Radio Digest

FANS WANT JAZZ MUSIC

SETS NOW RANK AS FIXTURES IN HOMES
RADIO ENTERS BUILDING SPECIFICATIONS
Details of Installation of Outfits Being Included in Plans

By Carl H. Butman

Radio is fast becoming indispensable as a household service, not unlike permanent features such as light, power and heat. Radio receiving sets are now considered by architects as fixtures, and the details of wiring, battery space and antenna installation are being written into specifications.

More of the "new" radio homes—cont. 1st 3rd.

(Continued on page 2)

HITS DEFEAT CLASSICS IN POPULARITY

Close Result Shows Immense Invisible Audience Wants Variety Above All

Think 13,170,500 Listen. Program Vote of Chicago Stations Indicates Total Number of Sets Is Underestimated

CHICAGO—In the days of Babylon, perhaps in the years before, and in those that followed, mighty potentates, even their lowliest subjects, worked wonders which later were studied by the world until they numbered seven.

Few if any were added to astonish or confound the minds of men until Radio came into their ken. This was the conclusion of noted scientist who recently observed another notable achievement here of the other ways. These analysts readily appended the electromagnetic impulse to the index of the world's wonders although they realized they said, that practicable Radio was young when compared with the hanging gardens and the pyramids.

Listeners Vote Gets Recognition

That which compelled the recognition of the scientists and the wonderment of peoples dotting almost one third of the earth's globe was the avalanche of an-

(Continued on page 2)

Specht Breaks Ice for Sale of British Songs

"Music Trust" Puts Foot on Popular Yankee Tunes

NEW YORK—Because of the ruling of the American Society of Composers, Authors and Publishers that no Radio station, unless licensed by the society, be permitted to broadcast any songs of its members, Paul Specht and his Alamanz Orchestra were forced to confine their program to English compositions only the other night over Station W2X from a direct wire from the hootersly here.

Publishers, pluggers and Dogilophians were angered and puzzled when their requests for the rendition of reigning American hits were ignored.

And who are the fair ladies this week? Let's start with Pauline Frederick, who needs no introduction, and who played in "Let Me Go To My Lover," broadcast from WOR, New York, last week. Mrs. Frederick recently made her other debut at W2X, New York, when "Children's Day," in which she was starring, was put on the air. And last but not least, hiding in the wings are Ethel Mersch, who has been heard many times via KFYR and WMAQ, Chicago.
Radio Bill Ready; Confab Discarded

Action by White This Week, Hope

Hoover Says New Tentative Plan Is Based on Old Outline

WASHINGTON.—There will be no general radio conference in Washington in the near future, Secretary of Commerce Hoover announced recently. The Commerce Department is resuming the discussion of the final outlines of the tentative regulatory Radio Bill which was discussed in the old White House, he explained. He believes that this can be done without further conference.

Hope to Have Bill This Week

When it is attempted to draw up legislative recommendations or bills with a large body of divergent interests, it usually takes several months. Early action on the new Radio Bill is necessary and it is hoped that a tentative bill can be ready for the Representative White of Maine for introduction this week if possible.

Adefinite step in the right direction is the appointment of a conference of representatives of the press, clubs, engineers, broadcasters and amateurs called upon President Coolidge and the Secretary of Commerce recently. This conference will be held in Washington, early in February, and it is expected that the Secretary of Commerce will sign a public works order for the purpose of making the conferences available to the existing Radio laws established in 1921.

Need Commercial Station Standards

Official point out that many difficult questions arise when regulatory legislation is attempted. Such questions as monopolistic control, it is believed, should be handled by courts under existing laws, and not incorporated in Radio legislation. The question of whether or not Radio is a public utility is not essentially necessary for the enforcement of the existing laws.

If Interference Problems to Be Regulated

Recently new interference problems have arisen which it is believed that the Commerce Department has no control under existing laws. Commercial stations, it is thought, are not protected by existing laws, and are beyond the control of the Federal Communications Commission. A bill has been introduced in Congress which will give the Commerce Department power to prevent such interference.

That the presentation of the tentative bill in the House, and its assignment to the Marine and Fisheries Committees, it is understood that public hearings will be held at which time all interested parties may appear to present their suggestions: recommendations.

It Takes a Heavy Fatto

Play These 28 Bells

ST. PAUL, M.N.—A new kind of music was heard from WLAG beginning with the new year. It is made by the organ of the Hope Presbyterian Church here. Some folk may think this a strange idea, but Harold Morton, who plays the instrument, believes it is very suitable for the church caroling.

The carillon which is made up of twenty-eight bells, and is operated from a special key board. In addition, it is necessary to have a heavy fast to play the chords and to ring the bells in a round or a square. The key or lever which operates the clapper of the bell.

New Year's Static? Nope; Just 'Lingo'

FORT WORTH, TEX.—(Station WAP—

RADIO DIGEST—Illustrated

New Year's Static? Nope; Just 'Lingo'

NORTHFIELD, MINN.—Did you hear Northfield this morning, anything static? Well, it wasn't really static. It was only Station WXYL. The station is located in the grounds of St. Olaf College, giving a radio broadcast service to the people of Northfield, one of the many agricultural colleges in the country.

Masked Singer Is Mystery at WTAM

CLEVELAND.—There have been reports of a masked singer on the air at WTAM, but they are not yet confirmed. A masked performer is expected to make an appearance on the air which will be heard by the listeners in the Cleveland area.

Only a Part of the Audience

WJAZ—KWY WDAP

Special Wire for Applause

FORT WORTH, TEX.—(Station WRAP—

Radio Chain for Greece

ATHENS—Radio telecommunication equipment has been estab-

lished by the British Marconi Company in Athens, Greece, according to an official announcement.

India Grants First Permit

NEW DELHI—India has issued its first private radio transmitting license to the Radio Club of Bengal. Under the terms of the license, wireless engineers and students are permitted to broadcast lectures and other programs.
SIXTH LAST DANCE LESSON BROADCAST

REVIEW OF FIVE LESSONS ENDS MURRAY SERIES

Dance Etiquette Considered—How to Leave Partner—Asking for Dance—Introductions

(Editor's Note: The following article ends the series of dance lessons which were broadcast by over a year of high paper relations in cooperation with Radio Digest.)

Lesson VI—Review of Course

We have now completed the most important step of this series. We should know by this time how to become a good dancer. The final lesson, as broadcast, is a review of the five lessons. Read carefully and practice diligently.

There are several points in dance etiquette that the beginner will do well to have in mind before ending this series. I will discuss them here briefly.

After dancing with a girl, if a young man wishes to seek another partner, he should make a new acquaintance instead of asking his partner to dance again. The only exception is if the partner is a very dear friend, or if he is the partner of a dear friend. It is not good form to ask a girl for another dance if she is not present with her partner.

Introductions and Asking for Dance

To a gentle young man, the hostess may say, "Mr. Brown, my sister would like to know you. May I introduce you?" It is the duty of the hostess and other chaperons to make introductions whenever possible, especially among the younger group. In this connection, you may also use the name "May I have the pleasure of asking you to dance?"

The gentleman then asks for the hand of the lady. The girl may say, "Mr. Brown, my sister would like to know you." If the gentleman answers, "Yes," the lady may say, "May I have the pleasure of asking you to dance?"

This is a simple and pleasant form of asking for a dance. It is better to use it than to say, "May I have the pleasure of asking you to dance?"

(THED END.)

Baby TRADE MARK AUDIOPHONE REG U.S. PAT. OFFICE

The New Model

big in volume—big in value—but low in price. The Baby Audiophone offers a real high-grade Loud Speaker at a popular price.

The same features and construction of the Senior Audiophone help to give the big volume and good quality in the smaller size Loud Speaker. The Audiorphone line is now very complete with

Senior Audiophone . . . . Price $22.50
Junior Audiophone . . . . Price $12.50
Baby Audiophone . . . . Price $12.50

By birth a Canadian of Polish parentage, but for several years a citizen of the United States, Fred Pavloch is one of the most charming of the Chicago Civic Opera's famous singers—and also one of the most unusual. He is known as "Humorist," and his chief specialty in "Mystical" is "Fools" and "Two," which have all been heard on the air.

Complimentary remark to the effect that he enjoyed the dance. Perhaps the most commonly used form of asking for a dance is to say, "May I have the pleasure of asking you to dance?" It is a gentle, pleasant way to say, "Have you the next dance?" And then if a negative answer is given, to ask for the dance. Often a girl does not like to admit that her dance is not taken and this question is not at all pleasant.

Short periods time very sharply.

The Ideal Radio Instrument for the Home

THERE is nothing like a Grebe Radio in the Well-Appointed Home. A. H. GREBE & CO., Inc.

Western Branch—41 East 3rd St., Los Angeles, Calif.

RADIO TALKS

A Radio frequency or a neutrophone receiver with poor reception is still a poor receiver no matter how good the other parts of it are. Radio is advancing through attention to just such small items as this. It might pay you to check up this point in your receiver.

E. J. Flewelling Tuner

A tuner in which simplicity of design, simplicity of control and efficient operation are paramount. Its successful performance is due to the elimination of solid dielectrics in the coil field and all unhealthily, less producing taps. There are many things we could tell you about this tuner but to try one yourself is to be convinced. Install one on your set. Then test for yourself how well it brings them in. Note the clarity and volume. Note the big difference in your set. This tuner is designed by Mr. E. J. Flewelling to attain as great reception efficiency as is possible.

Buell Manufacturing Company
2977 Cottage Grove Ave. Chicago

$8.00
At your dealers or post paid.
ORGANIST COMPARES KYW BROADCAST

W. Remington Welsh (right), the well-known organist who accompanies at the console of the mighty Wurlitzer organ at McKeevers Theater, Chicago, observed the problems of organ broadcasting by listening to his own music as it comes through the air from the mighty Wurlitzer KYW. Mr. Welsh has a receiving set tuned right on to the organ. He finds the "tube and "amplifying" combinations are best explained for the air. He finds that the famous "Voice Hummers" is not suitable for broadcasting.

M. Leopold Spitalny (left), musical director of McKeevers and conductor of the orchestra there, also finds that for best results in broadcasting he must hear the music but as it comes through the air.

DE FOREST WINS BADGE OF MERIT

HONORED BY INSTITUTE FOR 3-ELEMENT TUBE

Inventor's Address Predicts Wide Use of Tube in Medical Research

NEW YORK.—In every field of endeavor there is some high honor which is conferred upon men when he has performed some work of outstanding importance. Radio is no exception.

The Institute of Radio Engineers stands today as the leading body devoted to research in this newest of sciences and the highest award within its power to bestow is the Medal of Honor. Each year, those scientists whose name are familiar to us all decide who is worthy of this honor and in 1933 it was agreed that insufficient recognition had been given to the inventor of the three-element vacuum tube which is the heart of every broadcasting station and every receiving set worthy of the name. So, to Dr. Lee De Forest goes the medal for that year.

Talks History of Audion

The medal was presented at a meeting of the Institute held here recently—a meeting attended by such leaders as Professor Merriam, W. H. Mayer, Professor Pickard, Dr. Alfred Goldsmith and General Sihler.

After outlining De Forest's career as an inventive and engineer, General Sihler told the Institute that De Forest's outstanding achievement was the grid of the Audion and that, in his opinion, it was more than an invention, it was a new principle of instrumentality and one which opened a new era in electrical engineering.

Dr. De Forest, in reply, plunged into a brief history of the development of the Audion.

In concluding his address he touched upon the future of the three-element tube in Radio.

As to its future new applications in this art he said, "We have many concrete ideas, but it will be some time before you can see any of these ideas in the early stages of development. But it is interesting to note what Dr. Henry Smith Williams has said recently as to the utility of the three electrode in medical research:"

Agent of Importance

"Until recently electricity has played a minor role in practical medicine. It is destined, I believe, to become an agent of the utmost significance. And the transition will be effected, I strongly suspect, through studies connected with apparatus made available by the radio engineer. For no available apparatus except the Audion has the qualities of excitatory response and amplifying power that are indispensable for the effective investigations of electrical currents of such ten-uousness as those which we must assume are associated with the operation of individual bodily organs, and in particular with the functioning of that organ of organs, the brain."

'Twas No Lonesome Visit for This Mr. Tom Ragan

DEPTFORD—Professional sports fans even in radio clubs. Recently Tom Ragan, a member of the Red UKy Club here, chanced to be in Cleveland. Before leaving Detroit he mentioned that he was to be out of the city to G. M. Tomm, the Detroit Free Press Radio Truck chief. Mr. Tomm announced over WCKT that Mr. Ragan was in Cleveland and everybody was lonesome. He gave Ragan's address. On his return Ragan radioed and said he had been flooded with telephone invitations from Red Ukys enthusiasts of Cleveland to visit their homes.

New Coto Compact Variable Air Condenser with Vernier

Rugged and electrically efficient. Constructed on rigid metal plate from which condenser plates are perfectly insulated. Both rosin and air plates are of copper, soldered firmly in place. Size only 6 x 2 1/2 inches. Positive, delicate vibration action.

* * *

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BRANCH OFFICES:
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Albany, N. Y.
Indianapolis, Ind.
Albany, P. J. Airdine

Coto - Coils - Electricav

Price

2500 Watts

$700

FORT WORTH GIVES 3 SERMONS ON SUNDAY

Trio of Churches Offer Services to World

FORT WORTH, TEXAS.—Over WAP, Star-Zigzag here, complete morning services of three Fort Worth churches are now available at 11 a.m. to 12:15 p.m. (C. S. T.) each Sabbath.

In addition to the First Methodist Church, which services have been furnished for over a year, permanent word direct to the studio of WAP have been installed, allowing the Radio public of Bunker morning services of the First Christian Church and First Presbyterian Church.

WAP also has lines running to the Chamber of Commerce, Hiskie Theater and De Luxe Ballroom.

Hot Springs C. of C. Gives Trial Program Over WMC

HOT SPRINGS, Ark.—For some time the local Chamber of Commerce has been contemplating installing a 100-watt broadcast station to bring before the radio people of America the fact that Hot Springs is "The Nation's Health Resort," but in order to arouse sufficient interest in the project locally, Manager F. J. B. Body of the chamber secured the cooperation of Station WMC, The Memphis Commercial Appeal. WMC dedicated a recent evening to Hot Springs. Following each selection the listeners in cereally were requested to write the Hot Springs Chamber of Commerce. The object of this announcement was to prove by actual test that a broadcasting station does reach the masses. According to Mr. Body four days after the program was given the chamber had received replies from twenty-two states and seventy-seven cities.

PERFORMANCE

The performance of a radio station is like any other mechanical piece of equipment: it is only as good as its weakest point.

The Federal Telephone and Telegraph Company manufactures 150 different radio parts, which carry the Federal guarantee of perfection, due to more than 25 years' research by experts in the radio field. To insure 100% performance specify Federal when purchasing a complete radio or parts.

All reliable dealers carry Federal Standard Radio Products.

Price

2500 Watts

$700

FEDERAL

Standard Radio

Products

Federal Telephone and Telegraph Company

Factory: Buffalo, N. Y.

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

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Instructions for Use—All the hours above are given in Central Standard Time. If your city is in the Eastern Time, add one hour to each of the above times; if your city is in the Mountain Time, subtract one hour; if your city is in the Pacific Time, subtract two hours. This table includes only the evening broadcasts, and no Sunday, the late afternoon program.

Ready!!® New Monodyne Audio AMPLIFIER

Amplifies without distortion or howling.
One or more stages will operate a loud speaker.
A worthy companion of the Monodyne single tube set or any other set.
Use any standard tube preferably WD-12.
If your dealer cannot supply you, write direct to us.

Only One Tuning Control
Local and DX broadcasting comes through clear and loud without static or distortion.
Simple—No technical knowledge required to operate.

National MONODYNE
TUBE SET
MODEL GT-1

$10

Without TUBE

ECONOMICAL RADIO HOUSE
4600 Lincoln Avenue, Chicago

CLEAR AND SWEET
You've tried many expensive tricks to improve reception on that set of yours, but do you know that for the cost of one necklace you can get real results?

THE ORIGINAL COMSOCO
AUTOMATIC BULL DOG GRIP PLUG
(Licensed under Pat. Pend. Serial No. D 134398. No. 77866)

Simple to Operate
Insert connecting wires in a single touch. Release by pressing a small knob and the tip slides away automatically, without pulling the electrical contacts.

Bull Dog Grip
The Comsoco Automatic Bull Dog Grip Plug saves you from short circuits and battery kicks. No more burned-out phones or torched transformers. No more broken finger nails.

For Sale at Your Dealer
Otherwise send purchase price direct to us and you will be supplied

GENERAL INSTRUMENT CORP.
123 Liberty Street
NEW YORK CITY
HOLDs BRIGHT HOPE FOR RADIO IN 1924

DEALERS "TICKLED" OVER YEAR'S PROSPECTS

Farmers Swell Sales; Interest Grows Rapidly as Industry Becomes
definitive.

By Carl R. Bostock

WASHINGTON.—A good radio year is expected according to Chief Radio Super

intendent W. T. Terrill of the National Broadcasting Company who recently

turned to his office in Washington after a tour of all the Radio Stations of the

Country. Today very little interference is reported from amateurs, and even

the silent evening periods. Sales are now much better than anticipated at the beginning of this year by many months ago. Dealers' sales have climbed during the last few months, and it is difficult to keep enough stock to meet the demands of the radio public. Many of the manufacturers have connected with the industry with whom he came into contact is "tickled to death" with the prospects of continued good business.

Farmers Taking Hold of Service

Reports from Radio sales agents state that in many districts farmers are buying in great numbers and are buying all types of radio equipment available. This is a significant change from the past, when the sale of radios was limited to those who could afford the equipment. The farmers are buying in large quantities, and the sale of radios is increasing rapidly. This is a significant change from the past, when the sale of radios was limited to those who could afford the equipment. The farmers are buying in large quantities, and the sale of radios is increasing rapidly.

King of Greece May Talk from Troy, N. Y.

Royal Visitor Expected to Choose Farming as Topic

TROY, N. Y.—The King of Greece in all probability will visit this city during his visit to America and speak from Station WATB at the State Technical Institute, which extended the invitation through Major O. B. Mayhew, Secretary of the New York Radio Commission for Greece for the last year. Major Mayhew said:

"The King has indicated that he desires to make the trip and that he may be here in a very short time. He has been requested to observe and study the various radio stations and to comment on any public receptions or public speeches. It is expected that he will be permitted to make a Radio speech. As the King is an enthusiastic farmer, it is possible that he may speak upon some subject connected with farming."

FARM SHORT 500 OPERATORS

WASHINGTON.—Recent orders of the Naval Bureau of Navigation prompt strong belief that approximately 500 operators who are now being trained for the service will be needed in a very short time. The shortage of trained operators is now being felt in the Navy and land services. The Navy is expected to receive a large number of operators in the near future.

OFFICIALS MEET TO STANDARDIZE TUBES

Will Ask Manufacturers Criticisms of New Specifications

WASHINGTON.—The first step towar

standardizing Radio equipment was taken yesterday by the Bureau of Standards, which extended the invitation through Major O. B. Mayhew, Secretary of the New York Radio Commission for Greece for the last year. Major Mayhew said:

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The eighth annual meeting of the American Council of the World Alliance for International Radio took place last week in Philadelphia. The chief topic of discussion was the future of broadcasting, and it was decided that the radio service should be continued and improved. The council also discussed the possible use of radio for agricultural and educational purposes.

WTAM'S Lost Bureau Finds Brother for Fan

CLEVELAND.—WTAM, broadcasting station of the Willard Storage Battery Company here, recently functioned as a local lost-and-found bureau. This was for one night only, however, as calls for help became too numerous.

Before the bureau ceased to operate, however, WTAM found H. L. Riddle in Cleveland for his brother in Toronto. The latter had lost his wallet in a local bank. A query was broadcast in answer to a telegram from the brother who knew Riddle was in Cleveland, but did not know his address. This encouraged others. A man called to tell WTAM he had just lost a $25 bill in pineapple and another to say he had lost his Johannesburg recipes. Neither of these was found but a third man informed WTAM that he had just picked up a "kitty" worth $200. The previous owners of the "kitty" did not apply for it.

Radio in Australian Show

MELBOURNE.—Radio will be featured at the electrical exhibition in the Australian capital next September. The exhibition, held in Melbourne, will be held in Melbourne.

The More You Know About Radio

The More You Rely on De Forest

Without Lee De Forest's discovery of the vacuum tube there would be no radio today. All radio broadcasting, all receiving by means of tube sets, rests on De Forest patents.

De Forest has been a pioneer in radio since 1900 and De Forest is a pioneer today. That is the reason for the great success of the De Forest Radio Graphophone. That is the reason for the success of the new De Forest tube (D-6). It is now available in Universal Tube, Universal Tube, and Universal Tube. If you want a radio receiving set, look around each to find in 1,500 or 3,000 dollars, depending on atmospheric conditions; if you want simplicity of control, clear reception without distortion and without extra noise; if you want operation on either wet or dry cells—see the De Forest Radio Graphophones at the De Forest agent's today.

Radio Catalogs Free

Send a postcard for De Forest's free catalogs, full details and prices on sets, tubes, and parts.

De Forest patents are sold only through authorized agencies, direct to the public, all benefits are passed on and all profit from incorporation goes into the support of the De Forest Graphophone Company, which is exclusively De Forest equipment.

FLASH!

Another tube gone—"B" battery. Radeo Fuses would have saved tubes for satisfied radio fans. Read this letter.

Radeo Safety Fuses may be attached in an instant to any standard tube going in any standard socket. In ordering, specify type on tube used.

Price 5c each.

At your dealer's or by mail postpaid.

Radio Equipment Co.

Dept. D, 20 Stuart Street, Boston, Mass.


DEALERS: Write for our apparatus.

BROADCAST PROGRAM OF PEACE FROM WDAR

January 12, 1924
LISTENING IN FROM WAY UP NORTH

By Vera Brady Shipman
Rain but no snow. Wild things seeking shelter from the whistling wind; the moon over the fringe of pines, framing its cold beauty in the memory of a summer night.
I hear WOC telling of old folks listening in for the first time on brand new sets. A grandad in Jersey of St. Paul, mother of four from Oakhampton, many of them sixty to eighty years young; listening in for the first time.
WJCA of Dallas is playing "Gondoliers" one of his dreams of gondola nights. The MacDowell sisters singing for a group of their friends listening in at Wilson's Texas ranch. WOFI of Los Angeles was playing Handel's "Largo" until the Santa Fe Kansas City drowns it out. WIBB is giving out a second Sunday night concert at midnight. Their announcer is "Colt Slide" by the "Sweeney School" and "You Can't Make a Fool Out of Me" in the next number. I don't feel sure that even the chicken sticks up for the West.
Mrs. MacDowell, wife of America's greatest composer, the late Edward MacDowell, broadcast a brief talk on Peterburs, New Hampshire, and its aim as a creative art colony, with a group of MacDowell piano compositions, from WMAQ, Chicago, lately.
Philadelphia played some excellent program choices from WJAS, the other night, including "Northerns" to sleep, "Golgotha's" by a large choral group, and Carver's "Amnerican Taago" were refreshing. Two new groups are on the air this week, WMBF, the University of Illinois, and WLR, the local station. The Rubinstein sessions, entertaining from KDKA, and the Congress Field Band from WJAB, Fort Worth Star-Telegram, telling the world about the St. Louis sessions, are mentioned.

New Batteries from Sanyt
Eliminate Station's Hum

CINCINNATI—Great relief attended the recent visit of Santa Claus at the Radio plant of the United States Play- ing Card Company, Cincinnati, when the white-whiskered competitor of the cough drop brothers arrived with a load of storage batteries to be used in furnishing transmitting power for Station WSAI.

The batteries were first used in a test program on \[\text{New Text]}

TUNING UNIT
For any set
$5.00

SUPER VALUES—RENAIRT Circuit Complete

| Circuit | Price
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CRL Potentiometers
No. 110 (400 ohms). $1.75 each.
No. 111 (400 ohms). $2.00 each.
For Parcel Post the extra.

You'll find these instruments everywhere—some of the most popular devices of their kind.

Every CRL instrument is carefully tested before it leaves the factory and is fully guaranteed.

312 166th Street
MILWAUKEE, WISCONSIN

Becking 4 Blocks Away

"I am using a 10 to 1 and a half"--the best known, most widely used transmitters on the market. All others are inferior.

"I am using a Becking 4 Blocks Away."--Many to use this reason.

"It is a Becking."--Many to use this reason.

All the best dealers sell "ALL-AMERICAN".

RAULAND MFG. CO., 200 N. Jefferson St., CHICAGO, ILLINOIS

LARGEST SELLING TRANSFORMERS IN THE WORLD

A receiving station set up at Port of Ida Guard is picking up news broadcast through the entire territory of the United States.

LATEST, MOST EFFECTIVE RADIO "A" BATTERY

SEND TODAY

SAHARA Storage Battery—It’s Dry

Thought of it. Advantage of it. No liquid acid to spill and ruin floors, rugs or other expensive materials—ideal for portable sets. Recharges quickly and cannot be harmed by over-charging or drawing down too far.

These are the advantages that you want. We guarantee it. It is a galing battery. It’s dry and always ready for use. In fact, you can use it right off the shelf.

Order Today—Send No Money

We ship COD, subject to your inspection, carrying the best guarantee of our satisfaction at once. Shipment made same day order is received. Remember, these are DAR-WET Dry. Orders are coming in fast. Get yours today.

SAHARA DRY BATTERY CO.

DEPT. 14, Davenport, IOWA

DEALERS: There is a big business for you if you show this battery new. Send for details and get exclusive rights in your territory.

HOW TO PICK OUT A CRL NON-INDUCTIVE POTENTIOMETER

First, note the CRL trademark on the brass disc which is the contact shoe rides. You can see it through the transparent cover. Turn the knob and note that the shoe does not rub on the resistor but simply presses the disc down to the resistor.

This arrangement gives noiseless adjustment through an infinite number of steps, and the ultimate in holding power. The resistor itself is a thin strip of graphite which is absolutely non-inductive and permits the free passage of the delicate high frequency current of the received signal and does not damp the regeneration of the ear as a wire-bound potentiometer with its many contacts does. This instrument, together with a CRL Adjustable Grid Leak, which has replaced thousands of the uncertain pencil mark jigs, gives you complete control over two of the important elements in your set, the plate potential and the grid bias.

CENTRAL RADIO LABORATORIES
MILWAUKEE, WISCONSIN

Threats From Radio

No. 19 of a Series Featuring Experiences of "ALL-AMERICAN" Users

Being Heard 4 Blocks Away

By U. Cresca, Cresca, Minn.

I am using a 10 to 1 and a half "All-American" Audio Frequency Transformer in an all-market. Standard equipment on the receiver.

Must say they are the best I have ever used. Only two "B" Transformers and a Magnavox, the set is being heard about four blocks away.

Without distortion, "All-American" bring in distant stations with volume and musical quality that mean real thrill.

All American Audio Transformers
Translators in Three Models:
11-21-21, 11-22-22, 11-24-22

All the best dealers sell "ALL-AMERICAN".

RAULAND MFG. CO., 200 N. Jefferson St., CHICAGO, ILLINOIS

AUGUST INFLATING INPUT AND OUTPUT

ALL-AMERICAN AMPLIFYING TRANSFORMERS

LARGEST SELLING TRANSFORMERS IN THE WORLD

All American Audio Transformers
Translators in Three Models:
11-21-21, 11-22-22, 11-24-22

All the best dealers sell "ALL-AMERICAN".
Further Details of the Famous Milipex Hook-Up
Part XV. New Loop Circuits Promised
By the Mystery Man

Quite some little circuit, said the first fan in to a letter after putting that handsome loop trick together, but, man, did we get a crazy name for it! And the answer is, I guessed it: you know it's a good deal like trying to figure out why they ever named a kid Reginald. So, that's the answer: the real truth to this comic lament, "Pullitis" had a long name with a kick like a dart-in-it, but getting him to open up conversation is about as hard as trying to get a chicken to kick dust in the bad man's eyes. You know what I mean, or so Maggie says, "It's all a matter of form." One very clever fellow that met in an idea for this or any such circuit which should work out nicely, you know, in place of swinging the tickler away from the main inductance in a horizontal plane, when they now do with honeycomb mounting—he suggests rotating the tickler through a 90 or even 180 angle. Not so bad; in fact a real idea, and I'm just wondering why someone doesn't put such a trick on the market, I'd buy and so would you. Well, I should worry—the 3-argument-hound—but I still had a choice. I had a lot to say about this new circuit, but my mail on the King is piling up, so think I better go over it again.

In the illustration is shown an aerial con-
figuration that can be shifted from one direction to another. It is made of coaxial tubing for spreaders. These may be hooked onto insulators held by posts set into the ground, or in any loop circuits—yes, new ones. You know, a loop can be made to do "the loop" for some distance if you give it a chance.

TUBES $5.43
Genuine R. C. A. Radiotron
UV199, UV201A, WD12

In the illustrated finger are: Ignition—Faraday Power,

DIODES

A complete list of broadcast stations and
radio information, including an explana-
tion of successful hook-ups and circuits.

You will be amazed at the low prices
When these tubes have a range of 90 miles and more, including
a good set-up there, and a complete
equipment, as low as $23.50.

Write us a postcard—

MMT GADGETS
can be ordered from our catalogue.

This Radio Catalogue FREE

Montgomery Ward & Co.

The Oldest Mail Order House is Today the Most Progressive

Radio Digest—Illustrated

January 19, 1934

www.americanradiohistory.com
Kinds of Aerials

A flat top aerial is an aerial that has more then one wire in it arranged so that it is parallel to the earth. The T aerial is the same as the flat top with the lead-in coming from the center. The inverted L aerial the base of the L comes from one end and the cap aerial the base of the T has several wires arranged on hooks forming a sort of cage. The single wire aerial is an efficient one at any time when used for receiving only.

Voltage is the pressure behind electrical current. Amperage is the current.

RUSONITE RADIO CRYSTAL
The Recepipted Standard Crystal Rectifier
Hundreds of Thousands of Satisfied Users. Rusonite Has Revolutionized Crystal Rectifier Service. "THE PERFECT SYNTHETIC CRYSTAL" Guaranteed
Price mounted 50c
Rusonite Cathoder 1rk Gold Superiority, will not oxidize
Price 25c
Order from your dealer or direct from Rusonite Products Corporation 10 Park Row, New York, N. Y.

B-T<br>$5.00
Bremer Tully Vernier Tuner
Distance Clearness Selectivity
These are the three features of the Bremer Tully Vernier tuner. In Chicago with four high power stations, outside stations can be brought in, 10 and 6 eliminating local interference.

Better Tuning B-T
Price 10c

BREMER TULLY MFG. CO.
32 South Canal Street
CHICAGO

RADIO OF EXCELLENCE
An Ideal Gift
PARAGON
Type RB2A......$125.00
BALLANTINE Tuned Radio Frequency Transformer......$9.60
LANGREIN & KAUFMAN Variometers and Variocouplers......7.00
AMPERITES......1.10
MYERS Hi-MU Vacuum Tubes......4.35
Service That Is Certain

RADIO & MECHANICAL TRADING CORP.
32 Warren St.
NEW YORK CITY

C. O. D.
An extra convenience! You don't have to include a remittance with your order. Just pay the postman on delivery.

"B" BATTERIES
Reg. $1.75......$1.10
Reg. 1.00......2 for $1.75

4 VARIABLE
Reg. $3.50......$2.80
Reg. 4.00......1 c
Reg. 5.50......2 for $4.90
ALL FRESH AND TESTED

Shackdx Special Set Complete
Includes all molded parts, drilled panel, phone, tube, batteries, aerial equipment, etc.
Great for D.X. $15.00

STAR AUDIO TRANSFORMERS
The Star Audio Transformer will make your amplifier deliver real results. Plenty of volume and no distortion. You can use a Star in each stage without fear of burning and 10 and 6 eliminating local interference.
Fans Should Know International Morse Code
System Is Simple and Easily Learned

By R. H. Allison

PrACTICALLY every owner of a receiving set has heard the meaning of these dots and dashes that he hears so often like air. The genuine Radio lover is not satisfied until he can read the continental Morse code.

The student of Radio code grows impatient and wonders how the experts can do it so stumped. He is too harrow with himself.

Even when the student has increased more or has studied and is almost fast enough to make a commercial license, the mind seems to make no progress for weeks. But after a month or so, the student finds the students quit in disgust at such a time. It is a type of people that stick around the corner and that their minds have been working faithfully all the while.

How Speed Comes

Success does not come by speed, even by the progress of copying down the letters as they are sent, but by forming new habits of copying entire words and phrases without paying specific attention to individual letters or forms.

The Radio code is similar to a foreign language. No one could speak a language intelligently if he stopped to spell each word to himself. No matter how fast he might write, he must think in phrases that he has often heard. His mind forms them almost automatically. The operator who copies 20 to 50 words a minute usually is under less strain than the beginner who copies 2 or 3 words per minute.

His mind doesn't work any faster than the mind of the beginning but many works with fewer notes. He thinks in words or sentences, and not letters.

Good Operator at Ease

An experienced operator at his typewriter, noting an important message, perhaps involving hundreds of words of Julius, changes habits in his machine. He even tells a joke to another operator beside him and maintains his normal rate of speed. He is at ease, and has none of the worries of the beginner who stratches to catch every letter separately as it comes to him.

But he, too, was a beginner once and at a time he had the familiar feeling of the beginner. The beginner must first learn the dots and dashes, then the meaning of the signals.

His mind is at ease as he copies the words and phrases, developed not all at once, but through the process of copying.

The mind with the strongest visual memory can learn the best progress at the same time. In his mind he can return to any letter or phrase at any time.

The visual process is a roundabout way and must be slow. It is easier to understand the simpler system of auditory memory.

The beginner with a K, V, or T, visual memory begins to find out that he must do the same thing as the third type.

Now Code Improves Mind

As the buses come to the ear in a continuous, unbroken stream, at first the mind strains and can make nothing out of the confusion. The mind must learn the meaning of the signals, and how to arrange the codes in a proper order, and the meaning of the signals must be understood.

If the mind is kept continually open and sensitive to the signals, it will after a time eliminate errors and discover short cuts. During the process of learning the code, there are dull days, weeks and even months in which the student seems to make no progress at all. The period must pass.

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GALAXY OF ATTRACTIONS MAN

The Week's Headliners on the Air

Monday, January 8

CRAC, Montreal, Que., Canada (Eastern, 4:30): 1:00-2:00 a.m., Frank Friday's 'Saturday Night Special,' 6:00-7:30 a.m., A.M. News; 7:30-9:00 a.m., Frank Friday's 'Saturday Night Special,' 9:00-11:30 p.m., Frank Friday's 'Saturday Night Special.'

WWA, Indianapolis, Ind. (Central, 3:30): 1:00-2:00 a.m., 'The Dr. Durrell Show,' 6:00-7:30 a.m., Wenda's 'Good Morning America,' 7:30-9:00 a.m., Wenda's 'Good Morning America,' 9:00-11:30 p.m., Wenda's 'Good Morning America.'

KFWB, Los Angeles, Calif. (Pacific, 2:30): 1:00-2:00 a.m., 'The Dr. Durrell Show,' 6:00-7:30 a.m., Wenda's 'Good Morning America,' 7:30-9:00 a.m., Wenda's 'Good Morning America,' 9:00-11:30 p.m., Wenda's 'Good Morning America.'

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Wednesday, January 9

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Studio WOC, Davenport, Iowa, "Where the West Begins," broadcasts a wild and woolly program every Friday night. The performers will wear the costumes they are known for, as well as the guns they will use in the show. The program is to be broadcast live at 8:00 p.m., Sunday, January 13, in the circle Mays, Landis Hotel, Davenport. It will be broadcast in the "Salmon and Dell," to be broadcast from one of the Chicago stations this week.

WAV, Chicago, III. (Central, 3:00): 1:00-2:00 a.m., "The Dr. Durrell Show," 6:00-7:30 a.m., Wenda's 'Good Morning America,' 7:30-9:00 a.m., Wenda's 'Good Morning America,' 9:00-11:30 p.m., Wenda's 'Good Morning America.'

WDAI, Dallas, Texas (Central, 4:30): 1:00-2:00 a.m., "The Dr. Durrell Show," 6:00-7:30 a.m., Wenda's 'Good Morning America,' 7:30-9:00 a.m., Wenda's 'Good Morning America,' 9:00-11:30 p.m., Wenda's 'Good Morning America.'

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CURRENT WEEK'S PROGRAMS

Sunday, January 13

KFI, Los Angeles, Calif. (Pacific, 4:00). "Sam's Ranch," starring David Carroll. Musical: "Rummack," by Richard Rodgers and Joseph Evans. 3:00 p.m. "Church Music Magne, featuring music by Dietrich Buxtehude, John W. Stanley, and James Alton. 1:00 p.m. "Church Music Magne, featuring music by Dietrich Buxtehude, John W. Stanley, and James Alton. 1:00 p.m.

KFL, Los Angeles, Calif. (Pacific, 4:00). "Vietnam Veterans Memorial," a program of music and poetry presented by the American Legion Post 50, sponsored by the United Service Organizations (USO). 1:00 p.m. "Church Music Magne, featuring music by Dietrich Buxtehude, John W. Stanley, and James Alton. 1:00 p.m.

KFI, Los Angeles, Calif. (Pacific, 4:00). "Sam's Ranch," starring David Carroll. Musical: "Rummack," by Richard Rodgers and Joseph Evans. 3:00 p.m. "Church Music Magne, featuring music by Dietrich Buxtehude, John W. Stanley, and James Alton. 1:00 p.m. "Church Music Magne, featuring music by Dietrich Buxtehude, John W. Stanley, and James Alton. 1:00 p.m.

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Wednesday, January 13

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Friday, January 11

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Saturday, January 12

KFW, San Francisco, Calif. (Pacific, 4:00). "Church Music Magne, featuring music by Dietrich Buxtehude, John W. Stanley, and James Alton. 1:00 p.m. "Church Music Magne, featuring music by Dietrich Buxtehude, John W. Stanley, and James Alton. 1:00 p.m.

Monday, January 14

KFW, San Francisco, Calif. (Pacific, 4:00). "Church Music Magne, featuring music by Dietrich Buxtehude, John W. Stanley, and James Alton. 1:00 p.m. "Church Music Magne, featuring music by Dietrich Buxtehude, John W. Stanley, and James Alton. 1:00 p.m.

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GALAXY OF ATTRACTIONS MARKS CURRENT WEEK'S PROGRAMS

The Week's Headliners on the Air

MENNA

Tuesday, January 8

Theatre is presented John K. Wells, with

starring role of the Great Depression. This

Wednesday, January 9

film concerns the efforts of a small town pub

Thursday, January 10

in the making of a movie. The story is filled

Friday, January 11

with humor, pathos, and adventure. It is a

Saturday, January 12

true reflection of the times in which we live.

Sunday, January 13

www.americanradiohistory.com
YOU DON'T NEED TUBES OR ANY SPECIAL CRYSTAL TO RECEIVE CONCERTS FROM DISTANT STATIONS!

\[\text{YOU CAN hear on your CRYSTAL \text{SET} if you fix it up the right way. People using my methods hear programs clearly from stations 400 to 1,000 miles away. No Tubes, Batteries, Amplifying Apparatus or Special Crystals are necessary. Changes often cost less than One Dollar!}\]

\[
\text{Using my plans, a boy in Hinton, Iowa, hears KDCA, WOSB, WAW, WOC and WSB. Another in Pueblo, Colorado, hears KWAV, WOSB, KFI, WBAP, KYW, \text{and} WDAP. A boy in Durham, Nebraska, hears WBY, WOC, KSU, WOSB, WDJ, WLAG, WHI, and WCHC. A man in Philadelphia hears KAHI, KAHI, KWW, WWJ and WJZ. A boy in Cortland, Nebraska, hears WBY, WOSB, WAW, and WOSB. A boy in Overland Park, Kansas, hears WBY, WAW, and WOSB. You may have everything you need and just have to connect. Send self-addressed envelope for set, and further information, or $1.00 for Complete Copyrighted Instructions. Satisfaction guaranteed or money refunded.}\
\]

\[\text{LEON LAMBERT WICHITA, KANSAS}\]

Radio Corporation of America

Radio Corporation of America

The new UV-199 is proving a mighty popular member of the Radiotron family, particularly for portable sets. For quiet operation—great ruggedness—uniform performance and longevity, nothing is unsurpassed. Each new Radiotron has marked a big step in radio advancement. The R C A mark is the foundation of radio performance and your guarantee when you buy. Ask for Radiotrons—and look for the mark.

\[\text{Radio Corporation of America}\

SEE! HEAR! THE

**TRIMM Loud Talkers**

<table>
<thead>
<tr>
<th>$10.00</th>
<th>Acousticol A</th>
<th>Phonograph Attachment</th>
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<tr>
<td>$22.50</td>
<td>Acousticol A</td>
<td>Composition Horn</td>
</tr>
<tr>
<td>$35.00</td>
<td>Acousticol A Grand</td>
<td>with Cast Aluminum Horn</td>
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</tbody>
</table>

All fitted with Special TRIMM jumbo size loud Talker Unit. Write for folder. Or order samples with privilege of return after 5 days' examination and test.

Trimm Radio Mfg. Co., Dept. 63, 24-30 S. Clinton St., Chicago, Ill.
Simple Explanation of Radio for Everybody
Chapter VIII, Part II—Regeneration

By M. W. Thompson

The following article is the sixteenth in a series on the radio for beginners, written by Mervin W. Thompson, who knows in short supply of his understanding of the subject. The remaining chapters will be:

Chapter IX—Audio Frequency Amplification.
Chapter X—Loud Speakers.

To get the benefits of regeneration a compromise must be effected. The circuit consisting of E, C, O, II, L, and F has a certain resistance which tends to prevent high frequency current flowing through it. Our regenerated energy, W plus X, just offsets this resistance, and the tube and strengthens the incoming signals exactly as though electromagnetic coupling were used, as in Figure 61.

Combining the Two
Electromagnetic coupling and electrostatic coupling can be combined and both are present back through the condenser coil. It acts to tune the plate circuit so formed by the plate and the grid within that the circuits are brought into regenerative

Figure 44—The “tuned plate” circuit, regeneration being effected through the tube.

Figure 45—Here both electromagnetic and electrostatic coupling are used to get regeneration, with the condenser having been shunted across the third or feedback.

Good News for Set-Builders! KELLOGG APPARATUS
At Special Bargain Prices

11 Plate Vernier Condenser with 4" bakelite dial and knob $4.95
22 Plate Vernier Condenser with 4" bakelite dial and knob $5.95
43 Plate Vernier Condenser with 4" bakelite dial and knob $6.45
Moulded Variometers $5.95
Moulded Variocouplers $6.75

3" Bakelite Dials 65c
Bakelite Bakelites 95c
Grind Condensers 55c
Double Mountings 60c
Transformers (high or low ratio) $2.95

Ready for You!
Our New 48-Page Catalog
Our new catalog illustrates and describes 106 complete receivers and lists the parts to build them. It contains over a thousand radio bargains which, because of our enormous buying power, have not and can not be duplicated elsewhere.

Send a Dime for Your Copy!
For Henpecked Husbands Only

I HAVEN'T HAD
A CHANCE TO
ALIMONY, THEN
I BELIEVED,
MYSELF.

LATELY SINCE
PLAN WHICH WAS
STARTING TO
HE WOULD FALL
BUILD A MULTIN
IN LOVE WITH HIS
DEJECTION SET. BUT
RADIO SO MUCH
THE OTHER DAY
THAT HIS WIFE
A SOCIETY CLUB
WILL GET JEALOUS
FRIEND OF HIS
AND TOLD ME THAT
RELEASE FROM HIM,
HE WAS GOING TO
GET A DIVORCE SOON
BEING NAMED AS
CORRESPONDENT.

ASKED HIM
THANKS FOR THE
HOMICID HE
WAS COMING
WELCOME, FROM
MATRIMONY TO
HELP YOURSELF.

GooD gooD.

Easy, That's Station BVD Calling You
Dear indentig—must I add a superoctagonal radio &
hit up the 2 tab & get wash & d risa awa but that
have been the last time. I wash the radio &
tab that I send them the radio by my & the
that I tid the radio 2 the close lin bu but it want work get excpbn on
book by letter to the Chir. & the Camp &
only our trls.

WILL HANNO WAY ART.

Why I Built a Loud-Speaker
Ever since I was sixteen
I had had a One-Table Reeft Queen
With which, like every B. C.
I couldn't, much less, and
Until one Monday last night just 
The Broadcasting King Jazz got in 
And I called in my pretty speech,
To hear a bond she'd never seen.
I put the ear-phone on her head,
The listened some, and then she said,
"Get me back that kid out of that!"
Quoth I, "Well yes, it is bond!
And then she mentioned how romance
Poiesis is the base of the universe
In time to music from the air
Out loud, near or far?
Well, I saw the point all right,
And started building a horn that night.

J. L. Rikfin.

The Tale of a Bird with a Wail, Help! Help!

Dear Ind—
I pressed you to tell me what with my
wife's petrel, Locifer, which has become a constant insult
for me. We are taking care of him, but don't
I don't think it, think on his account.

It was all like this: I lived at home &
I had just tuned in my Strobels Model A for BILJH,
when I heard a wail like a child crying in the street.
I opened the door, and was not surprised to find no one there. I traced
the hooting to Tigs, the collie, who had tried to
soak the funnel of the front shoulder blade, and was bumping the floor with
his little head in his giving. But as much exc-
cept for the federal officers do in dislodging the hootergry.
Well, I put him under the bird, and I
saw, to my surprise, that Locifer bird was sitting on the horn of my loud speaker.
I put it away, and the bird came back to
of that selection, and reproduction it considerably, even to the
living ward where I throw it out of clutch. I am sending
the dollar by express, as I want a receipt for it knowing you will give me much more than in the usual.

VvVvVvVvVvVvVvV

Did You Ever Try Maggie's Pies?
Dear Ind—
I realized at once upon seeing the picture of the
Maggie of the mag. that I would want.
I never would have believed he would have been
in the Chir. & the Camp, but then

MAGGY MAN
GETS BLAME FOR
LABOR MURDERS

Perhaps it was a result of indiscretion caused by some of
Maggie's pies.

Stew Bad.

But Our Ground Hog Beats All
Dear Ind—
I picked up a Digest the other day in which
it is reported that the ground hog of the
Syracuse, Springfield School and the fire engine is so
loud that the bicycle burglar run all over town looking for the fire.

Dry Cell.

Try This on Your Bucket Brigade
Dear Ind-Good— Bill Sparks of Pumpkin Center bought a
radio set and the first thing he was to do was to
the Syracuse Automobile School and the fire engine came out so
loud that the bicycle burglar run all over town looking for the fire.

Mike Hopkins.

Condensed

By DIELECTRIC

Good news comes from Belgium, King Albert has
had the closing of a Radio station at Brussels that
will have sufficient power to communicate with all
the big stations of the world. Evidently Poland is not
to have all the eyes of Radiodom focused upon her
indeed, if the Belgians can help it. In addition to
the station mentioned, a relay station is now being
on the outskirts of Brussels able to receive three
stations at one time. When the recent trans-Atlantic
beings held, we in this country strained every nerve to catch any
impressions from the British Labs. Now our
broadcasting may be received at this new station in
Belgium and we may be holding our breath while trying
to pick up music from the Radiodom of Belgium. Yes, be-
fore long each civilized nation will be observing "silent
periods" at regular intervals to allow broadcasting from
other countries to be heard at home. Today will then
be seen a long way back.

Many a story has been written about shrewd men with most cunning than honesty who have succeeded in
swindling a certain portion of the unsuspecting pub-
lie out of much of their hard-earned savings. These
exposes have perhaps done some good in directing
attention to a nefarious practice, cautioning against
hasty acceptance of what may seem at first glance a
perfectly safe investment. Now comes Radio to lend
its valuable aid in further warning on the subject, and
we here have concentrating being hedged and used
by an increasing number of citizens in to sta-
tions which breaks information in stock switching
schemes. WJAX, the Union Trust Company of Cleve-
dand, Ohio, has been making rapid strides in this.

There probably is no man whose name is more closely
associated with the work of the National Radio
Association than Emile C. Pennel, noted scientist and inventor. His associations with prominent men on this side of the water have
forced him into a position of leadership in the
radio field. He is constantly receiving reports of
the Senart has been develop-
ing a new method of transmitting in which he
conserves the power at its source and increases it at the
receiving end. This is to be done by sending the
electromagnetic waves in a given direction instead of in
different directions, as is now the case. It has been a
common practice to follow the announcements of
long distance records said to have been made by owners
of crystal sets. Let them beware! It is likely in the
mind of this inventor, to be a possibility for crystal
sets to glory in competing with their new rivals, the
radio sets for picking up British broadcasting stations,
Think of it! The set with a fifteen-mile radius bring-
ing a clear picture of the broadcast and speech from merry old England. What of the monopoly ones?

Not long ago, I was tuned in to a church service
where the minister was directing his remarks to the
nation's opinion of the situation of the war toward some means of establishing permanent peace
on earth. The gist of his conclusions was that the
radio won't free us from the necessity of war.
They require a "lighting up" of the mind, a
way of reason that would cut through the ugly
creedal differences and working from a common
acceptable statement of belief. Just how difficult such
a procedure would be is easy to imagine. However,
none of that will come any time soon, for the
radio is still in its infancy, and the conditions of
the present time. It is reported that the Vatican will
shortly be on the air, with words that may carry to
most of the civilized nations. Many Protestant
churches in this country have for some time broadcast
certain series of lectures, with a view on ships and in the far iso-
lated sections of the land have heard. A concerted
effort to reach all listeners has been considered by the
representative Protestant body, the Federal Council of
Churche, there may be now under way the
means to attempt a "league of religion."
Selective Three Tube Single Circuit Receiver
Part II—Construction of the Circuit
By Fred Grill

Let me say at this time that you should take extreme care in selecting your appara- us and be sure that you get only re- liable makes. Do not allow the Radio clerk to persuade you to take this instead of what you ask for, nor accept his ex- planation that “It’s just as good,” or “I found this to work better.” Etc. I do not want to be misunderstood. I am not saying that because a part is not manufactured by the best Radio companies it is not good. Many parts of excellent merit are being made and sold by small independent concerns, but the average Radio person is not able to distinguish between the good and bad makes of apparatus. His only proof is in the appearance, and surely in Radio appearance will fool the wisest of experts.

Follow as near as possible the plan of arrangement shown in the pictures that appeared in Part I. The writer found that the spacing and the general arrange- ment of tubes is the most important thing, to the extreme left is placed the grid variometer, B, the inductance next and the plate variometer is separated from the in- ductance by a 1 1/2 inch space. The plates of the grid variometer is the detector and tube and the plates of the plate variometer are the output circuit. In constructing the amplifier one should be careful that all leads are as short as possible, and care should be taken also to see that the C battery that is placed in the last stage is enclosed inside of the cabinet to order to get a minimum of wire in the grid circuit. The negative of this battery should be placed on the grid knob of the tube, while the positive is connected directly to the secondary of the transformer, the fixed condenser is placed across the last jack. These two accessories tend to give increased sensitivity and decrease noised.

Sockets to be Used
The sockets are optional, but the author recommends gang sockets made of a good grade of bakelite. These sockets require a minimum of space and also aid in making short connections. The inductance is a tapped coil of 60 turns of wire. It is wound on a tube 7/4 inches in diameter. Taps are taken at the 15th, 25th, 35th, 40th, 50th, 60th and 66th turns. Once these are run to two switch arms. One of these switch is grounded, while the other completes the grid circuit.

Procedure in Construction
The builder should take a panel made of wood, and lay off all of his apparatus correctly. Next, he should take this panel and lay it directly over the bakelite one and mark all of the holes that are to be drilled. After all the apparatus is mounted, start to hook up the set. Wire from the left to the right, finishing at the last radio stage. After all connections are in place the set should be given a trial. If satisfactory results are obtained, solder all connections. Do not floss each connection with solder, but use just enough to hold the parts together. If acid is used in soldering, care should be taken so that none is spilled on the inductance, because should this happen the grid would be short-circuited and you then might wonder why the set will not work.

CARTER ‘TU-WAY’ PLUG

To one or two of your jack connections can be made at one time. Cables or plain connections can quickly be connected to the Carter ‘TU-WAY’ plug. Can be used with any modified radio Jack. The Carter ‘TU-WAY’ plug is complete, built, and will stand constant uninter- ruption of strain. It prevents impurities, dust, etc., from getting into the circuit, preventing particles of brass from colliding, elimination of loose or short circuits.

Carter ‘TU-WAY’ plug has become standard equipment with the leading manufacturers, and is one of the most complete and most convenient jacks on the market.

Price $1.00

Ask your dealer. Catalog of other Carter high-grade radio products on request.

THORDARSON

Tube for Tube—The Most Powerful Circuit Ever Built. Write for our Bulletin No. 16.

ABALENE RADIO

MICRO RADIO

Power Amplifying Transformers

Price per pair, $13.00

The new Thordarson Power Amplifying Transformers (push pull) are designed for use in third stage audio frequency amplifiers, to provide high power amplification for operating loud speaking devices.

With power amplification, not only is it possible to increase volume, but, since two tubes replace the usual one, the distortion and feedback which usually accompany the overdriving of a single tube on the third stage is done away with entirely.

The Thordarson Power Amplifying Transformers are well constructed electrically and capable of handling the additional load without breaking down. In fact, these transformers equal the Thordarson Super Audio Frequency Transformers in both high quality and ever amplification has made the popular transformer of the day.

THORDARSON

ELECT. MFG. CO.

500 W. Huron St.

CHICAGO
THREE TUBE RECEIVER
(Continued from page 27)
As to the radio frequency set of today. That is, it embodies characteristics of many circuits. Selectivity, volume and extreme sensitivity are a combination hard to beat. (See manufacturer's literature for further data in this connection.) I have had quite a few reports and all have been favorable. This fellow expressed his appreciation of the circuit, but he claims to have been unable to receive the stations using the higher waves. A more loading of the circuit with two small, hexagonal coils should have secured for him the expected results. To this writing an answer has not been received, therefore I am not able to give you his further comment.

Range of Stations
This set has been used by the author in New York and no difficulty has been experienced in tuning in and out all of the high station on the program. If the stations as Cincinnati, Buffalo, Cleveland, Washington, Boston, Detroit, Chicago, Indianapolis and Louisville have been heard in the last three weeks. These stations are tuned in during the middle of the evening. After an operator has had some experience he will be able to obtain the same results, and under more favorable conditions much better results will be secured. During a few cool nights many of the above stations, the loud speaker and 25-watt magnavox, and the music and speech sometimes audible for some 30 feet.

Also, this set will appeal to the class of Radiophans that come under the heading of "DX hunters." Not far as the days when DX reception will once again be at its height. This year we are looking forward to more remarkable records than were made during the last winter. The fan that stays awake until the morning hours probably will be rewarded when he will find himself able, each night to tune in the "snow blower" or Havana.

In the next installment of this series I will give operating instructions and let you know what should be expected from this set when properly built.

Don't fail to read next week's article which is the third in this series.

(TO BE CONTINUED)

Long Range Networking
Spacing Wires
The set builder should always remember that space is the best insulator for the high frequency currents used in Radio. Especially in a multiband set the wires must be kept as far apart as possible. The insulator of a reflex set depends very largely on the winding for, on the balance between the circuit is very delicate and the currents from one part may completely upset another.

Many people simply open the window, bring the lead-in wires from the hall and close the window. A short piece of porcelain tubing should be used so as to prevent leakage.

WE REPAIR THE FOLLOWING
RADIO TUBES
Dealers and Agents write for special list.
Wilson-Ball, Illinois and American.

H. & H. RADIO COMPANY
101 W. Davis St., Chicago

Hudson-Ross

120 S. W. Madisons St., Chicago

The Tube's The Thing!
Get Radio Reception Without Noise

保证Perfect Clarity
Concerts, speeches, stories—hear them without noise of tube hiss with Myers Tubes. They give much greater amplification, are perfect detectors and detectors. They add 50% to the efficiency of your set because they reduce interference. They may be used as battery or storage batteries. Ready for mounting. No sockets or extra equipment needed. $5.00 each, postpaid.

$5.00

Eight Tubes

SOLED MANUFACTURERS

F.B. Myers Co., Ltd.
Radio Vacuum Tubes
240 Craig St. West, MONTREAL, CANADA

WHOLESALE RADIO MAILING SERVICE
1133 Broadway, New York City

"Buy Your Radio by Mail at Wholesale Prices!"
Simple and Efficient Honeycomb Coil Circuits
Part III—Theoretical Efficiency of Coil Windings

By H. J. Marx

In the previous articles the high inductance value obtained with the low internal capacity coils was considered,
ly emphasized. These facts can be more readily understood by reference to the

<table>
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<th>INDUCTANCE DATA</th>
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<tr>
<td>Gauge of Wire Used</td>
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Table of data shown on this page. The question of the gauge of wire used in winding the inductance of any form is more important than may be apparent on the surface. Resistance in any of the apparatus making up the tuning unit of a receiving set is detrimental to the selectivity and therefore to the distance range of that set. Obviously, then, we attempt to increase, the wire of necessity becomes smaller in size. The special inductance is

honeycomb coil has a winding cross-section similar to a single layer inductance, but with a lower capacity value. The cross-section has a measurement of about 1/4 by 1/2 inch. The special inductance resembles the bank winding type with a decidedly lower internal capacity value. A cross-section would measure about 1/2 by 1/2 inch. This form of cross-section gives a much higher inductance value and has the advantage of low internal capacity.

For the higher wave lengths, taking as an illustration a 500-turn coil, the winding cross-section would measure about 1/2 by 1/2 inch, while in the special inductance it would measure approximately 1/16 by 1/16 inches. In the larger units, then, these inductances have not the efficiency unless another procedure is followed. That is, for a 150-turn coil, five of the 100-turn coils can be placed alongside of each other, with approximately 1/4 or 1/8-inch spacing, and the resultant inductance will be even

CATALOG EVERYTHING IN RADIO
One of the largest complete stocks in the world. 40 diagrams of latest Hookups.
DEALERS ALL OVER THE U.S. Making this product handle our service. Goods shipped same day order received.

WHOLESALE RADIO DISTRIBUTORS
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Kansas City, Mo.

Figure 1: Use the largest size wire possible in order to reduce the resistance to a minimum. In using the largest size wire the question of this size of the finished article must also

Figure 2: definitely more advantageous for the smaller size used for covering the wave

Figure 3: length range running to about 1,300 meters. At an illustration, a 15-turn

A B-METAL CRYSTALS AND DETECTORS
are of our IMPROVED DESIGN and represent marked improvement over our former type detector. Our

B-METAL PROJECTS, we are informed, are being offered by other than the

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RADIO FOR EVERYBODY
(Continued from page 5)

condenser and the end of the secondary coil. Such a method of connecting the apparatus is excellent, as the primary and secondary circuits may be independently selected. The primary circuits may be tuned to a station of choice; the secondary circuits may be tuned to a station of another choice, the two being completely isolated from each other.

H. C. COIL CIRCUITS
(Continued from page 18)

Inductance Comparisons
The inductance data furnished in the table result from tests on a few of these units. The values will be found to be correct within a very close margin. In comparison, then, a 25-turn coil will have an inductance of .06 millihenry or 60 microhenry. A honeycomb coil of the same number of turns has an inductance of 14 microhenry. A 50-turn coil is probably a better example of a more often used type; an inductance of this size in the special type is 125 microhenry, compared to 150 microhenry in the honeycomb coil type. Due to the lower internal capacity, the wave length range will have a much lower minimum value, while the maximum value will vary slightly.

Another interesting feature is the fact that if two 25-turn coils wound with number 24 gauge wire are coupled together, their inductance is as high or even higher than the coupling effect, than the 150-turn coil, while the resistance of the two coils will be only two-thirds that of the single coil, which has smaller wire.

The wave length range measurements are based on tests made with an 800-ohm variable condenser across the coils. do much towards insuring their efficiency for beyond the average. An illustration of the application to this purpose is shown in Figure 1. By varying the length of the coil used for the coupling, the distance between the coils can be varied at will. The mounting is such that different size coils can be conveniently changed; consequently the circuit will operate over a wide band of wave lengths using values that give the best of efficiency at the desired point. Not merely can this unit be used for Radio Frequency transformers, but also for fixed couple condensers and similar units.

Efficient Condensers
Most have been said of coil efficiency, but all of this becomes valueless unless the same care and selection is followed for condensers. Their resistance and low minimum capacity values must be carefully taken into consideration. Space is not available for elaborating condenser arrangements in this series, but it is said that Figure 2 presents a form of variable condenser that is universally known for efficiency.

Figure 8 — A popular circuit which includes both selectivity and easy control of regeneration.

Three Coils Unit
A three coil unit is present on the market, using a very similar form of winding, as shown in Figure 1. This unit is equivalent to a triple honeycomb coil matching with a better coupling arrangement and using coils that are much larger than the honeycomb. When mounted in the rear of a panel, two rotating slits vary the coupling distance between the outer and inner coils by means of the geared and shafting. Although a little more expensive, the efficiency of the unit is so much higher than that of the honeycomb coil that the advantages of the unit make it well worth the difference in cost.

Two Three Coil Circuits
Two three coil circuits are shown in Figures 4 and 5. In Figures 4 the coils on the left are both 25-turn coils, while the coil on the right is a 75-turn coil. A soft tube is used in conjunction with a 254-volt filament battery. In the second circuit the coils should be 25, 50 and 50 turns, respectively. An 1,300 ohm potentiometer prevents a more than normal output from the plate potential, while the variable grid winding gives a better coupling efficiency of the tube operation. Here likewise a 3 1/2 volt tube with 254 volt filament battery is recommended.

THE Stars Are Out
Price $1.25
THE STAR is a FIXT CRYSTAL DETECTOR for REFLEX or CRYSTAL SETS.
It is a marvel of efficiency and its gold tipped diamond is so designed that it may be swung against a wall without danger of dislocation.
Buy one with a horn on any good crystal set, reflex or crystal set, whether new or old. It is guaranteed, if within five miles of any broadcasting station.

Fahrenheit's Latest Radio Help
No. 31 THE Antenna Connector
Price 10c
Snap larger connector over Antenna Wire and Lead-In Wire into smaller clip and a perfect connection is the result.

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VOLTRON TUBES

SAVES YOU $1 ON EVERY TUBE
Vacuum tube prices smashed. Radio costs reduced. VOLTRON tubes give perfect reception for a dollar less than other tubes. Satisfaction guaranteed. Money promptly refunded for any imperfect tube.

ALL ONE PRICE

$5.50

Type

Valve Arrangement

O. H. 12

3

H. O. 311

3

O. H. 251-A

3

O. H. 319

3

B Battery

12 to 50

12 to 50

12 to 50

12 to 50

12 to 50

Easier from your dealer or send direct to C. O. D. Begins saving now—order TODAY!

O. HERSCHKOWITZ, 92 Branford Place, Newark, N. J.

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Dealers and Jobbers—Write for Attractive Proposal

CROSLEY Model 3-8-B
One of the best sets made. Beautiful mahogany cabinet. List $50.00 .44.75 SPECIAL EXPRESS FREIGHT...

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Complete Parts for Tube Set...
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Gold Seal, new type battery charger. Also Simplex current
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VOLTRON TUBES

WHAT YOU GET

A Tube finished and finished in mahogany finish

Head Phonos

B Battery

Ground Wire
Printed Black Print

COMPLETE

NOTHING ELSE TO PAY

ATLAS CUT RATE RADIO SHOP, Div. 2, 345 South Clark Street, CHICAGO

1925

Efficient and ready to use

Range Vacuum Tube
Three Tube Set Does the Work of Five

Special Tuner Reduces Number of Tubes in Set

In the endeavor to find the best hook-up we forget some things that are facts about Radio. There are very few known circuits, and many hook-ups are really one or the other of the well-known circuits differ

WORKSHOP KINKS?

THERE ARE MANY LITTLE KINKS WORKED OUT AT HOME THAT WOULD ALL YOUR GLOW RADIO WORK IF ONLY YOU KNEW ABOUT THEM. THERE ARE NEW BOOKS, NEWSLETTERS, AND VARIOUS VAGUE CIRCUITS OPERATING COOKIES DISCOVERED EVERY DAY. RADIO DIGEST IS VERY MUCH INTERESTED IN PUBLISHING ALL SUCH MATERIAL. SEND IN WITH FULL DETAILS, INCLUDING STAMPED SELF-ADDRESSED ENVELOPE, AND IT MAY BE RETURNED. THE WORK MUST BE ENTIRELY ORIGINAL, NOT COPIED.

RADIO KINKER DEPARTMENT

Radio Digest

123 W. Madison St., Chicago

sincerely arranged. If we would give the hook-ups a little careful study before plunging into them, we perhaps would

know much about them from the circuit they originated from and what to expect. Almost all circuits in use at present are based on the three main principles for increasing the signal strength that is regeneration, Radiofrequency, and super-heterodyne. At present one of the popular circuits is tuned Radiofrequency. In keeping abreast of the advance of radio we are forgetting the proved reliable regenerative circuit that in itself possesses Radiofrequency of regeneration and has fewer controls to operate as well as seen in the construction. The writer is a neo-electro and heterodyne fan, but from the view point of the advanced mentioned, a regenerative circuit with a special tuner is described herein that has tapped secondary as a special means of increasing the signal strength and selectivity, and a tuckler coil in the plate circuit inductively related to the signal coil. Much has been said about doing away with taps and tuning with a condenser. This is all right for a limited wave length, but certain sections of the lengths considerable signal strength as well as selectivity is desired. Then we must use taps to balance the indue.

The regenerative circuit, with the tuner herein described, is equal to any two-stage Radiofrequency receiver that I have tried for both selectivity and range. 15 feet in radius, with the 150 broads on the loud speaker, so let your own judgment be your guide. The absence of the additional tubes and transformers for Radiofrequency and the few number of controls are the appealing features, and for those desiring to continue a tuner and receiver the hook-up is here with given with a description of the tuner.

To obtain a 4-inch diameter tube, 5 inches long, of bakelite or rubber and wind the primary and secondary on it. Cut wire 24, 25 loops. Wind the secondary first by starting 5-inch from one end of the tube. This allows space for bolting a base or support for the tuner. Then wind turns for the first turn for a lead to the switch. Wind 20 coils and take off another 15, then 12 turns and leaves a 5-inch space on the tube and start winding in the same direction. Tube off another tap at the beginning of the winding, then wind 12 turns and take off another tap, then continue and wind 15 more turns, complete 30 turns, 25 turns by 5 each side, 25 turns of the 5-inch space, and is tapped at the first, 20th, 31st, 40th and 61st turns. In the space on a tube it is advisable to cut the wire, pass it through a small hole in the tube and solder it on the inside where it crosses the space to begin another winding. Start winding a primary tap on the switch, then wind 19 more turns, tap each seventh turn at each seventh turn at each eighteenth turn and wind 16 taps, 16 taps 4 inch wide spaced on the ground. Drill a 5-inch hole through the center of the 4-inch space between the windings and bolt on the plate over each hole. The plate is in the center of a rotor shaft. Drill a 5-inch hole through the center of a plate, 1/2 inches in diameter and 1 1/2 inches long. Drill 19 turns, 19 turns, 19 turns 5 inches wide spaced on each side of the holes (connected to the plate), beginning at the outside edge as possible. Then have 32 turns on the rotor. This rotor is placed inside of the tube when it reovers. For shatter use 5-inch brass rod or tubing, one short piece and one long for the disk. Thread these shafts on one end, pass them through the plate on the outside of the 4-inch tube and lock the rotor with two nuts and washers. Drill a small hole in each rotor shaft for a retaining pin and use a wax and compression coil spring between these pins and the bakelite plate on the tube. Hold the outside or end wires of the rotor from the plate. This may look like a big job, but if description is followed it will not take long to finish it and you will find it worth while. A better tuner cannot be made. The controls should all have vernier adjustments.

The audio frequency for this circuit is standard. It can be made in a separate cabinet—W. L. Friday, Chicago, Ill.

Grounding Transformer Cores

If adjusting the filament of an amplifier do not stop it from buzzing, by attaching a wire from the negative terminal of the battery to the control, the filament of the tubes to the ground post of the set. Should the buzzing continue try grounding the iron cores of the amplifying transformers by attaching a wire to the core and bringing it to the ground terminal.

Three Tube Set Does the Work of Five

The New

WALNAR

INDUCTANCE Switch

Only with positive contacts and a jaw-like action, the WALNAR Switch proves and insures perfect speed and contact and makes the WALNAR Switch a complete unit. The WALNAR Switch is designed to give all the advantages of the WALNAR Transformer Switch. The WALNAR Switch is the exclusive property of the WALNAR Electric Mfg. Co. The WALNAR Switch is made of the finest material and the best workmanship and will last as long as the instrument is used.

List Price $1.00

WALNAR VARIABLE GRID RESISTANCE

Tunes the best results from every tube. Completely adjustable. Very easy and brings you in to your frequency. No trouble at all. A "One-Stopper" to cover every frequency. Send for catalog of the WALNAR parts.

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Dept. 417, 1249 W. Van Buren St., Chicago, Ill.

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WALNAR TRANSFORMERS

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The Scientific Headset to be the greatest value on the market. Try it for five days. If not satisfactory send it back and your money will be refunded immediately. Circular on request. Dealers on terms.

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Super Heterodyne

With a three-circuit selective tuner, one detector in each, and a separate intermediate frequency of 765 kHz and 1260 kHz, this receiver has a marked advantage over other receivers on the market. It is so designed that the second detector in each set can be changed to a 455 kHz or 1260 kHz IF, and the receiver can be changed to a single detector by changing the plug. This is necessary because of the lower number of lines per mile on the a.m. band than on the v.h.f. band.

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Folding Loop

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Made as per specifications of Mr. C. H. C. Bartley, the well-known radio builder. Complete Assorted Set B. C. and D of 1046 Transistors and 1252 Transistors as described in our catalog. Original and new improved book with 144 pages, containing complete instruction and plans. Either set may be used for original or conversion work.

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"Red-Head" are guaranteed for one year when you purchase them from us. If you are not satisfied with them, you may return them at our expense. They are guaranteed to cause the receiver on the market at the time of purchase to be bettered, or it is refund of purchase price.

JUST OUT

The new 1924 Model F Red-Head Jr.

$6.50

PER PAIR

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PER PAIR

The base standard 164D, $6.45 Model F has eleven tubes, and is a complete receiver with oscillator and automatic volume control. It is the equal of receivers costing $25 to $35. The resistance is 12,000 ohms. A good receiver at any price.

The Junior Model has most of the features of the standard receiver. It has a push-button in the front and a built-in cathode-ray tube. The resistance is 3,000 ohms. A good receiver at any price.

"Red-Heads" sent prepaid on receipt of price if you are ordering in quantity. Send orders to

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In building that set of yours, don't experiment with parts of questionable manufacture—be certain in your selection—use REGAL.

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REGAL INDUCTION SWITCH No. 164
A six-wire one piece induction coil with built-in inductor. No more ripple current. No more minor tubes. All solid construction and built to last. Complete with handsome knob and dial. 50c.

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REGAL RHODESTERS are known the world over for their sensitivity and reliability. One priced exclusively for transmission. Very low cost.

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This is the worthy and resource of interference encountered, and we would recommend a three-circuit regenerative type of receiver to suit such conditions.

Crosley Model X-2 for real enjoyment. Then go to any good dealer and purchase this unequalled instrument for only $65.

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THE BEST SPENT

$65

That's the unanimous opinion of owners of the Crosley Model X-2 for real enjoyment. It is the last word in radio efficiency at a price within the reach of all.

Local interference can be easily tuned out and far distant stations quickly and clearly heard.

This 4-tube set, combining one stage of tuned radio frequency amplification, detector, and two stages of audio frequency amplification, is the best radio receiver ever offered to the public regardless of cost.

Listen in on a Crosley Model X-2 for real enjoyment. Then go to any good dealer and purchase this unequalled instrument for only $65.
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Corrected Every Week—Part I

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One DOLLAR will be paid to the Radiophonic submitter of the best corrected listing of one station's calling, not later than one week from date of issue received by Radio Digest. No copies of cards are not limited to correcting one station. These cards may be used for as many stations as you can find data for. Each correct listing will receive a separate sheet of paper for each station submitted and place time and service.

That's just how Radio Digest is to let you know that your radio station directory is correct! To make sure that the card is correct, everyone, broadcasting stations and their employers, is asked to take this from offer. Why? Because the card is a survey and the report of all the data given therein. This card (or any other card) should be corrected enough to answer the inquiry: Could every time they make a statement on the station appears. This inquiry cannot be answered if the card and must either be corrected or ooked as correct and returned to the Digest. Neverthe-

Kaiser Ch. Mon, Tues, Wed, Fri, 8:00-10:00 p.m.

KATY, Sunny, Nov. 30, 1943, 100 watt.

KDFW, Dallas, July 29, 1934, 12 progressively.

KEDY, Dallas, Nov. 6, 1943, 100 watt.

KEDN, Dallas, Oct, 1943, 100 watt.

KEDN, Dallas, July 29, 1934, 100 watt.

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Clara Bow, eighteen-year-old actress and movie artist, is an ardent Radio fan, and they say is typing in response to sound. Her latest note says: "Yes, we have no bananas over the air at the moment she was snapped in Oils charade pose. She has made a name for herself on the stage and the screen."

Alfredo Savo, noted Italian artist and caricaturist, got his inspiration while on radio from his Radio act. He says his hand works to the rhythm of the music he hears.

Above are shown Evan Evans and Commodore Sheldon Clark of the Chicago Yacht Club on the rescue of three men. They were replying to a message from Captain MacMillan, the Arctic explorer.

Forty-nine Stations in one night is the record of William B. Dyes, of Brooklyn, N. Y., how stoned with the homemade outfit that did it. He heard Capri, Utah, 1150, Frisco, among others.