

New Flewelling Portable Set, L. H. Bolen; Gold Cup Award Standings; Advance Programs for Large Stations; Radio Frequency on Unidyne Set

Radio Digest

EVERY WEEK **Illustrated** PROGRAMS **TEN CENTS**

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

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HEARS ENGLAND ON LOOP

WLS SHOWS KIDDIES WHAT MAKES IT GO

1100 CHILDREN PUSH WAY INTO LULLABY PARTY

Sandman Daddies, Solemn Old Judge, Dog-Monkey Team and Child Artists Amuse Little Tots

CHICAGO.—Eleven hundred boys and girls, members of the Radio Lullaby club of the Sears-Roebuck Agricultural Foundation's Radiocast WLS, squeezed and pushed their way into the Tiger room of the Hotel Sherman on a recent Friday afternoon to attend the Lullaby Listeners party in charge of big Ford Rush and little Glenn Rowell, studio artists, known to the kiddies as the "Sandman Daddies."

The party started when George Hay, "Solemn Old Judge" announcer of WLS, blew the locomotive whistle of the WLS Unlimited and explained to the kiddies "what makes the wheels go round." Ford Rush and Glenn Rowell put on a special lullaby stunt and introduced the little club members to "Smoky," the Duck, and "Tweedle-ee," the Chickadee.

Dog-Monkey Team Performs

A clown stunt with a dog and a monkey as the star actors created a riot of applause. Francis McClaskey, twelve years old, gave two readings and little Ulamoe Loser executed a toe dance of her own. Seven-year-old Geraldine Gunsburger and six-year-old Joan Brautigan gave several duet dialogue dances. The automatic doll dance and Under the Old Umbrella were favorites.

After a tour of the station and a peep into the microphone, ice cream and cake were served as the last act on the program. Supervision of the program was under the direction of Edgar L. Bill, director of Station WLS.

Germany Has First Radio Show; 187 Firms Exhibit

WASHINGTON, D. C.—The first German Radio exhibition was recently opened in Hamburg according to a report received here at which there were 187 exhibits with more than a hundred German firms being represented. No apparatus of foreign manufacture was exhibited.

The report states that the exhibits covered all varieties of receiving sets from the most elaborate and expensive to the simplest and cheapest and include all kinds of accessories and parts. One receiving set was offered for sale at the equivalent of \$10. Other sets were offered to as high as \$300. It was estimated that more than 15,000 visitors attended the exhibition during the first few days.



Anna Case, Metropolitan Opera Star, who proved the Star Spangled Banner could be sung artistically, when, with the national anthem, she opened the Democratic National convention, held in Madison Square Garden, New York City, and Radiocast from a score of stations. © Strauss-Peyton

FLEWELLING GETS POLDHU ON ONE TUBE

Famous Inventor's Super-Regenerator Brings in Short Wave "Beam" Plant

2YT Works on 94 Meters

CHICAGO.—Shattering all records for what has been considered good reception, E. T. Flewelling, internationally famous Radio engineer, has recently been successful here in hearing Radiocast 2YT. Poldhu, England, using but one tube and a loop aerial in the super-regenerative circuit invented by Mr. Flewelling and bearing his name.

Bridging a distance of approximately 3500 miles on the single tube super-loop aerial set is not the only surprise however, but in addition there is the information that 2YT was using Marconi's new "direct ray" transmission system, and that on 94 meters.

The single tube super, however, had no difficulty in bringing Poldhu on the head receivers. The English station was sending test calls and some music, evidently phonograph, at the time heard.

Intimates New Invention

Mr. Flewelling, who was brought into the public eye two years ago when he invented the simple super-regenerative receiver, had but few comments to make on the achievement.

"It is but a demonstration of what can be done in Radio," he said. "Very soon, by next winter perhaps, you will find such reception common on better made sets. The short wave and directed transmission are part of the secret. Sensitive sets, well designed, are another factor. The Flewelling super can accomplish the result, as you have just seen."

Asked if there was credence to the rumor that he had something new in store for Radio, the young inventor was elusive.

"I have been making some very interesting experiments. What they are and when they will be finished I cannot say just now. You will have to wait. I am not ready to speak further."

MAN OPENS GARAGE WITH ETHER WAVES

LONDON.—Using Radio to cook meals, open doors, drive a car etc., as recently described by a prominent Radio engineer, has been applied by a progressive English amateur. He has installed a small transmitting set on his automobile. When he arrives at the door of his garage, he presses a key on the dashboard. Instantly the doors open; closing again after the car has passed through.

KQV Furnishes Music for Marriage at Private Home

PITTSBURGH.—One of the most unique programs of the season was given from Station KQV located here. During a marriage ceremony at a distant point, music was Radiocast from the station and re-

ceived in the home where the wedding took place.

Starting off with the strains of Lohengrin's "Bridal Chorus," the ceremony began, and during the entire wedding music was being played very softly. At the close of the program, the usual announcement of the station was given, with congratulations to the groom and bride.

HAWAIIANS TUNE IN TO LEARN UKELELE

PITTSBURGH.—Radiophans who have been listening to Station WCAE recently, have been given a treat in music. Every Monday night, C. Martin McGee, recognized authority on the ukelele, has been giving lessons to the Radiophans. From the enormous amount of mail which has been received by the station, campers and vacationists are taking to ukeleles like ducks to water. Honolulu has not reported yet, however.

No. 10 OFFICIAL BALLOT

Announcers' Contest

RADIO DIGEST FIRST ANNUAL GOLD CUP AWARD

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

Please credit this ballot as one vote for:

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

Signed

Address

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

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

WQJ, UNKNOWING, AIRS REHEARSALS

Ballet Master and Orchestra Leader Didn't Know Micro- phone Was on

CHICAGO.—One of the most extemporaneous programs ever put on the air, came recently from Radiocast WQJ, Calumet-Rainbo Gardens station here. During an afternoon program talent was exhausted, so the ever alert announcer, Jerry Sullivan, cut in the orchestra microphone in the ballroom where the Rainbo Gardens show was rehearsing.

Listeners were astonished and well pleased by the impromptu performance, sounding something like this:

"All together now, kick higher! Say, what's the matter with you girls, can't you kick a little higher?"

A few moments later, the orchestra was heard, and after playing a few bars, stopped.

"Ooooooh, what a sour note! Who did that? Try it over again, and see if you can keep time."

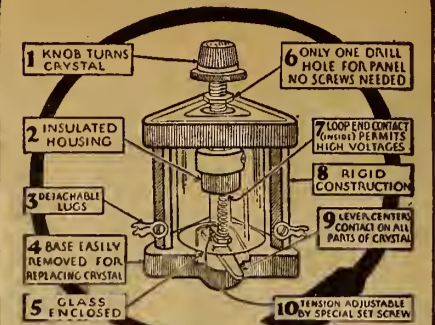
Again the orchestra started off, this time it finished playing one of the popular airs, and was rewarded by a word of approval from Ralph Williams, orchestra leader.

While smilingly looking over the orchestra, he glanced up. With a look of consternation at seeing the red Radiocast warning light he cried, "Keep quiet everyone. The microphone is on."

Larger Stations Gain as Smaller Lose in Number

WASHINGTON, D. C.—A compilation of various classes of Radiocast stations just made by officials of the Radio section of the department of commerce, shows that there has been a loss in the smaller stations and a gain in the better class.

There were 377 class A stations on June 30 of this year as compared with 203 in the same month of last year; 54 class B stations this year as compared with 42 last year; 101 class C stations as compared with 327 last year; and two class D stations as compared with one last year.



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HAY FAMILY LEADS IN GOLD CUP AWARD

GEORGE, WLS, WITH BILL, KFKX, LEADERS NOW

"Hired Hand" and J. M. Witten Third and Fourth at Halfway Point in Voting

George Hay, WLS, Chicago, leads the balloting in the Radio Digest First Annual Gold Cup Award! At the halfway point (for the tabulation of votes given herewith was made immediately following publication of the eighth ballot), voting is still slow on account of listeners saving their ballots in consecutive series to get bonus counts.

And it is on account of that saving that the dope may be overturned from issue to issue from now on! While "The Solemn Old Judge" now has a lead of over eight hundred votes on his nearest competitor for honors as world's best, next week's returns will show—ah, but we will have to wait till next week to find out just what it will show.

Watch out for the dark horses! There is at least seventy-five of them not listed below.

Hay Family Likes Gold Cups

Bill Hay, KFKX, Hastings, second in the number of votes, is pushing his name-sake hard for first place. It isn't because of mistake in name either, for every ballot is labeled KFKX. Evidently popularity runs in the Hay family.

The famous "Hired Hand" (we aren't allowed to tell his name) of WBAP, Fort Worth, is in third place. Members of the Truth Society—to the rescue! Let's don't get into a Democratic convention deadlock on this question.

J. M. Witten, WOS, Jefferson City, holds down fourth position without a murmur. JMK is good at that. Look at the way he holds down the Missouri State Prison band.

How Other Nominees Stand

How the other nominees stand can best be gleaned from the following tabulation, which includes only those having to their credit fifty votes or more:

Name	Station	Votes
George Hay	WLS	2309
Bill Hay	KFKX	1467
Hired Hand	WBAP	1001
J. M. Witten	WOS	855
Jack Nelson	WGN	701
Fred Smith	WLW	655
John Daggett	KHJ	566
Richard Haller	KGW	498
Kolin Hager	WGY	496
Gene Rouse	WOAW	410
Leo Fitzpatrick	WDAF	407
H. W. Arlin	KDKA	378
Sen Kaney	WGN	364
Lambkin Kay	WSB	332
S. W. Barnett	WOC	279
J. T. Schilling	WHB	255
Paul Johnson	WLAG	221
Major J. J. Fanning	WNAC	210
H. E. Ehrhart	WDAR	205
Elmer Johnson	WJAX	111
A. R. Herske	WTAM	99
John Reilly	WJAR	97
Joseph Sartory	WCAE	88
E. W. Tyson	WWJ	85
Harold Selyer	WHAS	84
F. W. Johnson	CHYC	79
Charles Erbstein	WTAS	39
C. R. Emery	WGI	68
C. A. Gaal	KUO	67
Miss V. A. L. Jones	KSB	66
Eleanor Poehler	WLAG	65
N. T. Granlund	WHN	64
John Reilly	WJAR	63
Major Andrew White	WJZ	62
Graham McNamee	WEAF	60
Milton Cross	WJZ	59
Jennings Pierce	KGO	58
William Ludgate	KSD	56
Howard Milholland	KGO	54
J. Lou's Reid	WJZ	53

William F. Holliday	WWJ	52
Morgan Eastman	KYW	51
F. A. Buhlert	KFJC	50
P. A. Greene	WSAI	50
Henry Field	KFNF	50
A. F. Edes	WBZ	50
Walter Wilson	KYW	50

Save Votes for Bonus Count!

With this issue is given the tenth ballot (top of page two). There will be but six more. Listeners sending in a complete series of eight ballots for their choice will be given a twenty-five vote bonus, or a total of thirty-three votes. BUT if the complete series of sixteen ballots is saved and voted at one time for one announcer, the lucky recipient will be credited with a bonus of seventy-five, or a total of ninety-one votes.

The Gold Cup Award editor will have a large increase in votes to report next issue. Early returns indicate many surprises, maybe a stampede. Who knows?

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Looking Ahead

What Is Doing in Complicated Circuits? If you're interested, Paul Edelman's next article should appeal to you, for that is his very subject. In it he will study the various methods of stabilizing Radio frequency and some of the peculiarities of reflex circuits. Do you know how to stabilize a Radio frequency set to stop self-oscillation? Read Mr. Edelman's next "Thirty-Minute A-B-C" chapter.

From Halifax, Nova Scotia, to Hastings, Nebraska, on One Tube is the performance record of the set to be described next week by M. J. Rondeau, who seemingly has designed an excellent split variometer circuit. Readers desiring distance with a minimum expenditure for parts will no doubt be interested in the details of Mr. Rondeau's amazing outfit.

E. T. Flewelling Comes to the Fore Again—this time hearing Poldhu, England, in Chicago, using but a single tube loop aerial set, connected, of course, in his marvel super-regenerative hook-up. We promised Mr. Flewelling had something new for you. He has—the Poldhu reception wasn't it—but wait awhile. He'll tell you through Radio Digest exclusively!

Watch the Gold Cup Race Standings Next Week. Will George Hay still lead? Who will hold second, and third positions? The voting is really but starting. The heavy count will register at the close when readers turn in solid blocks of sixteen consecutive ballots (entitling a bonus of seventy-five votes) for their favorites.

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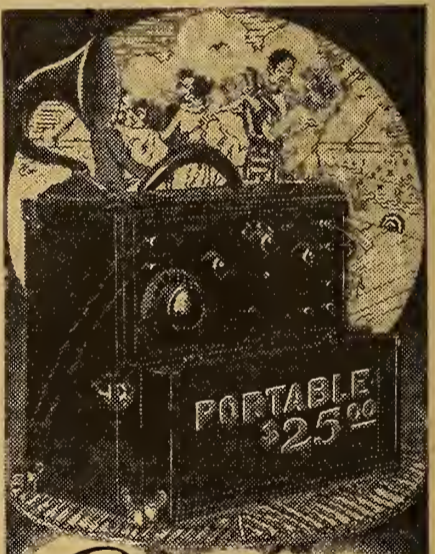
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SPELL-BINDERS NOW HAVE ADDED WORRY

RADIOCAST TO INFLUENCE POLITICS FOR BETTER

Radiophan Vote, Too Heavy to Neglect, Presents Difficult Problem for Wobbly Politicians

By Carl H. Butman

NEW YORK.—The Radiophans of the country, and practically everyone else are unanimous in the belief that Radio will sooner or later change the methods of selecting presidential candidates. Some assert that it is bound to effect the final vote in November.

Radio, with its pitiless publicity, carries every word uttered at conventions, to members of both political faiths. It shows reactions, reveals the "inside stuff," and exposes faked enthusiasm, "hokum," "bunk," and "apple sauce." Radio takes all fans to the conventions. It has practically killed the old methods of "infighting," and will certainly tend to switch the battle to a more open style of play, as the sport writers say. It may urge the direct primary system of voting for candidates.

Hard on Spell-Binders

During the recent political conflicts, not only the regular fans but candidates, political headquarters, community centers, statesmen, governmental officials and editors; even the tired business men, shop girls and tin can tourists listened in on the proceedings. No longer can the lieutenants of a factional cause "put anything over" on the general public, which now has its ear tuned to the air through the aid of Radio.

Spell-binders of the past cannot longer pattern their speeches to a single class of listeners—all classes listen in at the same time. A speaker can neither talk "down" nor "up" to his audience, since the morons and the intellectuals are both on the air. The Radio audience today, especially when a national question is being thrashed out, is cosmopolitan, with a capital C.

No Ether "Editing"

Every speaker will have to be careful, for his copy is no longer subject to correction and editing; it goes out in the heat of his oratory to the country at large. Even if he is a member of Congress, he cannot claim the privilege of editing his speech as he does for the Congressional Record. The newspapers also get it direct, without the coloring of special political writers or imaginative reporters, sometimes influenced or swayed from the duty of telling the public the story in its bare and unadorned truthfulness.

The Radio public, at least, has learned considerable about politics during the past month than it ever knew before. It will not forget soon. The vote of some 25,000,000 fans must also be considered by campaign managers; another problem for them to handle. Only one solution is available: "Simon Pure" honesty, plain direct statements of facts and sincere promises, for they are talking directly to possible constituents of Radio land who will not tolerate much.

"Do I Scream Well?" Now Question on Paris Minds

PARIS.—France has just had a new kind of contest that promises to replace the familiar questions in the minds of so many movie-struck people: "Do I scream well?" or "Can I go into the movies?" For the new Radio contest the questions might be: "Do I scream well?" or "Can I go into Radio?"

A long list of contestants willing to make the trial came to a Paris Radiocast studio one night, and tried the audibility and quality of their voices before the microphone. The judges were to pick the ones who could become regular Radio performers, from those whose voices were unsuited for such work. Among the contestants were several well-known singers and speakers, not all of whom "got by" over the Radio.

BRITISH HAVE NEW 25 KW. RADIOCAST

LONDON.—The British Broadcasting company with headquarters in this city, recently put in service their new station, 5XX, which will work on 1600 meters with a power of 25 kilowatts. This station should be easily audible in the United States during the coming winter. Plans are being made for another large station, which will be erected in the near future.

WSB KAY AS WNAC GUEST ANNOUNCER

BOSTON.—Station WNAC, Shepard Stores here recently had as guest announcer, Lambdin Kay, announcer at the Atlantic Journal Radiocast, WSB. Mr. Kay was in the city helping to celebrate the Elk's National convention and announced the concert program of Station WSB from WNAC. Station WNAC has purchased a new 500-watt transmitter which will be placed in operation by September.

RIGHT OFF THE CHEST OF NELLIE



Nellie Revell, considered the world's greatest woman press agent, as she recently Radiocast from WIP's control studio on the steel pier at Atlantic City. Miss Revell, who succeeded in a four-year fight against an ordinarily fatal spinal disease, while in a plaster cast and unable to move, wrote her famous "Right Off the Chest," telling of her hospital experiences and giving inspiration to the afflicted. Foto Topics Photo

Hundred Millions Capital Backs Manufacturers' Body

CHICAGO.—The Radio Manufacturers' association was permanently organized recently at a meeting here attended by representatives of more than forty concerns representing more than one hundred million dollars.

Manufacturers as far away as New York were represented in the organization which is to cover the entire United States and Canada.

Major Herbert H. Frost was unanimously elected president, Frank Reichman, vice-president, and A. J. Carter, secretary-treasurer.

ITALY LIKES SECRET RADIOCAST SYSTEM

HAMMOND MAKES HIT USING MIESSNER IDEA

Success Greeted Italian Trials—Device Dedicated to Public in 1915 in United States

ROME.—The visit of John Hays Hammond, Jr., to Italy and France has created a keen interest in his plans for improved methods of Radiocasting. Very interesting results have been demonstrated in both countries. In Rome, Mr. Hammond worked with the military authorities, making many transmissions on various wave lengths with his system of secret, non-interfering waves.

Among other trials, he transmitted steadily for periods of several hours between two stations a considerable distance apart, while at the same time six Italian military stations tried to interfere. For a part of the tests the interfering stations were even informed of the wave lengths being used by the Hammond stations. According to Mr. Hammond, the transmissions were not interrupted in the least.

Patent on Non-Patentable Device?

The principle of the Hammond system is that of multiple modulation. Revised originally for a Radio control system of boats, torpedoes, and the like, it has proved to have important possibilities for Radiocasting.

Although this invention is claimed by John Hays Hammond, Jr., it was in reality invented by Benjamin F. Miessner who worked for Mr. Hammond in 1915. At this time, Mr. Miessner dedicated the invention to the public, and as far as the American rights are concerned, the device is unpatentable; although so-called patents have been issued to Hammond, who recently sold them to the Radio Corporation of America.

JOHN REINARTZ GIVES NAVY FRUITS OF WORK

Famous Amateur Is Awarded Second District Radio Cup

NEW YORK.—In a short acceptance speech after receiving the Radio Cup, an annual award of the executive Radio council, second district, given to the Radio amateur whose experimental work during the year most befits him for the honor, John L. Reinartz, recognized Radio engineer and amateur experimenter announced at a monster convention of Radio amateurs from the metropolitan area that he had turned over to the Navy department his entire developments on a Radio transmitter functioning on ten meters.

He further declared that his system could be adapted in less than ten minutes to any amateur station operating today. Previously, Radio communication on 100 meters was considered epoch-making. At this high frequency, special insulation is necessary, as bakelite bursts.

Mobilizing Relief Force; Use Radio Communication

CLEVELAND.—When all other means of communication failed, as a result of the devastating storm that swept northern Ohio recently, Radio filled the breach.

An amateur in Lorain, Ohio, kept in constant touch with another amateur in Cleveland, and as a result, Station WTAM, was enabled to expedite the mobilization of relief forces. Besides organizing relief, various army units were notified to mobilize and speed to the stricken zone.

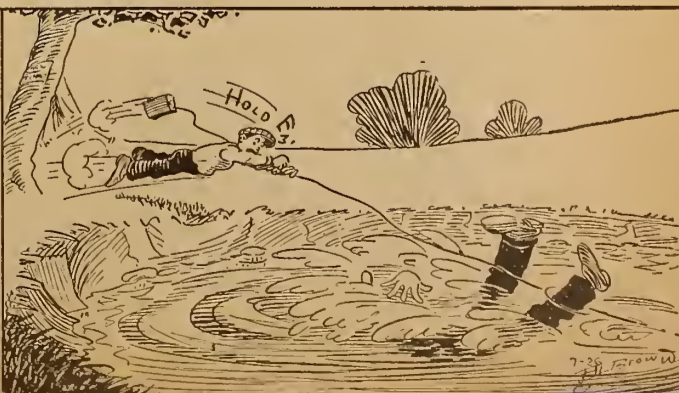
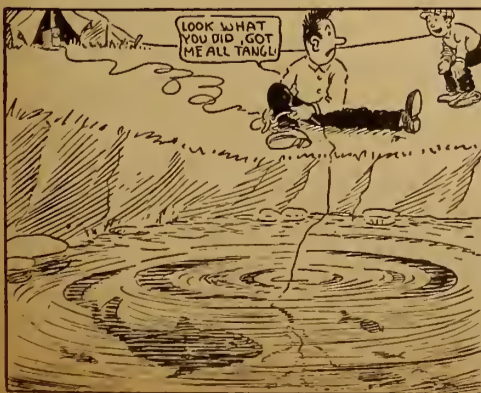
Harry Geise at WQJ

CHICAGO.—Harry Geise, pianist and composer, has been added to the staff of Station WQJ here. Mr. Geise was at one time pianist for Wendell Hall, and collaborated with him in writing some popular hits.

THE ANTENNA BROTHERS

Spir L. and Lew P.

Part III—Another Fish Story



HOME-TOWN ARTIST GETS OPPORTUNITY

DISTANCE LOSES ENCHANTMENT GRADUALLY

Radiophans Learn Real Joys of Reception—Interest in Local Talent May Improve Quality

NEW YORK.—Distance is beginning to lose its enchantment for the Radio enthusiast. The great American listening public has come to accept Radio as an indispensable service in the home rather than an experimental novelty which depends for its interest on long-distance "stunts." The question no longer is "How far can I reach?" but "What program shall I hear?"

Many a Radiophan this summer has discovered for the first time that in his efforts to sweep distant fields he had been missing the real joys of Radio reception. The enthusiast now realizes that in many cases the best entertainment, the most interesting news features, were being Radiocast from a nearby station, within easy reach, while he, with his ears fixed for "distance," had been deaf to the true appeal that Radio made.

Root for Home-Town Talent

Radiophans in many parts of the United States are becoming fervent "rooters" for their home-town talent, and many interesting factors are likely to develop from this movement.

For one thing, the encouragement thus lent to local talent should result in a great improvement of program material. For another thing, the general practice of choosing a program upon merit rather than upon distance would solve some of the serious problems of interference now experienced in the air.

As the attention of Radiophans was concentrated on the programs of local stations, there would arise a community interest in singers and musicians—native sons and daughters, as it were.

Local Artists Get Chance

The development of this spirit would mean a great deal for the industry as a whole. In turn local artists would be given the opportunity to win public recognition for their talents, and this might lead to their success in broader fields, just as the reputations of established artists have been enhanced by their appearance before the enormous audiences offered by Radio.

As an example of what community spirit can do for an artist the example of a Seattle composer of music may be given. This composer attracted so much favorable attention through his appearances at the local station that he was able to start on a tour of the larger stations with a good prospect of having his works published. Before he left, he was presented with a watch, a testimonial from the Radio public subscribed to on its own initiative.

New Sound-proof Studio to be Built by Station WHA

MADISON, WIS.—A sound-proof Radiocasting studio, literally a "padded cell," to reduce reverberations, will be installed in Station WHA, this summer. Much new equipment, including new microphone and amplifier, will be added.

To make the new studio sound-proof, so that there will be no reverberations of sounds, the walls and ceiling will be covered with Balsam wool, a new deadening material. Heavy velour curtains at the windows, and a thick rug on the floor.

Besides the new studio, WHA will install two new motor generators, one a two-kilowatt machine, to supply the plate circuit of the tubes to increase radiation from the station, the other to heat the filaments of the transmitting tubes. As this generator will be direct current instead of alternating, it will reduce the "humming" noise.

Einstein Ridicules Death Ray

BERLIN.—Dr. Albert Einstein, according to a statement he released here recently, cannot see the relativity theory in the so-called "death ray." He says frankly that it is all a bluff. He maintains that there are only two electromagnetic waves which could come into the question, and that these two could react only through a metallic layer.

German Radio Increases

BERLIN.—Radio continues to grow steadily in Germany where, before the latest government edict, all amateurs were obliged to make use of material furnished by the state and none other. Now amateurs may use any material they wish on payment of a yearly tax of twenty-four marks.

Southwest Organizes

DALLAS, TEX.—Organization of the Southwest Radio Jobbers association here was completed at a meeting held recently at the Adolphus hotel. A. I. Folsom is secretary-treasurer.

TELL ARTIST EDITOR OF YOUR FAVORITES

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

WIAY, Born Twice, Has Final Funeral

Washington Radiocast, Pioneer, Closes Down Permanently

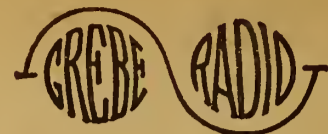
WASHINGTON, D. C.—WIAY of Woodword and Lothrop, which has had two births since the advent of Radiocasting, has been closed permanently, as announced by C. O. Fischer, manager of the station. No reason was given for the "shut-down" of WIAY, whose voice has been familiar to Washington Radiophans several years.

In August, 1922, when Radiocasting was passing through its pioneer period, WIAY was first born. It entertained the national capitol's initial crop of Radio enthusiasts afternoon and evening until June, 1923, when it "signed off" following the opening of Washington's two high power stations, WRC and WCAP.

Unostentatiously, WIAY, after an absence of almost a year, was resurrected last March, and has been Radiocasting morning and afternoon programs since. During this period it did not interfere with the programs of WRC and WCAP.

Kiddies Miss Uncle Bob

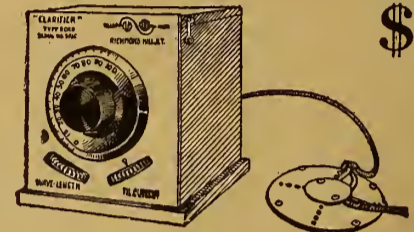
CHICAGO.—Uncle Bob, KYW bedtime story-teller par excellent, was missing from the air recently and hundreds of kiddies wrote asking what the trouble was. He had been in New York, making records for the Victor company. Eastern children were given a treat when he went before the mike at Station WJAR and told one of his famous stories. His place was taken during his absence by Harry Davis, Uncle Bob's right hand man.



The GREBE CLARIFIER



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



\$30

Increases Selectivity

Increases Signal Intensity

Improves Quality

Prevents Radiation

And—

Is Easily Connected

Ask your dealer or write for literature

A. H. GREBE & CO.

Richmond Hill, N. Y.

Western Branch—451 East 3rd St., Los Angeles, Cal.

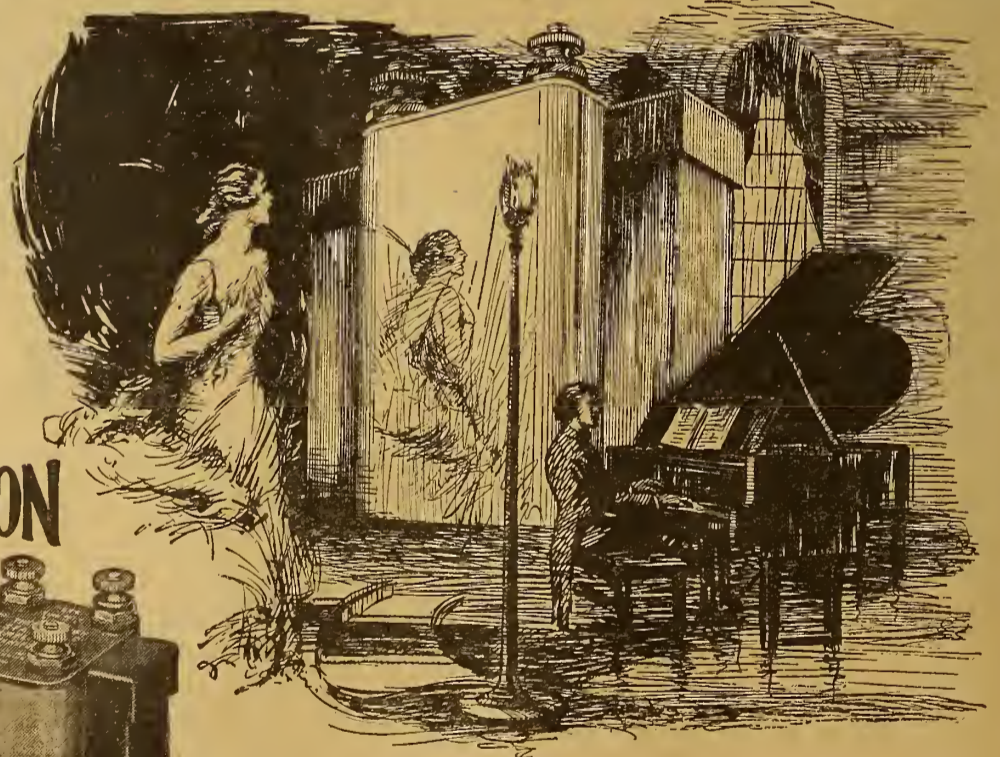
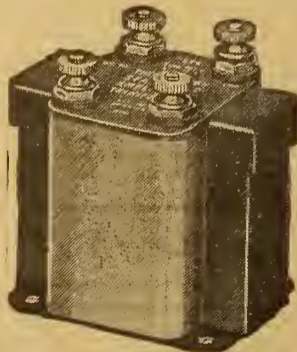
When you find a better Transformer it will bear the name

THORDARSON

2-1 Ratio \$5.00

3½-1 Ratio \$4.00

6-1 Ratio \$4.50



The mirror of the Broadcasting Studio

SUPER TRANSFORMER—2 to 1 Ratio (audio frequency)

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

THORDARSON ELECTRIC MFG. CO.

500 W. HURON STREET

CHICAGO, ILL.

BEFORE THEY THOUGHT OF "MIKES"



Steve Trumbull, KYW

DO YOU remember the young man whose picture was in last week? Big smile on his face n' everything. Well, that was "Steve Trumbull," the sunshine kid himself. He has had such a varied career, that it would make Jack London roll over in his grave.

Born June 4, 1898, down among the bayou's of ol' Louisiana, Steve spent his childhood like any other rambunctious kid, and, after leaving school, beat his way to New Orleans where he signed on board a sailing ship bound for China.

After saffling for a few years, he found that he had a soul, and decided that he would take up newspaper work. He became a reporter and travelled from job to job, from Alaska to the Cape Verde islands.

Upon being asked a number of questions, he gave the following answers: Height: 5 feet 11 inches; eyes: brown, unless he has had an argument and come off second best; hair: brown, that is, what is left of it; condition of servitude: single, but one never knows; habits: plenty of 'em, all but cocaine and hasheesh; hobby: the sand dunes of Indiana (not being the proud possessor of a bungalow, he sleeps in the sand); ambition: to throw the Shubert brothers, A. H. Woods and other producers out of business (he writes plays himself); aversion: blue noses, Mr. Sumner and the Comstock's; gifts from fans: tobacco, candy, ties, pipes, pictures and once in a while, although very seldom, insulting letters; creed as announcer: avoid orations, don't be formal, smile, when possible, and try to put yourself in the other fellow's place.

Since becoming civilized, Steve has been connected with the Little Theater movement. He is the author of two plays, which have been produced, and at the present time is at work on another.

Radio Standards Meet

NEW YORK.—The sectional committee on Radio of the American Engineering Standards committee held its first meeting here recently. Sub-committees were organized to proceed with actual standardization.

The husky looking youth on the left is announcer at W—, one of the large stations in the East. Below is shown Steve Trumbull, the "Mark Twain" of Radiocast KYW. Former tramp reporter and now playwright, he makes an ideal announcer. Very versatile and sh-h-h girls, he's single and not hard to look at.



To the left is Mable Ewer, one of the few women announcers of this country. Besides announcing from Station WFI, she takes care of her eight children. Below is shown a noted announcer at WS—, a station in the mid-west.

Mabel Swint Ewer, WFI

MABEL SWINT EWER, announcer at WFI, Strawbridge and Clothier, Philadelphia, whose picture was shown last week all bedecked in a velvet and fur-trimmed bonnet, is one of the most popular women announcers in the East. One reason for this is that she has lived in the East all her life, and was born way down east in Massachusetts.

She comes from a musical family. Virtually all of her relatives, her father, mother, sisters and brothers, have earned some distinction in the musical world. Is it any wonder, therefore, that Mrs. Ewer—yes, she's married, and there's much

more than that—has the reputation of being one of the best trumpeters in the country?

The "more than that" about the marriage question is that Mrs. Ewer, when not doing her duty at WFI, is looking after the welfare of eight children. And each and every one, as an announcer would say, is an accomplished musician.

She is also president of the Woman's Symphony orchestra of Philadelphia, which has been heard often from WFI.

Mrs. Ewer's voice is not only familiar as an announcer, but also through the introductory remarks made by her before the orchestra Radiocasts. She was born near Boston, but when we know not, and it isn't because Mrs. Ewer won't say when she was born, but because—well, you know how men feel about asking women such personal questions. As the lines of Kipling's poem go: "You're a better man than I am, Gunga Din," if you choose to ask such a question.

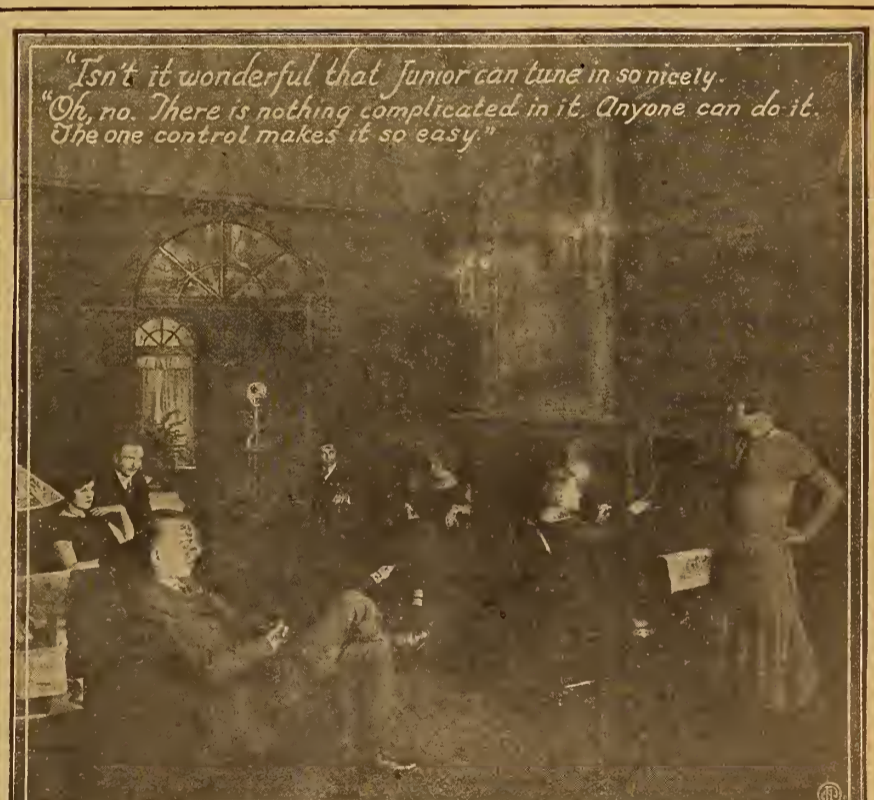
Moscow Fan Uses Crystal as Oscillating Generator

MOSCOW.—A Russian engineer, M. Lossev, has successfully shown that a crystal detector may be used also as an oscillating generator. A zincite crystal is used in contact with a carbon filament. The source of current is a twenty-volt battery. The detector is arranged in parallel with an inductance, regulation of the flow of current being accomplished by resistances in the battery circuit.

It is possible, according to Mr. Lossev, to obtain oscillations of any frequency from audible notes up to 10,000,000 cycles per second. Tuning is done by varying the inductance and resistance of the circuits, no condensers being employed.

Wins Popularity Contest

CINCINNATI.—In a popularity contest conducted by a newspaper here for the best studio director, Fred Smith, of Crosley Radiocast WLW, was declared winner and received a handsome wrist watch.



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

Bristol Single Control Radio Receiver

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

Audiophone Loud Speaker

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

Ask for Bulletins Nos. 3014 and Ay-3015

Made and Sold by
THE BRISTOL COMPANY
Waterbury, Connecticut



Radiotron UV-199

A Small Tube That's a Big Performer

Radiotron UV-199 for detection or amplification \$5.00

The new UV-199 is proving a mighty popular member of the Radiotron family, particularly for portable sets.

For quiet operation—great ruggedness—uniform operation Radiotron UV-199 is unsurpassed. Each new Radiotron has marked a big step in radio advancement. The RCA mark is the foundation of radio growth—and your protection when you buy. Ask for Radiotrons—and look for the mark.

Radio Corporation of America

Sales Offices—Dept. 316
233 Broadway, New York
10 South LaSalle St., Chicago, Ill. 433 California St., San Francisco, Cal.



This symbol of quality is your protection.

Radiotron

REG. U. S. PAT. OFF.

NOMINATION CERTIFICATE

Announcers' Contest

Radio Digest First Annual GOLD CUP AWARD

GOLD CUP AWARD Editor, Radio Digest,
510 N. Dearborn St., Chicago, Ill.

Dear Sir:

I nominate

Station and Call.....

Signed

Address

Town State.....

TRANSMIT CHEAPER USING SHORT WAVE

NEW SYSTEM TO INCREASE SPEED OF MESSAGES

Marconi Talks to Large Audience in England About New Experiments with Beam Transmission

LONDON.—Speaking before the Royal Society of Arts here recently, Senatore Guglielmo Marconi, gave the results of his experiments in beam system of transmission which he conducted on board his private yacht, while at sea.

Senatore Marconi told of his recent experiments on his yacht Elektra—which is one of the wonders of the world and equipped with probably the finest Radio station in existence—transmitting signals by the new beam or short wave system, through vast distances in record time with a fraction of the power required for the present long distance Radiocast installations.

Signals have been exchanged by the new method between Cornwall, England, and Argentina, with such regularity and extraordinary speed that he is certain it will permit service between Europe and the United States to be conducted at any speed, and with low power expenditure. He is confident that with the new system wireless stations will be able to handle more than double the traffic in six hours

that they are able to handle now in twenty hours with the super Radio stations.

Will Speed Up Service

By means of the new system, economical low power stations can be established which will maintain a direct high speed service with the most distant parts of the globe during a considerable number of fixed hours of the day, he said.

The system also will bring about comparative secrecy, unobtainable with any other system of Radio communication, and is so economical it will make possible a general reduction of the telegraphic rates.

Beam Waves Directional

"It was only recently discovered," said Marconi, "that these short waves, which alone can be, in practice, confined to beams of definite direction, are capable of results not obtainable by the use of the lower frequency or long wave system, which up to now has held the field for long distance Radio communication.

His tests on the yacht Elektra convinced Senatore Marconi that it would be possible to carry out reliable commercial services for a large portion of every twenty-four hours over distances of at least 23,000 miles by using only one kilowatt of energy.

To his surprise Senatore Marconi said he had found signals from Cornwall, England, were received strongly and clearly in Sydney, Australia, and they were better than those received from the high power station at Carnarvon, England, used for ordinary transmission.

During May, American Radio manufacturers exported \$299,903 worth of apparatus to 45 countries. Canada took the bulk.

HANSEN BIRD CAGE LINE



4-TUBE PORTABLE RECEIVER
\$92.50 COMPLETE



"Don't forget that this is not an ear phone—but a loud speaker portable."

Here is the "NIGHTINGALE PORTABLE" in a fine case ready to walk away with. Take it with you on your Vacation, Auto Trip or to your Summer Camp or Home. When you come back with it, take it out of the case and use it as a home Radio Receiving Set. It is complete in all details including aerial, batteries and collapsible loud speaker. It is only 16 1/2 x 9 1/2 x 8 1/2 inches in size and weighs 25 pounds. It is ready to operate when you get it and costs.....**\$92.50**

4-TUBE RADIO SET
\$32.50

WITHOUT ACCESSORIES



NIGHTINGALE RADIO

It is simplified Radio at its best and at a price withing reach of all. It is small but has a 2000 mile range with a loud speaker. Its small size makes it ideal for vacations or auto trips.

One stage of R. F. helps to reduce static.
Hansen **MOCKINGBIRD**.....**\$90.00**
6 Tube Long Distance Loop Set.....
Hansen **MEADOW LARK**.....**\$180.00**
6 Tube Set in a Beautiful Spinnet Desk

Write for Literature

Dealers—A wonderfully attractive proposition
JOBBERS—We want one responsible and active distributor in each state

National Distributor



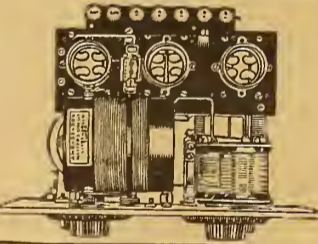
Badger Radio Co..... Milwaukee, Wis. United Auto Supply Co..... Columbus, Ohio
Phil Gross Hdw. Co..... Milwaukee, Wis. Reins & Meiss Co..... Cincinnati, Ohio
Goulding Mfg. Co..... Milwaukee, Wis. Penn. Nightingale Co..... Bellevue, Pa.

NEW CIRCULARS OUT TODAY

THE NEW DE LUXE AMBASSADOR

\$27.95
C.O.D.

Send for new handsome descriptive circular, FREE, showing official and private tests, reports, etc., proving how wonderfully the "De Luxe Ambassador" overcomes summer reception troubles.



- ACCESSORIES**
Everything needed to operate after building is listed here—
- 3 Type 201-A Tested Tubes\$11.70
 - 1 60-Ampere Hour Storage Battery\$11.25
 - 2 45-Volt Extra Large Enco "B" Batteries\$6.50
 - 1 pr. 3000-ohm Head Phones and Cord\$3.75
 - 1 Phone Plug, Double\$.90
 - 1 Antenna Equipment\$1.50

Complete outfit, \$35.60
(Parts Also Sold Separately)

SPLENDID FREE CABINET

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

Fits Snugly Behind a 7x10 PANEL SHIPPED TO YOU AS A COMPLETE 3-TUBE PORTABLE ASSEMBLY ALL READY TO WIRE All Mounted Like Picture

SPECIAL SUIT CASE CABINET

Space for set, "A" and "B" Batteries and Antenna. Covered with fine automobile leather Fabrikoid, reinforced corners, handle, special convenient doors. A truly elegant, high-class affair that you will delight to own. Additional—

\$12.00

The RADIO-SHACK

LARGEST RADIO DEALERS IN AMERICA

Broadcasting Regularly from Our Own Studios Through Station WBN

Executive Offices, Dept. RD726

55 VESEY ST., NEW YORK CITY

Every Article Sold on WRITTEN Money Back Guarantee

The De Luxe NEUTRODYNE

Now again you can buy this GREATEST of Genuine Licensed Hazeltine 5-tube Neutrodyne which we recently stopped advertising because the Special Parts necessary for perfect synchronization could not be secured fast enough to supply our orders. A new edition of FREE illustrated descriptive circulars is now ready. Send for your copy.

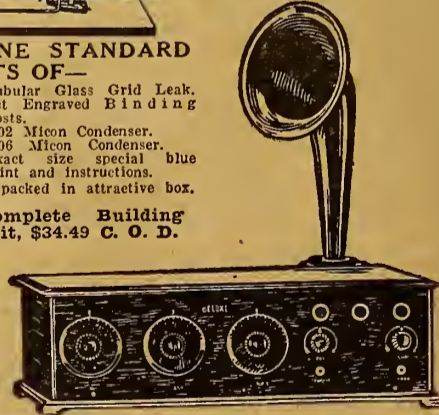


\$34.49
C.O.D.

WHAT THIS GENUINE STANDARD SET CONSISTS OF—

- 1 Drilled Mahogany Panel, polished mahogany effect, engraved in gold.
- 4 Four-inch Mahogany Dials, gold engraved.
- 2 Gold Plated Jacks.
- 3 Genuine Hazeltine Neutrodyne transformers mounted on the famous Comsco-Bakelite End Condensers. Positive by the only Neutrodyne Kit including them.
- 2 Hazeltine Neutrodyne.
- 5 Heavy Bakelite Sockets.
- 1 6-ohm Rheostat with gold plated knob to match panel.
- 1 30-ohm Rheostat with gold plated knob to match panel.
- 2 Genuine Killark Completely Shielded Audio Transformers.
- 1 Baseboard.
- 20 Feet Tinned Bus-bar.
- 1 .00025 Freshman Grid Condenser.

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



- OPERATING OUTFIT**
- 5 Tested Tubes (Type 201A).....\$19.50
 - 2 45-Volt Extra Large Variable "B" Batteries for Neutrodyne 6.50
 - 1 60-Ampere Hour Storage Battery, guaranteed 2 years..... 11.25
 - 1 pr. 3000-ohm Head Phones and Cord 3.75
 - 1 Phone Plug, double..... 90
 - 1 Antenna Equipment..... 1.50

Complete Outfit, \$43.40, C.O.D. (Parts Also Sold Separately) If you order Building Kit and Operating Outfit both together, we will include Fine Mahogany Finish CABINET FREE.

Send No Money

We ship C. O. D. When shipment arrives pay your postman. Then enjoy your purchase under our WRITTEN MONEY-BACK GUARANTEE. Remember, you buy SAFELY from The Radio Shack, the Largest Radio Dealers in America—built upon Quality, Service, Value and the universal Respect and Confidence of the radio public.

4 Big Specials: Fada 160

Factory Built Sets with Serial Numbers LIST \$120

\$84

FREED-EISEMANN NEUTRODYNE KIT LIST \$24

Now **\$19.50**

Fada 120

Genuine 5-Tube Kit LIST \$63.25

\$48

GENUINE V.T. 2

\$6.50

OPERATING AND TROUBLE SHOOTING

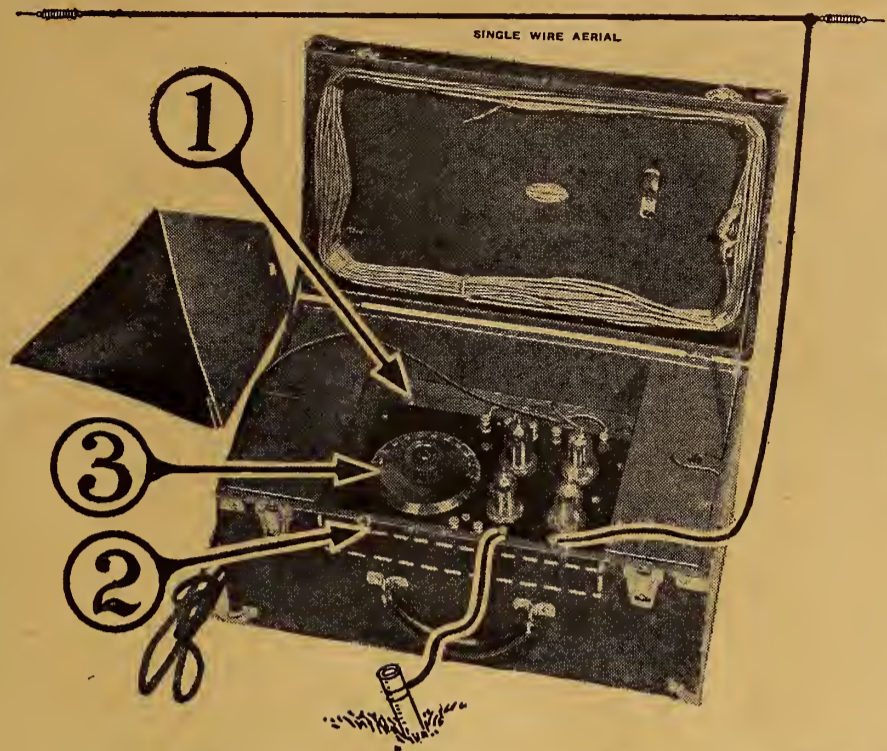
For the Owner of a Nightingale 4-Tube Portable Set

OPERATING an Trouble Shooting" is a Radio Digest feature whose purpose is to study the late models of various standard receiving sets and to show the newly initiated Radiocast listener, who has purchased such a set, how he can operate it to get the best there is in it and how he can overcome minor difficulties which may be causing some trouble. On page 7 this week the Nightingale 4-Tube Portable Set is described. Radiophans with other sets will also find these articles worth while reading, particularly the notes on trouble finding.

THIS portable outfit comes equipped with aerial wire, ground wire, tubes, batteries and loud speaker.

Aerial and ground wires are looped around four hooks in the cover of the case. The aerial wire which is about 100 feet long is equipped at one end with an insulator which can be conveniently fastened to the branches of some tree or if necessary the whole wire can be tossed up over projecting limbs. The terminal end connects to the antenna post of the set. A convenient ground connection is also looped around these hooks. This insulated wire has a terminal at one end to be connected to the ground post of the receiver, while the other end has a heavy clamp which can be attached to a metal rod or post driven into the ground.

The loud speaker is somewhat unusual in the sense that it consists of a unit enclosed in a small removable pocket snapping to the inside of the receiver. The horn is made up of a piece of leatherette covered surface folding compactly to a flat form which is hooked into a metal strip in the inside of the top cover. When unfolded, the ends snapped together by means of snap fasteners, a three corner horn is formed in the small end of which the unit fits into place. A metal seat



on the back of the unit can be hooked on to the strip in the top cover thus providing a mounting for the unit over the set. This is not shown in place in the illustration so as to avoid obstructing the view of the controls of the set.

Four dry cell tubes are furnished the type along the .06 amperes filament current consumption but with standard bases are used. Therefore only three dry cells are necessary for current supply. These dry cells are contained in the left hand compartment of the set while four small 22½ volt B battery units are enclosed in the right hand compartment. The set is completely connected up ready for operation with the exception of the connection of the loud speaker, aerial and ground.

Phone Connections

When connecting phone or loud speaker, and you wish to use:

4 tubes: Connect terminals to binding posts marked Ph and 2 AF.

3 tubes: Connect terminals to binding post marked Ph and 1 AF.

2 tubes: Connect terminals to binding posts marked plus B DET. and DET.

Operation

Place the set with the tubes away from

the knobs nearest you. When set is so placed:

The farther right hand tube is the Radio frequency amplifier.

The nearer right hand tube is the detector.

The nearer left hand tube is the first stage of audio frequency amplification.

The farther left hand tube is the second stage of audio frequency amplification.

Dial 3 controls the wave length received.

Move the right-hand rheostat No. 2 lever up until the tubes become noisy, then lower slightly. The left-hand lever

No. 1 controls the Radio frequency tube, and the right-hand lever No. 2 controls the detector and audio amplification

tubes. Throw the rheostat lever No. 1

up to the top, slowly rotate the tuner dial No. 3, then the wave will cause the Radio frequency tube to oscillate, emitting a whistling sound, lower this lever No. 1 until the whistle ceases and the music comes in, usually slight adjustments are necessary—both with the tuner dial and the hand levers, to perfect the reception.

The operator should record the dial positions for the various stations, thereby, being enabled to turn at will to the station desired, provided the batteries or aerial have not been changed.

Too much battery (rheostat too high) on the Radio amplifier will cause this tube to spill (become paralyzed), and this is easily corrected by lowering the rheostat lever and then raising it again, but not so high as to cause this tube to repeat the "spill."

In selecting new hard tubes, try each one of the three in the Radio frequency socket, as this tube should be the most sensitive in the set.

Place tubes in sockets pressing down firmly and turning clockwise until locked into place. Turn on rheostat and all tubes must burn.

Connect the battery clamp that is wired to the instrument post marked plus B DET. to 18 volt stud or terminal of the B battery.

Various stations are tuned in by slowly turning the tuner dial No. 3. The plus B detector battery clamp must be shifted up or down on the B battery terminals until the best tones are received, 16 to 18 volts usually being best. It is also necessary to move the rheostat knob in order to secure the best volume and tone.

A little experimenting will soon indicate the best combination for local conditions. Do not burn tubes brighter than is necessary for good reception, they will last longer.

Poor operation is usually caused by some defect outside the set. Noises are usually due to defective or discharged batteries, a poor ground, or poor wire connections. Scrape all wires till bright where connections are made.

Caution: When connecting up set remove all tubes until set is connected up. Then place one tube in set and try rheostat in order to be sure you haven't misplaced B battery wires. This will save your tubes.

Thrills from Radio

No. 24 of a Series Featuring Experiences of "ALL-AMERICAN" Users

"Have Experimented with every make—Found All-Americans Best"

By C. O. Bynum, Temple, Okla.

"I have used and experimented with every make of audio frequency transformers on the market—but found the 'All-American' best for every purpose.

"I have a tuner, detector and a two-stage amplifier of my own make and design. On my first step I use an All-American ratio 10-1 and on the second step a 5-1 All-American—and I want you to know that I have some amplification, believe me.

"Can tune in on stations in Chicago and dozens of others, plugging my phones in on the second step.

"I can plainly understand all announcements seventy feet away from the phones. I don't use a loud speaker—just hang my phones on the wall and the programs can be heard all over the house—and above all, perfect.

"All-American Transformers saved the day for me. You make the best on the market."



All-American Audio Frequency Transformers. Come in three ratios: 3:1, \$1.50; 5:1, 10:1, \$1.75. The best—no necessity to pay more.

SPECIAL OFFER

Just out! New All-American "Radio Key Book," 48 pages of valuable look-ups and up-to-the-minute Radio information. "Worth a dollar!" Send 10c in coin or stamps to Rauland Mfg. Co., 2640 Coyne St., Chicago.

All the better dealers sell the "ALL-AMERICAN" RAULAND MFG. CO., 2640 Coyne St., CHICAGO PIONEERS IN THE INDUSTRY

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



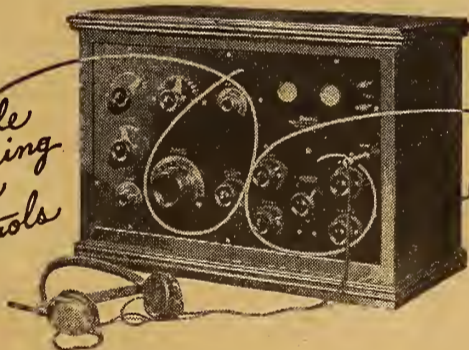
Over three-quarter million in use. Standard on the better sets

ALL-AMERICAN

AMPLIFYING TRANSFORMERS

Largest Selling Transformers in the World

Simple Tuning Three Controls



These to produce exceptional tone refinements

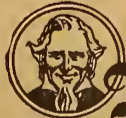
IT HAS been the tradition of the Federal Company, over its 25 years in manufacturing Electrical Communication Equipment, that it must give its users the highest refinements of the art.

Federal tradition will not permit the manufacture of a radio set just for radio noises. Each and every manufacturing necessity to produce a harmonious set is known to Federal Engineers, and no Federal set is produced without them.

Federal radio sets are built with two thoughts in mind—first: simplicity of operation, but three controls being necessary—second: special controls for refinement if the user is interested in reproducing all the beauty of tones that fill the air.

"Lovers of good music" know why Federal is better, and know the real value of the refinement placed at their command to make it easy to obtain the clearest tone reception.

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



Federal

Standard RADIO Products

Boston
New York
Philadelphia
Chicago
Pittsburgh
San Francisco

Look for this sign



Bridgeburg
Canada
London
England

AN EVENING AT HOME WITH THE LISTENER IN

(SEE INSTRUCTIONS FOR USE BELOW)

Table with columns for Station and City, Met., Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday. Lists various radio stations and their broadcast times.

Instructions for Use.—All the hours above are given in Central Standard Time. If your city uses Eastern Time, add one hour to each of the periods stated; if your city uses Mountain Time, subtract one hour; if your city uses Pacific Time, subtract two hours. If in addition, your city uses daylight saving time, add one hour to this result. This table includes only the evening broadcasts, and, on Sunday, the late afternoon program.

STATIONS IN ORDER OF WAVE LENGTHS USED

Table with columns for Meters Call, listing various radio stations and their call letters.

EACH COUNTRY WANTS WHAT OTHER ONE HAS

Or, It Takes Travel to Make Laws Appreciated

PARIS.—A peculiar situation has arisen in France and Belgium, where the papers of each country are complaining of their own regulations regarding regenerative receivers and calling attention of amateurs to the regulations of the other country, which each considers better. In Belgium, a series of strong editorials has been written against the suppression of the regenerative single circuit, which the Belgian government is doing in no doubtful manner. The Belgians cry out that the French, the English and the Americans all have perfect freedom to experiment; so why should a little radiation be suppressed simply because it bothers a few people while it might lead to interesting results. The French, on the other hand, call attention to the firm and intelligent manner in which the Belgian government has met a difficult and troublesome situation. They regret that the French authorities have not had the courage to act in the same manner.

In Norway, all Radio communications dealing with forest fires are given absolute priority over any other form of message whatsoever.

WWV Announces Series of Standard Wave Signals

WASHINGTON.—WWV, the bureau of standards, will Radiocast standard wave lengths of frequencies for the calibration of receiving sets and wavemeters, and adjusting transmitters on August 5, September 5 and 22. The signals will be sent out between 11 p. m. and 12:32 a. m. after broadcasters stop for the night. On August 5, waves use by ships and point-to-point stations, will be Radiocast and on September 5, more ship wave lengths. On September 22, standard wave lengths on which Radiocasts operate will be transmitted, the range being between 200 and 545 meters.

Watch "Roxie" in Action

NEW YORK.—Pat Harrison and Cordell Hull of the Democratic National committee spent one evening of the convention in the broadcasting studio of the Capitol theater watching S. L. "Roxie" Rothafel in action.



"RADIO" anywhere—everywhere!

with the first really portable, long distance receiver—fitted in a camera case with standard batteries, tube and head phones self-contained—weighs only 4 1/2 lbs.

KODEL The Camera of Radio

gets all local and many distant stations without aerial—the ideal receiver for home, camping or traveling.

Popularly Priced at

\$18.50

Without Accessories

See KODEL at your dealer's or write direct for literature.



Front View—Showing phones, antenna and ground wires fitted in ready to close.

THE KODEL MFG. CO. Clarence E. Ogden, Pres. 279 W. THIRD ST. CINCINNATI, O.

Australia and New Zealand Next, Is Amateur Ambition

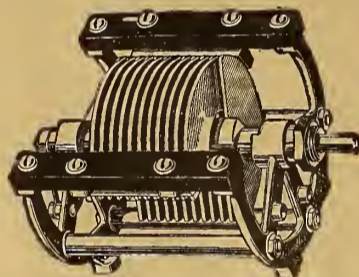
HARTFORD, CONN.—Starting next month, amateur Radio operators in the United States will try to communicate with amateur operators in Australia and New Zealand. Two ten day periods, one in August and the other in September, having been set aside.

This test is being arranged by the American Radio Relay League, in an attempt to establish contact with the Antipodes. Most of the transmitting will be in the vicinity of 100 meters wave length. Many American amateurs are being heard in Australia at the present time on the short waves.

Hot Springs to Take Air

HOT SPRINGS, ARK.—Millions of people will hear about Hot Springs National Park, Arkansas for the first time this winter, when the new Radiocast located on the top of the Arlington Hotel, goes on the air. It is a 500-watt station.

THE MOST STURDY of the New Type LOW LOSS CONDENSERS



BUELL MANUFACTURING CO. 2977 Cottage Grove Ave., CHICAGO

Any radio set good works better with DeForest audions!

DE FOREST RADIO TEL. & TEL. CO., Dept. R. D. 11, JERSEY CITY, N. J.

Save Money BUY A KELLOGG RADIO KIT



"Build your own" with this Kellogg No. 501 Radio Kit. At your dealers for \$43.00.

KELLOGG SWITCHBOARD & SUPPLY COMPANY

1066 W. Adams St.

CHICAGO, ILL.



Everything complete for assembling two stages of audio frequency amplification. The panel is drilled for three tuning units, which together with this No. 501 Kit will complete a radio set using your favorite hook-up, or most any other that you may desire to try.

SPANISH NIGHT AT KDKA THURSDAY

Wednesday, July 23

Silent night for: CKAC, KFNF, KGO, WBAV, WEAQ, WFAA, WFI, WGY, WIP, WMC, WOAW, WRC.
 CFON, Calgary, Can. (Mountain, 440), 11-12:30 a. m., Ever Ready Battery program; Wendell Hall, popular singer.
 CHYC, Montreal, Can. (Eastern, Daylight, 341), 9 p. m., Vander Haeghe trio; Frances James, soprano; Peter Vander Haeghe, cellist; Mildred Page, reader; Queenie Gibson, pianist; "Jasper Park, the People's Playground among the Rockies," H. H. Melanson; C. Taylor, pianist.
 CKAC, Montreal, Can. (Eastern, Daylight, 425), 1:45 p. m., Mount Royal Hotel luncheon concert; 4:15, concert.
 KDKA, E. Pittsburgh, Pa. (Eastern, 326), 11:15 a. m., Daugherty's orchestra; 5:30 p. m., dinner concert, Pittsburgh Athletic association orchestra; 6:30, a night with Uncle Remus; 8, Selzman-Hagar trio.
 KFI, Los Angeles, Calif. (Pacific, 469), 6:45-8 p. m., detective stories; vocal concert; 8-9, Evening Herald, Owen Fallon's Californians, dance orchestra; 9-10, Wampus night program; 10-11, Hollywoodland Community orchestra; 11-12, Ambassador Hotel Coconut Grove orchestra.
 KFNF, Shenandoah, Ia. (Central, 266), 7:30 p. m., program, White Shrine.
 KFOA, Seattle, Wash. (Pacific, 455), 8:30 p. m., recital, James Hamilton Howe, director.
 KGO, Oakland, Calif. (Pacific, 312), 3 p. m., speaker, Coral L. Williams institute; 4:53-5:30, concert orchestra, Hotel St. Francis, Vinton La Ferrera, leader; 8, musical program.
 KGW, Portland, Ore. (Pacific, 492), 3:30 p. m., talk, Jeanette P. Cramer; 8, concert; 10, dance music, George Olsen's Metropolitan orchestra.

Headliners of the Week

WEDNESDAY night tune in for KFI for it is Wampas night and many of your favorite screen stars will Radiocast. The fisherman is not neglected these days of summer vacations. Isaac Walton will give a talk from WJZ on "Deep Sea Angling." His talk will present vacation suggestions on the Atlantic. Camp Fire Girls should tune in for WLS and get the demonstration of Camp Fire Girls' activities.

WMAQ, Chicago, and KSD, St. Louis, are still giving theater specialties Saturday nights. Why not move the Radio out on the screened-in porch and be amused without spending the evening in a hot motion picture theater.

Thursday, KDKA is presenting a program of Spanish composers for the Spanish speaking countries. Announcements will be made in both English and Spanish so that even an ordinary American may also tune in.

WJZ will again Radiocast the New York Philharmonic orchestra this Sunday and WGY will relay the concert.

Let us hope Lloyd George tunes in Friday night for WCAE. It is Welsh night in this station. If there is any poet who has not heard Charles L. H. Wagner, let him tune in for WGI this same evening.

Little folks will relieve their elders Monday night at KQV, and the announcer says that this program is especially for Radio juniors. Have you queer notions about the movies? Tune in for WGY and hear what Quinn Martin the motion picture critic of the New York World has to say.

The great problem before us now is what are the new "rules of the air." Prof. Floyd A. Nagler will discuss these from WHAA Tuesday.

director; 10, Mary E. Vogt, organist; 10:30, Hotel Adelphi dance orchestra.
 WOR, Newark, N. J. (Eastern, Daylight, 405), 2:30-2:45 p. m., Walter S. Ansbros, baritone; 3:30-3:45, Walter S. Ansbros; 6:55-7, "Music While You Dine"; Baudistel's orchestra; 6:55-7, "Music While You Dine"; Baudistel's orchestra; 8:30-8:45, Capt. Jerome Hart; 9-9:15, Corby; 10-10:30, Bell Record Symphony orchestra.
 WOS, Jefferson City, Mo. (Central, 440.9), 8 p. m., "Marketing the Apple Crop," T. J. Talbert; 8:20, Miller County Old Time orchestra.
 WQJ, Chicago, Ill. (Central, Daylight, 448), 3-4 p. m., "Doughs—Biscuits and Variations of Biscuit Dough," Helen Harrington Downing; "Cheese," Martha Logan; "Draperies—How to Select and Make," Sterling Bryant McDonald; 7-8, Mrs. Dydia Lochner, contralto; Marion Henry, accompanist; Lillah C. Bell, reader; 10-2, Ralph Williams and His Rainbo Garden orchestra.
 WRC, Washington, D. C. (Eastern, 469), 2 p. m., fashion developments of the moment, Women's Wear; 3:45, Eleanor Glynn, pianist; 3:50, current topics, Editor of the Outlook; 4, songs; 6, stories for children, Peggy Albion.
 WTAM, Cleveland, Ohio (Eastern, 390), 8 p. m., program arranged by Cleveland Plain Dealer; oldtime songs and melodies; Carl Rupp's Hollenden Hotel orchestra; solo numbers.
 WTAS, Elgin, Ill. (Central, 286), 7:30-7:35 p. m., bedtime story, Olivia; 7:35-8, Dell Lampe's Trianon ballroom orchestra; Lee Sims, pianist; 8-8:30, popular song numbers WTAS artists; 8:30-12:30, Lampe's Trianon orchestra; Lee Sims pianist.
 WTAY, Oak Park, Ill. (Central, Daylight, 283), 6:45-7:45 p. m., Pat Barns, author and character of "Buck on Leave," and his company; 9-9:45, Guyon's Paradise orchestra.
 WWJ, Detroit, Mich. (Eastern, 517), 8 a. m., setting-women's editor; 12, Detroit News orchestra; 3 p. m., Schumann's band; 7, Detroit News orchestra; 7:30, Schumann's band; 9:45, talk, Detroit News



Aleta Smith's sweet soprano voice will once more float over the ether Wednesday, July 23, from WFI, Philadelphia.

Irene O'Connor, a charming Irish lassie, will sing songs of old Erin from WLGA, Minneapolis-St. Paul, this week.

Olivia Erbshtein is the ten year old daughter of the owner of WTAS, Elgin. Every night at eight o'clock the little dog above the microphone and many young listeners in approve of Olivia's stories, because, being still rather young herself, she knows what to give her audience.

Thursday, July 24

KHJ, Los Angeles, Calif. (Pacific, 395), 12:30-1:15 p. m., concert, the Piggy-Wiggly trio; Fred C. McNabb of Argelers-Musser Seed Co.; 6-6:30, Art Hickman's concert orchestra; 6:45-7:30, children's hour, Professor Walter Sylvester Hertzog; Victoria Louise Kemmer, screen juvenile; Dick Winslow, screen juvenile; bedtime story, "Uncle John"; 8-9:30, concert, courtesy Ray F. Chesley, Bell, Calif., Ford agent; Zarh Myron Bickford, mandolin; 9:30-10, concert, Al Schiller, pianist; Dr. M. F. Baumgardt, lecturer; 10-11, Art Hickman's dance orchestra.
 KPO, San Francisco, Calif. (Pacific, 423), 1-2 p. m., Rudy Selzer's Fairmont Hotel orchestra; 2:30-3:30, Jack Falt's Entella Cafe orchestra; 4:30-5:30, Rudy Selzer's Fairmont Hotel orchestra; 5:30-6:30, children's hour; 7-7:30, Rudy Selzer's Fairmont Hotel orchestra; 8-11, E. Max Bradfield's versatile band; "Your Boy and Mine, and the Smith Hughes Act," Wm. T. Elzinga; program, Western Musical Trades convention.
 KQV, Pittsburgh, Pa. (Eastern, Daylight, 270), 4:30-5 p. m., daily Sunset stories, Diary of Snubs, Our Dog; 8:45-9, fifteen minute song revue, Ben and Thelma Fields; 9-10, ballads and heart songs, Elizabeth Rieder, soprano; Ernest George Scott, baritone.
 KSD, St. Louis, Mo. (Central, 546), 9 p. m., concert, "Crow's band."
 KYW, Chicago, Ill. (Central, Daylight, 536), 11:35 a. m., table talk, Mrs. Anna J. Peterson; 6:45, children's bedtime story; 7-7:30, dinner concert, Congress hotel; 8-8:58, Margaret Martin, soprano; John Stamford, tenor; Sallie Menes, accompanist; Herbie Mintz, pianist; 9:45-12:30, midnight revue; 9-10, talk, H. Archibald Harris.
 PWX, Havana, Cuba (Eastern, 400), 8:30 p. m., General Staff band of the Cuban Army, Captain Molina Torres, leader.
 WBAH, Minneapolis, Minn. (Central, 417), 12:30-1:30 Dick Long's trio and soloist; 7-7:30 p. m., lecture, Dr. J. W. Holland.
 WBAV, Columbus, Ohio (Eastern, 423), 12 m., Ila Lorbach Owens, pianist.
 WBZ, Springfield, Mass. (Eastern, Daylight, 337), 6 p. m., dinner concert, WBZ trio; 7:30, bedtime story for the kiddies; 7:40, WBZ trio; Mrs. Carl Rommel, pianist; Arthur S. Cunn, tenor; Mrs. Eleanor Turner LaZizzera, accompanist; 9, G. F. S. Webster, whistler; Orlando Barr, accompanist; 9:30, Hutter trio, Agnes Hutter, soprano, Barbara Hutter, pianist; Horace Hutter, xylophonist; 11:30, Leo Reisman and his Hotel Brunswick orchestra; 12, songs, Bill Coby, Jack Armstrong.
 WCAE, Pittsburgh, Pa. (Eastern, Daylight, 462), 3 p. m., Fred Rosenfeld, pianist; 6:30, dinner concert, William Penn hotel; 7:30, Sunshine girl; 9:30, musical, Hill Top L. O. O. M. No. 151.
 WGX, Detroit, Mich. (Eastern, 517), 4:15 p. m., musical program; 6, dinner concert; 8:30, musical program, direction of George Carr.
 WDAF, Kansas City, Mo. (Central, 411), 3:30-4:30 p. m., the Star's Radio trio; 6-7 p. m., School of the Air, piano tuning in number on the Duo-Art; address, speaker from the Meat Council of Greater Kansas City; address, weekly health talk, auspices Health Conservation association; children's story and information period; music, Carl Norberg's Plantation players, Hotel Muehlebach; 8-9:15, program arranged and presented, J. Polndexter, Mrs. Jennie Schultze, and other soloists.
 WDAR, Philadelphia, Pa. (Eastern, Daylight, 395), 11:45 a. m., daily simanac; 12:02, Stanley theater

organ recital; 12:30, Arcadia cafe concert orchestra; 2, Arcadia Cafe concert orchestra; 7:30, Dream Daddy's bedtime stories; 8, Arnold Abbott, talk; 10, Arcadia cafe dance orchestra.
 WFAF, New York, N. Y. (Eastern Daylight, 492), 11-11:30 a. m., musical program; 11:30-11:45, young mothers' program; 4-4:15 p. m., Margaret Schilling, 4:15-4:30, Mary Kirschman, pianist; 4:30-5, children's stories; 6-7, dinner music, Waldorf-Astoria hotel; 7-7:15, United Synagogue of America; 7-15-7:30, Helen O'Shea, soprano; 7:30-7:45, talk, American Agriculturist; 7:45-8:15, Vic's orchestra; 8:15-8:30, Gold Dust Twins; 8:30-8:45, Artells Dickson, baritone; 9-9:15, Jordan Cohen, pianist; 9:30-9:45, George A. Leach, baritone.
 WFAA, Dallas, Tex. (Central, 476), 12:30-1 p. m., music, Red Head girl.
 WFI, Philadelphia, Pa. (Eastern, Daylight, 395), 1 p. m., Meyer Davis Bellevue Stratford concert orchestra; 3, Aleta Smith, soprano; Loretta Kerck, pianist; 6:30, Meyer Davis Bellevue Stratford concert orchestra.
 WGI, Medford Hillsdale, Mass. (Eastern, Daylight, 306), 7:30 p. m., musicale; popular song hits, Don Ramsey, pianist.
 WGR, Buffalo, N. Y. (Eastern, Daylight, 319), 12:30-1 p. m., George Albert Bouchard, organist; 6:30-7:30, dinner music; 9-9:15, concert, Ladies' orchestra, direction of J. P. Quinn; 11:30, Vincent Lopez Hotel Statler dance orchestra, direction of Harold Gieser.
 WHA, Madison, Wis. (Central, 360), 7:30 p. m., "The Child Labor Amendment," Taylor Frey.
 WHAS, Louisville, Ky. (Central, 400), 4-5 p. m., Alamo Theater orchestra; Dick Quinlan's Golden Derby orchestra; 7:30-9, concert, auspices Nicholas Bolin.
 WHB, Kansas City Mo. (Central, 411), 7-8 p. m., educational talks; music.
 WHN, New York, N. Y. (Eastern, Daylight, 366), 2:15-2:30 p. m., Edward B. Marks Music company; 2:30-3:15, stage of the Metropolitan theater, Brooklyn; 3:45-4:15, Original Louisiana Five, Al King, leader; 4:15-4:45, joint recital, Mary Hunter, pianist, Madeleine Groff, soprano; 4:45-5, Wm. J. Stuart, original poems; 5-5:30, N. Y. Philharmonic trio; 6-7, alamac festival board; 7-7:15, Roemer sport period, Thornton Fisher; 7:30-8, Roseland dance orchestra; 8-8:20, program, Union of Orthodox Jewish Congregations of America; 8:20-8:30, Agnes Maepeake, soprano; 8:30-8:45, Big Brother period; 8:45-9, Sigmund Stuckgold, baritone; 9-9:30, Metropolitan theater; 9:30-10, Chas. Strickland's Fallsides Park orchestra; 10-10:15, Lillian Alkman, soprano; 10:15-10:30, Alfred Dulin, pianist.
 WHO, Des Moines, Iowa (Central, 526), 7:30-9 p. m.,

Bankers Life Radio orchestra, W. I. Marsh, Stewart Dulaney, directors.
 WIP, Philadelphia, Pa. (Eastern, Daylight, 509), 10 a. m., seashore gossip; 1 p. m., Karl Bonavitz, organist; 3, "What the wild waves are saying"; 3:30, Comfort's Philharmonic orchestra; 6, Frisco Serenaders dance orchestra; 7, Uncle Wip's bedtime stories.
 WJZ, New York, N. Y. (Eastern, Daylight, 455), 4:45 p. m., Eleanor Gunn's fashion talk; 4:10-4:15, daily menu; 4:15-4:30, talk, John C. Cutting, Meat Council of New York; 4:30-5:30, Waldorf-Astoria tea music; 7-7:20, Cafe Boulevard music; 7:20-7:30, financial developments of the day; 7:30-8, Cafe Boulevard music; 8-9, Dettborn & Howard, Hawaiian guitars; 9-9:25, "The Heart of the Office," Mr. G. S. Childs, University of the air; 9:25-10:05, Estey organ recital; 10:05-10:30, "Deep Sea Angling," Fred Fletcher, Evening World; 10:30-11:30, Billy Wynne's Greenwich Village Inn orchestra.
 WKAY, San Juan, Porto Rico (Central, 360), 6-7 p. m., municipal band.
 WLGA, Minneapolis-St. Paul, Minn. (Central, 417), 10:45-11:15 a. m., household hints, Mrs. C. A. Kirby; 2:10-2 p. m., women's hour, "Beauty," Maude Hart; 2:40-3:10, magazine reading, "The Hired Man"; 7:30-8, farm lectures, "Book Review," Leonore E. Wells; 8:15-9:15, concert, Carlo Fischer, cellist; Wilma Anderson Gilman, pianist; Bernard Ferguson, tenor; 9:15-9:30, business message; 11-12 p. m., dance concert, Geo. Oxborn's Nicolet Hotel orchestra.
 WLS, Chicago, Ill. (Central, Daylight, 345), 1-2 p. m., music numbers, Carl Craven; 6:30, Frank Westphal orchestra; 7-10 minutes with the "Solemn Old Judge"; 7:15, Edward H. Siedles, vocalist and pianist; 7:45-8, Jullaby time, Fred Rush, Glenn Rowell; 8-9, boys' and girls' hour; 8-8:15, WLS Radio tribe of Lono Scouts; 8:15-9, demonstration of campfire girls' activities at a girls' camp, Sue Waddell; 9, Mrs. S. D. Rodenber, soprano; 9-10, "Eradication of Bovine Tuberculosis in Illinois," A. O. Peterson; 10, Apollo club, Harrison Wild, director.
 WLW, Cincinnati, Ohio (Central, Daylight, 423), 4 p. m., "Shut in" program, Dunning Benevolent and Musical service, Lillian Aldrich Thayers Settlement School of music; 8, Virginia entertainers; 8:50, "Bees," Dr. W. C. Herman; 9, Leviathan orchestra.
 WMAQ, Chicago, Ill. (Central, Daylight, 447.5), 6 p. m., Chicago Theater organ recital; 6:30, stories for children, Katherine Waller; 8, weekly Northwestern university lecture; 8:40, travel talk, Clara E. Laughlin; 9, talk, one of the Chicago chartlies; 9:15, Mabel Arline Hansen, soprano; Mrs. Wynne Misener, contralto; Bernice Lucille Weber, pianist.
 WOC, Davenport, Iowa (Central, 484), 12 m., chimes; 8 p. m., Edwin Swindell, organist; Mrs. John Malloy, soprano.
 WOO, Philadelphia, Pa. (Eastern, Daylight, 509), 11 a. m., Mary E. Vogt, organist; 12-12, Wanamaker Crystal tea room orchestra; 4:45, Mary E. Vogt, organist; 7:30, Adelphi hotel concert orchestra, A. Candelari, director; 9, piano recital, Harriet G. Ridley; 9:30, WOO concert orchestra, Robert E. Golden,

Silent night for: KFOA, KQV, KSD, WAAW, WBAV, WCAP, WDAR, WGR, WHO, WOO, WOR, WOS.
 CKAC, Montreal, Can. (Eastern, Daylight, 425), 7 p. m., Rex Battle and his Mount Royal Hotel concert orchestra; Nap. Dansereau, cellist; 8:30, La Presse studio entertainment; 10:30, Mount Royal Hotel Roof Garden dance program.
 KDKA, E. Pittsburgh, Pa. (Eastern, 326), 11:15 a. m., Sealzo's orchestra; 5:30 p. m., dinner concert, KDKA Little Symphony orchestra; 6:30, Little Miss Merry Heart will sing for the kiddies; 8, KDKA Little Symphony orchestra; John Lavello, piano-accordionist; 10, concert.
 KFI, Los Angeles, Calif. (Pacific, 469), 6:45-8 p. m., Y. M. C. A. concert; lecture; 8-9, Ambassador Hotel Coconut Grove orchestra; 9-10 Examiner, Paeonia Chamber of Commerce program; 10-11, instrumental concert.
 KGO, Oakland, Calif. (Pacific, 312), 4:53-5:30 p. m., concert orchestra, Hotel St. Francis, Vinton La Ferrera, conductor; 8, "Kindling," three-act drama, Wilda Wilson Church, director; Musaeus trio.
 KGW, Portland, Ore. (Pacific, 492), 3:30 p. m., children's program; 10, dance music, George Olsen's Metropolitan orchestra.
 KHJ, Los Angeles, Calif. (Pacific, 395), 12:30-1:15 p. m., concert; 2:30-3:30, Hollywood Bowl program; sponsor, Mrs. J. J. Carter; presenting Bess Daniels, pianist; 6-6:30, Art Hickman's concert orchestra; 8:25-7:30, children's hour, Prof. Walter Sylvester Hertzog; weekly visit of Dickie Brandon, silver-sheet juvenile; bedtime story, "Uncle John"; 8-9, concert, courtesy Platt Music Co.; 9-10, Daphel Nelson Clark, Radio Journal, speaker; Anton Chris, steel guitar; Thorlie Olsen, baritone; 10-11, Art Hickman's dance orchestra.
 KPO, San Francisco, Calif. (Pacific, 423), 1-2 p. m., Rudy Selzer's Fairmont Hotel orchestra; 2:30-3:30, Junior Musical of Alameda, Mrs. John Merrill, manager; 4:30-5:30, Rudy Selzer's Fairmont Hotel orchestra; 5:30-6:30, children's hour; 7-7:30, Rudy Selzer's Fairmont Hotel orchestra; 8-9, Theodore J. Irwin, organist; 9-10, program, Watsonville artists; 10-11 E. Max Bradfield's Versatile band.
 KQV, Pittsburgh, Pa. (Eastern, Daylight, 270), 4:30-5 p. m., daily sunset stories and diary of Snubs, our dog.
 KSD, St. Louis, Mo. (Central, 546), 9 p. m., concert, "Crow's band."
 KYW, Chicago, Ill. (Central, Daylight, 536), 11:35 a. m., table talk, Mrs. Anna J. Peterson; 7:30 p. m., dinner concert, Congress hotel; 8-8:20, "Twenty Minutes of Good Reading," Rev. G. J. Petrin; 8:25-9:15, Ruth Kuehler, soprano; Ned Santrey, accompanist; 9:15, "Safety First," Z. C. Elkin; 10-11:30, "At Home" program.
 WAAW, Omaha, Nabr. (Central, 360), 8-9 p. m., talks, Rev. E. M. Brown, R. A. Smith.
 WBAH, Minneapolis, Minn. (Central, 417), 12:30-1:30 p. m., Dick Long's trio and soloist; 9:10-11, orchestra, popular program.
 WBAV, Columbus, Ohio (Eastern, 423), 12:30 p. m., religious service, Columbus Council of church; 7:30, on
 (Continued on page 10)

KFI, Los Angeles, Calif. (Pacific, 309), 9:30-10 p. m., Hennessy's Paramount players; 8-9, vocal program, Norman Kloch, bass; 9-10, Examiner, Fullerson program; 10-11, popular song concert; 11-12, Ambassador Hotel Coconut Grove orchestra.

KFNF, Shenandoah, Iowa (Central, 266), 7:30 p. m., concert, Henry Field Seed company.

KGD, Oakland, Calif. (Pacific, 312), 4-5:30 p. m., concert orchestra, Hotel St. Francis; 8, program, Camp Curry, Yosemite National park; Carol Weston, violinist; Edith Benjamin, soprano; Marion Provost, pianist; "The History of the Fire Fall," Don Tresidder; Glenn Hood, character songs; Arion trio; Irwin Johnson, baritone; Hawaiian selections, Prof. John Kelliaa, G. DeLoro, Virgil M. Holden; "Hongkong, Canton and Manila," J. E. Barnes; harmonica selections, John T. Brown; French horn solos, Edwin Bergenholtz; Mrs. Herbert Avery, pianist; 10-11, Henry Halstead's Hotel St. Francis dance orchestra.

KGW, Portland, Ore. (Pacific, 492), 3 p. m., children's musical program; 10, dance music, George Olsen's Metropolitan orchestra.

KHL, Los Angeles, Calif. (Pacific, 395), 12:30-1:15

8:15-9, "What the Wind Waves Are Saying," 8:00, Comfort's Philharmonic orchestra; 6, Kentucky Serenader's dance orchestra; 7, Uncle Wip's bedtime stories; 8, Comfort's Philharmonic orchestra; 8:30, Vessella's concert band; 10, Bob Lehman's dance orchestra from Steel Pier, Atlantic City; 11, Karl Bonawitz, organist.

WJZ, New York, N. Y. (Eastern, Daylight, 455), 1-2 p. m., Hotel Vanderbilt orchestra; 4-4:30, Frank Cromin, tenor; 4:30-5:30, Roger Wolf's Biltmore tea room orchestra; 7-7:55, Waldorf-Astoria orchestra; 7:55-8:10, "The Radio Franks," Wright & Bessinger; 8:10-8:15, Time Pop Question game; 8:45-9:30, Paragon Novelty trio; 9:30-10:30, sport talk, Fred Fletcher, Evening World; 10:30-11:30, Specht's Club Lido Venice orchestra.

WLAG, Minneapolis-St. Paul, Minn. (Central, 417), 7:30-8 p. m., business message; 8:15-10 p. m., municipal concert, direct from Lake Harriet, Minneapolis, Minn., direction of Englebert Roengen; 11-12 p. m., dance program, Geo. Osborn's Nicolet Hotel orchestra.

WLS, Chicago, Ill. (Central, Daylight, 345), 8-1 a. m., national barn dance; Blue Hooster four; violin and

WHK, Cleveland, Ohio (Eastern, 283), 8 p. m., concert program; solo numbers.

WHN, New York, N. Y. (Eastern, Daylight, 366), 3-4 p. m., Loew's Metropolitan theater; 9:30-10, Loew's Metropolitan theater; 10-11, Paul Specht's Post Lodge orchestra, Larchmont, N. Y.

WHD, Des Moines, Iowa (Central, 526), 5-6 p. m., St. Augustine's choir, Mrs. Frank P. Flynn, director; 7:30-9:30, the Bankers Life Radio orchestra.

WIP, Philadelphia, Pa. (Eastern, Daylight, 509), 11 a. m., services, Holy Trinity chapel; 9:30, special Sunday evening Atlantic City concert.

WJZ, New York, N. Y. (Eastern, Daylight, 455), 9-10 a. m., children's hour; 8:30-10:15, New York Philharmonic orchestra, direct from Lewisohn Stadium.

WLAG, Minneapolis-St. Paul, Minn. (Central, 417), 10:20-12 m., Plymouth Congregational church; 4:15-5:40 p. m., House of Hope Presbyterian church service; 7:45-9, service, Central Lutheran church.

WLS, Chicago, Ill. (Central, Daylight, 345), 6:30-8 p. m., choir of Christ church.

WEAF, New York, N. Y. (Eastern, Daylight, 492), 4-4:15 p. m., Helen V. Ryan, violinist; 5-5:30, women's program, United Synagogue of America; 5:30-6, Sara Hammond, soprano; 6-7, dinner music, Waldorf-Astoria hotel; 7:30-7:45, Phillip Steele, baritone; 7:45-9:30, Penn. Mutual Life Insurance company; 9:30-10, U. S. Marine band; 10-10:30, National Carbon company.

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

WFAA, Dallas, Tex. (Central, 476), 12:30-1 p. m., address, Capt. S. C. Kille; 8:30-9:30, Charles Roessler, zither soloist; W. W. Macbeth, harmonica expert.

WFL, Philadelphia, Pa. (Eastern, Daylight, 395), 1 p. m., Meyer Davis Bellevue Stratford concert orchestra; 3, Loretta Kerk, pianist; Harold Simonds, baritone; 6:30, Meyer Davis Bellevue Stratford concert orchestra.

WGR, Buffalo, N. Y. (Eastern, Daylight, 1 p. m., George Albert Boulevard.

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Monday, July 28

(Continued from page 11)

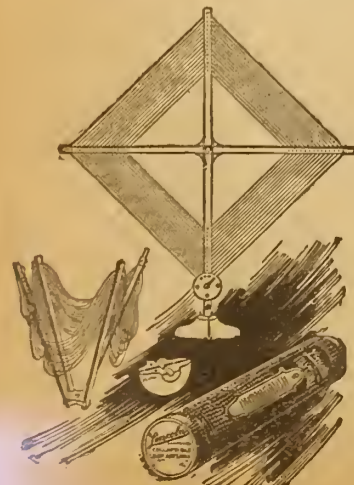
7:30, dinner music; 9-11, concert, Wheat Ice Cream company, P. Arlow Matthews, director; 11:30, Vincent Lopez Hotel Statler dance orchestra, direction of Harold Giesler. WGY, Schenectady, N. Y. (Eastern, 380), 1 p. m., "Hints for the Home Maker;" 1-15, "Why Be a Farmer," Enos Lee; 7:30, "Town and County Fairs," I. H. Wheeler; 7:45, WGY orchestra; Edward A. Rice, violinist; "Movie Notions," Quilm Martin; Ollie G. Yertu, pianist. WHAZ, Troy N. Y. (Eastern, 380), 9 p. m., Robert A. Geiger, baritone; J. Frank Canfield, violinist; George A. Geiger, pianist; Isabel Merwitz, reader; 10, Columbus Social Club Italian band. WHB, Kansas City, Mo. (Central, 411), 7-8 p. m., dance program, Frank R. Marks orchestra. WHN, New York, N. Y. (Eastern, Daylight, 366), 2:15-2:30 p. m., Jimmy Clarke and his entertainers; 3-3:15, Harry Hook and his entertainers; 3:45-4, Uncle Robert's chat with children; 4-4:15, Leon Stein, baritone; 5-5:30, Leonard Partridge's Mayflower orchestra; 6-7, amateur festive board; 7-7:15, Roemer sport period, Thornton Fisher; 7:30-8, Roseland dance orchestra; 8-8:30, People's popular concert, conducted by Marela Schupac; 8:30-8:45, Vincent Lane, tenor; 8:45-9, big brother period; 9-9:30, Palisades Park dance orchestra; 10-11, Jack Shack Radioacting direct from Radio Shack. WHO, Des Moines, Iowa (Central, 526), 7:30-9 p. m., Emma Louise Anderson, violinist; Kathryn Fletcher, cellist; Marguerite Davis, pianist. WIP, Philadelphia, Pa. (Eastern, Daylight, 509), 10 a. m., sea shore gossip; 3, "What the wild waves are saying," 3:30, Comfort's Philharmonic orchestra; 7, Uncle Wip's bedtime stories. WLAG, Minneapolis-St. Paul, Minn. (Central, 417), 10:15-11:15 a. m., household hints; 2:10-2:30 p. m., women's hour, "Dressmaking," Mine Myrtle Saperton; 2:40-4, matinee musical; 4-4:30, magazine reading; dinner hour concert, Geo. Osborn's Nicolet Hotel orchestra; 7:30-8:15, farm lectures, "Hollow Building Title," J. Cermak. WLW, Cincinnati, Ohio (Central, Daylight, 423), 4 p. m., opera talk; 8, grand opera, Cincinnati summer opera season, Ralph Lyford, director; Alvin Roehr's Music makers. WMAQ, Chicago, Ill. (Central, Daylight, 447.5), 6 p. m., Chicago Theater organ; 6:30, Hotel LaSalle orchestra. WMC, Memphis, Tenn. (Central, 500), 8:30 p. m., program, George W. Husher, director. WDAW, Omaha, Neb. (Central, 526), 6 p. m., popular half-hour; 6:30, dinner program, Itandall's Royal orchestra; 9, dance program, Bob Lee's Imperial Jazz band. WOC, Davenport, Iowa (Central, 484), 12 m., chimes; 8 p. m., musical program; 10, musical program. WOO, Philadelphia, Pa. (Eastern, Daylight, 509), 11 a. m., Mary E. Vogt, organist; 12:02 p. m., Wanamaker Crystal tea room orchestra; 3:45, Mary E. Vogt, organist; 7:30, Hotel Adelphia concert orchestra; 8, Philadelphia Bureau of Health talk; 9, WOC concert orchestra, Robert E. Golden, director; 10, Hotel Adelphia dance orchestra, A. Candelori, director. WOR, Newark, N. J. (Eastern, Daylight, 405), 2:30-4 p. m., music, talks; 6:15-7:15, Elite orchestra; 7:15-7:30, sports, 8-8:15, swimming lesson; 8:30-8:45, "Hollywood" McCosher; 9-10, Carolinians dance orchestra; 10-11, WOR Monday nighters. WOS, Jefferson City, Mo. (Central, 440.9), 8 p. m., "Survey Brings Out Soil Facts," "The American Date Industry," Colonel Arthur T. Nelson; 8:20, music. WQJ, Chicago, Ill. (Central, Daylight, 448), 3-4 p. m., "Pie Crust Easy to Make and Easy to Digest," Helen Harrington Downing; "Talk on Personality and Clothes," Anne Prang Knehaus. WRC, Washington, D. C. (Eastern, 469), 3 p. m., fashion developments of the moment, "Wear's Wear;" 3:25, current topics, Editor of the International Interpreter; 3:35, piano; 3:50, "What Women Are Doing Today," Mrs. William Atherton Du Puy; 4:10, book review, auspices of the League of American Penwomen; 6, stories for children, Peggy Albion. WSAI, Cincinnati, Ohio (Central, Daylight, 309), 10 p. m., special concert, Royal Garden orchestra. WTAM, Cleveland, Ohio (Eastern, 390), 8 p. m., concert program; solo numbers. WTAS, Elgin, Ill. (Central, 286), 7:15 p. m., Lee Sims, organist; songs, Mary Jayne; Albert Malotto, composer; Lucky Wilbur, song writer; songs, Eibert Van Aalstyn, Clem Dacy; 8-8:30, WTAS orchestra 8:30-8:45, trio, Hill, Hirsch, Gorney; 8:45-9, WTAS orchestra 9-9:30, William Anderson, Orpha Twingstrand; Walter Donovan; Carmel Romane; 9:30-10, WTAS orchestra; 10-11, request numbers, Lee Sims; old-fashioned medley, Hill, Hirsch, Gorney; songs, Mary Jayne, Betty Holmes; WTAS orchestra. WVI, Detroit, Mich. (Eastern, 517), 8 a. m., setting-up exercises, R. J. Horton; 9:30, talk, Detroit News women's editor; 12 m., Detroit News orchestra; 3 p. m., Detroit News orchestra; 8, Detroit News orchestra.

Tuesday, July 29

Silent night for: KFOA, KFSG, KOV, KYW, WAAW, WDAF, WEAO, WFI, WOC, WOO, WOR, WRC. CKAC, Montreal, Can. (Eastern, Daylight, 425), 7 p. m., kiddies' stories in French and English; 7:30, Mount Royal Hotel Main Dining room; 8:30, varieties from the Mount Royal hotel garden. KFI, Los Angeles, Calif. (Pacific, 469), 6:45-8 p. m., Aeolian organ recital; 8:30, Ambassador hotel Coconut Grove orchestra; 9-10, Examiner, vocal and instrumental concert; 10-11, concert. KFN, Shenandoah, Iowa (Central, 266), 7:30 p. m., Tingley, Iowa band. KGO, Oakland, Calif. (Pacific, 312), 4-5:30 p. m., concert orchestra of the Hotel St. Francis; 8, Arion trio; KGO mixed quartet, Claire Harsha Upshur, soprano; Mary G. Richards, contralto; Gwynn Jones, tenor; Hawaiian melodies, Joseph Lario, Jack Andrade; Richard Lungren, bass; vaudeville sketch, Boruck and Taretton; Joyce Holloway Barthelson, pianist; Margaret Avery, cellist; 10-1, Henry Halstead's Hotel St. Francis dance orchestra. KGW, Portland, Ore. (Pacific, 492), 3:30 p. m., children's program; 8, George Webber and his orchestra.

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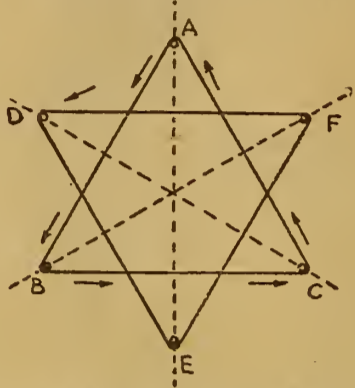
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KHI, Los Angeles, Calif. (Pacific, 395), 12:30-1:15 p. m., concert; 2:30-3:30, Hollywood Bowl program, sponsor, Mrs. J. J. Carter; presenting Bess Daniels, pianist; 6-6:30, Art Hickman's concert orchestra; 6:15-7:30, children's hour, Prof. Walter Sylvester Hertzog; weekly visit of Queen Titar and Sandman; bedtime story "Uncle John"; 8-10, de luxe concert; 10-11, Art Hickman's dance orchestra. KPO, San Francisco, Calif. (Pacific, 423), 1-2 p. m., study Seliger's Fairmont Hotel orchestra; 2:30-3:30, Theodore J. Irwin, organist; 4:30-5:30, study Seliger's Fairmont Hotel orchestra; 5:30-6:30, children's hour stories, Big Brother of KPO; 8-9, Scotch program; 9-10, Robert Romani, Australian baritone; 10-11, E. Max Bradford's Versatile band. KYW, Chicago, Ill. (Central, Daylight, 536), 11:35 a. m., table talk, Mrs. Anna J. Peterson; 6:45 p. m., children's bedtime story; 7-7:30, dinner concert, Congress hotel; 8:20-8:45, Amateur Evening Bureau federation: "Picnic that are Different," Mary Hale Martin; "Among Our Neighbors," W. E. D. Rummel; 8:45-9:30, Anne Ritchie, soprano; Sallie Mankes, pianist; Frank Sturtevant and his Chanticleer orchestra; saxophone trio, Sturtevant, Law, Froelick; 10-11:30, "At Home" program. WBAH, Minneapolis, Minn. (Central, 417), 12:30-1:30 p. m., Dick Long's Trio and soloist; 7-7:30 p. m., musical, Minneapolis Boy Scouts. WBAV, Columbus, Ohio (Eastern, 423), 12 m., Ha Lorbach Owens, pianist; 8 p. m., WBAV orchestra, Frances Handibeau, director. WCAY, Milwaukee, Wis. (Central, 266), 10:30 p. m., late program, Marian Harmony quartette and soloists; Harms String quartette. WCX, Detroit, Mich. (Eastern, 517), 4:15 p. m., musical program; 6, dinner concert; 10, Red Apple club. WDAF, Kansas City, Mo. (Central, 411), 3:30-4:30 p. m., the Star's Radio trio; 5-5:30, weekly child talent program; 6-7, School of the Air, piano number on the Duo-Art; address: sixth of a series of piano lessons, Maudellen Littlefield; address, Clirin Zimwalt, M. A.; children's story and information period; music, Carl Norberg's Plantation players, Hotel Muehlebach. WDAF, Philadelphia, Pa. (Eastern, Daylight, 395), 11:45 a. m., daily almanac; 12:02 p. m., Stanley theater organ recital; 12:30, Arcadia Cafe dance orchestra; 2, Arcadia Cafe dance orchestra; Edna Finestone, pianist; 7:30, Dream Daddy's bedtime stories. WEAH, New York, N. Y. (Eastern, Daylight, 492), 11-11:45 a. m., Board of Education; 11:15-11:30, motion picture forecast, Adelle Woodard; 5-5:30 p. m., children's program; 6-7, dinner music, Waldorf-Astoria hotel; 7:15-7:30, Lilith Maurer Offen, soprano; 8-8:15, James R. Caffrey, baritone 9-10, Greystone hotel. WFAA, Dallas, Tex. (Central, 476), 12:30-1 p. m., address, DeVitt McMurray; 8:30-9:30, orchestra recital, Helen Van Aalstyn, Kay A. Wamalle, director; 11-12, Mrs. Margaret Pifer and her orchestra. WGR, Buffalo, N. Y. (Eastern, Daylight, 319), 12:30-1 p. m., George Albert Bouchard, organist; 6:30-7:30, dinner music. WGY, Schenectady, N. Y. (Eastern, 380), 1 p. m., "The Easy Meal for Weather;" 6, dinner music, Joseph A. Whickler and his Clover club orchestra; 7:30, New York Philharmonic orchestra, Ernest Reiner, conductor; 10:15, Stephen E. Boeselair, organist. WHAA, Iowa City, Iowa (Central, 484), 8 p. m., joint recital, Mrs. C. L. Robbins, pianist; Anna Pierce, soprano. WHB, Kansas City, Mo. (Central, 411), 8-9:30 p. m., old time square dance music, Woodies Quadrille orchestra; 10:30-11:30, dance music, Frank R. Marks orchestra. WHN, New York, N. Y. (Eastern, Daylight, 366), 5-5:30 p. m., Original St. Louis Rythm Kings, Louis Maisto, leader; 6-7, amateur recital; 9:30-10:15, Chas. Strickland's Palisades Park orchestra; 10:30-11, Bertram J. Goodman orchestra. WIP, Philadelphia, Pa. (Eastern, Daylight, 509), 10 a. m., sea shore gossip; 3, "What the wild waves are saying," 3:30, Comfort's Philharmonic orchestra; 7, Uncle Wip's bedtime stories; 8, Comfort's Philharmonic orchestra; 10, Minstrel's 10, Marburger's Pennsylvania dance orchestra. WIAX, Cleveland, Ohio (Eastern, 390), 7:30 p. m., program arranged by Cleveland News-Leader; E. G. Johnson, bedtime story; Don Palmer, Radio talk cartoon; Joe Smith-Martha Lee club dance orchestra; Sidney Carter Johnson, soprano; Mrs. H. H. Blackburn, pianist; solo specialties. WLAB, Minneapolis-St. Paul, Minn. (Central, 417), 10:15-11:15 a. m., household hints; 2:10-2:30 p. m., women's hour, "World Co-operation in 1924," Mrs. A. J. McGuire; 2:40-3:10, magazine reading; dinner hour concert, Geo. Osborn's Nicolet Hotel orchestra; 7:30-8:15 p. m., farm lectures, address, member of Minnesota County Fair Association Daylight, 423), 10 p. m., program, Bellonby Furniture company; Corinne Fuller, pianist; Mary Elizabeth Wallace, violinist; Northern Kentucky male quartet; Robert Bellonby, saxophonist; Ferd Maier, baritone; 11:15, Rosa Levit, pianist; Fred Knauer, baritone; 11:55, Chubb-Stenberg orchestra. WMAQ, Chicago, Ill. (Central, Daylight, 447.5), 6 p. m., Chicago Theater organ; 6:30, Hotel LaSalle orchestra; 8, Harry Hansen; 8:40, French lesson; 9, talk, United States civil service commission; 9:15, music. WMC, Memphis, Tenn. (Central, 500), 8:30 p. m., program; 11, midnight frolic. WDAW, Omaha, Neb. (Central, 526), 5 p. m., address, H. V. Kaltenborn, associate editor of the Brooklyn Eagle; 6, popular half-hour; 6:30, dinner program, Russ Townsend's orchestra; 9, program, First Christian church orchestra, Joseph F. Woolery, director. WOO, Philadelphia, Pa. (Eastern, Daylight, 509), 11 a. m., Mary E. Vogt, organist; 12:02 p. m., Wanamaker crystal tea room orchestra; Robert E. Golden, director; 4:45, Mary E. Vogt, organist. WOR, Newark, N. J. (Eastern, Daylight, 405), 2:30-4 p. m., music, talks; 6:15-6:30, Halsey Miller's orchestra; 6:30-7, Man in the Moon stories; 7-7:15, Halsey Miller and his orchestra; 7:20-7:30, sports. WOJ, Chicago, Ill. (Central, Daylight, 448), 3-4 p. m., book review, Fred Harrison; "Various Classes of Lighting," Curtis Lighting company; "Care of the Infant," Dr. Edward W. Westland; 7-8, Tony Corcoran, tenor; Margaret Garrity, pianist; "Past, Present, and Future of Chicago Real Estate," 10-2, Ralph Williams, and his Rainbo Garden orchestra; "How to Get Better Reception," Harry J. Marx; Harry Geise, pianist; Paul Lougher, tenor; Nubs Allan, contralto. WRC, Washington, D. C. (Eastern, 469), 6 p. m., children's hour, Peggy Albion; 8, music; 9:15, concert, trio from Irving Boernstein's Wardman Park hotel orchestra.

Star-Shaped Coil Winding

While experimenting with a certain hook-up, the writer needed a fixed inductance of 50 turns of wire, wound on a 3-inch tube. Not having a tube at hand, the coil was wound as follows: On a board about 6 inches square, two triangles were drawn, to form a star; the sides



of the angles were 3 inches long. At the apex of each triangle a nail was driven securely into the board, and this was used as a form for the winding.

The wire was twisted a few times around A and brought over and around the outside of B, then around C, and up to A, and then to D. This is approximately equal to one turn on a 3-inch tube. The winding continues on the second triangle in the same manner as on the first: From D to E, to F, to D, and then to B, etc., until the 50 turns were wound.

A thin coat of colodion was applied to the coil and allowed to dry, after which the nails were removed and a drop of sealing wax put on the beginning and ending of the winding to hold them in place. This made a very neat appearing coil, very convenient to tap and of much lower distributed capacity than if wound on a 3-inch tube.—J. F. Reiners, Springfield, Mass.

Warning to Save Tubes

For the lasting benefit of your readers, the following word of advice recently in your columns should be placed on your first page continuously, under such a head as "Beware," and to include some valuable hints and warnings from time to time, such as this: "Never leave the high-tension battery

leads near the filament leads when they are disconnected, as contact will result in the burning out of the tube."

A tenderfoot myself and owner of a 3-tube reflex set, I had always supposed that that if I did not disturb the B battery connections, or go inside the box with a screw driver, I was pretty safe not to blow out my tubes. I learned my mistake when, having discontinued my storage A battery for use elsewhere, I later attempted to connect it to the set. The three tubes died out the instant I turned on the rheostat.

This leads me to suggest a second warning to be given to amateur and professional manufacturers of Radio sets—not to use one binding post for common use for both A and B batteries, as to one pole of each. The ruination of my tubes must have been caused by my hitching up the wrong A lead to the post which both batteries had to share on the panel. I was obsessed with a notion I had gathered in looking over the diagram of a small set I had put together, that A— and B— were always tied together any way in a circuit, and that they should share the one common hitching post on the reflex set panel, with the results above mentioned.—E. Logan, West Point, N. Y.

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30 Minute A-B-C Lessons for Radio Beginners

Chapter XVIII, Part II—Hero Circuits of Radio

By P. E. Edelman

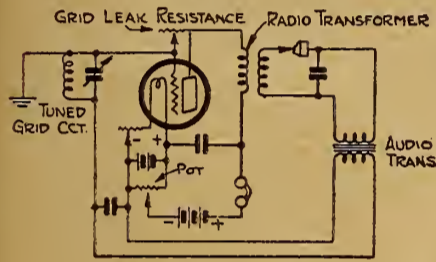
IN THIS series of articles the story of Radio is told in so simple a manner that the uninitiated can follow theory and practice whether or not he knows anything about electricity or its application to broadcasting and reception. The series consists of twenty-five chapters, of which the five next will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

- Chapter XIX—What is Doing in Complicated Circuits.
- Chapter XX—How Far Can I Hear?
- Chapter XXI—Choosing a Radio outfit.
- Chapter XXII—Making Your Own Radio.
- Chapter XXIII—Fixing Up the Radio Set.

IN FIGURE 177 the Radio output is rectified by a detector and put into the grid circuit as an audio current. Another reflex circuit is shown by Figure 178. Such circuits can be made to give nearly the equivalent of one stage Radio plus one stage audio amplification added to a detector.

Link Circuits

Link circuits are not much used in



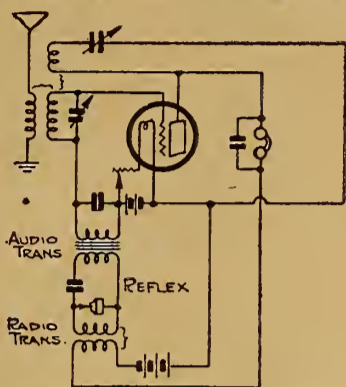
REFLEX (PHANTOM INPUT)
Figure 177

broadcast reception but the principle is shown in Figure 179. This will lessen tendency of oscillating receivers to re-radiate energy and also affords desirable selection.

Super One-Tube Circuits

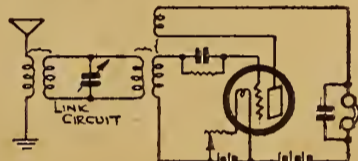
Another class of circuits aims to in-

crease the amount of regeneration which can be used on one tube. Familiar examples are indicated by Figures 180 and



REFLEX WITH REGENERATION (LAYOUT RE-DESIGN)
Figure 178

181. In such circuits, a self oscillating circuit is set up in the tube to modify the grid potential to permit using regeneration beyond the point which otherwise would not be feasible. Such circuits are effective when carefully adjusted. The principle of operation is diagrammed by Figure 182. An initial grid potential variation is maintained so that



LINK CIRCUIT (REGENERATIVE)
Figure 179

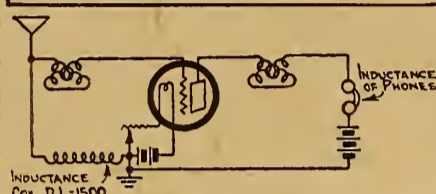
the amount of regeneration may be increased.

Possible One Tube Circuits

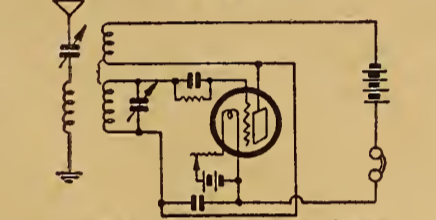
One tube can do any of the following and so combinations are possible. A dia-

gram of possibilities is indicated by Figure 183.

1. Amplification, Radio.
2. Amplification, audio.
3. Self oscillation.
4. Heterodyning.
5. Detecting.
6. Reflexing, Radio or regeneration.
7. Reflexing, audio.
8. Reflexing of heterodyned frequency output.
9. Phase adjusting.
10. Super-regeneration.



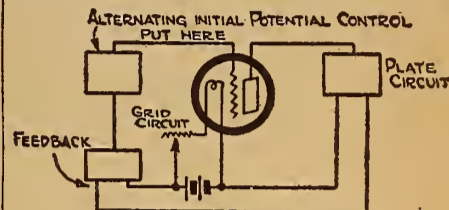
AUTOPLEX ONE TUBE SUPER.
Figure 180



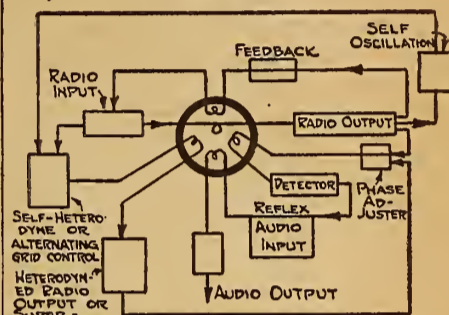
FLEWELLING ONE TUBE SUPER.
Figure 181

To utilize more than one principle, the proper initial operating conditions, grid

potential, and plate voltage must be employed. In general, to get loud volume from one tube, the initial plate voltage must be raised so that five to ten milliamperes plate current can flow. This will permit loud speaker output but limits



SUPER-REGENERATION
Figure 182

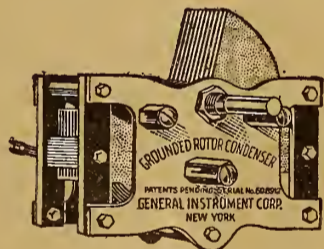


POSSIBILITIES OF ONE TUBE
Figure 183

what else can be done at the same time. Complex circuits become difficult to handle.

(What is Doing in Complicated Circuits, will follow in this series.—Editor's note.)

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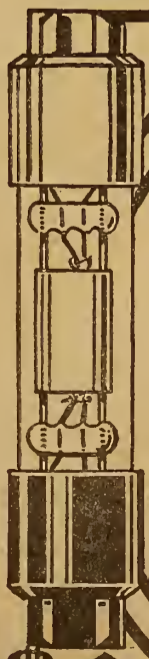
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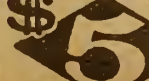
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Back to Home Life

No More is the Home a Place to Eat and Sleep

CONDITIONS in the times of our fathers seem to favor home life. There was less for entertainment and the people were willing to spend much time in working on their home places, then in the hours of leisure they enjoyed home amusements, and the children settled down with the old folks and enjoyed games and reading and homemade music.

Then came a period when shows and entertainments and club life of all kinds were offered much more generally. These chances for amusement drew people away from their homes, until one's house became for many folks merely a shelter to sleep in and a place for "eats."

Now a new force is affecting life, and that is the invention of Radio apparatus. A great many people formerly were not content to remain at home, are now finding great pleasure at home in pursuit of this fascinating diversion.

Some of these are not satisfied now away from home, as they want to get back to their Radio instruments, and find what new things the marvelous currents of the air have to tell them. All tastes are satisfied. The grown-ups hear the business news and the political addresses, the people who love rhythm and melody listen to songs and dance orchestras, those who want serious amusements have classical concerts and fine oratory.

Many a boy who formerly was not satisfied to settle down under the evening lamp, is now happy in his home life, as he tries to see over how great a distance he can make his instruments effective, or listens to the abundant material offered to interest the young crowd. This invention ought to make conditions somewhat easier for the parents of restless youngsters.

Sunday and Radio

Increased Desire to go to Church

ONE of the evidences that Radio is fast becoming more than a toy is the way in which religious organizations are taking it up. The churches were at first dubious about it. They figured that once the residents of the farms got Radio sets they would stay at home on Sunday listening to the "big" preachers in the large cities instead of attending their own houses of worship. But instead Radio seems to have increased the desire to go to church. Perhaps this may be for the reason that the sets are not perfected and a fellow needs so much more religion and patience while listening in on one of them. But, for the fact that they are bringing church services to hundreds of invalids and to shut-ins throughout the country, to people not physically able to go to church, is a great thing in Radio's favor. Some of the largest churches are now spending hundreds of dollars yearly to get sermons to those who cannot leave their homes and beds. This alone entitles Radio to be classed as another modern God-send.

Summer's Deficiency

Do Not Expect Too Much in Warm Weather

IT IS not always possible to have excellent Radio reception during the summer, the best long distance records come in the winter. Loud signals are infrequent and electrical disturbances are naturally more common and they interfere occasionally with concerts, particularly those received from distant points. A reasonable attitude will help the listener here. He should remember that he cannot expect every act in even the best vaudeville performance to be tremendously amusing and just what he wants, nor can he expect the weather each day to be clear and pleasant.

Similarly he must not expect every day to be just right for long distance Radio reception. Now and then a summer storm may interfere with both Radio and picnics. The listener should become acquainted with his local stations and enjoy them during the summer and be satisfied with the long distant records he has made, or will make, in the winter. In other words, he should get the best there is in Radio during all seasons, and above all he should be reasonable.

RADIO INDI-GEST



No, Thank Gawd!!

By 5XV

MRS. SMYTHE was evidently ill or badly distracted. For several days his appetite had been almost dead and the most careful and appetizing preparation of his favorite dainties, failed to attract him. She wouldn't ask him about it, however, because she was not a nagging wife; he hated nagging women. About the seventh day she began to suffer terribly and found that even her favorite chocolate creams failed to please her.

Mrs. Smythe talked this over with some of her friends who would merely shake their head. When her back was turned, they would glance commiseratingly at her and point expressively at wires suspended in the air from various neighborhood structures.

But this could not continue forever for Mr. Smythe had reached the breaking point. She was so curious that she was nearly prostrated. The tenth evening, luckily, Mr. S., after a bite to eat and looking extremely downcast, started to speak.

"My dear," he started.
"Yes?" she questioned breathlessly (if that is possible.)

"My dear, I hate to tell you, knowing you have seen this occurrence before and that therefore you will realize more keenly what it means . . ." he paused and looked around as if looking for something and then continued:

"My dear,—er—ah—well I may as well tell you: the business has failed and I am a bankrupt."

"Oh!" gasped Mrs. S. before she fainted, "Is that all? I was so afraid you had taken up Radio." And she carelessly swallowed a bon-bon as she "passed out."

News Bulletins from Milwaukee

Furnished in Co-operation with the Milwaukee Daily Beverage

Heinrich Schmearkase, 24 Gottmituns avenue, has just finished his 8 Crystal Super Set. Congratulations Hen.

Since WLS has taken the air, the Sears-Roebuck Catalogue has become one of the most popular Books in town.

Gottlieb Hasenblick, 33 Homebrew street, has traded in his Super Nixo-Dyne for a rattling good crystal set.

Sydney Stein, 13 Blusenblosenhosen street, has made enough money from building Radio sets that he bought himself a store set yesterday. Atta boy, Syd.
THE THIRD TROMBONE PLAYER.

This Is Leap Year; Reverse Your English

Dear Indi: Count me in with the Radio Workers of the World once more. DAMTHA low summer fares. Sir Arthur of Monrovia has returned to the Coast! Honestly, Indi, California knights are wonderful but the guy who said they were all cool never went flivvering on the River Road with Sir Arthur! I gotta stop and rub the rust off the antenna.

Don't broadcast this yet, Indi, but if Sir Arthur stays away too long, I shall consider applications for a substitute. Do you think 5XV or SIGNING OFF might send in theirs? SOOZZEE.

Mrs. Partington Speaks Out

Dear Indi: Mizz Partington says she seen it in her old home town paper where a big wind storm right recent did a lot of damages to some of her old neighbors. The electric lights, telephones and telegraphs was put out of service bad; the only way to get any place was by Radio, and all these icelated folks was able to bring in on their sets was the noise of McAdough's nomination, with one of his brass bands playing "Ther'll be a Hot Time in the Old Town Tonight" and other classical selections like that.



She says the poor victims should have some big and liberal contributions sent to them for going through so much sufferin', like when the Japs had their big earthquake and fire, some time back, and most all the other people give them gifts, for, she says, its terrible when misfortunes multiply that way, like when these people had survived one big wind, and then had to get caught in another one right off, even if they did get it by Radio. SIGNING OFF.

Secretary Hoover will not hold his third Radio conference till September. Yessirree, that'll be a lot better time to get front page stories in the paper.

Advantages, Etc., of Radio Parties

Dear Indi: One good thing about a Radio party is that you are not obliged to spread the cats. About the time eats should come on, the guests are getting up excuses to beat it without offending the host. I've heard 500 people in a metropolitan theater laugh themselves to a frazzle over a silly joke that made my Radio party curl their lips in contempt. Evidently all the hicks are not in the sticks. W. P. B.

Watchful Waiting



Condensed

By DIELECTRIC

So various are the expressions of opinion concerning the proper routine to be followed by announcers that one hesitates to say "Radio audiences prefer so and so," and yet we venture to assert that the great bulk of listeners in desire announcement of the station's call immediately following a number—not three or five minutes later. I doubt criticism is aimed so much at announcers who give their call infrequently, as at those who allow long waits between announcements or numbers on their programs. Let's see who wins the Gold Cup next September.

To anyone located where they may hear two-way conversations between airplanes and shore stations an interesting feature of Radiophony is assured. That immense giant dirigible Shenandoah flew over the city of Buffalo, N. Y., where Station WGR is located and the two of them made some pleasing contributions to the matter on the ether. Fort Hancock talked to a ship off the Atlantic coast and seemed pleased to know from the latter that its wave length (close to that of WOR) met with no interference. These side-lights on the "regulars" add to the sport.

Where receiving sets—crystal or otherwise—have enabled folks to listen to music as sent out on the air, a taste for good or mediocre compositions has been the result. Some of us already had our taste developed, but others had not been privileged to choose as they had not heard all classes of musical composition. But no effort had been put forth to train elementary pupils in learning to play an instrument before WDAF put into practice its plan whereby listeners may receive instruction in piano playing. This may be hard on your neighbors, but go to it!

Some of the Radiocast stations have made enviable reputations among the millions of listeners in as producers of drama, a form of entertainment not easily adapted to the requirements of Radio. During the past winter months at least one station in the east has devoted a great deal of attention to this particular feature and that is WGY. Radarios will be presented this summer from that station, though the WGY Players have concluded their season with a comedy, "Cappy Ricks." The Radario will no doubt improve with use. It is certainly a fixture.

When you stop to consider the great advance in Radiocast programs, both as to character and delivery, since we first listened in to speech and music, it seems remarkable to have progressed so far. Yet indications point to our moving ahead still faster in the coming months and approaching nearer and nearer to ideal Radiocast technique. The new General Electric station under way in Denver will have several improvements worthy of notice, among which are duplicate studios to enable artists to follow each other without delay except for announcer's statements, and means of varying the reverberation period. Important items.

You may not see so many references to practical application of Radio as once appeared, nevertheless, experiments are constantly in progress to find new avenues in which this medium may be utilized. In quite a number of cities the police departments have accepted the aid of Radio as of great benefit in apprehending criminals and quickly directing the movements of police officers. Birmingham offers another possible practical application of Radiocasting to business enterprise. In this case it contemplates equipping the taxis with receiving sets and the central office with transmitting ability to reach any taxi at any time. Passengers could be entertained while in transit also.

England's New Unidyne Radio Receiver

Part III—Radio Frequency Hook-Up

By Harry J. Marx

IT MAY seem funny but the moment any new circuit appears, there is an immediate response in the form of numerous letters requesting the circuit with more tubes added. Naturally this has not been the case "over here" in the case of the Unidyne because of the tube problem, but the English inventors appear to have anticipated the demand from their fans by promptly giving details of a circuit employing a stage of Radio frequency amplification in conjunction with the detector. This circuit used in conjunction with a stage or two of audio frequency amplification as shown in Figure three of last week's article, should prove to be a popular all-around hook-up.

As might be anticipated, English fans refuse to give up regenerative features even when Radio frequency is employed, so we have the tickler from the plate circuit of the detector tube, inductively coupled to the antenna coil as shown in Figure 5.

Details of the Circuit

The series condenser in antenna circuit is a variable with vernier (.0005 mfd. capacity). The antenna inductance has 75 turns and the tickler 100 turns. These can be honeycomb or spider web coils. Even a variocoupler with the proper number of turns will be suitable.

In the Radio frequency transformer, the following suggested construction is offered. The primary should be made of 75 turns of number 22 double cotton covered wire wound in a single layer on a 1 1/4 inch diameter tubing. The secondary has 85 turns of the same size wire on a 2 inch tube. The primary is then fastened inside of the secondary. Both windings should run in the same direction. The plate and grid connections should be made at opposing ends of the two windings.

Rather than the grid circuit, the primary is tuned by means of a .00025 variable condenser. A .00025 mfd. fixed grid condenser is used. The detector circuit has the usual variable grid leak.

The inventors lay particular stress on the fact that this grid leak must be of

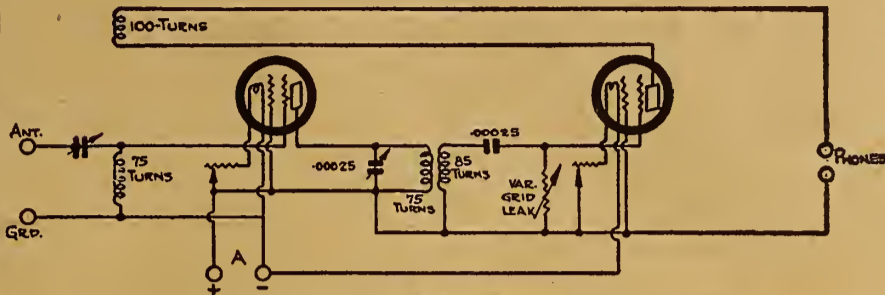


Figure 5

high quality. Its resistance range should be from 500,000 ohms to 5 megohms. This variation should be reasonably uniform. Many so called variable grid leaks fail to do this entirely—further, their range seldom covers the limits specified.

In this circuit, the grid return of the first or Radio frequency amplifier tube is

to the negative filament. The inner grid as usual is connected to the positive filament lead in both tubes. In the detector circuit, the grid return is to the positive filament terminal.

The use of a phone condenser appears to be optional in as much as no positive instructions covering same are offered.

Radio Becomes New Weather Forecaster

Your Radio set is a good weather forecaster, and as soon as you come to understand it, you will be able to predict atmospheric conditions with remarkable accuracy.

With experience it is quite an easy matter actually to predict the forthcoming weather by carefully noting the type of the static signals heard in the telephones due to unwelcome Radio waves of atmospheric origin. Thunderstorms, of course, produce the worst form of interference. They make their presence known by "clicks" and "cracks" in the telephone. These static disturbances are a source of great annoyance to Radio

engineers who are ever endeavoring to design circuits and devices to overcome these malicious oscillations.

Those who possess crystal detectors with their receivers will notice that during atmospheric disturbances of this nature the resulting static "clicks" will paralyze the crystal and will necessitate exploring of a fresh sensitive point with the usual "cats whisker."

Squalls before and during their throes of violence will produce a low rushing sound in the telephones, increasing in intensity to a crescendo as the storm reaches its maximum. This phenomenon is generally accompanied by a heavy static or electrical charge on the antenna,

so that it is quite possible to obtain sparks of considerable dimensions between the aerial and the earth. It is of further interest to note that the direction of incoming squalls can be located by means of the Radio direction finder, static signals having a marked direction along the path of the squall.

Snowstorms produce a similar disturbance in the telephones as that due to squalls, although the intensity of these static signals are not so strong and do not impair reception to the same extent. Wind storms will frequently affect a tube receiver in such a manner, as to bring about a continuous alteration of the tuning of the installation, causing signals to fade. Then again, there may be a tendency for the circuit to commence oscillating at an audible frequency. These effects are noticed when the lead-in wire from the aerial is brought down the side of the house, the wind causing the same to swing to and from the wall, bringing about an altered capacity.

In the Sahara and other points on the globe where the phenomena of sand storms are a local occurrence, Radio receivers are likely to be seriously hampered by these meteorological outbursts. The small particles of sand, during their hurtling through the air on the wings of the wind, become highly charged with frictional electricity which in turn is passed on to any aerial which happens to be in its path. The result is a heavy rushing sound in the telephones and intermittent "clicks."

Although not actually granted the government of South Africa has finally definitely promised a Radiocasting license to the Associated Scientific and Technical Societies of Johannesburg, for a Radiocasting station to be installed in that city.

CARTER Portable Jack



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It is the Only Aerial That is Non-Directional

Quick installation is another feature. It can be installed and used on the roof, hung out of the window, or in any room at home, at the office, in hospitals, on trains or ships, or out in the woods and summer camp, especially adapted for tourists. In its operation it is more selective and tunes much sharper and clearer with less static. The Portable Globe is the only Aerial to use in congested cities and crowded apartments where usually the interference is great, but which interference with the Globe is entirely eliminated. It is made of the finest Phosphor Bronze Spring wire with the Duco water and weather-proof finish—attractive as well as serviceable—a wonderful value, featured at a price within the range of everyone.

Order Today—Satisfaction Guaranteed

Send in your order now. Be among the first to show your friends the latest and greatest improvement in Radio.

Send money \$10.00 Parcel post pre-order or will be paid to your ship C. O. D. door.

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"An Attractive Proposition to Jobbers and Dealers Who Order in Quantities."



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A \$200,000.00 COMPANY STANDS SQUARELY BACK OF EVERY PHONE

WEIGHS ONLY 8 OZ

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Save all the energy in the antenna for your detector tube. This Coto Compact Air Condenser with Vernier is so perfectly insulated that losses are reduced to a minimum. Plates are of silver plated copper soldered in place for lasting adjustment.

Type 3505 .0005 Mfd. \$5	Type 3510 .001 Mfd. \$6
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.00025 Mfd. **\$4.50**

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The Reader's View

"Dream Daddy" Was Our First Music Advertiser

It occurs to me that there is one very serious mistake being made by the music publishers—entirely apart from any reference to the so-called music trust which has come under recent castigation—and that is their failure to advertise their music through the channels of the Radio magazines. It is almost certain that any zealous Radiophan will read from two to four Radio magazines. He frequently reads them while seated before the Radio between Radio numbers from a favorite station. He hears an attractive melody and wonders where he could procure a copy of the music. Local music stores generally carry on their shelves what they please, not what the purchaser has recently heard. In small towns at least it is like pulling teeth to get either the sheet

music or the phonograph records desired. Weeks of delay accompany the effort and patience and the desire is lost. Even though the music dealer is obliging, the customer is unable to give him the name of the firm publishing the music. If the record and sheet music men would advertise their music in the Radio magazines—not broadcast it, saying, for example, "Dream Daddy"—published by etc.—price—this song has been sung from stations so and so, etc.—I am very certain their sales would advance exceedingly and even the music dealers would profit by the customers being able to tell him where to get the music. For a year and a half I have waited to secure certain selections which I have heard and liked. At present there are a dozen or more I should very much like to possess. I have tried to secure phonograph records in half a dozen small towns within Ford range without avail. There seems to be no other way to get desirable player rolls,

phonograph records, and sheet music before the public than to follow up the broadcast with advertising in the papers the Radio receiver people read. Start a campaign and go after the music publishers for advertising, but please, oh please, do not include this advertising with the broadcasting.—W. C. Mongold, Fayette, Iowa.

Lighthouse Keeper's Set

After following the diagram for the Lighthouse Keeper's set, as published in Radio Digest on March 1st, upon completion of the set I tried it out and it started right out to deliver the goods. I am so very much pleased with this set that I feel that I owe it to you to tell you what good luck I am having with it.

I am using a WD-11 tube, a 24 plate variable condenser, vernier type, 6 ohm rheostat, and a .00025 mica receiving condenser with 3 megohm grid leak. The

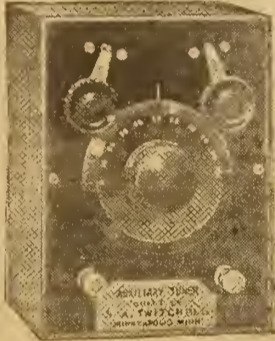
AUXILIARY TUNER

Patents Pending

Better Than a Wave Trap

Improved Model

A TWITCHELL AUXILIARY TUNER



connected to your instrument will positively eliminate all local interference and enable you to bring in distant stations at any time. They are in successful use within 400 feet of large broadcasting stations.

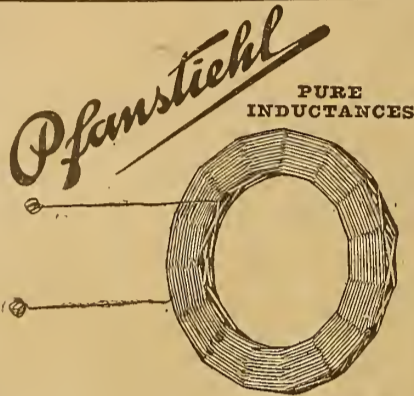
They also enable you to receive on longer wave length than you can get without it.

Copyrighted diagram \$.50
All parts including cabinet..... 9.00
Complete Tuner, Walnut cabinet..... 15.00

All Goods Prepaid

S. A. TWITCHELL

1925 Western Ave. MINNEAPOLIS, MINN.



	Turns	List Price	Wave Length
P-201	25	\$.55	100-340
P-202	35	.59	125-470
P-203	50	.65	170-650
P-204	75	.74	220-960
P-205	100	.90	300-1300
P-206	150	1.10	470-1980
Pfanstiehl Ultra-Audion		.95	
Pfanstiehl Reinartz		1.75	

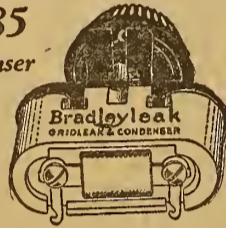
Pfanstiehl Tuning Unit, consisting of 2 Spider Web Coils with mechanism for supremely sensitive adjustment. \$5.00

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Bradleyleak THE PERFECT GRID LEAK

\$1.85 Condenser 35c



Working Range 1/4 to 10 Megohms

This remarkable grid leak has leaped to prominence within three months, and is pronounced by leading radio engineers, such as Crosley, Kennedy, Cockaday, Flewelling, and others, as the most perfect of grid leaks. It is not a cheap makeshift. It is the best that has ever been made. Try one, to-night, and be convinced.

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- 2.75 Fisher, 180°..... 2.25
- 4.25 Special Bank Wound Coupler for Haynes Circuit (with diagram)..... 3.25
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- \$3.50 Workrite.....\$2.95
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4 CIRCUIT RECEIVER

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- 3 48,000 Ohms Lavite Resistances
- 1 .00025 Dubilier
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- 1 Pr. Como Dup. P. P. Transformers
- 1 Panel, 1x12
- 1 Sub Panel, 3x2 1/2
- 11 Switch Points
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- 1 Patent Double Jack.
- 1 Patent Single Jack
- 2 Amertran Transformers.
- 1 Amco Switch Lever.
- 1 Amco Rheostat, 6 ohms.
- 2 Amco Rheostats, 20 ohms.
- 7 Switch Points.
- 2 Switch Stops.
- 1 Dubilier .0005.
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12 Cells 24 Volts

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For a limited time only, and to introduce this new and superior Storage "B" Radio Battery to the Public, we are selling it for \$4.00. Regular Retail Price is \$6.00. You save \$2.00 by ordering NOW. A finer battery cannot be built than the

World Storage "B" Battery

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To ten million homes with Radio Sets—and to countless millions of prospective buyers—this WORLD Storage "B" Battery brings a new conception of battery economy and performance. Here is a battery that pays for itself in a few weeks—will last for years and can be recharged at a negligible cost. And you save \$2.00 by sending the coupon now.

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Equipped With Solid Rubber Case

The Solid Rubber One-Piece Container is an Exclusive Feature with the WORLD Storage "B" Battery. An insurance against leakage, acid and leakage. Has heavy duty 2-1/8 in. x 1 in. x 1-4 in. plates and plenty of acid circulation. Extra heavy glass jars allow ready observation of charge and prevent leakage and seepage of current. It holds its charge, while idle, at constant voltage.

You will find this battery a boon to long distance reception. It does a way with a great many noises so often blamed on "static." Clip and mail the coupon today.

SEND NO MONEY

Just fill out the coupon below and we will ship day order is received. EXTRA OFFER: 4 batteries in series (96 volts), \$15.00. Pay Expressman after examining batteries. 5 per cent discount for cash in full with order. Send the coupon NOW and save \$2.00.

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This Coupon Is Worth \$2.00 Clip and Mail It NOW!

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Gentlemen: Please ship the following, Express C. O. D., Subject to Examination:.....World Storage "B" Batteries. Price, \$4.00 each, or \$15.00 for a complete set of four batteries (96 volts) in 24-volt units.

Name.....
Address.....
City and State.....

first evening I tuned in the following stations: WEAN, WJAR, WSAD, WBZ, WHN, WDAR, WCAE, WDAP, WSB, WOS, WJAZ, and WGR. The next evening in addition to the local stations we heard WGY, WHN, KDKA, WBZ, WDAR, WSB, WDAP, and again the next time WJAR, WEAN, WSAD, WGY, KDKA, WBZ, WTAM, WSAI, WCAD, CKAC, WJAZ, WSB, and WDAP.

We have been using this set now about a month and as soon as we migrate to our summer cottage down Narragansett Bay this set goes too. Even as I write this my wife interrupts me to come and listen to a male chorus at station CKCH sing "Annie Laurie," at 10:20 p. m.—Wilmarth H. Colwell, 5 Lexington Ave., Providence, R. I.



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- LAVITE resistances, 48000-ohms..... .96
- AMPLEX "Grid-densers"..... .89
- AMSCO 26-Plate vernier cond..... 3.59
- Bradley-Ohm (No. 10, No. 25 or No. 50)..... 2.00
- COMO duplex audio transformers (per pair)..... 9.29

ULTRA DYNE KIT

Consists of 1-type "A" Ultraformer, 3-type "B" Ultraformers, 1 tuning coil, and 1 oscillator coil (coils silk on BAKELITE).....\$16.76

ERLA REFLEX PARTS

- ERLA reflex or audio transformers.....\$ 3.89
- ERLA "SELECTOFORMER"..... 3.89
- ERLA Crystal Detector..... .79
- RATHBUN condensers, 11-Plt., \$2.39. 23-Plt., 2.79

HARNES REFLEX KIT

Consists of 1-T1 and 1-T2 special wound transformers mounted on condensers (coils green silk on BAKELITE Tubing).....\$6.79

Transformer coils separate, per pair.....\$ 2.94

- BURGESS large 22 1/2-V "B" Batteries.....\$ 1.89
- BURGESS large 45-V "B" Batteries..... 3.68
- "SUPERDYNE" Special coupler..... 4.89
- "Gold Seal" Homecharger, \$13.22. Valley..... 13.95

HAMMARLUND CONDENSERS

- Plain, 11-Plt., \$3.78 23-Plt., \$4.19 43-Plt., \$5.04
- Vernier, 11-Plt., \$4.62 23-Plt., \$5.04 43-Plt., \$5.88

Prices F.O.B. St. Louis, Mo., Cash or C.O.D.

SIMPLEX RADIO SALES CO. 1808 Lafayette Ave. Dept. D ST. LOUIS, MO.

Save at Modell's Some of Our Many Bargains

LOOP AERIAL

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



RADIO SOLDERING IRON

Indispensable for the man who builds his own sets

- D 109.....\$1.95
- D 133—Soldering Paste, tube..... .25

PLATE CIRCUIT "B" BATTERIES

The highest grade of battery made at prices lower than they ever were sold before.

- D80—22 1/2 Volt Small.....\$1.15
- D81—22 1/2 Volt Medium..... 1.45
- D82—22 1/2 Volt Large..... 1.95
- D83—45 Volt Medium..... 1.95
- D84—45 Volt Large..... 2.50
- D85—45 Volt Extra Large..... 3.50
- D86—360 Hour 1 1/2 Volt Twin Double Duty "A" Battery..... .75

WOOD CABINETS

Highest grade Mahogany finish Cabinets. Hinged top. These cabinets are being sold at less than one-half regular value.

- O57—Wood Cabinet; panel size 7"x10", each.....\$2.50
- D58—Wood Cabinet; panel size 7"x12"..... 2.75
- D59—Wood Cabinet; panel size 7"x14"..... 3.00
- D60—Wood Cabinet; panel size 7"x18"..... 3.50
- D61—Wood Cabinet; panel size 7"x21"..... 3.75
- D62—Wood Cabinet; panel size 7"x24"..... 4.00

Modell's

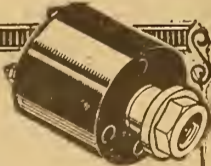
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TRI-COIL Radio Frequency Transformer has done wonders in the one tube reflex circuit. Sells for \$2. Write for the FREE construction booklet.

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5000 RADIO DEALERS buy from HUDSON-ROSS

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723 W. Madison St. Chicago

New Flewelling Super Portable Set

Loop Made by Winding Wire Around Cabinet

Using the diagram shown a set can be built very cheaply and is quite efficient. This set has a very good range as I have picked up long distance on a loop antenna

WORKSHOP KINKS EARN A DOLLAR—

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

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

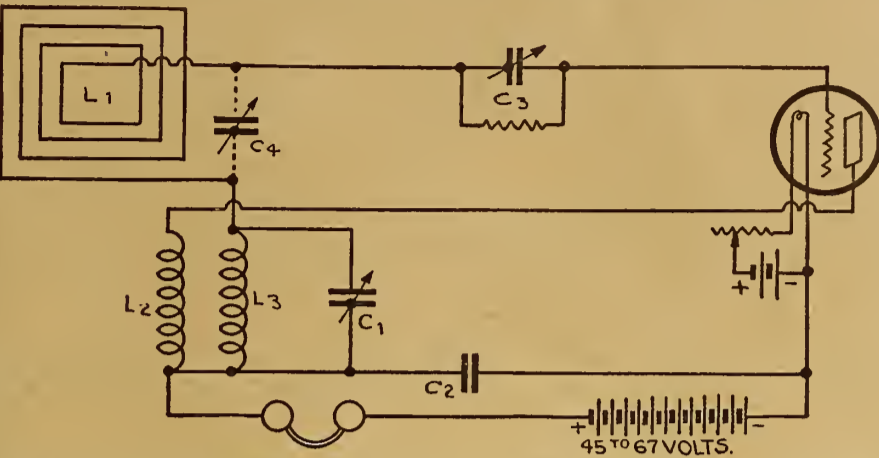
consisting of eight turns of number 20 dcc. on a 2½-foot frame.

The hook-up is self-explanatory, but if, after it has been hooked up and the tube turned on, it fails to oscillate, which may be told by the squeals or frequency whistle peculiar to the super sets, change the connections to the plate coil.

L1 is the loop antenna, which may be wound around the cabinet for a portable set or it may be an ordinary loop as described before. L2 and L3 are honey-comb coils of 75 and 50 turns. Spider web coils of 35 and 25 turns may be used instead. It is best to have these coils variable but it is not absolutely necessary.

C1 is a variable condenser of .00025 mfd. or 11 plate capacity. C2 is a fixed condenser of .012 to .5 mfd. C3 is a variable grid leak and condenser. C4 is a variable condenser of .0005 mfd. While this condenser is not absolutely necessary it is a great aid for sharp tuning. A WD-

LONG DISTANCE ONE-TUBE CIRCUIT



12 vacuum tube was used by the author but the type UV-199 would probably be preferred for a portable set.

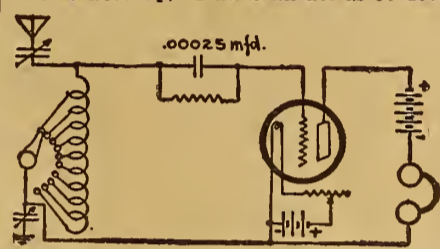
There is very little to say regarding the operation of this set. With the set operating at the high pitched whistle vary the grid leak until the whistle is almost inaudible and then turn the condenser C1. If there is anything in the air it will come in.

This set is really simpler to build and operate than a common regenerative set. As to the volume a station 25 miles away comes in so loud that the signals are plainly audible with the phones lying on the table.—Lee H. Bolen, Hamilton, Montana.

Simple One-Tube Hook-Up

With the hook-up shown I have obtained better reception than any person in my neighborhood. The coil is wound with number 24 dcc. wire. The condensers are

11-plates each. Both are quite important in this hook-up. I have an aerial 30 feet

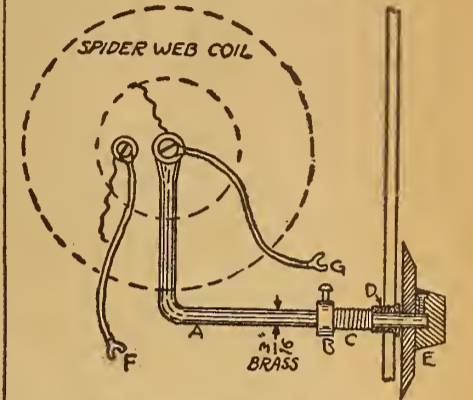


above the ground and have heard from 35 to 40 distant stations.—Harold Beardslee, St. Louis, Mo.

A speck of dust is sufficient to cause the whole set to stop working if it happens to get in the right place.

Panel Mounting Shaft For a Spider Web Coil

Procure a brass rod A 7¼ inches long and 3/16 inch in diameter and bend it at a point 4 inches from one end to an angle of 90 degrees, as shown in the illustration. Flatten the short end to about 1/16-inch thick and drill a 3/16-inch hole through the flattened part. Procure a collar with a set screw B,



a spring C and a brass bushing D. Drill a ¼-inch hole in the panel and insert the bushing, put on the dial, tighten the tension spring and it is ready for use.

It is best to mount the stator coil on the end of the cabinet with the tickler coil next to it. I have a set in which I use two of these coils, and it may be used on three coils as well.—George Sherwood, St. Paul, Minn.

Dealers Need This



The new FAHNESTOCK Display Case will stimulate your sales of Farnestock Radio Products. 14 of the most popular styles and sizes are included. Shows the purchaser instantly the correct piece for his set. A constant invitation to buy Farnestock Products. Dealers are offered 200% profit on each case, an unusual offer on standard merchandise. Price to Dealer.....\$17.50 West of Mississippi..... 18.50 Transportation prepaid when money order or check accompanies order. Subsequent orders at regular price of \$20.00. Contents Retail for \$51.50 Refills will be supplied at the regular 100 lot prices, shown in catalogue, which comes with case, less discount shown on enclosed sheet. Send check or money order, today. FAHNESTOCK ELEC. CO. LONG ISLAND CITY NEW YORK

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MAGNATRON

MAGNATRON DC-199 knows no superior among dry cell tubes. Whether as detector or as amplifier, it will give better results in your set. It and the MAGNATRON DC-201A are unqualifiedly indorsed by experts.



Your dealer has these tubes. They list at \$5.

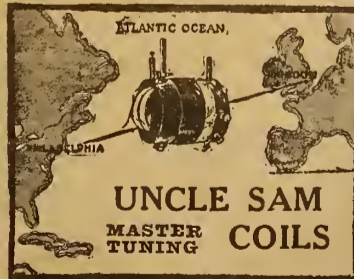
CONNWEY ELECTRIC LABORATORIES
309 Fifth Avenue NEW YORK CITY

Duo-Reflex

Tube for Tube—the Most Powerful Circuits Ever Built. Write for free Bulletin No. 16
Electrical Research Laboratories
CHICAGO.

PHILADELPHIA TO LONDON

Quoting from front page of Philadelphia Inquirer, December 26th, 1923: "At about 10:57 o'clock Mr. [Name] tuned in 2LO (London)."



Brings in Stations You Never Heard Before

Ask your dealer or send self-addressed stamped envelope for wiring diagrams and panel layouts of circuits in which the wonderful Uncle Sam Coil can be used.

Price \$5.50

UNCLE SAM ELECTRIC CO.
217 E. 6th St. PLAINFIELD, N. J.

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

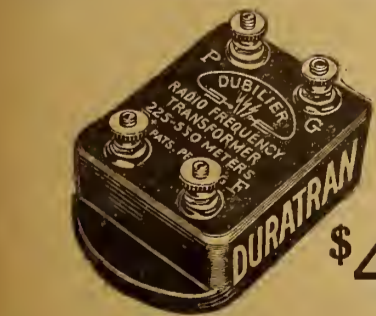
B-METAL REFINING CO.
14th Fl. 525 WOODWARD AVENUE
DETROIT, MICHIGAN



It will pay you to keep your eye on PREMIER this season. There will be some new surprises that will make you "Sit up and take notice." PREMIER PARTS will be very much heard from and talked about so keep "tuned in." Send for latest Bulletin No. 94!

Ask your dealer

Premier Electric Company
3810 Ravenswood Ave. CHICAGO



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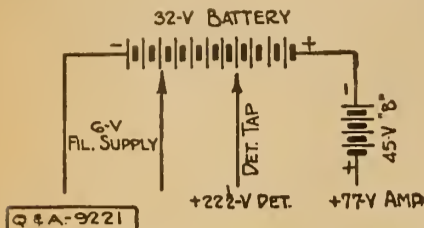
The Dubilier Durastran

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

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

Questions and Answers

Delco System
(9221) TRS, Maumee, Ohio.
So far as you know, has any one tried using a tap from the standard storage battery cells of a Delco light of a Willys-Lite farm lighting plant for A or B battery? Can you give me the benefit of some one's experience?



A.—The direct current from a farm lighting system can be used for tube supply by tapping at three cells for filament and at least a thirty-two-volt unit for the plate. To obtain higher voltage a dry cell B battery can be placed in series. We are presenting a diagram showing a method of making connection.

Condenser Capacities
(06389) W. A. M., San Antonio, Texas.
I am a regular subscriber of Radio Digest and keep a complete file on hand, and, due to the fact that most hook-ups mark the variable condensers by capacities, such as .0005, .00025, etc., I am at a loss to find out correctly through Radio dealers

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Just write your address. You need not include stamps.
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You find this in the Shamrock-Harkness set. Send 10 cents for booklet.

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514-Page RADIO Handbook Only \$1

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

Name.....
Address.....

just how many plates these capacities equal. I am sure that a complete list of all sizes of variable condensers and the capacity they equal will be of great interest to myself and readers in general.

A.—Capacity of variable condensers are as follows: Eleven plates, .00025 mfd.; seventeen plates, .00035 mfd.; twenty-three plates, .0005 mfd., and forty-three plates, .001 mfd.

The above are more or less standard, but with different plate areas the capacity changes.

Electrolytic Rectifier
(8629) WFC, Bristol, Conn.

In the Radio Digest of week ending March 15, 1924, you printed how to make an Electrolytic Rectifier. I made one just as described, but it does not work. One of the jars gets hot and the solution becomes milky. The aluminum and lead rods are 5/8 inch diameter and 6 1/2 inches

SELL Coal in Carload Lots. Side or main line. Experience Unnecessary. Earn week's pay in an hour. Liberal drawing account arrangement. **WASHINGTON COAL COMPANY,** 945 Coal Exchange Building, Chicago.

RADIO CHART and CLOCK DEVICE
Know the time to tune in for all distant stations. Shows the time in all parts of the Globe. Is useful to all Radio Fans, instructive and educational. Complete instruction furnished. Limited number only. 50 cents while they last. Send No Stamps.
RADIO CHART & CLOCK DEVICE
Dept. M, 7154 Emerald Ave. Chicago, Ill.

S. & H. "B" BATTERY
"Will Keep Your Set Alive"
Is "NOISELESS," increases volume and range with maximum clearness. Made of the finest material to give extra service. Are not two days old when they're sent to you.
22 1/2 V. Variable. Large Md'm Small \$1.80 \$1.60 \$1.00
45 V. Variable. Large Medium Small \$3.60 \$2.75
Sold With a Money-Back Guarantee—Money Orders or C. O. D. We Pay Postage
S. & H. BATTERY SUPPLY CO.
41 Nevins St., Dept. (D) Brooklyn, N. Y.

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

THE ELGIN SUPER-REINARTZ RADIO RECEIVING SETS

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

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

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EIGHT BIG WAREHOUSES TO SERVE YOU

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

WAKEM & McLAUGHLIN
225 E. ILLINOIS ST. CHICAGO

long. You would oblige me very much if you will tell me my trouble?

A.—The action encountered is normal. The solution gets milky and the water will in all probability boil, but that will not effect the charger adversely, nor prevent its functioning.

Hartley Circuits
(8510) LTL, Selma, Ala.

Referring to a Radio Digest dated June 30, 1923, I am taking the privilege of asking the following questions: Will you please give me the contents of the various instruments of the "Grid Tickler" and "Hartley" circuits shown under question 3651? I especially want to know the num-

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

Panel Shielding After Your Set Is Finished

A liquid metal; cuts out body capacity, brings in music clear and sweet. Done in 5 minutes. One can will shield 5 or more sets; 50c per can. Also a liquid spaghetti can be put on after set is finished, fine for insulating the base board, 50c per can. Post paid.
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Cunningham Regenerative one tube long range sets \$9.00 Each
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Prepaid while they last.

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Dealers and Agents write for Special Discount Mail Orders Solicited and Promptly Attended to

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C-3012.50	Marconi2.50
DV-62.50	Moorhead2.50
DV-12.50	6 V. Plain Det	2.50
DV-22.50	6 V. Plain Amp	2.50

H. & H. RADIO COMPANY
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Clinton Hill Station NEWARK, N. J.

The New STAR Type E. Detector

For Crystal or Reflex Sets
Price \$1.00

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

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

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

Star Crystal Co
1409 525 Woodward Avenue
DETROIT - MICHIGAN

ber of turns of wire to be used on the two coils so as to be able to get to 200 meters. I wish to use a .0005 mfd. variable condenser in the secondary of the grid tickler circuit. I am going to use a VT-2.

A.—A standard CW inductance is indicated. To tune to 200 meters it will be necessary to employ a wave meter.

The tickler coil is a variometer rotor with about ten turns of number 10 wire, mounted at the ground end of CW inductance.

Don't You Get Tired of only hearing LOCAL stations on your Crystal Set? There's music on your aerial every night from stations far away. If you want to hear it without buying a tube set, WRITE ME TODAY.

LEON LAMBERT
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Immediate Delivery Attractive Discounts
Branslow Kit No. R. 100, Complete, \$36.50
Contains—3 Intermediate R. F. Transformers, each \$6.00
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1 Special Oscillator Coupler..... 5.00
1 Antenna Coupler 4.50
Book of Instructions with Template, Blue Prints 1.00

All American R100—75—30 K. C. 10,000 M Transformers..... \$6.00
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Complete Stock of FADA Kits and Sets
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The new 1924 Model F Per Pair \$6.50 Complete
The new "Red-Head" Jr. Per Pair \$5.00 Complete

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A 24-Volt "B" Storage Battery positively given FREE with each purchase of a WORLD "A" Storage Battery. The WORLD Battery is famous for its guaranteed quality and service. Backed by years of Successful Manufacture and Thousands of Satisfied Users. You save 50%.

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6-Volt, 13 Plate 14.25	6-Volt, 100 Amps. 12.50
12-Volt, 7 Plate 17.00	6-Volt, 120 Amps. 14.50
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Shipment Express C. O. D. subject to examination. 5 per cent discount for cash in full with order.

2-Yr. Guarantee Bond in Writing With Each World Storage Battery

Proves satisfactory World performance. Mail this ad with your name and address—we will ship battery day order received; and give you your choice of "B" Storage Batteries or a handsome nickel finish Auto Spotlite, FREE. Write TODAY.

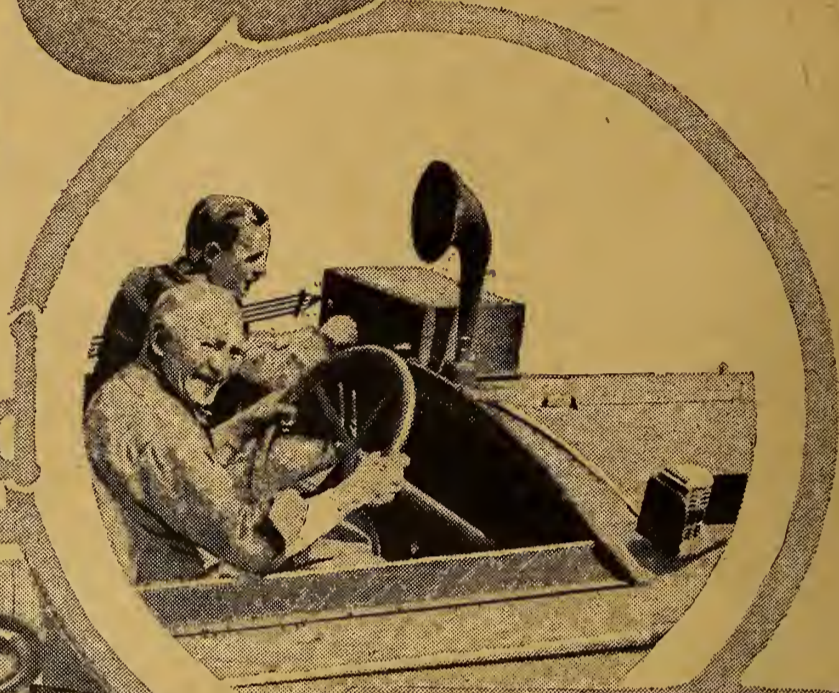
WORLD BATTERY COMPANY
60 E. Roosevelt Road Dept. L. CHICAGO, ILL.

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

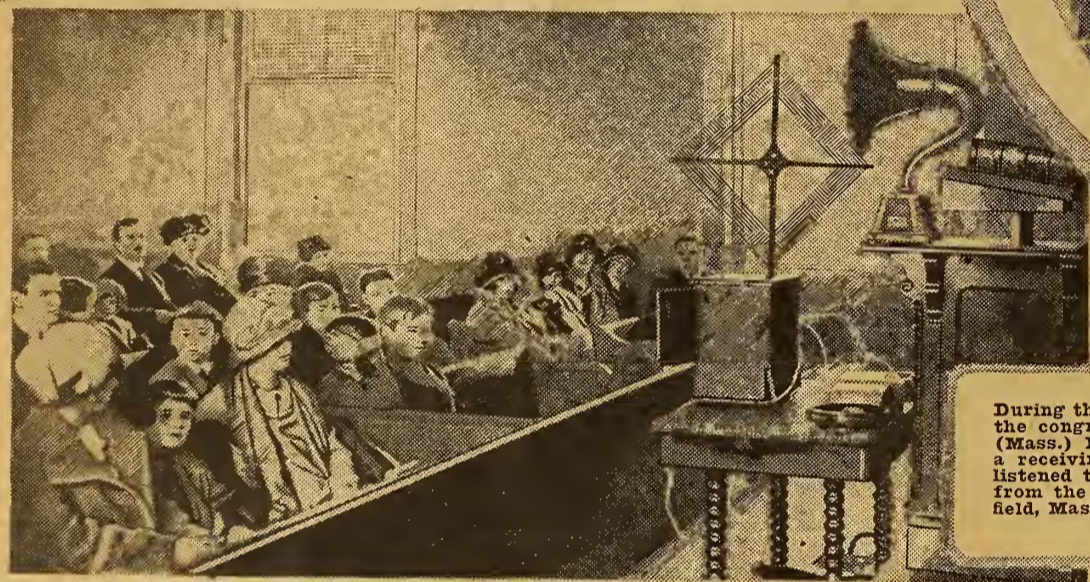
GIVEN FREE
To introduce this new and superior World "B" Storage Battery to the Public

Radio

Illustrated



During the trial runs of this speed boat, a Radio was installed to help while away the time. Fotograms



During the absence of their pastor, the congregation of the Hampden (Mass.) Methodist church erected a receiving set on the pulpit and listened to the services Radiocast from the South church at Springfield, Mass. Wide World



Dot Brown enjoying her Radio while on the beach at Atlantic City. © Atlantic Foto