

Improved Super-Heterodyne Description; Presidential Straw Vote Results; Helpful Hints for Radio Beginners; Advance Programs for Larger Stations

# Radio Digest

EVERY WEEK

PROGRAMS Illustrated

TEN CENTS

REG. U. S. PAT. OFF. & DOM. OF CANADA

Vol. XI Copyright 1924 By Radio Digest Publishing Co. SATURDAY, OCTOBER 11, 1924 No. 1

## TAX FREE MUSIC FOR ALL



### Duncan Sisters, in Interview, Relate Early Experiences with Broadcasting

"Topsy and Eva" Stars Tell How They Felt When They Made Radio Debut in Ossining, N. Y.—Vivian Duncan Amazed at Radiocast's Progress Since

(Photographs on Back Page) THE first time before the microphone was hard work. I kept thinking I was making a phonograph record, and if I made the slightest mistake I would have to do the whole thing over again.

Such was Miss Vivian Duncan's impression when she made her debut at the "mike." And now, after four years, during which time both Miss Vivian and Miss Rosetta, co-stars in the musical comedy, "Topsy and Eva," have hardly missed a (Continued on page 6)

### BROADCASTER MEET CAUSES LATEST MOVE

Radiocasters' Ass'n in Annual Meeting Backs New Tax Free Music Bureau

#### Discuss Giant Stations

N. A. B. Re-elects E. F. McDonald, Jr., President—Crosley to Go to Third Radio Conference

NEW YORK.—"Music for everybody without a tax for public performance" is the policy of the newly established Tax Free Music bureau, which has offices at 45 West 45th street, New York city. The bureau has the backing of the National Association of Broadcasters and the First National Pictures, Inc. The latter organization is comprised of 850 of the leading motion picture theaters in the United States.

The bureau is successor to the music department of the National Association of Broadcasters, which has operated during the past year to supply Radio stations with music which may be used in public performance without payment of a tax.

**Will Not Fight American Society**  
The manager of the new bureau is Harry Sigmond, who explained to the broadcasters at their second annual convention, September 25, the purposes of the bureau.

"I am not conducting a fight against (Continued on page 2)

### HEAR SPEECHES AT LEAGUE OF NATIONS

END OF SECRET DIPLOMACY AUTHORITIES BELIEVE

Geneva Radiocast Marks First Point in Allowing Public to Hear All of Negotiations

GENEVA, Switzerland.—A peculiar reticence throughout the European press has been noted by observant readers in mentioning in small space a broadcast which may well tend towards one of the greatest revolutions in diplomatic history yet witnessed.

This broadcast was the transmission of the speeches of the Premiers at the plenary session of the League of Nations in this city held the first week in September, and was arranged by the officials of the League in combination with those of the Paris station of Postes, Telegraphs and Telephones (the famous P.T.T.).

In spite of the slight notice given it, this event may one day be marked as an epoch in European annals, just as the first declaration of this "open-door" policy, as set forth by the late President Wilson, was received with such loud acclaim at the time of its inception.

**Broadcast MacDonald's Opening Speech**  
On September 4, the opening speech of Premier MacDonald, of England, was transmitted by land wire, via the French circuit Paris-Annemasse, to the broad-

(Continued on page 5)



From left to right: Helen F. Snyder, one of the soloists of Station WEBB, Chicago; Miss Roberta Arnold in "The Tantrum," broadcast recently from WOR, Newark; Miss Estelita Chavez, who as "pupil" assists Prof. Oscar Galeno, Radio pictorial instructor in Spanish at Station KGO.

### MAKING NOISE IN NEW SOUND PLAY



All the noise concerned in the fall of the Bastille was not made at the actual scene years ago. The photo shows the apparatus used to produce the noises to augment the unseen action in the new "sound play" production of the historic story.

P. & A. Photo

### ISSUE TAX FREE MUSIC

(Continued from page 1)

anyone or anything," he said. "As far as I am concerned, the American Society of Composers, Authors and Publishers is out of the picture. It is true we may effect them or they may effect us, but what concerns me primarily is making use of the facilities of theaters and radio stations for the popularizing of music. We feel we have a legitimate function to perform without concerning ourselves about the business principle of other organizations.

"If the American Society continues in the belief that theater and broadcasters will popularize their music and pay for the privilege of doing so, and we offer good music of all sorts without imposing a license fee, I think the American Society will lose while we gain, but whether they lose or not is their problem while ours is whether we gain or not.

#### Hopes Enlistment of 2,000 Theaters

"It is my hope to be able to announce 2,000 theaters throughout the country as co-operating. Publishers who are now compelled to spend great sums of money in bringing their songs before the public are already ready and willing to release their music through the Tax Free Music bureau."

The broadcasters expressed their approval of the expansion and reorganization of the music bureau which gives promise of much good entertainment for the radio audience.

The broadcasters' association revised the method of assessment of its members, who have heretofore paid dues on the basis of wattage of their stations. Active members will pay annual dues of \$250; associate members will pay \$5 and co-operating members, including churches and educational institutions will be assessed a nominal fee of \$5.

#### McDonald Re-elected N.A.B. President

The election of officers again placed Eugene F. McDonald, Jr., president of the Zenith Radio corporation at the head of the National Association of Broadcasters. Mr. McDonald operates Station WJAZ, which is a portable transmitter which will be used by the Zenith corporation in a series of experiments made to determine the most suitable location for a new super station. Mr. McDonald operated Station WJAZ at the Edgewater Beach hotel in Chicago and after The Chicago Tribune took over the station, Mr. McDonald's organization continued operating the station until the Tribune's interests were transferred to Station WDAP on the Drake hotel, renamed WGN.

Frank W. Elliott, director of the Palmer School of Chiropractic's station WOC at Davenport, Iowa, was re-elected first vice-president, and John Shepard III of the Shepard Stores, Boston, owner of WNAC also retained office, remaining second vice-president. William H. Heinz, a newcomer in broadcasting and the association, but already known through Station WHO, Des Moines, Ia., was elected secretary. Powell Crosley, Jr., president of the Crosley Radio corporation, owner of Station WLW, was chosen treasurer.

#### New Board of Directors

The new Board of Directors is composed of the following:

Richard Gimbel, Gimbel Bros., WIP, Philadelphia; G. Brown Hill, Doubleday-Hill, KQV, Pittsburgh; William S. Hedges, Chicago Daily News, WMAQ, Chicago; Alfred H. Grebe, A. H. Grebe, Inc., WAHG, Richmond Hill; Robert Shepard, Shepard Stores, WEAN, Providence; Harold Power, American Radio Research Corp., WGI, Medford Hillside; Earle C. Anthony, Earl C. Anthony, Inc., Los Angeles; Jack Lit, Lit Bros., WDAR, Philadelphia; L. G. Baldwin, Willard Storage Battery Co., WTAM, Cleveland; J. R. Knowland, Oakland Tribune, KLX, Oakland; James Cleary, Chicago Tribune, WGN, Chicago; W. Kidney, Federal Tel. Mfg. Corp., WGR, Buffalo; C. H. Henderson, Union Trust Co., WJAX, Cleveland; A. B. House, Majestic hotel, WFBH, New York.

In addition to approving the establishment of the Tax Free Music bureau, the broadcasters devoted considerable time to a discussion of procedure and policy at the Radio conference now being held by Secretary of Commerce Hoover. Mr. Crosley was elected to act as spokesman for the broadcasters' association at the conference.

#### Super-Power and Station Limitation

One of the proposals considered was limitation of the number of broadcasting stations because additional stations in many localities means splitting time on the same length shared by three or four stations. The limit, it was suggested, could be determined by having no more than two stations on the same wave

### BRITAIN PRODUCES NEW "SOUND PLAY"

#### Amplify Story by Combinations of Sounds and Words at London Tryouts

LONDON.—Interesting experiments in combining speaking parts and characteristic noises and sounds into "sound plays" to be Radiocast are being conducted here.

For the past several months, two of England's most prominent theatrical men, Alfred Whitman and Jack Vincent, have been experimenting in the new medium and three unique adaptations have already been put on the air by the British Broadcasting company.

Because of the absence of gesture and motion the ordinary play is ineffective when Radiocast. Whitman and Vincent believe that were characteristic sounds taken into consideration in the preparation of the sketch this drawback will be overcome.

In the first trial of the new idea, "The Fall of the Bastille" was handled in a novel way. The historical side of the story is well known.

Whitman and Vincent believe that the new art will open almost illimitable possibilities in broadcasting plays.

length in any Radio district. The proposal was referred to Mr. Crosley who will first ascertain whether present Radio communication laws confer the necessary authority upon the secretary of commerce. If it is found that the secretary lacks the power, the proposal will be offered as suggested remedial legislation.

Super-power stations also drew the attention of the broadcasters. While all seemed agreed that some limit was at present advisable there was no unanimity of mind as to what the limit should be.

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Radio Digest, Illustrated, Volume XI, Number 1, published Chicago, Illinois, October 11, 1924. Published weekly by Radio Digest Publishing Company, 510 N. Dearborn Street, Chicago, Illinois. Subscription rates, yearly, Five Dollars; Foreign Postage One Dollar additional; single copies Ten Cents. Entered as second-class matter at the postoffice at Chicago, Illinois, under the Act of March 3, 1879.

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### Looking Ahead

"Secrets of Selectivity and Regeneration" are a group of associated facts which form the basis of successful selectivity in every receiving set. The articles on this topic, of which there will be four, have never been brought to the Radiophan's attention so authentically and well as they will be by William W. Harper. The series, announced to begin this issue, will begin next week.

You'll Build a Super-Het that Satisfies if you follow the series on the construction of an improved eight tube model beginning this issue under the signature of H. J. Marx. Part II appears next week.

How About Building Your Receiver in an End Table? Charles F. Smisor, who is writing "Console and Cabinet Making for Receiving Sets," will give complete directions next issue for the construction of an end table receiving set combination.

Variable Condensers May Not Mean Much to the Beginner, but Thomas W. Benson in his next "Helpful Hints" article explains them from "plate to plate." Read Mr. Benson's explanations and suggestions for a better appreciation of Radio.

Donald B. MacMillan, of WNP, Fiddlin' John Carson, of WSB, and many other prominent Radio figures will visit you with interviews and picture pages in Radio Digest soon. Among other popular features soon to appear will be one depicting in photographs the process of broadcasting and how the voice is carried from the studio to you.

### Newsstands Don't Always Have One Left

WHEN YOU WANT

## Radio Digest

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Address .....

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



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The answer is simple—quality radio receivers built in quantity production. During the past twelve months, we believe Crosley made and sold more sets than any other manufacturer in the world. This is self-evident proof of Crosley Quality and Crosley Performance. Combined with Crosley excellence are such additional advantages as selectivity, ease of tuning, simplicity and beauty—all at the lowest radio cost.

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For Sale by Good Dealers Everywhere

### The Crosley Radio Corp.

POWEL CROSLLEY, JR., President

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Crosley Owns and Operates Broadcasting Station WLW

The combination of one stage of tuned radio frequency with regenerative detector and reflexed amplification assures unexcelled selectivity, volume and ease of operation.

Crosley Trirdyn Regular, \$65.00  
With Tubes and Crosley Phones, \$80.75



Crosley Regenerative Receivers are licensed under Armstrong U.S. Patent No. 1,113,149.

Prices West of the Rockies: Add 10 Per Cent

## The kind of Letters Thordarson gets—No. 1

E. B. Wilson, Pres., The American Bureau of Inspection and Tests, Inc. (M.A.M. SOC. C.E.)

Consulting and Supervising Engineers

Monadnock Block Chicago

Thordarson Elec. Mfg. Co., Huron & Kingsbury Ave., Chicago, Ill.

Gentlemen: Perhaps it is not necessary to congratulate one when he makes good on an article he has sold, but after a number of sad experiences with various transformers, I cannot refrain from expressing my appreciation of the performance of three 3 1/2 to 1 ratio A. F. Thordarson Transformers which I have installed in a Cockaday Four Circuit UV-199 tube radio set.

Reproduction by the third step is as pure, as far as the ear can detect, as the second, and the volume from several out of town stations is sufficient to fill my living room through the head phones, without the use of a loud-speaker. The characteristic transformer howl positively cannot be produced—the tube filament can, of course, be overpowered, but it seems impossible to saturate the transformers to the point of paralysis.

Respectfully yours, E. B. Wilson (signed)

EBW-EE

## THORDARSON Super AMPLIFYING TRANSFORMERS

Standard on the majority of quality sets

Audio Frequency: 2-1, \$5; 3 1/2-1, \$4; 6-1, \$4.50. Power Amplifying, pair \$13.

Write for some real bulletins!

# PRESIDENT COOLIDGE WINNER OF FIRST RADIO STRAW VOTE

## Broadcast Poll Conducted by Radio Digest Shows LaFollette Second; Davis Third—35,074 Men and 22,174 Women Vote

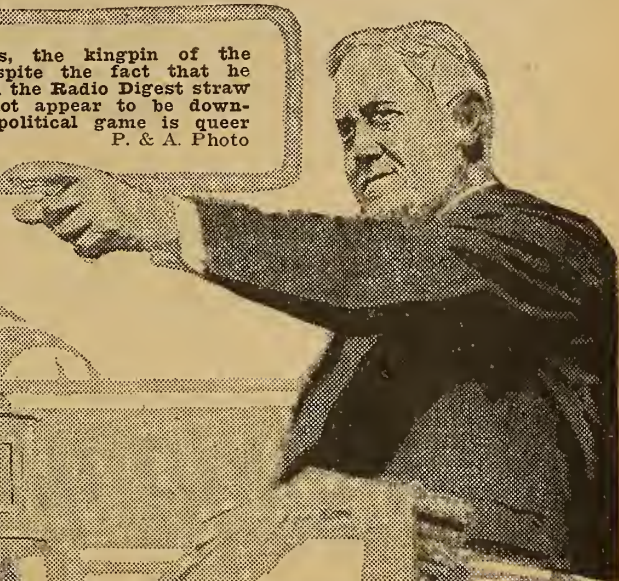
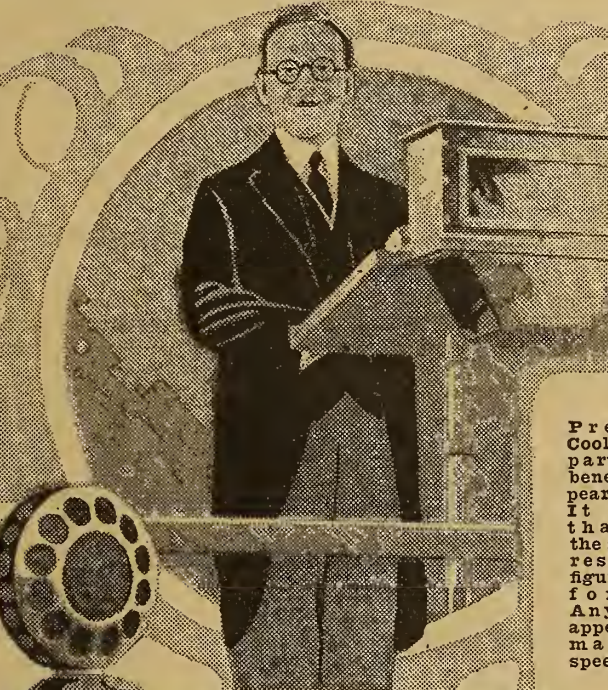
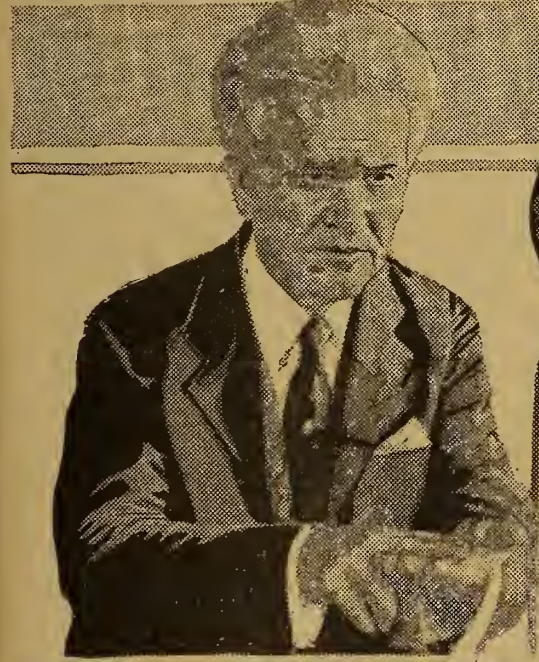
Final tabulations of the world's first Radio straw vote, conducted by Radio Digest over seventeen class B broadcasting stations during the past two weeks, show that President Calvin Coolidge is the favorite with 36,752 votes, Robert M. LaFollette is second with 12,038 votes and John W. Davis is third with 8,450 votes. William Z. Foster polled but eight votes.

Not alone was the Radio Digest straw vote an innovation in its being the first to be taken by Radio, but it is believed also to be the first straw vote conducted so as to show how men and women, independently, would vote. In the majority of cases, the vote of the women, though smaller, was proportionate to the vote of the men. Votes were received from 35,074 men and 22,174 women, a total of 57,248.

### Stations Co-operating in Vote

The seventeen large stations, covering every part of the country, that co-operated with Radio Digest in taking the straw poll of the invisible audience were: KGO, General Electric company at Oakland; WLW, Crosley Radio corporation at Cincinnati; KFKX, Westinghouse Electric and Manufacturing company at Hastings; WJAX, Union Trust company at Cleveland; WGR, Federal Telephone Manufacturing corporation at Buffalo; WHO, Banker's Life company at Des Moines; KFNF, Henry Field Seed company at Shenandoah; WMC, Memphis Commercial Appeal at Memphis; WOC, Palmer School of Chiropractic at Davenport; WOAW, Woodmen of the World at Omaha; WCAE, Kaufmann and Baer at Pittsburgh; WBAP, Fort Worth Star-Telegram at Fort Worth; WEAY, Iris Theater at Houston; WOAL, Dallas News and Journal at Dallas; CKAC, La Presse at Montreal; WFI, Strawbridge and

WJAX			
	Men	Women	Total
Coolidge .....	1,364	586	1,950
LaFollette .....	575	202	777
Davis .....	104	26	130
	2,043	814	2,857
WGR			
Coolidge .....	136	101	237
LaFollette .....	22	16	38
Davis .....	16	7	23
	174	124	298
WHO			
Coolidge .....	966	370	1,336
LaFollette .....	144	121	265
Davis .....	208	154	362
	1,318	1,145	2,463
KFNF			
Coolidge .....	97	34	131
LaFollette .....	32	17	49
Davis .....	32	23	55
	161	74	235
WMC			
Coolidge .....	408	176	584
LaFollette .....	34	17	51



John W. Davis, the kingpin of the Democrats. Despite the fact that he came in third in the Radio Digest straw vote he does not appear to be downhearted. This political game is queer business. P. & A. Photo

"Battling Bob" LaFollette telling them what he thinks of things in general in one of his high-powered speeches. According to the Radio Digest poll "Battling Bob" should draw a heavy vote. P. & A. Photo

KGO			
	Men	Women	Total
Coolidge .....	5,887	5,521	11,408
LaFollette .....	3,401	1,976	5,377
Davis .....	722	301	1,023
Foster .....	4	0	4
	10,014	7,798	17,812
WLW			
Coolidge .....	1,267	698	1,965
LaFollette .....	321	230	551
Davis .....	354	243	597
	1,942	1,171	3,113
KFKX			
Coolidge .....	4,355	1,902	6,257
LaFollette .....	1,897	953	2,850
Davis .....	1,187	621	1,808
	7,439	3,476	10,915

Davis .....	606	222	828
	1,048	415	1,463
WOC			
Coolidge .....	737	610	1,347
LaFollette .....	164	58	222
Davis .....	77	22	99
	978	690	1,668
WOAW			
Coolidge .....	544	403	947
LaFollette .....	155	113	268
Davis .....	122	103	225
	821	619	1,440
WCAE			
Coolidge .....	358	188	546
LaFollette .....	277	202	479
Davis .....	55	11	66
	690	401	1,091
WBAP			
Coolidge .....	745	510	1,255
LaFollette .....	155	99	254
Davis .....	1,066	778	1,844
	1,966	1,387	3,353

### "HIGHEST IN WORLD," CLAIMED BY FRANCE

PARIS.—The "highest Radio station in the world" is the claim France makes for the new station at the Observatory of the Pic du Midi, which will be ready for operation in October. The power of this station, perched some 8,700 feet above the sea level, will be only 500 watts. It will be used for relay work with another station at Bagnères-de-Bigorre, the administrative center of the observatory.

WEAY			
	Men	Women	Total
Coolidge .....	22	11	33
LaFollette .....	12	8	20
Davis .....	57	43	100
	91	62	153
WOAI			
Coolidge .....	121	37	158
LaFollette .....	12	11	23
Davis .....	128	40	168
	261	88	349

### KSD TO BROADCAST SYMPHONY CONCERT

#### NOTED ORCHESTRA'S THIRD YEAR AT THIS STATION

Entire Series of Superb Winter Concerts Will Give Radiophans a Novel Treat

ST. LOUIS, MO.—Plans have been completed for broadcasting the concerts given by the St. Louis Symphony orchestra this season. This will be the third year KSD has sent out to music lovers throughout the United States the programs given by St. Louis' famous orchestra.

Rudolph Ganz, the noted pianist, who is conductor of the orchestra, will direct all the concerts which are broadcast. Ganz is now abroad looking over the possibilities in the line of new music for the coming season, and will arrive in America next week, and begin rehearsals with the orchestra early in October.



The first concert to be broadcast will take place on Saturday night, Nov. 8, beginning at 8 o'clock.

It is announced that Michel Gusikoff, concert violinist, again will be concertmaster of the orchestra, and Max Steindel, solo cellist in the orchestra and a member of the famous musical family of Steindels, will again head the 'cello section.

Some of the works announced for the season, which are either new or long unfamiliar to orchestra audiences, are: The symphonic poem "Heidenleben," by Richard Strauss, for which the orchestra's personnel will be increased by some two score players: "London Symphony," by Dr. Vaughn Williams; "Symphony in E," by Hanson; dances from "Prince Igor," Borodine; "Fireworks," Stravinsky; Entr' Acte from "Kovantchine," Mousorgsky; "Tombeau de Couperin," Ravel; "Victory Ball," Schelling; "Suite," Bach-Mahler; "Pacific 231," Honegger; "Three Old Dances," Respighi, and "Novoletta e Notturmo," Martucci.

There will be 15 concerts broadcast, taking place as follows: November 8, 15, 22 and 29; December 13, 27; January 10, 17, 24; February 7, 14, 21, 28; March 7 and 14.

### Wile to Lecture on Politics from WRC

#### Political Authority Will Talk on International Problems

WASHINGTON.—Frederick William Wile, chief of the Wile News service and premier political reporter and broadcaster has returned to Station WRC at Washington, from where his searching reviews of world politics will be radiocast.

Wile's keen insight into things political, his impartial consideration of political candidates coupled with his impartiality has won him a great host of listeners. Today he is rated as one of the world's foremost political authorities.

This is Mr. Wile's second year before the microphone. With the present political situation approaching its greatest pitch and undoubtedly holding position as the most absorbing topic of the day, it is felt that Mr. Wile's talks will excite a wide field of interest.

The first of his series of talks was given on Tuesday, September 30 at 9 p. m. They will continue at the same day and time throughout the winter.

CKAC			
	Men	Women	Total
Coolidge .....	164	66	230
LaFollette .....	24	17	41
Davis .....	16	4	20
	204	87	291
WFI			
Coolidge .....	156	104	260
LaFollette .....	6	4	10
Davis .....	18	12	30
	180	120	300
WGY			
Coolidge .....	4,059	2,420	6,479
LaFollette .....	317	175	492
Davis .....	368	258	626
Foster .....	4	0	4
	4,748	2,853	7,601
Not Listed According to Stations			
Coolidge .....	578	551	1,129
LaFollette .....	151	120	270
Davis .....	267	179	446
	996	850	1,846
Summary			
Coolidge .....	21,964	14,788	36,752
LaFollette .....	7,699	4,339	12,038
Davis .....	5,403	3,047	8,450
Foster .....	8	0	8
	35,074	22,174	57,248

### Improvements to Be Made In Chinese Communication

SAN FRANCISCO, Calif. — Announcement of extensive improvements in order to handle the commercial Radio telegraph business with China, and which include the construction of new high power units at Bolinas and the opening of a new headquarters at 28 Geary street, San Francisco, has just been made by the Radio Corporation of America through its Pacific coast division manager, Arthur A. Isbell.

## Why it is Better

LOOK at this illustration see for yourself the eleven distinctive features in the construction of the Federal Condenser. Every feature is a distinct point of superiority—essential to clear, sharp tuning and clear reception.

You can get the outstanding advantages of Federal Tone and Federal Selectivity in your pet hook-up only by insisting on Federal Parts.

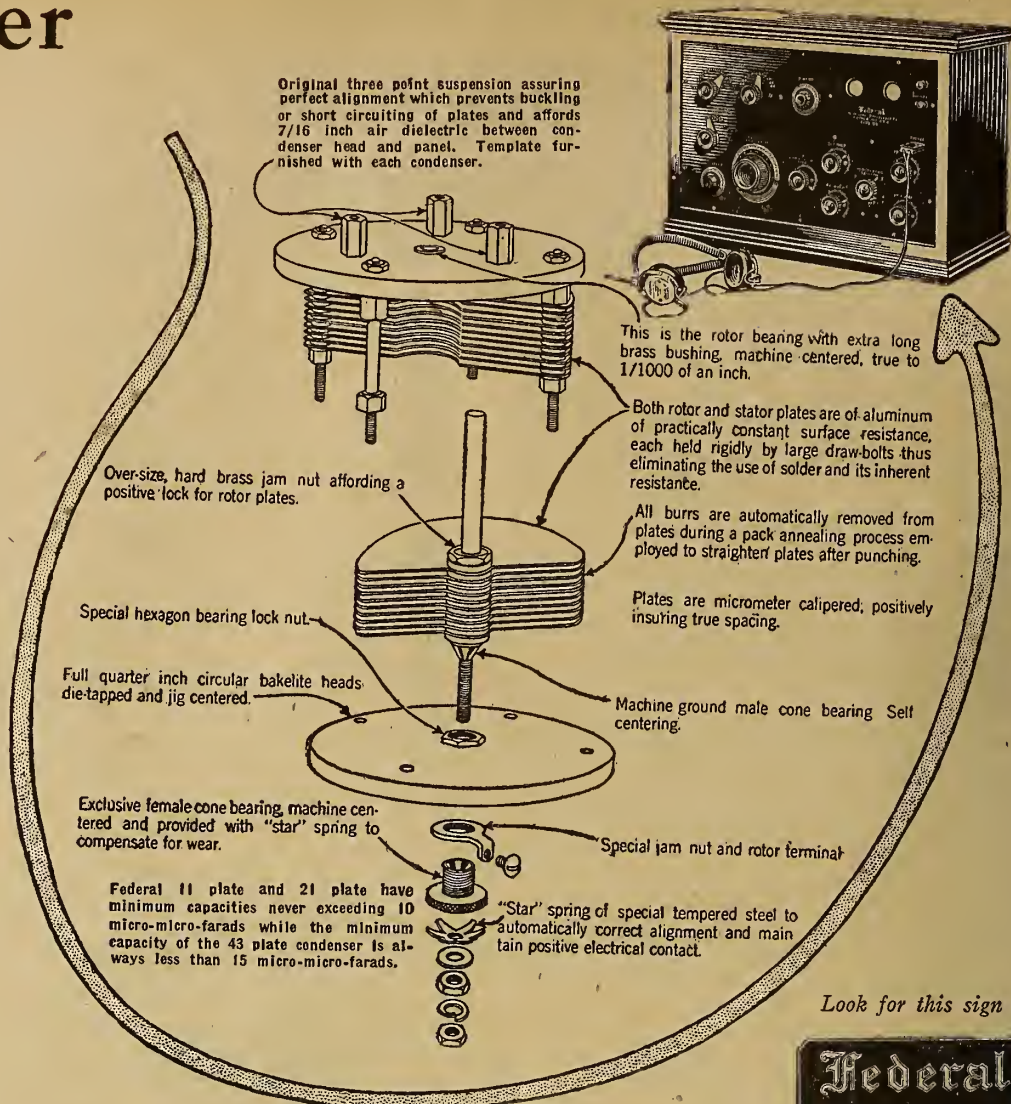
There are over 130 Federal Standard Radio Parts bearing the Federal iron-clad performance guarantee. Use them—for your own protection and enjoyment.

FEDERAL TELEPHONE MANUFACTURING CORPORATION  
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Boston New York Philadelphia Pittsburgh Chicago  
San Francisco Bridgeburg, Canada



**Federal**  
Standard RADIO Products



Look for this sign



# SUPER-HILCO-DYNE KIT

# \$30<sup>00</sup>

## The Key to Distance

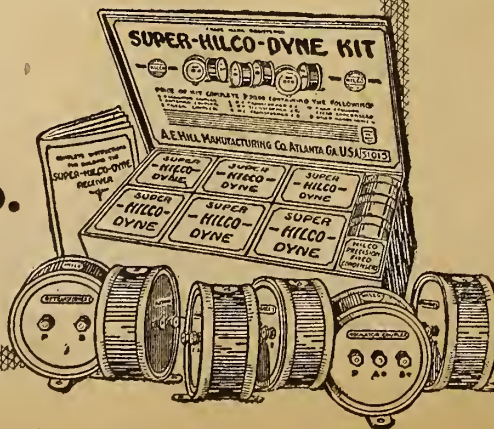
Any tube receiver will bring in out of town stations on a "silent" night—distant reception contains a thrill only when done through the transmission of nearby locals. The super-heterodyne, by its principle of operation, gives one the ability to do this, but—that principle implies low-loss apparatus, critical in design and made under exacting inspection.

The use of a Super-Hilco-Dyne Kit is the key to that distance which every builder of a Super-heterodyne is after. Its oscillator and antenna couplers assure clean cut separation of radio-casters in adjacent wave bands—its filter coupler completes the weeding out process on those stations within but a few meters of each other.

**Get a Super-Hilco-Dyne Kit Now—Not Later**

*Coast to Coast Reception  
Only Two Tuning Dials  
Stations can be Logged*

**A. E. Hill Mfg. Co.**  
Atlanta, Ga.



- 1 Hilco Oscillator Coupler
- 1 Hilco Antenna Coupler
- 1 Hilco Filter Coupler
- 3 Hilco Intermediate Frequency Transformers
- 5 Hilco Precision Fixed Condensers
- 3 Hilco Handykans
- 1 Instruction booklet

Complete explanation, BLUE PRINTS and instructions for assembling a SEVEN TUBE SET

## HOOVER ADVOCATES RADIO LINK COUNTRY

SECRETARY GIVES ADVICE TO ALL BROADCASTERS

Now Public Utility Closely Connected to Lives of Every Citizen, Having Great Possibilities

WASHINGTON, D. C. — Secretary of Commerce Hoover, in addressing the opening session of the Third Radio conference on October 7, advocated regularly organized Radio interconnection on a national basis, with nationally organized and directed programs for some part of the day in supplement to local material.



Herbert Hoover

"Experimental broadcasting upon a national scale during the past year has brought us to the stage where we know it can be done," said the secretary. Discussing this matter of broadcasting programs further, Mr. Hoover said:

"The local material available for the local program is, in my view, not enough to maintain assured interest and therefore the industry, or to adequately fulfill the broadcasting missions. So far as the art has developed, I think we all agree that for regularity of reception we can depend only upon the local broadcasting stations. My proposition is that the local stations must be able to deliver every important national event with regularity. To this it must add its matters of local interest."

### Wants National Interconnection

The secretary gave it as his opinion that "it is our duty to consider the possibilities and potentialities of interconnection as a regular daily routine of the nation. Unless it be systematically organized we cannot expect its continuation. I realize that this matter, except insofar as it may be fostered and encouraged, does not lie in the government. It would be unfortunate if its control should come under the arbitrary power of any person or group of persons. It is inconceivable that such a situation could be allowed to exist."

Mr. Hoover also said that "Radio has passed from the field of an adventure to that of a public utility, nor among the utilities is there one whose activities may yet come more closely to the life of each and every one of our citizens, nor which holds out greater possibilities of future influence, nor which is of more potential public concern."

### Hoover Quotes Statistics

The attention of the conference was called to the fact that there are now 530 broadcasting stations in operation, making Radio available in every home in the country. The sales of Radio apparatus, Mr. Hoover said, have increased from \$1,000,000 a year to \$1,000,000 a day. He estimated that there are now over 200,000 men employed in the industry and that the Radio audience probably exceeds 20,000,000.

"Radio activities," said the secretary, "so long as they remained within the legislative restrictions which hold for the government the fundamental ether are largely free. The industry's future conduct with a single view to public interest, a voluntary imposition of its own rules and a high sense of service, would go far to make legislative intervention necessary."

Taking up the question of paying for broadcasting and advertising the secretary said, "The quickest way to kill broadcasting would be to use it for direct advertising."

### Suggests Mutual Program Body

"The reader of the newspaper," said Secretary Hoover, "has an option as to whether he will read an ad or not, but if a speech by the President is to be used as the meat in a sandwich of two patent medicine advertisements, there will be no Radio left. To what extent it may be employed for what we now call indirect advertising only experience with the reactions of the listeners can tell. I do not believe that there is any practical method of payment from the receivers."

"I wish to suggest for consideration the possibility of mutual organization by broadcasters of a service for themselves similar to that which the newspapers have for their use in the press associations, which would furnish programs of national events and arrange for their transmission and distribution on some source of a financial basis just as the press associations gather and distribute news among their members."

## GENERAL OF THE ARMIES RETIRES



Countless Radiophans heard the broadcast of the addresses at the retirement dinner recently accorded General of the armies John J. Pershing at the Hotel Astor, New York. In his speech General Pershing stressed the need of preparedness. Left and right, respectively, of the general are former Ambassador to Germany James W. Gerard and Mrs. George S. Owens, president of the government club. K. & H. Photo

## INNING FOR FANS AT RADIO CONFAB

Suggestions of Atlanta Men Are Adopted by Government for Third Annual Meeting

ATLANTA. — At the third national Radio conference now sitting in Washington three ideas submitted by Atlanta are helping to iron out the difficulties confronting Radiocasting.

The first is that the American Radio public have a voice at the conference through a representative speaking solely from the standpoint of the listener in.

The second is that Radiocasting stations be given a more adequate representation.

The third is that the department of commerce conduct a survey of all stations concerning their hours of operation, type of service, past record and future plans with the view of solving the troublesome question of new wave allocations.

These three suggestions, adopted officially by the government, were submitted jointly by Major Walter Van Nostrand, United States Supervisor of Radio and Lambdin Kay, director of Station WSB at Atlanta.

Scientific fact and mechanics will be placed in the background now. All new problems will center around helping the Radiophan. The human element will be paramount.

And benefits accruing to the American Radio public conference promise to be equally decisive, if not so fundamental, as the improvements realized from the meeting in 1923.

## END OF SECRET PACTS?

(Continued from page 1)  
casting station of the P.T.T., from whence it was broadcast over Europe.

It was not until the day before that it became definitely known to the press that such a step was contemplated, according to advices from the various correspondents, and even at that time it was considered doubtful as to whether the plan would actually be carried through.

The cause for this uncertainty seems to have been, from statements made by those present, in the strong objection of some of the news agencies to transmitting the speeches if they were also to be broadcast; as Senator de Juvenel, who first made the announcement, simply let the matter rest.

### French Cabinet Hears Every Word

The loud speakers and voice amplifiers, which had been used in conjunction with the microphones in the hall to carry the speakers' voices clearly throughout the assembly, were left in running order, however, and the day after the first speeches had been made a typewritten statement was posted on the board in the convention hall that the French cabinet, listening in Paris, had heard plainly every word of them, in addition to the applause and other noises.

The experiment is an interesting one, and if not too strongly opposed by both politics and press may gain great headway. In America Radio is considered to have entered politics to stay. What its influence will be in bringing the average

man closer to his problems of government is as yet a doubtful question and one which will take years to answer.

## 20,000 PEOPLE JAM WORLD'S RADIO FAIR

GEO. HAY PRESENTED WITH RADIO DIGEST CUP

Arrangements Completed for Annual Radio Fairs in New York and Chicago Until 1934

NEW YORK.—Crowds so dense that the police and fire departments ordered the doors closed marked the opening night of the first annual Radio world's fair here recently in Madison Square Garden and the Sixty-ninth Regiment armory. Men, women and children stood three deep in the rain for more than an hour clamoring for admittance.

The estimated daily attendance was 20,000.

Among the features of the exposition was the presentation, by E. C. Rayner, publisher of Radio Digest, of the gold cup, in the form of a standard microphone, to George Dewey Hay of Station WLS, Sears-Roebuck Agricultural Foundation, Chicago, who won the recent Radio Digest contest as the world's most popular announcer.

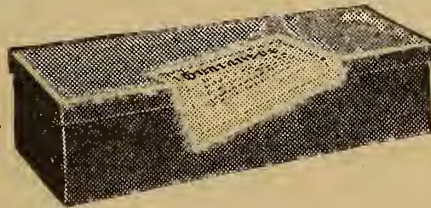
### MacMillan Speaks

An address was broadcast by Captain Donald H. MacMillan, chief of the group of scientists of the schooner Bowdoin who recently returned from the far north after 15 months' research on the effect of the Aurora Borealis and other phenomena on Radio.

New inventions, miniature models and amateur sets were viewed by hundreds of thousands. Beautiful cabinets and innovations in the construction of headsets and loud speakers interested the throngs.

Arrangements were completed for annual Radio world's fairs in New York City and Chicago until 1934.

# Latest Radio Science by the Box— Builds Best Circuit Best



With marked improvement in ease of control, Erla Selectoformer assures maximum range and volume. Cost and complication are reduced. \$5 each



Distortionless amplification of 3 stages, exclusive in Erla Audio Transformers, indicates their vast superiority. Price \$5.00



Millions of Erla Bezels are in use, enhancing beauty and utility in any set. 1" and 1 1/2" diameter for 1/2" to 3/4" panels. Nickel, black and gold. Price 20c-30c

Actual construction of Erla Duo-Reflex Circuits now is vested with advantages paralleled only by the matchless reception that is assured.

So much more powerful, tube for tube, these extra-efficient circuits now, too, are easiest to build.

Under warranty, factory sealed, the Erla blue-and-white protective carton brings every last thing needed for success. From synchronizing reflex and audio transformers, tested capacity condensers, balanced crystals, clear through to the drilled and lettered panel, stenciled baseboard and full size blueprint, nothing is lacking for correct, confident, precision assembly by any amateur.

Typifying the perfect simplicity to be expected, are Erla ingenious solderless connectors, which banish soldering; so that the only needed tools are screwdriver and pliers.

The completed receiver is bound to represent in their most intensive, accumulated form, all those superiorities of tone quality, selectivity, range, volume and ease of control, which make Erla units preferred in any set. Ask your dealer about Erla knock-down receivers, factory sealed in the blue-and-white carton, fully warranted. Or write direct, supplying your dealer's name.

Electrical Research Laboratories  
Dept. A, 2500 Cottage Grove Avenue, CHICAGO

# E R L A

# Duncan Sisters, in Interview, Relate Early Experiences with Broadcasting

Continued from page 1)  
week before the unseen audience they have expressed a few opinions and ideas about the musical comedy star and his or her relation to Radiocasting.

"It seems almost inconceivable," said Miss Vivian, "that such great changes and improvements in Radio came about in only four years.

"I remember the first time Rosetta and I sang into a microphone. It was in Ossining, New York. We were playing in 'Tip Top' at the time. The room from which the broadcasting was done was a fearfully and wonderfully made maze of switches, wires and electrical apparatus. In place of the modern microphone there was a mouthpiece that looked as though it had been taken from a telephone.

### "1-2-3-4, 1-2-3-4, Testing"

"The announcer stepped in front of it and began like this, '1-2-3-4, 1-2-3-4, Ossining testing, Ossining testing, 1-2-3-4, 1-2-3-4, Ossining testing, and so on and on. After he had done this for a long while he told us the instruments were all adjusted. Then he started to announce us and the numbers we would sing.

"He began, 'The Duncan sisters, the Duncan sisters, the Duncan sisters will now sing. The Duncan sisters will now sing. The Duncan sisters will now sing.

The Duncan sisters will now sing"; and he kept that up until he was sure everybody had heard it, I guess.

### Use Telephone Transmitter

"So we began to sing. I have forgotten what it was but I know we both felt rather scared. As the song went on we gained confidence and began to use the gestures we used on the stage. More trouble. We both felt foolish, gesturing to a microphone. It was only after we had done it a few times that we realized that no one could see it anyhow and it did help the song. Still, it took a long time to forget we were not singing into a recording phonograph and would not have to sing the song all over again if we made any mistakes.

"It's all funny now, but it seemed pretty serious business at the time."

### Letters Ask More Songs

As Radiocasting grew, the Misses Duncan sang more and more frequently. Letters flowed in asking for more. Finally, finding it an impossibility to get back and forth from the theater to the station, a studio was built solely for them. The entertainment is wired to the station where it is put on the air.

Despite much argument pro and con as to how Radiocasting effects the sale of popular songs, the Misses Duncan be-

lieve that it does the best thing possible: makes popular those songs which have merit and puts those that have none into the discard.)

"The singing we do for the Radio now," continued Miss Vivian, "has become sort of a ritual. We intend to keep it up as long as we are in any place where there is a broadcast station."

Both Miss Vivian and Miss Rosetta believe that the idea that a star must be paid for his or her performance is rather absurd.

"With hundreds of letters coming in from Radiophans every day it seems to me that a person who will not take a little of his time to answer with a few songs, or whatever has been asked, without being paid so much money would be acting in a rather small way.

### Radio Creates Happiness

"Not only that. An actor or actress must have a wide acquaintance. The Radio helps to build one. Even though people have never seen you they feel that they do through hearing your voice frequently. I presume there are many remarkable stories about hidden talent being brought to light by the microphone.

"The stories of men in prison, invalids who are shut in day after day, soldiers in the government hospitals and others too numerous to mention make you realize the happiness Radio has wrought.

"Yes, we intend keeping right on doing what we can to make things a little better and brighter. The field for the musical star in front of the microphone is a great one."

# WEAO Opens Contest for Radiocast Slogan

## Will Use Motto to Broadcast All Grid Games

COLUMBUS.—The football announcer at Station WEAO, the Ohio State university, wants a slogan.

And the slogan is to be used during all football announcing during the grid season. So in an effort to get the best one possible a contest has been announced by the school and a prize of two tickets to the Ohio-Chicago game, or to the Ohio-Michigan game, will be given for the best slogan submitted.

The rules are these: The slogan must be of four words and each word must start with a call letter in the regular order of WEAO. All slogans must be mailed to the institution so they will reach there by October 13, when the contest closes. Mail them to the Football Motto Contest Editor, Ohio State university, Columbus, Ohio. The contest is open to the public.



# WATCH YOUR BATTERIES

A very exhaustive survey made by a large manufacturer of receiving sets showed that over 60% of all radio trouble is traceable to run-down or poor batteries. Without a testing instrument the best you can do is guess with regard to the condition of your batteries. This is a costly, uncertain, unsatisfactory and altogether unwise proceeding when you can know—be positive—and solve much of your trouble by investing in a comparatively inexpensive testing instrument.



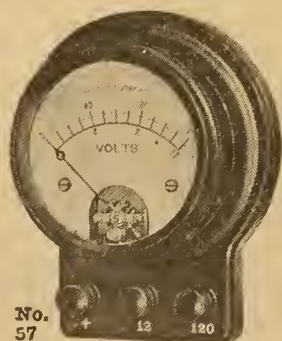
\$2.75

"ACTUAL SIZE"

No. 84 "B" Battery Voltmeter

## The JEWELL HANDY "B" BATTERY VOLTMETER

The Jewell No. 84 instrument is shown above in actual size and was designed by us in response to a wide demand for a handy and inexpensive instrument for testing "B" batteries. It is sturdy in construction and much more accurate than the small pocket type testers on the market. While it is a small and inexpensive instrument, it is a "quality product." Jewell instruments lead the world in radio.



No. 57

(7.5 and 150 volts is the popular range in this double reading portable voltmeter for testing "A" and "B" batteries.) \$10.50

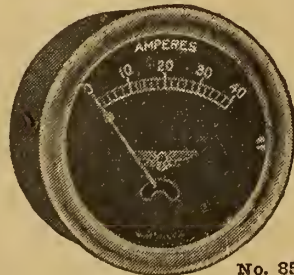
JEWELL "15-A" RADIO INSTRUMENT CATALOG. EVERY RADIO FAN SHOULD SEND FOR A COPY

ORDER FROM DEALER

## JEWELL ELECTRICAL INSTRUMENT CO.

1650 WALNUT STREET CHICAGO

"25 Years Making Good Instruments"



No. 85

(Use a Jewell No. 85 ammeter (0-40 amps.) for testing your Dry "A" batteries.) \$2.00

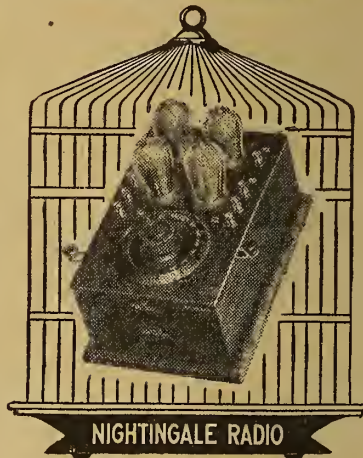
### Hansen "BIRD-CAGE" Radios



## 4-Tube Radio Set

# \$32.50

Without Accessories



A simplified, loud speaking, long range set at a price within the reach of all. It is a wonderfully good set in spite of its low price.



- Hansen CARDINAL. 3 Tube Reflex..... \$50.00
- Hansen BLUE BIRD. 4 Tube Radio Frequency..... \$57.50
- The Blue Bird with one stage of tuned Radio frequency has great selectivity and wonderful distance. It is easily worth twice its price.
- Hansen BOBOLINK. 2 Tube Reflex..... \$25.00
- AMERICAN EAGLE. This we believe to be the best high grade 6-tube loop set on the market today..... \$150.00

- Ed. Mum RECEIVERS \$90.00
- 4 tube very selective..... \$135.00
- 6 tube loop.....

Write for New Catalogue Dealers and Jobbers—Our line is interesting and profitable.



- DISTRICT DISTRIBUTORS
- Badger Radio Co..... Milwaukee, Wis.
  - Phil Gross Hdw. Co..... Milwaukee, Wis.
  - Goulding Mfg. Co..... Milwaukee, Wis.
  - Maxwell Elec. Co..... Toledo, Ohio
  - Inland Ignition & Radio Co..... Spokane, Wash.
  - Chas. B. Scott Co..... Scranton, Pa.
  - Peter J. Constant & Co..... New York

# WGY DRAMATISTS IN NEW PLAY TRYOUTS

## PLAY NEW SELWYN CROOK DRAMA SUCCESSFULLY

Radio Production of Shows Before Actual Legitimate Staging Expected to Be Innovation

NEW YORK.—Arrangements have been made with one of New York's leading theatrical producers to have the WGY players at Schenectady try out a number of new plays by Radio before they are produced on the legitimate stage this season.

Through the courtesy of Selwyn and company, "Silence" was Radiocast on October 3. "Silence" is a crook play by Max Marcin. It was played over the Radio before it was produced on the stage. The WGY players interpreted it from the author's script without having first witnessed its production.

It met with a huge success. Original Artists on Staff Practically the same group of players as was used last season will make up the company of 1924-1925. They are the oldest Radio players on the air. Since the time of the first experimental play, "The Wolf" was Radiocast over two years ago the company has remained almost intact. This season will see the return of Miss Viola Karwoska, who was the leading woman when the players first started and who has not been heard for over a year.

Although numerous other stations are now broadcasting plays as a regular feature, the experiment of trying out new plays to be used eventually on the stage by Radio, is an innovation. The results should be exceedingly interesting to note. Should the procedure become common it will undoubtedly have a great effect on the legitimate drama. Listeners in will have an opportunity to choose and decide which shows appeal to them before they attend.

Aside from the number of "try-out" plays to be Radiocast before actual production on Broadway the company has planned a repertoire of its own. Among the plays will be "The New Poor," "Enter Madame," "Friendly Enemies," "Zander the Great" and a special production of "The Jest."

# Prince of Wales Ardent Radiophan According to Statements of Friends

Has Two High-Power Sets in England and One at Ranch in Calgary to Keep in Touch with March of World Events—Special Set on Prince's Train

NEW YORK.—It is written that a cat may look at a queen, but it remains for a loud speaker to talk to a prince.



Prince of Wales

Let it be known that Edward Windsor, the Prince of Wales and heir to the British throne is an ardent Radiophan. His friends all agree on that. During the Prince's recent short trip to New York, which he declared was one of the most pleasant he had ever made, members of his staff discussed his interest in Radio.

Just before the Prince left for England on his last visit to his ranch in Calgary, Canada, he expressed a desire that a high powered receiver be installed there to keep him in touch with the world's news. Work was immediately started and the set was complete when he arrived. Prince Ardent Radiophan "You have probably heard long before this of the keen interest the Prince takes in Radio," said one of his staff members. "A high powered set has been installed for his use at Buckingham palace and another at his residence at St. James palace. The Prince spends much of his time listening to the programs and concerts generally Radiocast in the British Isles. He has, to date, not been fortunate enough to tune in any of the American stations.

The set at the Calgary ranch was installed by the Canadian National Railways. It is the intention of the railway to keep the Prince informed on all affairs of the day. According to present arrangements all the latest news, including that

cabled from England, will be broadcast by Station CNRC (CFCN) at Calgary.

"The receiving set used by the Prince is a super-heterodyne with a loud speaker similar to that used by the late President Harding while he was visiting San Francisco."

### Install Set on Prince's Train

So that the Prince did not have to lose contact with the world even during his trip over the Canadian plains, a special set has been installed on one of the train coaches. It was used to entertain the party and pick up news bulletins which were Radiocast at stated intervals.

"Yes," continued the staff member, "the Prince fully realizes the importance of Radio. His ranch is a long way from the nearest telegraph station and without Radio he would be cut off from the outside world. When he returns to England he will give the British Radiophans a short talk on his trip here."

### Southwest Will Hold Show at Dallas for First Time

FORT WORTH, TEXAS.—The first Radio and Electrical Exposition of the Southwest will be entertained in Dallas, October 14 to 19, under auspices of the Southwestern Radio Jobbers Association. Special features will be the army and navy exhibit, dancing ala Radio. Unique programs will be offered daily. Models for the ensuing year will be shown and the Radiophans of this section will be enabled to see and understand just what Radio is doing for their entertainment and education.

# WLW TO BROADCAST NOTED HORSE RACE

EPINARD, FAMOUS FRENCH EQUINE AT LATONIA

Track Officials and Trainers to Explain Fine Points and Tell Anecdotes of Turf

CINCINNATI.—Arrangements have been completed with Colonel Matt Winn of the Kentucky Jockey club at Latonia for broadcasting the famous international race between the French horse, Epinard, and the pick of American tracks on October 11.

A microphone will be stationed at the track and special lines with the Crosley Station WLW at Cincinnati from where the story will be put on the air.

The description of the event will be given by Fred Smith, studio director and K. R. Moses, an authority on racing. It will include everything; the crowds, the celebrated track on which the races will be held, the actual race.

In the first race in America, at Belmont Park, Epinard was defeated by a scant half-length. This is considered a remarkable showing by students of the racing game. The horse has always run on the European type turf track which differs greatly from the American type built of dirt. Pierre Wertheimer, owner of Epinard, is expected to give a short talk just before the race.



Fred Smith

# WALNART

Chicago

Makers of GOOD GOODS ONLY

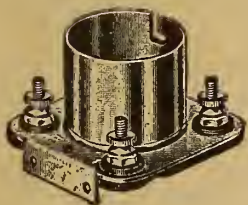


### All you need know in Radio

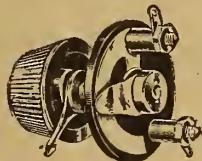
is the name "Walnart" to be sure of guaranteed reliable apparatus and "trouble-proof" service. Write for latest illustrated folder or ask your dealer.

WALNART ELECTRIC MFG. CO.

GREEN ST. AT JACKSON BLVD., CHICAGO



Walnart Sensible Sockets. Lower dielectric loss than all bakelites, fibre or composition sockets. Unconditionally guaranteed. Bakelite insulation. Standard or UV-199 base. List 50c.



Walnart Variable Grid Resistance. List \$1. With fixed condenser, \$1.25.



Walnart Filament Switch. One hole mounting. Bakelite-Dilecto base. Push and Pull type. List 30c.



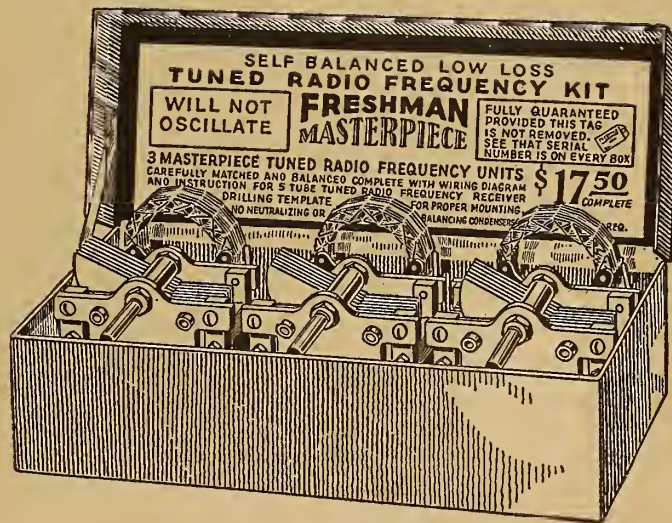
Walnart Variable Condensers, plain and Vernier, do not "cut out" or develop wobbliness. Plates accurately pressed, permanently aligned and locked in slotted studs fastened in Bakelite ends. List prices: Plain, 3 plate, \$1.25; 5-pl., \$1.50; 13-pl., \$2.00; 17-pl., \$2.50; 23-pl., \$2.75; 43-pl., \$3.00. Vernier, 13-pl., \$1.00; 23-pl., \$4.50; 43-pl., \$5.50.

Walnart Bakelite Dial moulded with tapered knobs. 2", 25c; 3", 35c; 3 1/2", 45c; 4", 50c.

# FRESHMAN MASTERPIECE

## It's Easy to Build

a five tube radio frequency receiver when you use the Freshman Masterpiece Kit



### NO Neutralizing OR Balancing Condensers Required

when you build with this kit to produce a radio frequency receiver that will bring in even the most distant stations with the volume and clarity of locals. So selective that stations can be brought in day after day at the same dial settings. A set that will be the equal, if not the superior, to any 5 tube receiver on the market, and what's more, it's the easiest set in the world to operate.

Kit consists of 3 Masterpiece Tuned Radio Frequency Units carefully matched and balanced. Complete with wiring diagram and instructions for building any 5 tube tuned radio frequency receiver and also drilling template for proper mounting.....

# \$17<sup>50</sup>

Each and every Freshman Masterpiece Coil bears a serial number and Trademark—our guarantee of electrical and mechanical perfection. Every genuine Freshman Coil is made of specially insulated wire to prevent short-circuiting, so often caused by inferior coils. For your protection demand only the genuine.

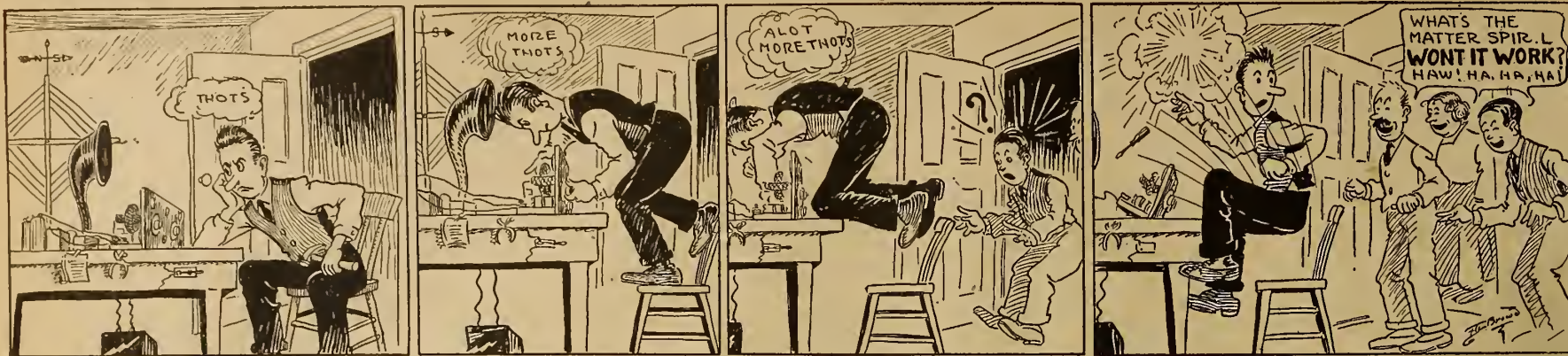
At your dealers, otherwise send purchase price and you will be supplied without further charge.

CHAS. FRESHMAN CO., INC., 106 Seventh Ave., New York

THE ANTENNA BROTHERS

Spir L. and Lew P.

Foolish Questions



CONTROL MACHINES REMOTELY LOCATED

START ROTARY CONVERTER AT 170-MILE DISTANCE

Experiments May Bring About Central Control of Stations Located at Great Distances

LONDON.—Radio control of machinery was demonstrated by one of England's largest electrical machinery manufacturing companies at the great Empire Exposition at Wembley.

A 500-kilowatt rotary converter, similar to those used for traction and lighting purposes was installed in the Palace of Engineering. Ordinarily these machines are started and stopped by an exceedingly complicated system of switches. On this machine a special switchboard was installed and the entire outfit controlled by Radio from Manchester, a distance of 170 miles. The switchboard and machine was set by use of valve relay apparatus.

The transmitting apparatus sent one signal continuously until time to start the experiment. The starting signal was then given. Then the "message" was sent. It consisted of a series of dots and dashes so grouped that they automatically connected with the receiving apparatus and were passed on to a special selective relay which responded to that signal only, thus starting the converter.

WGY Organ Concerts Acclaimed by Fans

Will Continue Popular Entertainment Through Winter

SCHENECTADY.—Organ music is rapidly coming into its own as a favored feature with the Radiophan.

Fan letters, the true measure of popularity, have swamped WGY with words of approval and requests for more. During the summer Stephen E. Boisclair has been heard during dinner concerts every Tuesday and Thursday evening. Telephone wires bring the music to WGY from Albany where Mr. Boisclair plays.

The Tuesday and Thursday concerts will be continued throughout the winter and the music will be a judicious mixture of popular high class compositions and simple songs familiar to everyone.

WLS Takes Place as Dramatic Radiocast

Grand Opera Scenes to Be Used During Winter

CHICAGO.—With twenty dramatic performances scheduled for the month of October, a number of which have already been played, WLS, the Sears-Roebuck Agricultural Foundation station will take its place as one of the country's foremost dramatic Radiocasters.

The light opera season has already been started with the production of "The Mikado" and "The Chocolate Soldier." On October 9 the "Red Mill" will be presented. On October 16, "Robin Hood" and on October 23, "Katinka."

With the opening of the Grand Opera season the Thursday evening light operas will be replaced with scenes from the most popular grand operas. Opera stars will sing the parts. A short synopsis will be read of all the scenes not presented.

Shakespearean plays will be read on Tuesday evenings by Anthony S. Wons. He will also read the principal scenes of the story and explain those parts omitted. "Macbeth" will be read on October 7, and "Othello" on October 14.

If this venture into classic art is successful others will be given for the benefit of those who have never had the opportunity to see them on the legitimate stage.

Fans Hear World's Series from WGR, Buffalo, N. Y.

BUFFALO.—Arrangements have been made at Station WGR with the Buffalo Evening News to Radiocast daily reports of the world series baseball games during the days of play.

The game result announcements will be given the right of way. Reports will be sent from the fields of play by telegraph and put on the air at WGR. Transcribing machines will repeat by direct telephone to the studio the various plays as fast as they are made. While remote control is not to be used this method will equal it in rapidity.

Station WGR has also resumed its daily afternoon program as a result of a new-co-operational plan between the Western New York Radio dealers, the Province of Ontario dealers and the Buffalo Enquirer and Courier.

The afternoon programs were restored after fan mails had indicated that numerous listeners in did not care for the music in the evening.

CO-OPERATION FITS WORDS AND MUSIC

CINCINNATI.—Another case of exceptional reciprocal co-operation was brought to attention when John Marshall of this city tuned in the words and music of a song, each of which was being Radiocast from a different station simultaneously.

Marshall tuned in both WLW and WSAI at the same time, although their wave lengths are over a hundred meters apart. "Worried" was the number being used at each station. Coincidentally they were playing measure for measure.

Sunday Evening Club Again Holds Services from KYW

CHICAGO.—An address by former Chief Justice John H. Clarke, of the United States Supreme Court, solos by Louis Kreidler (a member of the Chicago Civic opera), Mabel Sharp Herdien, and the Imperial Male quartet, patriotic numbers by the chorus of one hundred, and an informal Bible talk by Clifford W. Barnes, marked the opening meeting last Sunday of the eighteenth season at the Chicago Sunday Evening club in Orchestra Hall. KYW broadcasts all meetings.

Famous Syncopators Broadcast from WIP

Members of Orchestra Under 21 Years of Age

PHILADELPHIA.—Syncopated music enthusiasts will welcome the announcement that two programs a week will be played by Harvey Marburger and his vaudeville orchestra and Radiocast from Gimbel Brothers' Station WIP.

Special telephone wires will connect Station WIP with the Cafe L'Algon where the musicians are engaged for the season. Regularly on Tuesdays and Thursday at 8 p. m. Eastern time, the dance music will be put on the air.

Marburger's orchestra is rated as one of the finest in the country and has just returned from a twenty-five week tour with the Keith circuit. The orchestra, composed of eight men, plays twenty-eight different instruments. Because of this all the latest stunts in creating the best dance music is at Marburger's finger tips.

Each member of the band, who range in age from 17 to 21 years of age, is a master of the instrument he plays. The organization also boasts one of the youngest pianists in the country—17 years old. He is an adept at arranging popular airs.



The GREBE SYNCHROPHASE

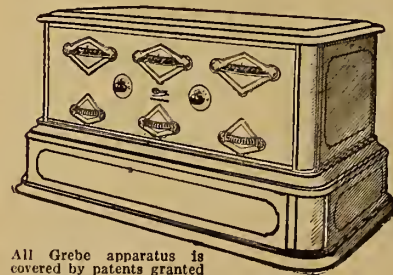
(Trade Mark)

A BROADCAST Receiver that marks another long step forward in radio design and establishes a new set of standards in craftsmanship.

"It is only when the cold season comes that we know the pine and cypress to be evergreen."  
—Confucius

In the coming cold season be not surpassed by thy neighbor—set the pace with your Grebe Synchronphase.

Doctor Mu



All Grebe apparatus is covered by patents granted and pending.

Ask your quality dealer for a demonstration of the Grebe Synchronphase or write us for literature.

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WD-11



Radiotron WD-11 is famous as the tube that really made possible the swift growth of radio in the home, as we know it today.

Inexpensive to operate—using but one 1½-volt dry cell—doing away with the need for storage batteries—it has lowered the cost of Radio.

Price \$4.00



This symbol of Quality is your protection.

Be sure that every vacuum tube you buy is marked RADIOTRON.

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233 Broadway, New York

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Radiotron

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# ARNOUX QUILTS WBAP TO TAKE NEW POST

WILL DIRECT NEW STATION TO OPEN IN ARKANSAS

E. L. Olds and W. E. Branch to Assume Director-Announcer Duties Left Open by "G. C. A.'s" Resignation

FORT WORTH.—G. C. Arnoux, director and announcer at Station WBAP in Fort Worth has resigned his position and accepted appointment as chief director-announcer at the new 500 watt station now nearing completion on the New Arlington hotel at Hot Springs, Arkansas.



G. C. Arnoux

"G.C.A." as Arnoux is commonly known here, will assume his new duties shortly although the station will not start broadcasting for some time.

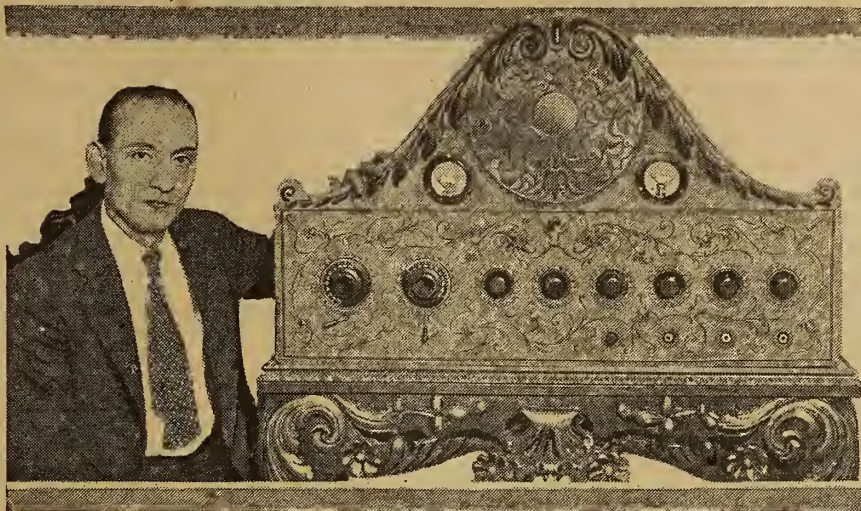
Arnoux started his career before the "mike" over two and a half years ago at Station WBAP. Two and a half years is a short time but Radio men of that day were still in the pioneering class. WBAP boasted a 20 watt station—the marvel of the countryside. Arnoux helped build the station into one of the best known in the country.

### From Cowboy to Announcer

He was born in New York. While still a boy he moved to St. Louis and then to Texas. After he had decided that colleges were not made for him he turned coal miner. Cow-punching next occupied his attention. From that he dragged a chain with an engineering crew. Then newspaper work and finally into Radio.

When the war came G. C. A. got no closer to France than San Antonio despite his pleas for a little more action. When the war closed he started out for himself and tramped around the world, to the South Sea Islands, Borneo, and other corners of the earth. But the sound of

## SET IN HAMMERED COPPER CASE



This beautiful super-heterodyne receiver is encased in hammered, chased copper and attracted much attention at the New York Radio World's Fair. The builder, beside the receiver, is Alfred Savastano. The grilled work at the top of the center of the panel conceals the horn of a loud speaker.

the loud speaker eventually intrigued him more than the bosun's whistle and he returned to Fort Worth.

At Hot Springs G. C. A. will step into virgin territory. Memphis, St. Louis and Kansas City are the nearest stations and Radio will be carried to thousands of small set owners who were unable to tune these in.

E. L. Olds will assume the duties of Radio editor at WBAP. W. E. Branch, technician at WBAP will take over the work of program direction.

### Minnesota College Resumes After All Summer Silence

NORTHFIELD, Minn.—WCAL, St. Olaf college station, resumed its broadcasting recently after the summer vacation. During the first week it sent out a complete schedule of two musical programs, the first of a new series of book talks by Dr. George Weida Spohn of the St. Olaf department of English, two sacred programs, and the usual college chapel exercises every morning except Monday.

## EDISON STATION WTAT AT BOSTON RE-OPENS

New Call Letters WEEI to Replace Old WTAT

BOSTON.—After a silence of several weeks Station WEEI, formerly WTAT, of the Commonwealth Edison Light company of this city, opened its new schedule on September 29.

The new station was dedicated with an address on "WEEI Policy" by Charles L. Edgar, president of the light company. A popular program of quartet, vocal and instrumental numbers was given, including dance music by Dok-Eisenbourg and his Sinfonians.

Charles Birton is superintendent of broadcasting. C. R. Emery is program director.

It is understood that WTAT will continue to operate as a station of 100 watts. It will use the old call letters. WEEI will broadcast on 500 watts.

## HELPFUL HINTS FOR RAISING THE CHILD

PHILADELPHIA.—Radio has taken on a new character—that of nursemaid. Mrs. James D. Nery of Deepwater, N. J., called Station WDAR, informed them that although she had been an attentive listener to all the baby health talks, the arrival of a new son showed her there was much more to know, and requested WDAR to Radiocast more lessons in infant technique. The station obligingly did it.

## Hired Hand and Gang Give Program at WMC

Prominent Texas Business Men Perform with Police Band

MEMPHIS.—Accompanied by a sextet of Texas business men and the Texas Police band, the "Hired Hand" of Station WBAP at Fort Worth recently took charge of an entire program at Station WMC in Memphis.

The festivities started when announcer Jerry Deering announced the coming of the popular "Hired Hand" with three blasts of Hushpuckinny whistle. The singers call themselves the "Saxet." (Texas spelled backwards). As encore followed encore they alternated with the police band, rated as one of the finest in the south. The music was such as grows only in Texas according to reports from listeners in.

Because of the crowd and the smallness of the WMC studio, the entire program was Radiocast from the Scottish Rite Temple.

## Western Radio Company Sells WOQ to Unity School

KANSAS CITY, MO.—Station WOQ here has been sold by the Western Radio company to the Unity School of Christianity and has for some time been furnishing religious programs. The Unity school plans to increase the power to be equal to or greater than the other local broadcasters, WDAF and WHB. The station has already been moved into new quarters which are much larger and better furnished than the old. The Unity school is internationally known.

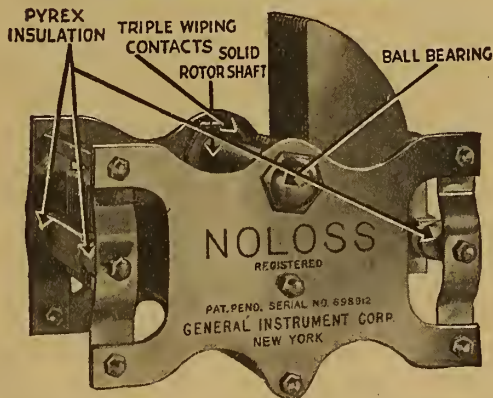
## On your guard

Beware imitations. We have counted 19 imitations of our products. It is up to you to make sure you are getting a genuine General Instrument Corporation condenser.

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TRADE MARK

Insulated with Pyrex



Air, Isolantite, Pyrex, Corantum and Quartz are the only recognized zero or minimum loss insulations in existence. GENERAL INSTRUMENT CORPORATION INSULATES WITH AIR, ISOLANTITE, PYREX, CORANTUM AND QUARTZ. Thus you are assured greater distance, increased selectivity and clearer reception. By eliminating energy waste these condensers overcome losses and give power to your set.

Type	Maximum Capacity	Minimum Capacity	Price
51X	.00025 mfd.	9 mmfd.	\$6.00
51A	.0003 mfd.	11 mmfd.	6.00
51D	.0005 mfd.	13 mmfd.	6.50
51F	.001 mfd.	20 mmfd.	7.00
52D	.0005 mfd.	13 mmfd.	9.00
52F	.001 mfd.	20 mmfd.	9.50

At your dealers or direct from

# GENERAL INSTRUMENT CORP.

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NEW YORK CITY



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# Bristol Radio Receivers

Incorporating the Patented Grimes Inverse Duplex System

Watch for further announcements in all leading radio publications.

Improved Bristol Audiophone Loud Speakers—gives greater volume, is more sensitive and still maintains its round, full tone and its distinctive freedom from distortion.

Ask for Bulletin No. AY-3017

Manufactured by

## THE BRISTOL COMPANY

Waterbury, Connecticut

GRIMES SYSTEM INSURES NATURAL TONE QUALITY



Senior Audiophone  
15-inch Bell

Price.....\$30.00

Junior Audiophone  
11-inch Bell

Price.....\$22.50

Baby Audiophone  
With Fibre Horn

Price.....\$12.50

# GIVE PLAY-BY-PLAY GRID YARNS AT KYW

## "RADIO-FOOTBALL" TAKES PLACE AS A NEW SPORT

Comfort-Loving Fans Now Follow Game from Easy-Chairs with Set and Chart

CHICAGO. — Westinghouse Station KYW has opened its third season of football Radiocasting.



Harold A. Fall

When the referee's opening whistle blows and the ball sails down the field on the initial kickoff, Harold A. Fall of the well-known football voice steps to his place in front of the microphone on top of the press-box at Stagg field and listeners in "hear" the game, play by play until the timekeeper's watch ticks off the last minute.

According to thousands of letters received at the station Radio football has become a national sport. No more must the fan who loves comfort sit in a drizzly autumn rain chilled by the icy zephyrs on their way down from Hudson bay or push and be pushed by an excited crowd as he tries to find his seat—for which he paid several round, iron dollars. No more. Now he adjusts the loud

### Football Radiocasts

**October 11**  
Brown-Chicago at Stagg field, Chicago, KYW (536), WMAQ (448).  
Columbia-Wesleyan at Baker field, N. Y., WEAJ (492).

Iowa-Ohio at Iowa City, WHAA (484), WBAV (423).  
Pitt-West Virginia at Forbes field, Pittsburgh, KDKA (326).

**October 18**  
Indiana-Chicago at Stagg field, Chicago, KYW (536), WMAQ (448).  
Lawrence-Iowa at Iowa City, WHAA (484).

Ohio Wesleyan-Ohio at Columbus, WEAO (360).  
West Point-Notre Dame at Polo grounds, New York, WEAJ (492).

speaker or the headphones, leans back in his easy chair and with his "play by play" chart in hand follows the teams up and down the field to "Shorty" Fall's voice.

And he gets it all. The whistle of the referee, the audible bumps of hard tackles, the bark of the quarter back, the shouts of the crowd and the blare of the bands.

Fall is described by his listeners as being the only man who can describe a game so accurately that they feel they are at the field. He never misses a play and he has the faculty of giving his audience the same excitement he feels.

### Program in Eighteen Languages

NEW ORLEANS, La.—The Radio Corporation of America will establish a broadcasting station in connection with the International Trade exhibition at this city, it has been announced. The programs will be broadcast in eighteen languages, and is regarded as one of the most elaborate series of programs known thus far in the Radio field.

### START DRIVE TO RAISE FUNDS; PUBLIC HELPS

#### Station KFIX to Erect New Radio Buildings Soon

INDEPENDENCE, MO.—A drive to raise \$10,000 for the erection of new Radio buildings and for installation of many new improvements in Station KFIX has been started.

The power is to be increased from 259 watts to 1,000. Plans calling for the erection of two new steel towers, each 150 feet high, have been drawn. A new studio, embracing all the latest advanced in the science of acoustics, is to be erected. It is expected that these changes will give KFIX a dependable coast-to-coast range.

The station owned and operated by the Reorganized Church of Jesus Christ of Latter Day Saints was licensed in 1923. It has maintained a regular schedule.

The campaign was started after the matter had been discussed by the members of the church and numerous listeners in had expressed a willingness to assist in starting the drive to raise funds. Contributions are being solicited from all members of KFIX's audience.

### Distress Call Saves Men Caught in Flaming Plane

MADRID, Spain.—Flying from Alicante (Spain) to Oran (Algeria), a postal seaplane took fire following a breaking of the gasoline feed line, and was forced to go down to the sea immediately. Fortunately time was found before alighting to send out a Radio call for help, together with the plane's bearings. A motor boat set out promptly from Oran and found the plane burning fiercely on the sea and the two men just on the point of being forced to relinquish their hold on it. The men were rescued with only slight burns on their hands, although the mail was lost.

# Effarsee brings the stations in!



Hang it anywhere!  
Greater Selectivity!  
Better Tone!  
Less Static!  
Use Indoors or Outdoors!

A good radio weather Effarsee Portable antennae has brought in stations 2,000 miles away in loud speaker volume on a four tube set. It stops all the worry about aerials that has prevented many people from buying radio sets. It reduces static, improves the tone of instrument, and increases selectivity. It is much better than a loop. Every set owner should have one to use on nights when static is bad, or to use in series with an outside aerial to stabilize the signals and improve the tone. Three sizes: \$1.00, \$1.50, and \$2.50. Money back if not satisfied! If your dealer can't supply you write direct. Dealers, Jobbers and Manufacturers Agents: Effarsee has proved itself in the hands of good houses. It will be a big thing in radio this year. Write for our proposition.

# Effarsee

PORTABLE ANTENNAE

The Fishwick Radio Co.  
Edwards Bldg., Cincinnati, Ohio

## Anyone can use a storage battery now

CHARGING a storage battery ten years ago was a task needing expensive apparatus and the services of a specialist. To-day, anyone can do it in the home. No knowledge of electricity is needed. It can be done economically, simply, automatically, with

### The New Silent GOLD SEAL HOMCHARGER

just as more than 200,000 satisfied users of Homchargers are doing right now.

If you are one of the many who envy the results of storage battery tubes but think you can't enjoy them unless you are a battery expert, go right out now and buy those tubes, a battery and a Gold Seal Homcharger.

Here's all you have to do to maintain a storage battery: add a little water once in a while (your eye will tell you when); charge it regularly. To use the Homcharger, screw a plug in any lamp socket, slip two spring clips over the battery terminals, go to bed and forget about it. Next

morning the battery is charged. What could be easier?

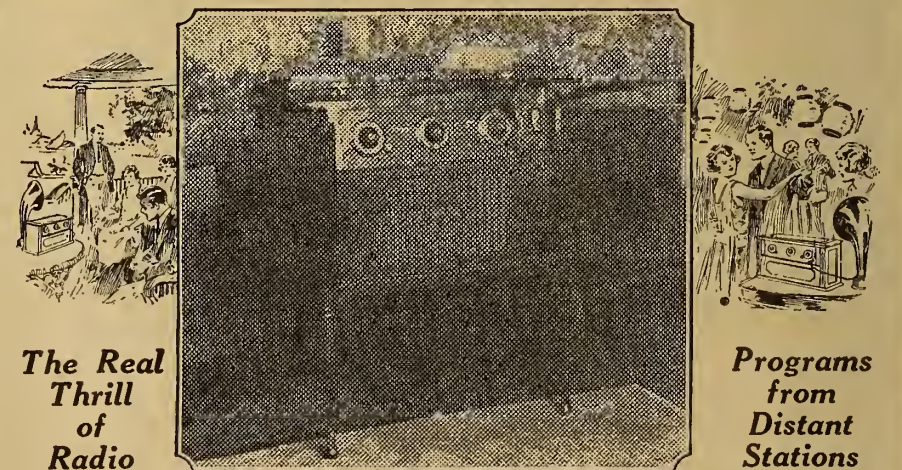
The Gold Seal Homcharger—simple, efficient, dependable, quick. Cannot injure battery, furnishings, anything or anybody. Handsome, finished in mahogany-red and gold. Approved by Fire Insurance Underwriters. Unqualifiedly guaranteed. Only one moving part, replaceable for \$1 after thousands of hours of use. Silent—its faint hum cannot be heard in the next room.

Popularly priced; buy it at your dealer's for \$18.50 complete; \$25.00 in Canada. For radio at its best, use storage battery tubes, any good battery and the Gold Seal Homcharger.

FREE! Send for our interesting free booklet, "The Secret of Distance and Volume in Radio," containing valuable information on this subject and fully describing the GOLD SEAL HOMCHARGER.

THE AUTOMATIC ELECTRICAL DEVICES CO., 215 W. Third Street  
Cincinnati, Ohio

Largest Manufacturers of Vibrating Rectifiers in the World



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Programs from Distant Stations

WHEN you own a Radiodyne you can listen in on programs thousands of miles away. Jazz music from Chicago—speeches from Washington—opera from Boston—"Hits" from Broadway—news from "The Coast"—your Radiodyne brings them to you no matter where you live.

Gets Wonderful Results With 60 Foot Aerial

# RADIODYNE

Works Just As Well Without Loop or Aerial

"I am using a 60 foot outside aerial and the results are wonderful. I use no ear phones. Am reaching from coast to coast with a loud speaker."

Harry Herz, Milwaukee, Wis.

"With a 30 ft. wire lying on the floor we heard 32 stations in one night, including Omaha, Newark, Atlanta and Ft. Worth on loud speaker, clear and distinct."

H. N. Walker, Detroit, Mich.

Write for illustrated folder which describes the RADIODYNE in detail. Every radio fan will be interested in this new type receiver.

Western Coil & Electrical Co., 312 Fifth Street, Racine, Wis.









# OXFORD DEBATE AT WEAO THURSDAY

## Where to Hear Talks

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"Girls"  
ke and  
organ  
maker  
irector;  
lori en-  
Ridley,  
recital,  
stra.  
p. m.,  
soprano;  
the moon  
and Mabel

11-12 m., Fred  
p. m., "Hallow'en  
Downing; "Rainier  
Sanger; 7-8, Ralph  
orchestra; Dorothy  
ur V. Ward, tenor;  
Ralph Williams and  
hers, steel guitarists;  
n, contralto; Lester,  
lam Molnaire, tenor;  
annigan and O'Hara,  
rn, 469), 3 p. m.,  
ent, women's wear;  
ritone; 3:20, "Beauty  
3:25, current topics,  
; 3:35, Ethel Grant,  
street; 4, songs, 6,  
l.  
8 p. m., Travelers  
e university Stormy  
6-8 p. m., Tip-Top  
Dreamland orchestra;  
33), 6:45-7:45 p. m.,  
ader; Sandy Meek,  
8 a. m., setting-up  
alk, women's editor;  
Detroit News orches-  
; Donald Pratt, bari-

### October 11

KQV, KOE, WAAM,  
WGR, WHO, WJY.  
25), 7 p. m., Kiddle:  
7:30, Rex Battle and  
t orchestra; Herbert  
sereau, cellist; 8:30,  
Joseph C. Smith and  
estra; George Fisburg,  
rn, 326), 1:30 p. m.,  
Vest Virginia football  
;45, World's Uniform  
ver Johnson; 8, sport  
"Helnz Demonstration  
469), 2 p. m., grand  
na Schiechl," 6:45-8,  
Webb; 8-9, Raymond  
on Chamber of Com-  
club; 11-12, Coconut  
286), 8 p. m., KFKB  
n makers.  
l, 266), 7:30 p. m.,  
Woodward Candy com-  
e bunch.  
cific, 278), 3:30-4:30  
an recital, Roy Reid  
rvice, special musical  
solists; congregational  
l, "divine healing."  
e call.  
312), 4-5:30 p. m.,  
rancis; 8, Radio air-  
rector: (Listeners are  
s in an airship on a  
to be represented by  
India, England, Ire-  
lanavia, China, Japan,  
the airship's company;  
o, O. J. Stovall, guitar-  
nry B. Lister, reader;  
Carlson Wood, con-  
Mrs. George Farwell,  
ompanist; Contessa Ac-  
guitarist; Carl Ander-  
Halstead's orchestra.  
92), 10 p. m., George  
cific, 395), 12:30-1:15  
ater-Kent Radio com-  
us; 2:30-3:30, matinee  
an's concert orchestra.  
6:30-7:30, children's  
Prof. Walter Sylvester  
t; bedtime story, Uncle  
ntinental National bank.  
9-10, concert, courtesy  
association; 10-11, Art

(Pacific, 509), 2:30 p. m., Pomona-  
KPO, San Francisco, Calif. (Pacific, 423), 1-2 p. m.,  
Rudy Selzer's Fairmont hotel orchestra; 2:30-3:30,  
program, "Jazz-O-Maniacs"; 3:30-5:30, tea dansant.  
(Continued on page 14)

11:30  
2, KGO

Hickman's concert orchestra; 6:30-7:30, children's hour,  
"American History," Prof. Walter Sylvester Hertzog;  
Richard Headrick, silver-sheet starlet; bedtime story,  
Uncle John, 8-10, concert, courtesy, Mullen and Bluett,  
arranged by G. Allison Phelps; 10-11, Art Hickman's  
dance orchestra, direction, Earl Eurnette.

Fried, violinist.  
WFI, Philadelphia, Pa. (Eastern, 395), 1 p. m., Meyer  
Davis Bellevue Stratford concert orchestra; 3, report  
closing prices Chicago grain market; Caroline Hoffman,  
pianist; 6:30, Mayor Davis Bellevue Stratford concert  
orchestra; 7, Sunny Jim, the kiddies' pal.

WDAW, Omaha, Nebr., (Central, 526), 6 p. m., story  
hour, Doris Clair Secord; 6:30, Seward, Nebr., 3,  
Seward, Nebr.  
WOC, Davenport, Ia. (Central, 484), 12 m., rhinos; 7





# Eight Tube Super-Heterodyne Receiver

## Chapter I—The New Multitube Circuit

By Harry J. Marx

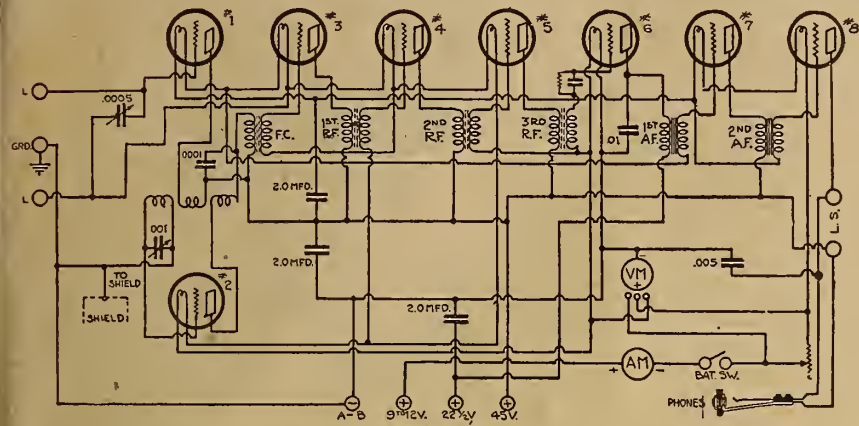


Figure 1

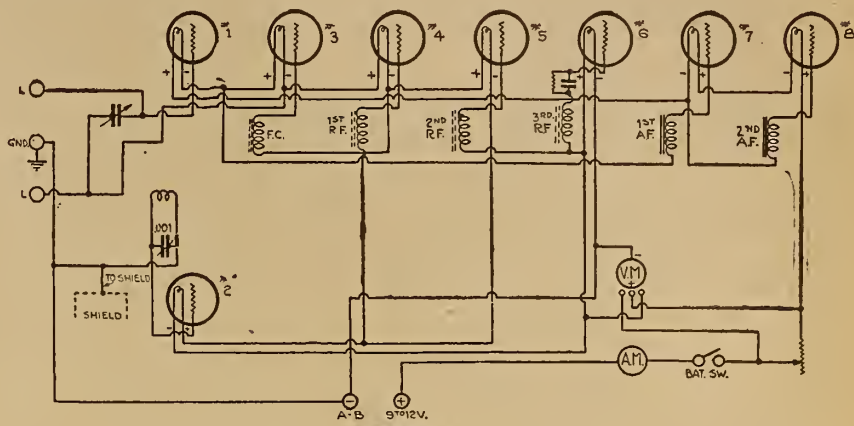


Figure 2

UNLESS there is something to be gained it is foolishness to build an eight tube set rather than a five tube outfit. Nine times out of ten the additional tubes are only successful in introducing more tube noises, amplifying interference and creating greater difficulty of operation than ever before. Unless care is taken, the average super-heterodyne constructor will be more apt to regret his expense and work than derive pleasure and satisfaction from its operation.

It would be wise to first consider the advantages of a super-heterodyne receiver and how they are obtained. The first and big factor is its selectivity, due to the application of the heterodyning principle. Unfortunately this unusual selectivity can be easily destroyed or nullified by the introduction of resistance and losses in the circuit through the use of inferior quality of apparatus.

### Stages of Intermediate Frequency

The second factor is the volume that can be obtained even on long distance reception. This is accomplished by means of the stages of intermediate frequency or long wave amplification and their efficiency at the heterodyned or beat frequency. Poor design or improperly matched transformers and filter couplers will easily create more trouble and grief than can be imagined, so be careful of the apparatus you select.

The effect of nearby interference and body capacity on control dials is very apt to make tuning a torture rather than a pleasure. If the set radiates energy into an aerial it may invite considerable comment from the fans in the neighborhood.

Very often the oscillator circuit not only heterodynes through the pick up coil, but may also pass some more heterodyning into the balance of the circuit, resulting in poor reproduction at the output.

The set is not hard to build, but it requires care and considerable good judgment in the selection and design of the apparatus. There are a number of good kits now available on the market, so the reader need not worry that there is only one set that can be used.

### Air Core or Iron Core

In commenting on kits it might be well to state there are numerous arguments both ways for air core and iron core intermediate frequency transformers. Although air core type are used in this set the iron core are by no means condemned. Both types cannot be used at the same time.

Another point to be remembered is the fact that the oscillator coupler, the filter coupler and the intermediate frequency transformers must be designed to work together. It is by no means advisable to get a miscellaneous collection of these various parts and then expect them to work as well together as matched appar-

atus. The best method is to purchase a kit of matched units that have been tested for uniform operation.

### Super-Heterodyne Circuits

There have been presented numerous variations of super-heterodyne circuits, such as resistance coupled, transformer coupled, Hartley oscillator, Colpitts oscillator, second harmonic, ultradynes and numerous other applications with as many various names.

The comparison in efficiency of transformer and resistance coupled Radio frequency amplifiers for super-heterodyne circuits, has been amply discussed in the past. Few will contradict the decision that the transformer coupled method is the most advisable to use.

The problem of what type of oscillator system to use is simply a question of which type is most adaptable for the particular circuit features that are being contemplated. The various oscillator systems accomplish the same thing with but slightly different methods and results.

It is not intended that this article go into a detailed discussion of all the modified circuits, such as the "second har-

monic" or Ultradyne receivers. Numerous publications have carried articles covering these circuit features and the average fan is doubtless familiar with them. The question of the efficiency of the "second harmonic" receiver can be more easily settled by the experience that the "second harmonic" of any oscillating tube has a very uncertain and varying value. Very often the fundamental frequency from a given tube is very weak and just sufficient to give only fair amplification with a moderately strong signal. Since the cycle amplitude of the second harmonic frequency seldom if ever exceeds more than 10 per cent of the fundamental it becomes obvious that operation on the fundamental develops much more stable and positive amplification.

The introduction of additional inductances into the grid circuit for harmonic operation usually develops more resistance to the circuit and not only further reduces amplification on weak signals, but detracts considerably from the selectivity of the receiver.

In other modifications of the circuit, (Continued on page 18)

### Write for your FREE copy

We want you to have a copy of Ward's new Radio Catalogue. You will find it a storehouse of information—a dependable guide to the newest and most important radio developments. It shows all improved parts and diagrams of the best hook-ups for the man or boy to build his own set, as well as the very best ready-built sets at surprisingly low prices. Montgomery Ward & Co. are Headquarters for everything in Radio. And this Catalogue

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**SHAMROCK HARKNESS KIT**  
 Contains all parts to build the Shamrock Harkness Reflex

**Suppose you could build the three leading circuits**

THEN PICK THE BEST FEATURE OF EACH AND COMBINE THEM IN ONE

SHAMROCK engineers have done it for you. In perfecting the new Shamrock Harkness they have combined the distance of the neutrodyne with the clarity of the reflex and the volume of the regenerative.

Operates a loud Speaker.  
 Two tubes do the work of five.  
 Cuts battery cost 60 per cent.  
 Does not squeal, howl or radiate.  
 Stations can be logged—and come in with amazing clearness and volume.

For best results use only genuine Shamrock Harkness licensed parts. Before building your set send for booklet.

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 Dept. 22-B, Market St. Newark, N. J.

**SHAMROCK**  
 FOR SELECTIVE TUNING

Licensed under U. S. Patent Office Serial No. 719,264 for Radio Receiving Stations.

LIST PRICE  
**\$35**

SHAMROCK MANUFACTURING CO., Dept. 22-B, Market St., Newark, N. J.  
 Gentlemen: Enclosed find 10c U. S. Stamps or coin for "Radio Builder's Guide Book" containing information how to build 10 sets.

Name .....

Address .....

Dealer's Name.....

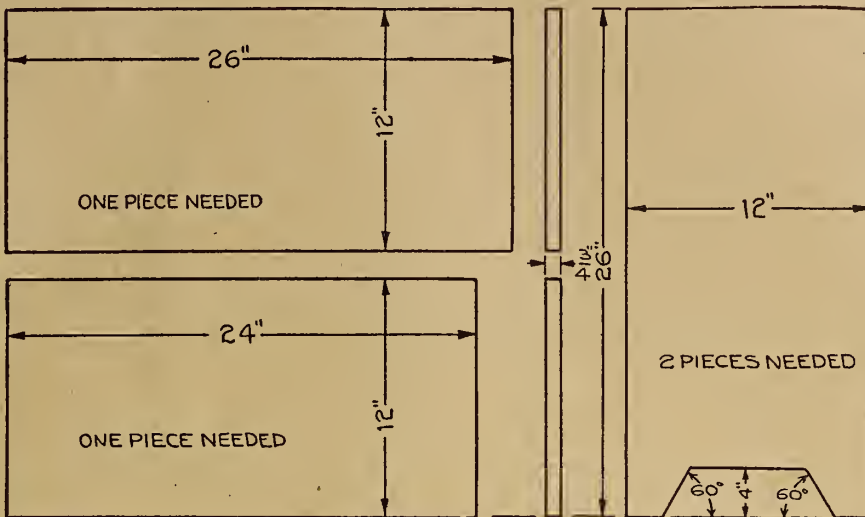


# Console and Cabinet Making for Receiving Sets

## Chapter IV—Inexpensive Table Stand for Set

By Charles F. Smisor

WHEN it comes to making up stands, tables and elaborate housing for the receiving set it is more of a problem in designing than it is in the making of the piece of furniture. A few designs will be given in the succeeding chapters and they will cover in almost every detail the construction of cabinets and con-



solely to form feet, but if the builder so desires any fancy cutting on the lower ends will add greatly to the appearance of the finished stand.

The top is just a little longer than the shelf piece so that it will overhang the ends. A good piece should be selected for the top, one with a fine figured grain.

The doors enclosing the shelf part are just alike, therefore two pieces will be required 12 inches each way. One edge is notched for the hinges, as shown, the depth being such as to receive the hinge wing that is to be used. The hinges are fastened in the usual manner so that the door will swing outward freely and not bind.

### Assembling the Parts

The assembling of the parts is a simple matter, for the top and shelf joins the end pieces with a length of brass angle A of about 1/2-inch size. If the brass angle cannot be procured in your vicinity, angles like the one shown at B may be used. These angles can be procured from almost any hardware or department store. They are fastened with wood screws. Be careful to have the parts join closely and that the screws are set to draw the joints together when they are turned in tightly.

As there is no upright piece at the center of the shelf for the doors to butt against, it is necessary to have some holding means for the doors when they are closed. The small catch C in which a plunger with a ball end is kept pushed out

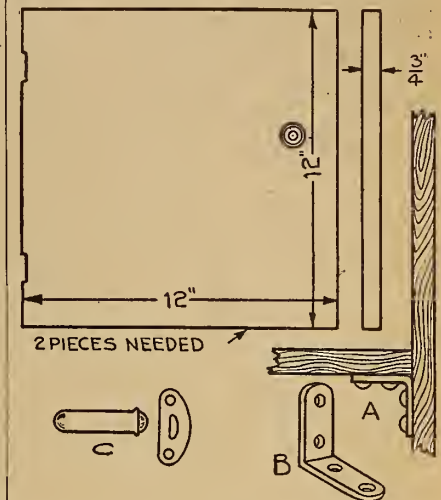
of its socket makes a good holding means for the doors. Two of these catches will be required. A hole is bored in the thickness of the door from the bottom and about 1 inch back from the upright inner edge of the door to admit the socket of the catch. This hole should be of such a diameter that the catch socket will have to be driven in with a hammer. The plate with the hole to receive the ball end of the plunger is attached directly to the shelf board at the proper location. This part of the catch should be carefully mortised in the wood. If this is not done a poor joint will be the result.

Knobs can be procured in various kinds of wood; however, the ones used on this stand were of glass. This is a matter of taste and any suitable knob can be used.

### Shelf for the B Batteries

There was no back used in this stand, the B batteries were placed on the shelf

and the wires run from them to the set through the back opening. If the builder so desires a back can be put on made of thin boards or veneer boards. When using a back, holes will need to be made in



the boards for the wires coming from the batteries.

If the boards have been planed and well sandpapered and care used in putting (Continued on page 18)

soles, so that if you have the creative ability you can design something that will meet with your requirements for a set and something that will fit in and harmonize with your present furnishings.

The piece of furniture for this week is a table or stand on which to place the receiving set cabinet. This piece of furniture was constructed entirely of the leaves from a discarded oak dining table. These leaves were for use in making an extension when guests came and more table top space was needed.

### Preparing the Wood

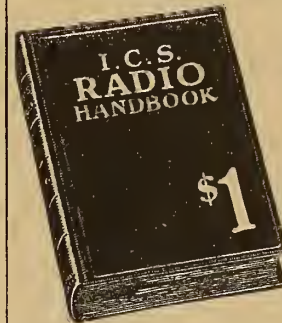
Again the preparing of the wood is the most essential part of the making of this stand. If new boards are used the task will not be so difficult in getting a finish. The old leaves had to be planed to remove all the wear and stains. Hand planing would be too much of a task for the average person to do; however, if there is a nearby mill the boards can be planed easily and quickly and they will present the same surface as if new mill planed boards were used.

Follow out the instructions as they were given in chapter three for preparing the surfaces, after which the boards are laid out and cut to the dimensions given.

Two end pieces are required, as given. The lower part of these pieces are cut

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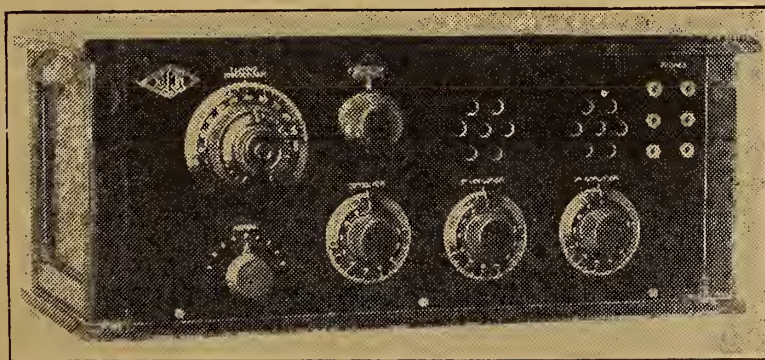
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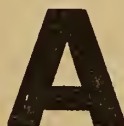
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# Helpful Hints to Get the Most from Radio

## Chapter IV, Part Two—Radio Inductance and Tuning

By Thomas W. Benson

**I**N THIS series of articles set operation will be told in so simple a manner that the uninitiated can follow instructions and get the most out of reception, whether or not he knows anything about electricity or its application to broadcasting and reception. The series consists of thirteen chapters, of which the six next will be:

- Chapter V—Variable Condensers.
- Chapter VI—Crystal and Tube Detectors.
- Chapter VII—Sockets and Rheostats.
- Chapter VIII—Grid Leaks and Biasing.
- Chapter IX—Jacks and Switches.
- Chapter X—Amplifying the Signals.

**T**HE several types of inductances described in the last chapter are combined in practice to form the numerous types of tuning devices in use at present. The simplest form of tuning is that shown in Figure 7, where a single inductance, either of the coil wound, spider web or low loss type is tapped at a number of points and leads brought to switches. The adjustable inductance so formed is connected to the aerial, which furnishes the capacity to form a tuned oscillatory circuit. The detecting device, in this case a crystal detector, is connected across the inductance. Such a tuner, being the common single circuit tuner, has many outstanding disadvantages.

In the first place the aerial capacity is bound to have a fairly high resistance which gives broad tuning. Tapping the coil leads to losses because the unused turns absorb energy again, reducing the sharpness of the tuning.

### Disadvantages of the Single Circuit

The disadvantages of the single circuit tuner led to the development of coupling devices whereby the tuning circuit was not connected to the aerial and with all the factors of resistance under control permitted sharp tuning. The earliest form known as the loose coupler was used for years by both amateur and commercial

operators, but the advent of broadcasting with the short waves used led to the use of the variocoupler.

Designed originally simply as a coupling device, it consists of an outer tube supporting an inductance tapped to permit of tuning the aerial circuit by means of tap switches, while pivoted at one end of the tube was a wood ball on which was wound the secondary winding. The aerial currents flowing through the outer fixed or primary winding would set up a

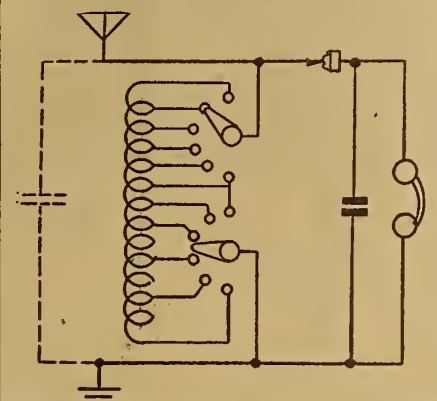


Figure 7—The simplest tuned circuit using a tapped inductance.

magnetic field that would induce currents of the same frequency in the winding on the rotor ball.

By rotating the ball the relation between the fields of the two windings was varied and thus the magnetic effect of the primary upon the secondary circuit was changed, permitting the change of coupling between the two circuits. The variocoupler then is essentially a coupling device, but it was very inefficient in its earlier forms. An efficient variocoupler should be built with a low loss winding as the primary with a similar winding or a spider web as the rotor or secondary.

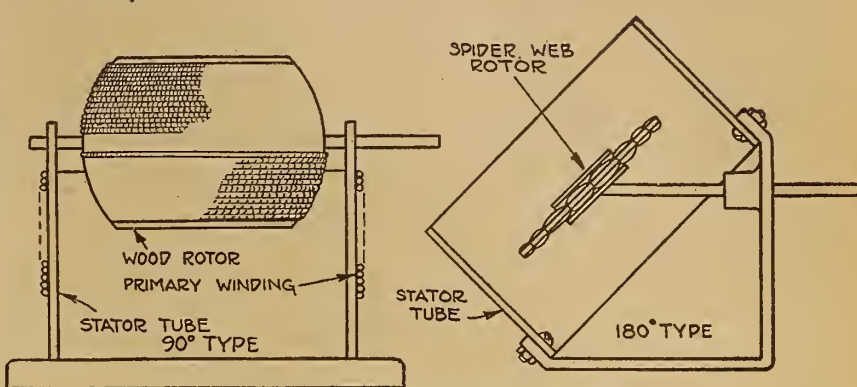


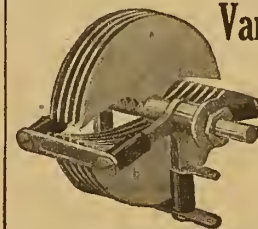
Figure 8—Two types of variocouplers.

### Tuning the Secondary

Some method of tuning the secondary of the vario-coupler is necessary when it is used as a coupler. The variometer was developed for this purpose and is essentially a variable inductance without taps. Its principle of operation is to mount one inductance inside the other, winding them on ball-shaped supports, and arranging the inner ball or rotor on pivots. In one position the fields of the two inductances coincide and, assisting each other, have a maximum inductive effect, but when the ball is rotated this mutual action is gradually reduced, reducing the inductance until a point is reached where the magnetic fields of the two coils oppose

when the inductance is at a minimum. The older wood type and the later moulded type are open to criticism on account of high hysteresis losses in the forms, but the introduction of the low loss variometers with the honeycomb windings have overcome this defect. The circuit employing variometers for tuning is known as the three circuit regenerative shown in Figure 9, where a variometer is (Continued on page 20)

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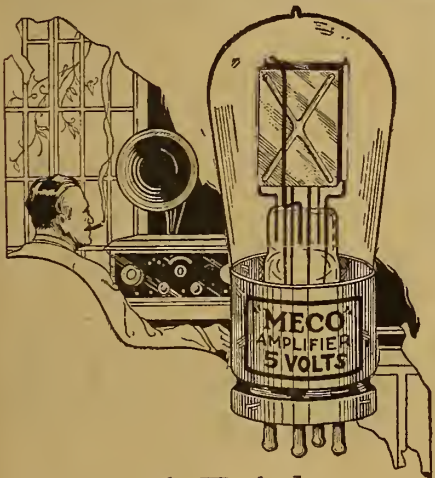
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**GET MOST FROM RADIO**

(Continued from page 19)

also used to tune the plate circuit to obtain regeneration.

As a general rule all circuits employing a tuned aerial circuit requires adjustable coupling to obtain maximum range and selectivity. This is due to the fact that when two tuned circuits are coupled there is a certain degree of coupling that gives

aerial losses are few in this coupler, but the design of the secondary winding should meet the requirements of a good inductance in that distributed capacity should be low and the winding made with low losses.

Another factor enters into the design of tuning devices with movable windings and that is connection to the rotating parts. Connections made through the pivots of the rotors are not to be de-

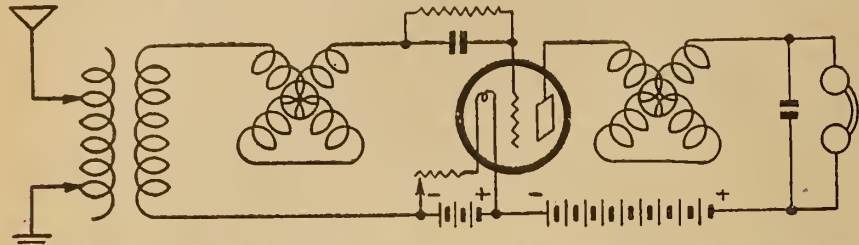


Figure 9—The tuned plate circuit that employs a variable inductance to tune the secondary. The tuned aerial circuit requires a coupling adjustment for efficiency.

the greatest transfer of energy, because with the coupling too close the current in the secondary reacts on the primary and has the effect of increasing the resistance of the secondary. Therefore careful adjustment of the coupling will often improve the results from a coupled receiver. However, if we make the aerial circuit untuned the adjustment of the coupling is not so important and we can employ fixed coupling that is rather tight.

**Tuner Similar to Variocoupler**

The complete tuner is very similar to a variocoupler. The stator now supports the fixed secondary winding and a primary winding wound next to it consisting of from four to twenty turns. The number of turns is kept low enough that the aerial will not tune to the shortest wave lengths to be received. Thus the aerial tuning as well as the coupling adjustment is eliminated. Pivoted inside the stator of the tube as shown in Figure 10, which is a rotor connected in the plate circuit controls the regeneration. This is the tickler feedback regenerative tuner.

Here again the inductances are subject to the same conditions mentioned in connection with the variocoupler and the efficiency of the instrument is controlled entirely by the losses in the windings. The

pendent upon because corrosion at these points destroys all the advantages of well

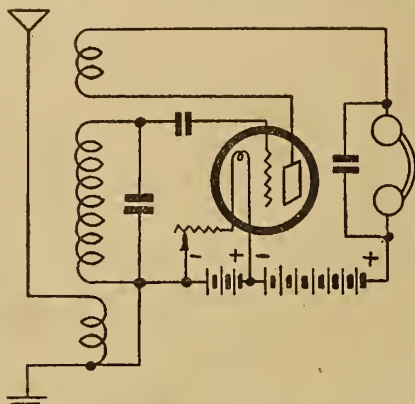


Figure 10—The tuned plate regenerative circuit using a fixed primary eliminating the coupling and retaining efficiency.

designed and well mounted coils, so flexible leads should be employed to the rotors of variocouplers and variometers.

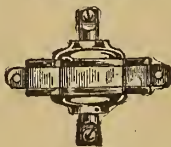
**Adjustment of the Feedback**

Much of the satisfaction from a tickler regenerative circuit depends upon the accurate adjustment of the feedback. To aid in this respect we have what is termed the 180 degree coupler. The usual type of variocoupler as shown in Figure 8 allows of but a quarter or 90 degree turn from maximum to minimum coupling. But by mounting the stator at a 45 degree angle and mounting the rotor on the shaft at a similar angle it requires a half turn to swing from close to loose coupling.

Nearly all of the above effects of coupling and feedback can be obtained with honeycomb coils or spider webs arranged in the proper mounts. Thus a coupler is made up by arranging two coils or spider

webs in a mount so they can be separated or swung together, but the arrangement is unsightly. The regenerative circuit of Figure 10 is made up by using a specially wound spider web for primary and secondary with a separate web as tickler coil. (Condensers have been shown in some of the circuits without mention of their function. This will be considered at length in the next chapter with a view to obtaining highest efficiency in any circuit. —Editor's Note.)

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