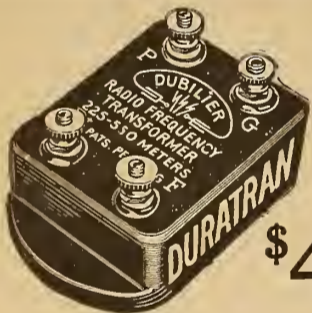
What About It?

Isn't it about time to stop experimenting with multiple control circuits and build one that, combining ease of assembly and operation, loudness, clarity and selectivity of signals, as well as beautiful appearance, is excelled by none?

THE ELGIN SUPER-REINARTZ RADIO RECEIVING SETS

Embodies all the advantages of the well known Elgin Reinartz (the set which was largely responsible for the popularity of this wonderful circuit) and many others. It is much louder, more selective, requires no storage battery, and can be used with excellent results on a short or loop aerial.
It has brought in 2LO England, and California stations two thousand miles from Elgin, clearly and without interference on a loud speaker with only one tube, and that while our powerful local station was broadcasting three miles away. Could you ask for more.

Send 2-cent stamp for circular giving one, two and three bulb hook-ups of this remarkable circuit.
ELGIN RADIO SUPPLY CO.
207 East Chicago Street ELGIN, ILLINOIS

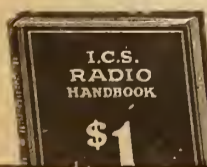


The Dubilier Duraltran

The radio-frequency transformer that amplifies uniformly over all broadcasting wave lengths. Made to satisfy the man who knows radio.

DUBILIER CONDENSER AND RADIO CORP.
43 West Fourth Street, New York

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Just off the press! The greatest book on Radio ever written. Price only \$1. Filled with sound, practical, tested information for every radio fan, from beginner to hard-boiled owl. Written, compiled, and edited by men of national reputation. Every page tells you something useful—and there are 514 pages. Mail \$1 to-day and get this I. C. S. Radio Handbook before you spend another cent on parts. Money back if not satisfied

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I enclose One Dollar. Please send me—postpaid—the 514-page I. C. S. Radio Handbook. It is understood that if I am not entirely satisfied I may return this book within five days and you will refund my money.

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Address.....

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EIGHT BIG WAREHOUSES TO SERVE YOU

DEALERS
Write on your letterhead for this big catalog. Ask for A1002

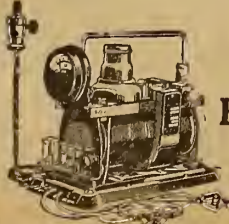
WAKEM & McLAUGHLIN
225 E. ILLINOIS ST. - CHICAGO

The F-F BATTERY CHARGER

Charges 120 Volts of "B" Battery IN SERIES

Up to 120 Volts "B" battery in series, 6 Volt Radio "A," and automobile batteries can be economically charged with the F. F. Battery Charger. Simple and durable. No costly bulbs used. There are many other interesting features you should know.

PRICES: Type AB, \$20.00; Type 6 for "A" or Auto Batteries, \$16.00; each slightly higher west of the Rockies.



Write for literature

THE FRANCE MFG. CO.
10321 BEREA RD. Cleveland, O.

The New STAR Type E. Detector

For Crystal or Reflex Sets



Price \$1.00

We offer the STAR TYPE E Detector which is covered by our guarantee of complete satisfaction and is sold at the LOWEST PRICE of any RELIABLE DETECTOR on the market. This detector is well made and is set with one of our very best rectifying materials. It is made so that in case of necessity it may be adjusted and while it is not especially designed for reflex sets many excellent reports of performance on these sets have been received.

THE TYPE E DETECTOR IS THE BEST BUY IN THE CRYSTAL MARKET TODAY and will be sent subject to exchange for any other item we make.

DEALERS send to-day for our FALL CATALOGUE NOW READY, and get all set for the big season ahead.

Star Crystal Co
1441 525 Woodward Avenue
DETROIT - MICHIGAN

Radiophone Broadcasting Stations Corrected Every Week—Part I

AA3, Denver, Colo. 440 meters. Fltzsimmons Gen. Hospital... AA3, Denver, Colo. 440 meters. Fltzsimmons Gen. Hospital (Educational Dept. U. S. Army) Thurs. 7:30-8:30 pm, music, entertainment. Mountain.

AYB, Mexico City, Mex. 370 meters. 500 watts. El Buen, Toluca, Tues. Sat, 7:30-9 pm. Thurs, 8-10 pm, concert. Mexican.

KFDH, Tucson, Ariz. 268 meters. 50 watts. Univ. of Ariz. Irregular schedule. KFDJ, Corvallis, Ore. 360 meters, 50 watts. Oregon Agri. College. Closed for the summer.

KFJB, Marshalltown, Iowa. 248 meters. 10 watts. Marshall Elec. Co. Slogan: "Marshalltown, the Heart of Iowa." Tues, Fri, 8:30 pm. Central.

CHALLENGE!

ONE DOLLAR will be paid to the Radiophon submitting the most errors in any one station's listing. Letters must reach Radio Digest office not later than one week from date of issue corrected.

and mistakes are made. But Radio Digest is so sure of the exactness of this directory that this challenge is made unconditionally. With reference to the directory: It appears in five parts, serially continuous...

Brothers Mercantile Co. Daily ex Sun, 7:30-8:30 pm, news, weather, stock reports, music. Mountain.

CFJ, Montreal, P. Q., Can. 410 meters. La Cis de L'Evenement. CFCK, Edmonton, Alta., Can. 410 meters. 115 watts. Radio Supply Co. Ltd. Daily ex Sun, 8-8:30 pm, music. Sun, 3:30-4:30 pm, Concert Mountain.

Oita. College for Women, Chickasha Radio & Elec. Co. Tues, Thurs, Sat, 8 pm, music, lectures. Wed, 10 am, chapel service; 11 pm, special jazz program. Central.

KFMB, Little Rock, Ark. 254 meters. Christian churches of Little Rock. KFMM, Fayetteville, Ark. 263 meters. 500 watts. U. of Arkansas. Tues, 9 pm. Central.

(Note—The second part of the station data list will appear next week.)



"THE AIR IS FULL OF THINGS YOU SHOULDN'T MISS!"



Eveready "B" Battery No. 772 for detector and amplifier. Connections at 22½ and 45 volts. Three Fahnestock Clips. Approximate over-all dimensions, 8¼ in. x 3¼ in. x 7¾ in.

Sustained power!

WHERE table or cabinet space is limited, use this new vertical 45-volt Eveready "B" Battery No. 772. It has the same long life, the same steady high power as the horizontal Eveready 45-volt "B" Battery, but because it stands upright it takes less than half the table space.

Tables and most battery cabinets have more head-room than floor space. This battery is built in recognition of that fact. It fits the Radiola Super-Heterodyne cabinet perfectly.

Many multi-tube receiving sets use a "hard" detector tube which does not require fine adjustment of "B" voltage, so the new Eveready Vertical 45-volt "B" has but three plainly marked terminals, negative, plus 22½ and plus 45 volts.

Standing upright to save space, made of large, powerful cells to last longer, here is the battery you've been looking for.

Manufactured and guaranteed by
NATIONAL CARBON COMPANY, Inc., New York—San Francisco
Headquarters for Radio Battery Information

Canadian National Carbon Co., Limited, Toronto, Ontario

If you have any battery problem, write G. C. Furness, Manager, Radio Division, National Carbon Co., Inc., Thompson Ave. and Orton St., Long Island City, N. Y.

EVEREADY

Radio Batteries

—they last longer



No. 764
The Space Saver
Vertical, 22½-volt
"B" Battery

No. 771
Eveready "C"
Battery. Clarifies
tone and prolongs
"B" Battery life

No. 7111
Eveready Radio "A"
Dry Cell
Specially manufactured
for use with dry
cell tubes

No. 766
Eveready "B", 22½ volts
Six Fahnestock Spring
Clip Connectors

Eveready 6-volt
Storage "A"
Battery

No. 767
"B" Battery, 45 volts
Variable taps
Fahnestock Clips