How to Make New Four Filter Super-Het; Neutralizing First Reflex Tube; Operating and Trouble Shooting the Grebe Synchrophase; Pictures of KFKX

# Kallo

Vol. XII

By Radio Digest Publishing Co.

SATURDAY, MARCH 14, 1925

# OFFERS NEW WAVE PLAN

# PLANE DROPS BOMB,

BRITAIN SOON TO PERFECT WEAPON OF WARFARE

Experiments in Radio Control Have Gone on Since 1915—Much Secrecy Guards Tests

Secrecy Guards Tests

LONDON, England. — Remarkable results have been obtained in a long series of tests which have been carried out by the British Air Ministry's experts in the Radio control of airplanes. These experiments have been executed with the greatest secrecy in a lonely district on the English south coast.

A small pilotless airplane has been sent on flights of several miles, guided by Radio from an apparatus—which is always closely guarded—and landed safely at will. The machine has been made to perform all the stunts. It does its looping, turning, rolling and spinning just as though an expert pilot is aboard.

Infinitely more has been done in these secret trials than ever before. Dummy bombs, operated by levers, have been dropped on pre-arranged spots with uncanny accuracy. The tests have demonstrated the probability of a terrible weapon of warfare being perfected within a comparatively short time.

Experiments in Radio control have been going on in Britain since 1915, and the many series of trials have been carried out at different places in order to prevent leakage of information.

# **BOOST FOUR DIVISION IDEA** AS SOLUTION

S. M. Kintner Is Sponsor

Westinghouse Engineer Presents Scheme to Avoid Station Interference and Heterodyning

PITTSBURGH.—S. M. Kintner, research engineer for the Westinghouse Electric and Manufacturing company here, has outlined a new plan of wave length allocation and station classification which may, it is said, eliminate 95 per cent of the present objectionable interference.

Mr. Kintner, one of the best informed men in Radio, insists that reclassification of the broadcasters is very necessary. His opinion is backed by many other prominent leaders.

His plan, briefly, is to have a four-station classification, the most important of which will be known as the super de luxe stations, confined within the wave length range of 300 to 415.6 meters with power varying from 5,000 to 50,000 (50 kilowatts), and limited in number to fifteen, (Continued on page 2) PITTSBURGH .- S. M. Kintner, research

(Continued on page 2)

#### PROPOSED WAVE BAND ASSIGNMENT FOR BROADCASTERS

Station Class-(Waiting List)	Number of Chan- nels Available	Power		Stations on Same Band		Assignments Possible
IV	4 of 10 kc.	100 w.	200-204	As required	As required	
ш	45 of 10 kc.	100 w.	205 1/2 - 294	4	3	540
I	15 of 20 kc.	5-50 kw	. 300 - 416.6	1	0	15
	17 of 10 kc.	500 w.	428 1/2 - 555	2	2	68

Radio relays on short wave channels in bands of 50 kc. width from reservations 50-55 meters, 60-65 meters and 70-75 meters.

In an explanation of the plan Mr. Kintner states:

"In the tabulation the several classes of stations appear in the order of their wave lengths. It will be more readily understood, however, if it is studied in the order of the station classes. Class I is for a limited number of stations that can classify for a de luxe service.

"Each of these stations is assigned an exclusive wave channel of 20 kllocycles breath and permitted to use larger power, from 5-50 kilowatts. It is expected that general interest will exist in what each of these stations has to offer and it is desirable to protect them from taking or giving interference.

Class II and III Stations

#### Class II and III Stations

"Class II stations are those of less national importance and yet whose facilities entitle them to be ranked above and given superior opportunities over the stations in the lower classes. The standard

#### Foreign Notes

Programs may be expected shortly from a new station which the Norwegian Broadcasting company is constructing, and which should be ready for transmis-sion about the end of March.

The Societe Francaise d'Etudes de T. S. F. have decided to transfer their whole technical laboratory and transmitting sets to an old tugboat which travels up and down the Seine.

News of another long-distance Radio reception record comes from North Borneo. On three different occasions the programs broadcast by the London 2LO station have been heard distinctly, although the distance between the listeners in and the transmitters was approximately ten thousand miles.

An invention by which refrigeration can be broadcast by Radio is claimed by a Scandinavian. His plans include a municipal transmitting station to broadcast the "Radio-ice," and he states that all that is necessary to keep the food cool in the hottest weather, is to keep the receiver tuned in to the central station.

Four months ago, the word "Radio" signified to the average person in Vienna only a newspaper expression, often used to describe the latest craze which had hit America. Today there is an antenna on almost every housetop, and thousands of loops are hidden away in the houses.

There are now four stations in Sweden broadcasting programs regularly. SASA at Stockholm, operating on a wave length of 430 meters; SABS at Goteborg, on 290; SASC at Malmo, on 270; and the station at Boden, transmitting on 2,500 meters.

Although a new station has been erected at Moscow to work on a wave length of 1,200 meters, Russian amateurs do not expect a great deal from the new station. Radio development has been very slow in Russia.

British tube manufacturers have cut the price of their products. The statement issued when the price cut was announced was to the effect that, "it was done in order to encourage the building of tube sets in place of the popular crystal type."

Receiving sets will be installed in the various army barracks by the British government. The army council has recognized the pleasures that may be derived from this form of entertainment.

Spain will open two new broadcast stations in the near future. One will be located at Bilbao, and the other at Cadiz.

A resident of Sevenoaks, Kent, England, advertised in a local newspaper, "wireless in maid's room." The idea was successful.

In order to eliminate personal publicity for members of their staff the British Broadcasting company have lately cut the names of announcers out of programs. Other well-known names are also being less mentioned, especially those of artists in the regular employment of the B. B. C.

NEW WAVE BAND PLAN

(Continued from page 1)

The accompanying tabulation includes all data pertaining to the new plan which has been designed strictly with the thought in mind of giving the utmost good service to the Radio listener.

In an explanation of the plan Mr. Kintner states:

"In the tabulation the several classes of stations appear in the order of their wave lengths. It will be more readily understood, however, if it is studied in the order of the station classes. Class I is for a limited number of stations that can classify for a de luxe service.

"Each of these stations is assigned an exclusive wave channel of 20 kilocycles

of this class should be maintained and none from lower classes admitted unless fully competent, regardless of the number of vacancies in this class.

"Class III would contain that large number of small stations whose influence is very local. This class of station is limited in power to 100 watts, in order to minimize its interference with other stations on the same wave channel, but located a sufficient distance geographically to cause little or no interference with the large majority of local listeners, i. e., the order of the station classes. Class I is for a limited number of stations that can classify for a de luxe service.

"Each of these stations is assigned an exclusive wave channel of 20 kilocycles

#### Class IV Is Waiting List

"Class IV is the waiting list. Into this class all newcomers must go and await an opening to a higher class as a vacancy

an opening to a higher class as a vacancy arises.

"A principle that should govern in the selection of applicants for admission to the several classes, is the one of purpose in broadcasting. Are those operating stations interested in developing the art of broadcasting? It must be apparent that the art of broadcasting has a better chance of growing and becoming a more permanent institution if those broadcasting are interested in developing broadcasting equipment and methods rather than simply trying to let you know that some particular article of merchandise entirely foreign to broadcasting is the best of its kind.

"Provision is also made for reservations for Radio relay connections so that it may be possible for some of the Class III or Class IV stations to secure national programs for their use and thus make them available locally to those listeners not equipped with the more sensitive receivers."

#### Station Changes

With the final reallocation of wave lengths along the Pacific coast, Radio-phans may once again log their stations with the fair assurance that they will be

with the fair assurance that they will be heard again on the recorded dial settings. The new lengths are:

KNX, Los Angeles, 336.9; KFAE, Pullman, Wash., 348.6; KGO, Oakland, 361.2; KFOA, Seattle, 384.4; KHJ, Los Angeles, 405.2; KPO, San Francisco, 420.3; KFI, Los Angeles, 468.5; KGW, Portland, Orc., 491.5, and KLX, Oakland, 508.2.

Wave lengths held in reserve in the West for expected stations have also been announced. These are:

Corvallis, Orc., 280.2; Los Angeles, 293.9; Phoenix, Ariz., 299.8; Seattle, Wash., 305.9; Pasadena, Calif., 315.6; Sait Lake City, 333.1; Missoula, Mont., 394.5, and Seattle, 454.3.

Newly licensed class A stations, announced during the past week by the department of commerce, are: KFVF, Clarence B. Juneau, Hollywood, Calif., 208.2 meters: WAMD, Hubbard & Co., Minneapolis, Minn., 244; WAFD, Albert B. Parfet Co., Port Huron, Mich., 233; WHBD, Chas. Howard, Bellefontaine, O., 222; WHBC, Rev. E. P. Graham, Canton, O., 254; WRAK, Economy Light Co., Escanaba, Mich., 256.

WKAQ, the Radio Corporation of Porto Rico at San Juan, has been given a class B license with a wave length of 340.7

WDAG, Amarillo, Texas, is back on the air after several months with no programs.

CKY, Winnipeg, Manitoba, may change its wave length from 450 meters to 384.4 because of heterodyne interference with a number of American broadcasters.

Broadway's great White Way is now represented by a new station, WMCA, the Hotel McAlpin, New York. It is class B with a 428.6-meter wave length.

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# Looking Ahead

Operation of Multi-Tube Receivers will be discussed by Edward T. Jones in his next article, which is part of the Broadcast Listener's Library series. The complicity of such sets makes any suggestions on them of value.

WEEI, Edison Electric Illuminating company of Boston, and WTAT, the only "Seagoing Broadcast Station," together with the people behind the transmissions of both, will be described by word and photograph in the March 21 issue to appear next week. "Big Brother" Emery and "Whit," of course, will be there.

The Remarkable Selectivity of the Fournier Super is due, in part, to the oscillator coupler included. Its construction, and the layout drawings for filter cover and baseboard, are presented in next week's issue.

Another Inductance Article by David B. Arnold is now ready, this time on the use of double silk covered wire. Data is given for sizes 20 to 30 inclusive on three diameters of tubing, to be tuned by any one of three values of

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### **NEWS OF STATIONS** AND THEIR ARTISTS

A. T. & T. LINK FURNISHES WONDERFUL CONCERTS

KYW Now Forms "Insomnia Club" to Replace "Midnight Sons"—Bi-Weekly Dance at Denver

Broadcasting simultaneously from tenstations, namely, WEAF, New York; WEEI, Boston; WGR, Buffalo; WFI, Philadelphia; WCAE, Pittsburgh; WJAR, Providence; WEAR, Cleveland; WWJ, Detroit; WOC, Davenport, and WCCO, St. Paul-Minneapolis, the Silvertown Cord orchestra is on the air each Tuesday and alternate Thursday evenings. This aggregation of artist musicians, under the direction of Joseph Knecht, brings to the Radio audience one of the highest forms of program presentations. gram presentations.

WOR, Newark, N. J., has inaugurated a novel series of programs called the "Radio Congress of States." Every week a differ-ent state will have its sons and daughters broadcast.

Station KSD, St. Louis, Mo., recently paid the St. Louis symphony society \$5,000 for the privilege of broadcasting the season's concerts.

Two new orchestras have been added to the list of WOR's entertainers. They are the Commander's orchestra and a Meyer

'An intimate picture of Pope Pius XI was broadcast recently from WJY, New York, when William H. Crawford, journalist and author, told of a meeting when the Pope was known as Father Achille Ratti.

Bi-weekly dance music is now being broadcast every Wednesday evening at 10 o'clock from KOA, Denver, Colo., by Joe Mann and his Rainbow-Lane orchestra from the Shirley-Savoy hotel.

"Conversations with a Philosopher" is the subject of the new series of Wednes-day night educational talks being broad-cast from the University of Pittsburgh studio of Station KDKA.

In keeping with its plan of education promotion. Station WBZ, Springfield, Mass., will begin a new series of univer-sity extension courses this month.

"Midnight Sons" are a thing of the past. This was the name of the KYW club which kept fans sitting 'till the wee sm' hours. Now the name has been changed and it is known as the "Insomnia Club." Between the dance numbers, Fred A. Hill acts as announcer. The orchestra is Coon Saunders famous "Nighthawks," and the leader will endeavor to entertain the fans with a little impromptu entertainment during the evening.

A most successful Radio contest has come to a close. Station WAHG recently received more than forty-eight thousand replies from the United States, Canada, Cuba and South America during their St. Valentine contest.

Radio lessons in golf will commence at KGO, Oakland, Calif., March 19, at 7:15 p. m., Pacific time. At eight o'clock, the KGO players will produce "Billy," a comedy in three acts.

Production of the Gilbert and Sullivan opera, "H. M. S. Pinafore" marked the first time that the Buffalo Players, Inc., ever appeared at WGR in a dramatic offering for the station's listeners.

Art Gillham, the "whispering planist," while broadcasting from WMC, Memphis, Tenn., recently acquired a cat. Not the ordinary kind, he explained, but one derived from the popular pastime of "feeding the kitty."

The Marquette studio of Station WHAD, Milwaukee, Wis., is now open every Monday instead of Wednesday night.

Verdi's opera "Aida," was presented by the Philadelphia National Grand Opera company on March 3, from Station WIP, Philadelphia, Pa. The performance was given for the benefit of the Veterans of Foreign Wars.

MILLIONS LISTEN TO CEREMONY MARCH

A three-hour classical program is broad-steerer Sunday afternoon by WGN, cast every Chicago.

#### PENCIL THAT WRITES RADIO MUSIC



Of course it doesn't literally write Radio music, but the performance is figuratively carried out by this Radio pencil crystal receiver. Although but a novelty, the small set held by the charming young lady has been known to receive local stations quite efficiently.

P. & A. Photo

Station WGY, Schenectady, N. Y., re-cently celebrated its third birthday. A system of remotely controlled stations can be cut in on the regular program on

The Boston studio of WBZ, celebrated its first birthday recently, and the features on the program were similar to those broadcast on the dedication program. The program began at 8 o'clock, and ran until midnight.

Billy Sunday, the rip-roaring, devildefying evangelist, was broadcast by Station WMC during a recent visit to Memphis. During the closing week, of his campaign, when the repentant sinners were hitting the sawdust trail to the Municipal auditorium, WMC broadcast his afternoon sermons.

#### Wisconsin Girl Winner of Crosley Radio Beauty Test

CINCINNATI.—Phyllis Sacia of Galesville, Wis., received the largest number of telegraphed votes in the recent second annual WLW Radio beauty contest, thus winning first prize of \$300 and title of "Radio Beauty of 1925." Those who listened to the contest will remember her as "number 4" when the entrants were described by Judge J. H. Woeste. Rhoda Bogardus, Warsaw, Ky., won second; Melba Hardert, Cincinnati, third; Mrs. Vera Fisher Webber, Cincinnati, fourth, and Lavera M. Bourgeols, Cincinnati, fifth prize.

Baking an apple pie for a prize was the latest stunt broadcast from WJZ, New York, N. Y.

# **CEREMONY MARCH 4**

INAUGURAL MARKS A NEW RADIO ACHIEVEMENT

Great Audience Pauses at Work While Chief Executive Is Given the Oath of Office

WASHINGTON.—"Good morning, ladic and gentlemen of the Radio audience came the familiar voice of Graham McNamee on the eventful morning of March 4, at 11:15 a. m. Eastern Standard time. His voice came through strong and clear, for it was being broadcast simultaneously by over a score of stations scattered from coast to coast, from the Canadian boundary to Texas.

It was the beginning of the first Radio broadcast presidential inauguration ceremony.

mony.

It has been estimated that 25,000,000 citizens turned to the loud speaker and listened to this unprecedented achievement. Stores, offices and factories stopped their work for the moment. The employes were numbered in the great invisible audience that was to hear President Coolidge take the oath of president for the next four years.

Ceremony Simple but Sufficient

Ceremony Simple but Sufficient
The ceremony was simple but sufficient.
Following a brief description of the scene before him, Graham McNamee introduced the United States Marine band, which was heard until three minutes to twelve o'clock. At that time a fanfare of trumpets called the assemblage to order and the justices of the Supreme court approached the platform followed by the chief justice, cabinet members and President Coolidge.

At high noon the oath of office was administered. Then followed a short prayer, after which the visible and invisible audiences heard President Coolidge make his inaugural address.

Playing of the "Star Spangled Banner" by the Marine band concluded the ceremony. Mr. McNamee was heard again, this time announcing the calls of the many stations which had participated. All was over.

A new Radio achievement had gone down in history.

A new Radio achievement had gone down in history.

#### KPO Sees Audience Two Millions of Fans

Receives 70,000 Communications on Birthday Party Program

SAN FRANCISCO.—That KPO, Hale brothers here, broadcasts to a daily audience of well over 2,000,000, and that this vast audience is located throughout the length and breadth of the land, was the startling disclosure of a novel experiment conducted by the station.

On January 16 KPO celebrated its second birthday with a special program. The staff received the surprise of their lives when on that night 1,551 frepaid telegrams poured into KPO's headquarters. Following these, 68,937 letters and postcards were received.

It has been estimated by broadcasting

cards were received.

It has been estimated by broadcasting station directors that only one-half of 1 per cent of their total audience responds to a request for a written communication. Just about one person in fifty that tuned in on KPO took the trouble to respond with birthday greetings. Multiplying 70,000 by fifty gives 3,500,000. Thus the audience of KPO is estimated at well over 2,000,000 people.

In a group of semi-classical selections, the Collegian string trio, of Station WEMC, Berrien Springs, Mich., gave Radiophans a real treat on March 9.



Stage, screen and bookdom shook hands with Radio were the above. Left to right, Johnny Hines, motion at the recent opening of New York's latest, WMCA, picture star; Arthur Lee, director of WMCA; Col. B. B. White, famous sport announcer, and Paul Dumont of the Hotel McAlpin. Among the notables present McAlpin, proprietor of the hotel; Holbrook Blinn, actor; WMCA staff. "Eddie" Squires is announcer for WMCA.

### **UNIFIED PROGRAM IS** E. S. NESBITT'S IDEA

PLAN TO HOLD ATTENTION OF LISTENERS

WHB Man Puts "Piggly Wiggly Girls" on with Special Radio Libretto

KANSAS CITY, Mo.—Radio is entering the program development period. Only incidentally is it catering to the distance seeker or the Radiophan of mechanical mind. The people who have been purchasing recently



three to five hundred dollar receiving sets are naturally a more critical audience than those with crystal sets. They have speak the control of the control ence than those with crystal sets. They have spent money freely. Now comes their demand for 100 per cent enter-tainment in Radio-casts.

casts,

Ideas will play a large part in program development.
One voice can create as much volume over Radio as a hundred piece orchestra. If the speaker be possessed of sufficiently brilliant ideas, he may furnish better entertainment than his hundred-

better entertainment than his hundred-voiced competitor.

Such is the reasoning of Earle S. Nes-bitt, Kansas City, Mo., a newcomer in Radio circles from out the realm of motion pictures and vaudeville. In other

### The Panels That Produce Results

A superior panel will in-crease the efficiency of your reception through reducing surface leakage. You can be certain of this if your set is



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Trenton - New Jersey

words, Mr. Nesbit is a showman proceeding to demonstrate that fact over Radio. He is working at present with WHB. And from that station he has proven his point in the presentations prepared for the "Piggly Wiggly Girls."

#### Girls Unified in Program

Girls Unified in Program

On each Friday afternoon, this trio has been giving programs enhanced in their appeal by ideas. Their first offering was entitled "Versatility," and served as an introduction of the girls under the assumed names of Sue, Prue and May. On that first program, in rhyme and melody, they quarreled for honors before the microphone and incidentally established in the minds of their listeners their names, personalities and ability. Each strove to outdo the other in demonstrating their own talent. The second program was linked to the first by the continued quarreling of the three girls during the intervening week.

Since then many programs have been

vening week.

Since then many programs have been given and others are to follow, each one with a distinctive idea. "Songs of Yesterdays and Today" will be a diminutive musical history of the various epochs in our country's life.

The programs are illustrative of the point that Mr. Nesbitt is emphasizing; programs with an idea. He points out that once a listener tunes in on such a program, they will stay with it until its close because there is unification of the entire program, a protracted interest; and as well, such listeners will look forward to and pick up promptly the next week's offering.

#### Announcers at Kansas City Show to Form Special Club

CHICAGO, Ill.—An attempt was made to form an announcers club by officials of Station WDWF, at Providence, R. I., at the Biltmore hotel on March 2. Owing to the absence of several of the more popular announcers at the Kansas City show, the plan fell through.

It is rumored that the announcers at the Kansas City show will form the nucleus of a similar organization. The decision will be published in a later issue.

Eight marine hospitals located in vari-

#### BROADCAST ANIMAL CALLS; CATS DEPART

ENVER, Colo.—When Chiefs Evergreen Tree and Riding Sun of the Pueblo Indian tribe broadcast their interpretation of wild birds and animals, they caused quite a furore among Radiophans. Cats of every known variety, ranging from the well known great American alley cat to the pedigreed blue bloods, jumped "high and wide," when the program started, Fans complained that during the mimicking of a coyote call, the cats left the house and haven't been seen since. Station officials at KOA are still trying to explain.

Medford, Ore., Has Club
MEDFORD, Ore.—The Rogue River Radio club has been formed here to cooperate with telephone, telegraph and power companies to remove sources of interference.

PERFECT VARIABLE CONDENSER



turns the wheel and carries no load

# KFKX—Hastings, Nebraska—Old Bill's Own



#### VACUUM TUBES OF PAST AND PRESENT



Here are shown the latest type of vacuum tube and the one used ten years ago. Two filaments were provided in the old tube, a thing unheard of now.

#### KFKX — OLD BILL'S OWN

(Continued from page 5)

cusing him in street parlance of trying to be funny—but his continued remark was reassuring.

SHAMROCK MANUFACTURING CO. Dept. 26-C, Market St., Newark, N. J.

SHAMROCK FOR SELECTIVE TUNING

Theset for the masses as well as the classes

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ridden in a Colorado mining shack and can scarcely write from rheumatic cramp, scrawls a page of appreciation to his Radio friend—Bill Hay.

That's why the man in Missouri wrote "There are three things which put KFKX above every other station—clarity of transmission, unusually high class programs and the best announcer in the world."

world."
They write to Bill Hay in French, Spanish, German and Mexican and a wee note in Scotch as well, as frequently they "murder the king's English!"
Perhaps some college will confer a degree of Doctor of Satisfaction on a Radio announcer. If so, we nominate Bill Hay for an early candidate!

#### R. H. L. to Broadcast from **WOC** with His Contributors

WOC with His Contributors

DAVENPORT, Iowa.—Have you ever read the "Line O' Type" column in the Chicago Tribune? If so, here's your chance to hear the conductor and some of his "contribs" perform in person. Tune in to Station WoC, located in this city, on March 14 and hear them.

Richard Henry Little, better known to the readers of the paper as "R. H. L.," will journey down to Davenport for the occasion and bring his troupe with him. During his appearance at WGN, the station is flooded with telegrams until the end of the program, showing how popular he and his "colyum" really are.

#### Will Hold Radio Monopoly Hearings in But Two Cities

Hearings in But Two Cities
WASHINGTON, D. C.—It is probable
that hearings in the Federal trade commission's case against the Radio Corporation of America and others in an alleged
monopoly will be held only in New York
and Washington, although a final decision on this point has not yet been
reached. Edward L. Smith, attorney for
the commission in this case, and James A.
Horton, his assistant, have left for New
York to interview witnesses and gather
data in connection with the taking of oral
testimony. This is to begin in New York
on March 18. reassuring.

"Not more thane one voice in a hundred is a real Radio voice," he went on, "and that one sometimes doesn't know how to use it.

"The Radio voice is the properly placed singing or speaking voice, using the same correct tone placement at the microphone as on the platform or stage. And that's why I say to be yourself, for if you are natural and talk naturally your voice will come over the microphone naturally, too."

That's why they ask Bill Hay from way out in California if they may call him Uncle Bill as familiarly as they do their own beloved Uncle John of KHJ.

That's why the shut-in, who is bed-



# Sweep the Ether

with a Jewett Superspeaker and learn the amazing difference that has led Radio laboratories, the world over, to install this instrument as their standard for measuring all others. Stow away your headphones!

> A big, beautiful musical instrument, built by musical instrument makers, of experience and reputation-No extra batteries -Straight throat eliminates bugling-Exclusive adjustment gives you absolute control of volume without detuning. Just tryit!

> "THERE IS NO SUBSTITUTE FOR THE BEST"

# Superspeaker,

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### WLS DRAMAS HAVE **MUSIC BACKGROUND**

RALPH EMERSON ACCOM-PANIES PLAYERS

WOC Drama Leader Says Broadcast Plays Not Easy to Do as the Legitimate Variety

CHICAGO.—Broadcasting Radio plays with musical accompaniment has proven a success over WLS, the Sears-Roebuck station, according to Harry Saddler, who has charge of the productions of the WLS theatrical company. Several tests have been made and several plays produced. The last big production two weeks ago was "In Old Kentucky," the famous race play.

was "In Old Kentucky," the famous race play.

The broadcasting was done from the Barton studio in the Mallers building, with special musical accompaniment by Ralph Emerson at the organ.

Mr. Emerson when at the organ always has a Radio headset on so he can hear his own playing on the air, as well as the lines read by the actors and actresses.

Broadcast Drama Not So Easy
DAVENPORT, Iowa.—Roy Van Allen, director of the Palmer School (WOC)
Dramatic club, rises to say that broadcast plays are not as easy to produce as they might seem. The man on the street thinks it is much easier to act before the microphone than before a crowded house of a theater. But such is not the case.

Mr. Allen stresses the point that the feelings of the audience behind the footlights, which are practically lost to the Radio studio, act as a guide and inspiration to the actor of the legitimate stage. Then, too, the characters in the cast of a legitimate production are always in the costume of the part they are portraying, another aid which Radio drama does not always have. A further hindrance to the histrionic expression of the Radio actor is that he must keep close to and not wander away from the microphone.

So broadcast drama isn't as easy as it looks.

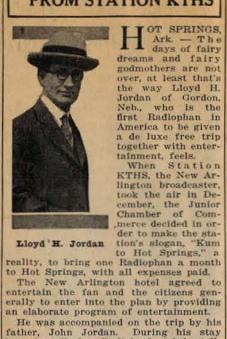
UNIFORMITY VITAL IN TRANSFORMERS
Experienced set-builders agree that the trouble with most makes of transformers is lack of uniformity. Thordarsons are the exception—they run absolutely alike, absolutely uniform; always "match up" perfectly; always amplify evenly over the entire musical scale. That is one of the big reasons why leading makers use more Thordarsons than all competitive transformers combined. Partial list below:







#### FAN RECEIVES TRIP FROM STATION KTHS



He was accompanied on the trip by his father, John Jordan. During his stay here, he talked to Radioland nightly, telling of his impressions of the resort.

#### Telephone Subscribers Get **Broadcast Service Gratis**

PITTSBURGH, Pa.—Engineers of the telephone company are busily engaged combing over the Forest Hills district near this city to ascertain what is causing the trouble with the telephones in the neighborhood.

A short time ago, one of the subscribers picked up a phone to give a number when he was astonished to hear the strains of 'IT Ain't Gonna Rain No Mo'" played by an orchestra. The theory is that a powerful short wave station in the vicinity is responsible for the trouble.

#### Low Loss Equipment Stands **Out at Amateur Convention**

NEW YORK.—Low loss designs of Radio equipment stood out paramount as the latest development in apparatus at the fifth annual Radio show and convention of the A. R. L. executive Radio council held last week at the Hotel Pennsylvania here. Broadcasts from the convention hall were made through Station WJZ Tuesday and Thursday nights.

#### Radio at Open House

NORMAN, Okla,—At the University of Oklahoma engineering open house, now on here, and continuing to March 17, a number of Radio tricks and unusual Radio control apparatus are on exhibit. The open house celebrates the opening of the university's new engineering building. All interested are invited to attend.

# WJJD OPENS GAROD STUDIO AT CHICAGO

ON AIR EVERY NIGHT FROM NEW PALMER HOUSE

Thirty-seven Miles of Wires in Link to Station of Loyal Order of Moose

CHICAGO.—Heralded by a program par excellent, the Garod studio at the Palmer house here of the Loyal Order of Moose station, WJJD, Mooseheart, Ill., was officially opened on Monday night, March 9. Listeners in tuned to 302.8 meters had a treat not often found on the air.

Notables from every Chicago station, Potter Palmer, proprietor of the Palmer house; Mayor William E. Dever and his official family, Secretary of Labor James J. Davis, opera singers, theatrical lights and representatives of the Radio press were in attendance. News reel motion pictures were taken of the opening ceremonies.

The new studio of WJJD will be heard nightly, beginning at 10:30 p. m., Central time. It is provided by the Garod Radio corporation with the Loyal Order of Moose. Thirty-seven miles of wires connect the studio to the station at Mooseheart, where the equipment is located.

# Earn 50 to 200 a Week in RAD

You can! Hundreds of ambitious men are already earning thousands of dollars in this wonderful new industry—you, too, can get your share. Mail coupon below for Free Book which describes fully the amazing money-making opportunities in Radio and tells you how YOU can earn from \$5,000 to over \$10,000 a year.

big money opportunities. Millions of dollars were spent during the past year on Radio, and thousands of young men are needed right now to meet the ever-increasing demand of work.

Men are needed to build, sell and install Radio sets-to design, test, repair-as radio engineers and executives-as operators at land stations and on ships traveling the world over-as operators at the hundreds of broadcasting stations. And these are just a few of the store. wonderful opportunities.

#### Easy to Learn Radio at Home in Spare Time

No matter if you know nothing about Radio now, you can quickly become a



### Pay Increases Over

\$100 a Month

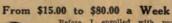
am averaging anywhere from
to \$150 a month more than I
making before enrolling with
I would not consider \$10,000
much for the course.

(Signed) A. N. Long,
Greensburg, Pa.

#### Doubles Salary

can very easily make double amount of money now than be-I enrolled with you. Your se has benefited me approxi-ely \$3,000 over and above what yould have carned had I not







THE astounding growth of Radio expert, by our marvelous new method of practical instruction—instruction which includes all the material for building the latest up-to-date Radio apparatus.

apparatus.

Scores of young men who have taken our course are already earning from \$75 to \$200 a week. Merle Wetzel of Chicago Heights, Ill., advanced from lineman to Radio Engineer, increasing his salary 100%, even while taking our course! Emmett Welch, right after finishing his training, started earning \$300 a month and expenses. Another graduate is now an operator of a broadcasting station—PWX of Havana, Cuba—and earns \$250 a month. Still another graduate, only 16 years old, is averaging \$70 a week in a Radio store.

#### Wonderful Opportunities

Hardly a week goes by without our receiving urgent calls for our graduates. "We need the services of a competent Radio Engineer." "We want men with executive ability in addition to Radio knowledge to become our local managers." "We require the services of several resident demonstrators"—these are just a few small indications of the great variety of opportunities open to our graduates. our graduates.

Take advantage of our practical training and the unusual conditions in Radio ing and the unusual conditions in Radio to step into a big paying position in this wonderful new field. Radio offers you more money than you probably ever dreamed possible—fascinating, easy work—a chance to travel and see the world if you care to, or to take any one of the many Radio positions all around you at home. And Radio offers you a glorious future!

The National Radio Institute is one of America's Pioneer Radio Schools—es-tablished in 1914. Our course is an absolutely complete one which qualifies for a government first-class commercial li-It gets you bigger paying jobs

#### Send for FREE RADIO BOOK

Learn more about this tremendous new field and its remarkable opportunit- city...



Learn how you can quickly become Radio expert and make big money in Radio.

We have just prepared a new 32-page booklet which gives a thorough outline of the field of Radio—and describes our amazing practical training in detail. This amazing practical training in detail. This Free Book, "Rich Rewards in Radio," will be sent to you without the slightest obligation. Mail coupon for it now!

For a short time we are offering a reduced rate to those who enroll at once. Act promptly and save money.

National Radio Institute

Dept. 55-EB.

Washington, D. C.



NATIONAL RADIO INSTITUTE, Dept. 55-EB, Washington, D. C.

Please send me without the slightest obligation your ree Book, "Rich Bewards in Radio," and full details your special Free Employment Service. Please write

#### AN EVENING AT HOME WITH THE LISTENER IN IN EASTERN TIME

	SEI	E INSTR	UCTION	NS FOR	USE B	ELOW)		343
Station and City	Met.	100000000000000000000000000000000000000	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
AT9, Fort Bragg, N. C CFAC, Calgary, Alta CFCA, Toronto, Ont	435 430 350	8:00- 9:55 Silent Silent	Silent 7:00- 8:00	11:00- 3:00	8:00- 9:55 10:45-11:45 8:15- 9:15	Silent 10:15-11:15 8:15- 9:15	8:00- 9:55 12:00- 2:00 8:15- 9:15	Silent 10:00-11:00 Silent
CHYC Montreal Que	341	11:00- 1:00 Silent 7:30-11:00	Silent 9:00-10:00	Silent	12:30- 1:30 Silent	Silent 8:30- 9:30	Silent	Silent Silent
CKAC, Montreal, Que CKCD, Vancouver, B. C CKY, Winnipeg, Man	410	11:30-12:30 Silent	4:30- 5:30 Silent 8:00- 9:00	11:30-12:30	7:30-11:30 11:30-12:30 8:30-10:15	11:30-12:30 Silent	8:30-9:30 11:30-12:30 8:30-10:15	Silent 11:30-12:30 8:30-10:15
CKOD, Vancouver, B. C., CKY, Winnipeg, Man., CNRO, Ottawa, Ont., CYB, Mexico City, Mex.,	435 370	7:30-12:00 9:30-10:00	Silent Silent	Silent	Silent 9:30-10:00	7:30-12:30 Silent	Silent 10:00-12:00	Silent Silent
CYL, Mexico City, Mex CYX, Mexico City, Mex KDKA, E. Pittsburgh Pa	480 330 309.1	Silent Silent 7:30- 9:55	Silent Silent 4:00- 8:45	Silent 10:00- 1:00 6:15- 9:55	11:00-12:30 Silent 6:15-12:00	Silent Silent 6:15- 9:55	Silent Silent 6:15-12:00	9:00-11:00 6:15- 9:55
KFAE, Pullman, Wash KFAU, Boise, Idaho	348.6 275 315.6	Sflent Silent Silent	Silent Silent Silent	10:30-11:30 10:00-11:00 Silent	Silent Silent 8:00-11:30	10:30-11:30 Silent	Silent	10:30+11:30 10:00-11:00
KFI, Los Angeles, Calif KFKB, Milford, Kan	468.5 273 275	9:45- 2:00 7:00-12:00	7:00- 2:00 9:00-11:00	9:45- 2:00	9:45- 2:00 7:00-12:00	7:00-12:00	7:00-12:00	8:00+11:30 9:45-3:00 7:00-12:00
KFKX, Hastings. Nebr	288.3	Silent	Silent Silent	7:50-10:45 10:30-12:00 Silent	Silent Silent	Silent	7:50- 9:45 10:30-12:00	Silent
KFMQ, Fayetteville, Ark, KFMX, Northfield, Minn. KFNF, Shenandoah, Ia	266	7:30-10:00	8:00-9:00 7:30-9:00	Silent	Silent Silent	Silent 10:00-11:00 7:30-10:00	8:30-9:30 Silent 7:30-10:00	Silent Silent 7:30-10:00
KFOA, Seattle, Wash KFPT, Salt Lake City Utah KFRU, Bristow, Okla	384.4 261 296.9	10:00-12:00	6:00- 7:00	8:00-11:30	9:45- 2:00 10:00-11:00 11:30- 1:00	9:45-1:00 10:00-11:00 9:00-11:30	Silent 10:00-11:00 11:30-12:30	9:45-2:00 11:00-12:00 12:00-2:00
KFRU, Bristow, Okla KFUO, St. Louis Mo KGO, Oakland, Calif KGW, Portland, Ore	545.1	Silent 11:00- 3:00	6:30-10:30	Silent	Silent	10:15-11:15	Silent 11:00- 3:00	Silont
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KJS, Los Angeles, Calif KLX, Oakland, Calif KNX, Hollywood, Calif	508.2 336.9 322.4	Silent 9:15- 5:00	Silent 10:00- 2:00 9:50-10:50	9:00- 2:00	9:00-10:00 9:30- 3:00	9:00- 2:30	Silent 9:30- 2:00	9:00- 1:30 9:30- 3:00
KOA, Denver, Colo KOB, State College, N. M KPO, San Francisco, Cal	348.6	11:00- 3:00	Silent 11:30- 1:00	9:30-10:30	Silent Silent 10:00- 2:00	9:30-10:30	Silent Silent 11:00- 2:00	10:00-11:00 9:30-10:30 11:00- 3:00
KSAC, Manhattan, Kan KSD, St. Louis, Mo KTHS, Hot Springs, Ark	340.7 454.1	9:00-10:00 9:30-12:00	9:00-10:00 Silent 9:30-12:15	8:20- 9:00 9:00-11:00 9:30- 2:15	8:20-9:00 7:00-11:00 9:30-11:00	8:20- 9:00 Silent 9:30-12:00	8:20 - 9:00 9:00-12:30 9:30 - 2:15	8:20- 9:00 Silent 9:30-11:00
KTW, Seattle, Wash	435	8:00- 3:00	8:00-10:00	Silent	Silent 8:00- 3:30	Silent 8:00- 3:30	Silent 8:00- 3:30	Silent 8:00- 3:30
	434.5 400 275	Silent 8:30-11:00 Silent	Silent Silent Silent	7:45- 8:00 Silent 7:00- 9:00	7:45- 8:00 Silent Silent	7:25- 7:40 8:30-11:00 7:00- 9:00	7:45- 8:00 Silent Silent	7:45- 8:00 Silent 7:00- 9:00
WABN, La Crosse, Wis WAHG, Richmond, N. Y.	244 315.6 475.9	Silent 12:00- 2:00 8:00- 9:00	Silent Silent 12:00- 1:00	10:00- 1:00 8:00- 2:00 8:30-11:45	Silent Silent 8:30-11:45	Silent 800-11:30 8:30-11:45	10:00- 1:00 Silent 8:30-11:45	Silent 8:00-11:30 8:30-11:45
WBBG, Mattapoisett, Mass.	293.9 248 226	Silent Silent Silent	Silent	8:00-9:00	Silent	Silent 8:00- 9:00	Silent	8:00- 9:00 7:00- 2:00
WBBR, Staten Island, N. Y.	272.6 266	8:00- 9:45 7:00- 2:00	9:00-10:00 9:00-10:20 5:00- 1:00	Silent 8:00- 8:50 Silent	9:00-10:00 Silent 7:00- 2:30	Silent Silent 7:00-11:15	9:00-10:00 8:00- 8:59 7:00- 2:00	Silent Silent 7:00- 2:00
	333.3	6:00-11:00 6:30- 9:30 1:00- 2:00	7:00-11:00 4:00- 7:30	6:00-11:00 6:30-12:00	7:00-2:30 6:00-9:55 6:30-12:00	6:30-11:00	6:00-12:45 6:30-11:00	7:00- 2:00 7:05- 8:05 6:30-10:00
WCAE, Pittsburgh, Pa WCAL, Northfield, Minn WCAP, Washington, D. C WCAU, Philadelphia, Pa.	336.9 468.5 278	Silent	9:30-11:00 6:20-10:15 5:30- 9:30	12:00- 1:00 7:00-11:30 Silent	Silent Silent 7:30- 9:30	Silent 6:00-12:00 8:00-11:10	10:00-11:00 Silent 7:30-11:00	9:30-10:30 7:30-12:00 7:00-10:00
WCBD, Zion, III	344.6 416.4 516.9	Silent 9:00-12:00 6:00-7:00	3:30-10:00 5:10-10:15 Silent	9:00-11:30 9:00-12:00 6:00- 9:30	Silent 7:30-11:00 6:00-11:00	Silent 8:00- 1:30 6:00- 9:30	9:00-11:30 8:00-11:00 6:00-7:00	Silent 7:30- 1:00 6:00-11:00
WDAF, Kansas City, Mo. WDWF, Providence, R. I.		7:00- 2:00 Silent	5:00- 6:30 5:00- 6:45	7:00- 2:00 Silent	7:00- 2:00 9:00-10:30	7:00-10:15 Silent	7:00+ 2:00 Silent	7:00- 2:00 Silent
WEAR Columbus Obio	491.5 293.9 389.4	6:00-12:30 8:00- 9:00 Silent	8:15-10:15 Silent	6:00-11:30 Silent 7:00- 8:00	6:00-10:00 Silent	6:00-12:00 9:00-10:20 7:00- 8:00	6:00-12:00 Silent 7:00-10:00	6:00-12:00 Silent 7:00-10:00
WEAR, Cleveland, O WEBH, Chicago, III WEBJ, New York, N. Y. WEBW, Beloit, Wis WEEI, Boston, Mass WEMC, Regretor Sprs., Meth.	27.0 2	8:00-1:00 Silent Silent	3:30- 5:00 8:00-10:00 Silent	Silent Silent Silent	7:30-10:00 8:00-1:00 7:00-9:00 9:00-10:00	7:00- 8:00 8:00- 1:00 7:00- 9:00 Silent	7:00-10:00 8:00-1:00 Silent	8:00- 1:00 7:00- 9:00
WEEL Boston, Mass WEMC, Berrien Spgs., Mch.	268 475.9 285.5	Silent	5:80-6:30 3:45-10:15 9:15-11:00	6:30-10:00 9:15-10:15	6:30-11:00 Silent	6:30-12:00 9:15-10:15	8:30- 9:30 6:30-11:00 Silent	Silent 6:30-10:30 10:00-11:45
WEMC, Berrien Spgs., Mcn. WFBH, Dallas, Tex WFBH, New York, N. Y. WGBS, New York, N. Y. WGRS, Miffalo, N. Y. WGR, Biffalo, N. Y. WGST, Atlanta, Ga. WGY, Schenectady, N. Y. WHAA, Madison, Wis. WHAS, Louisville, Ky	475.9 272.6 204.5	9:30-1:00 6:00-8:45 6:30-9:00 6:00-12:00	7:00-12:00 6:00- 8:30 4:30- 5:30	7:30-10:30 6:00- 1:15	7:30-1:00 6:00-11:30 6:30-11:00	Silent 6:15- 1:15 6:30- 8:00	7:30-1:00 6:00-12:30 6:30-10:00	7:30-10:30 6:00- 1:30
WGBS, New York, N. Y WGN, Chicago, Ill	315.6 370.2	6:00-12:00 7:30-12:00	3:30-3:45	6:30-8:00 6:30-7:30 Silent	6:00-10:00	Silent 7:00-12:00 8:00-11:00	6:00-11:00 7:00-12:00	6:30- 8:00 6:00- 7:30 7:00-12:00
WGR, Buffalo, N. Y WGST, Atlanta, Ga WGY, Schenectady, N. Y	319 270 379.5	6:00- 7:30 Silent 9:30-12:00	4:00- 8:30 Silent 3:35-11:00	10:00-11:00 6:40- 9:00	6:00-11:30 Silent 6:30-12:30	8:00-11:00 Silent Silent	6:00-11:00 8:00- 9:00 6:30-11:30	6:30-11:00 Silent 7:00-11:30
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WHAZ, Troy, N. Y	379.5 305.6 273	Silent 6:00- 1:00 6:30-12:30	Silent 9:00-2:00 7:30-11:00	9:00-10:00 8:00- 9:00 6:00- 7:30	Silent 9:00-11:15 6:30-7:30	Silent 8:00- 9:00 6:00- 7:30	Silent 8:00-11:00 6:00-11:30	Silent 8:00-9:00 6:00-10:00
WHB, Kansas City, Mo WHK, Cleveland, Ohio WHN, New York, N. Y WHO, Des Moines, Ia WIP, Philadelphia, Pa	361.2 526 508 9	6:30-12:30 Silent 6:05-12:05	3:00-12:45 5:00- 9:30 3:15- 9:30	8:00-9:00 6:00-7:30 6:30-1:00 8:30-1:00 6:05-7:30	6:30-12:30 Silent 6:00-12:00	6:30-12:30 7:30-12:00	6:30-12:30 12:00- 1:00 6:05-12:00	6:30-12:30
WIAS, Pittsburgh, Pa	305.9 275.3 302.8	6:05-12:05 7:10- 8:10 Silent 8:15- 1:00	7:20-10:15 Silent Silent	6:05- 7:30 8:00- 9:00 8:30-11:00	8:00-9:00 8:30-11:00 8:15-9:15	6:05- 7:05 8:00- 1:00 7:30-11:00	Silent	6:05-7:30 7:30-11:00 7:30-10:00
WJY, New York, N. Y WJZ, New York, N. Y	302.8 105.2 154.3	SHent	Silent 4:00- 8:30	8:15- 9:15 Silent 7:00-10:00	8:15-11:00 7:00-10:20	8:15- 9:15 Silent 7:00-10:30	Silent 7:30-10:00 7:00-12:00	8:15- 9:15 8:30- 9:30 7:00-11:30
WKAQ, San Juan, P. R WKAR, Lansing, Mich	340.7 285.5	Silent 12:30- 2:30 1:00- 2:00	Silent	Silent 7:00- 8:00	8:00- 9:30 Silent	7:00- 9:00 8:00- 9:15	7:00- 8:30 Silent	Silent 7:00- 8:00
WIZ, New York, N. Y WKAQ, San Juan, P. R WKAR, Lansing, Mich WLBL, Stevens Pt., WIS WLIT, Philadelphia, Pa WLS, Chicago, Ill WLW, Circinnatt, O	394.5 344.6	7:30- 8:30 9:00- 1:00	Silent 2:00- 3:30 7:30- 9:00	Silent 7:30-11:02 Silent	9:00-10:00 7:30- 8:50 7:30- 2:00	Silent 7:30-11:03 7:30-1:00	Silent 7:30- 8:30 7:30- 0:00	Silent 7:30-11:03 7:30-12:00
AL HILLER TO THOUGHTON FOR THE PERSON	147.5	9:00-11:00 Silent 7:00-11:00 8:00- 3:00	Silent Silent	9:00-11:00 8:00- 9:00 Silent	9:00-11:00 Silent	11:00- 1:00 Silent 7:00-11:00	12:00- 2:00 12:00- 1:00 7:00-11:00	Silent Silent 7:00-11:00
WMBF, Miami Beach, Fla WMC, Memphis, Tenn	384.4	9:30-10:30	8:00- 3:00 Silent	9:30-10:30	7:00-11:00 8:00-3:00 9:00-1:00	8:00- 3:00 Silent	9:30-10:30	9:30- 1:00
WMC, Memphis, Tenn WMH, Cincinnati, O WNAC, Boston, Mass WNYC, New York, N. Y WOAI, San Antonio, Tex. WOAW, Omaha, Nebr WOAX, Trenton, N. J	422.3 280.2 526	11:00-1:00 10:00-11:00 6:30-10:20	7:00- 8:30 8:30-10:30 9:00-11:00	9:00-11:00 7:00-11:00 7:00-10:25	Silent 9:00-11:00 7:20-10:20	9:00-11:00 7:00-11:00 7:30-10:30	9:00-11:00 9:00-11:00 7:20- 9:30	Silent 7:00-11:00 7:30-10:20
WOAL, San Antonio, Tex. WOAW, Omaha, Nebr	394.5 526 240	Silent 7:00- 1:00 Silent	8:30-11:30 7:00-11:00 Silent	Sflent 7:00-12:30 Silent	9:30-11:30 7:00-12:30 9:15-11:00	Silent Silent Silent	10:30-11:30 7:00-12:30 Silent	Silent 7:30-12:30 9:00-11:00
WOC, Davenport, Ia WOI, Ames, Ia WOO, Philadelphia, Pa		7:30- 1:00 Silent	9:00-12:30 Silent	Silent 11:00-12:00	7:30-10:00 Silent	7:30-11:00 Silent	7:30-1:00 9:15-10:15	7:30-10:00 Silent
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WORD, Batavia, III	440.9 299.8	Silent 9:00-12:00	8:00- 8:50 8:30- 9:30 3:15-11:00	9:00- 9:50 9:00-10:00 Silent	Silent 7:00-12:00	Silent 9:00-10:00 Silent	8:15-12:00	Silent 9:00-10:00 7:00-11:00
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WRBC, Valparaiso, Ind WRC, Washington, D. C. WREO, Lansing, Mich WRW, Tarrytown, N. Y	285.5	Silent 9:00-11:00	7:00- 8:00 8:00-11:30	Silent 9:00-11:30	8:15- 9:45 9:00-11:30	Silent 9:00-11:30	8:15- 9:45 9:00-11:30	Silent 9:00-11:30
WSAL Cincinnati. O	336.9 325.9	Silent 9:00- 2:00 9:00- 1:00	Silent 4:00- 5:00 8:30-10:15	Silent 7:00- 1:00 9:00- 1:00	Silent 8:00-11:10 9:00- 1:00	8:00-9:00 Silent 11:45-1:00	Silent 11:00- 1:00 9:00- 1:00	Silent Silent 9:00- 1:00
WSUI, Iowa City, Ia WTAM, Cleveland, O WTAS Elejin III.	483.6 389.4 302.9	8:30-10:00 6:00-12:00 7:00-1:30	8:00-10:30 Silent	8:30-10:00 6:00-12:00 7:00-1:30	Silent 6:00-7:00 7:00-1:30 7:10-8:30	11:45- 1:00 8:30-10:00 6:00- 1:00 7:00- 1:30	Silent 6:00- 7:00 7:00- 2:30 7:10- 8:30	Silent
WTAY, Oak Park, Ill WTIC, Hartford, Conn WWJ, Detroit, Mich	250	7:10-11:00	7:00-1:30 Silent Silent	Silent	8:00- 9:001	8:00-11:00	Silent	6:00-7:00 7:00-1:30 7:10-8:30 8:00-9:00
Instructions for 1	352.7		7:20-10:00l	307-000	THE PERSON	6:00-11:00	6:00-12:30	6:00- 9:30

Instructions for Use—All the hours above are given in Eastern Standard Time. If your city uses Central Time, subtract one hour from each of the periods stated; if your city uses Mountain Time, subtract two hours; if your city uses Pacific Time, subtract three hours. This table includes only the evening and, on Sunday, the late

#### STATIONS IN ORDER OF WAVE LENGTHS USED

	EXCEPTION OF				-		San House Co.			, , ,
Meters C	all   Meter	s Call	Meters	Call	Meter	rs Call	Meter	rs Call	Meter	rs Call
226 WBI		WORD	315.6	WAHG	361.2	KGO	411	CKAC	468.5	WRC
240 WO		WJAS	315.6	WGBS	361.2	WHN	416.4	WCCO	475.9	WBAP
244 WA1		WCAU	319	WGR	365.6	WDAF	420.3	KPO	475.9	WEEI
248 WB		WLBL	322.4	KOA	365.6	WHB	422.3	WLW	475.9	WFAA
250 WT.		WRBC	325.9	WSAI	370	CYB	422.3	WMH	480	CYL
261 KF			330	CYX	370.2	WEBH	428.3	WSB	483.6	WOC
265.5 WM		WKAR	333.3	WBZ	370.2	WGN	430	CFAC	483.6	WSUI
266 KF1		WEMC		KFMX	374.8	KTHS	434.5	NAA	491.5	KGW
266 WB0	0000	*******	336.9	KNX	379.5 379.5	WGY	435	CNRO	491.5	WEAF
266 WCl	00000	77.77		WCAL	389.4	WEAR	440	CFCN	499.7	WMC
270 WG	D 1 000 0	WBAV	336.9	WSAC	384.4	WMBF		WDWF	508.2	KLX
	01 9929	WEAO		KSAC	389.4	WTAM	440.9	Wos	508.2	WIP
272.6 WB	BR 2989	KFRU	341	CHYC	394.5	WLIT	447.5	WMAQ	516.9	WCX
272.6 WF1		KFMQ		WCBD	394.5	WFI	447.5	WQJ	526	WHO
273 KFI		WPG	344.6	WLS	394.5	WOAI	450	CKY		WOAW
273 WE		WJJD	348.6	KFAE	399.8	WHAS	454.3	WJZ	526	WNYC
273 WI		WTAS	348.6	KOB	405.2	KHJ	455	KTW	535.4	WHA
273 WH	000.0	WJAR	348.6	WTIC	405.2	WJY.	461.3	WCAE	535.4	KYW
275 KF.		KDKA	350	CFCA	405.2	WOR	468.5	KFI	545.1	KFUO
275 WA	BL 315.6	KFDM	352.7	WWJ	410	CKCD	468.5	WCAP	545.1	KSD



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# CONSTANCE TALMADGE GUEST OF KNX

#### Saturday, March 14

#### Eastern Time Stations

The following schedules of programs are given in Eastern time. To change to Central time, subtract one hour; Mountain time, subtract two hours; Pacific time, subtract three hours.

time, subtract three hours.

Saturday, silent night for: AT9, CFCA, CKY, CNRO, CNRT, KFDM, KFAB, KFAE, KFKU, KFKX, KFMQ, KFMX, KFDO, KLX, KOB, KSAC, WBAP, WCAU, WCBD, WDWF, WEAO, WEAR, WEB!, WEBW, WEE!, WGST, WHA, WHAD, WHAZ, WHB, WHO, WKAQ, WOA!, WO!, WOO, WJY, WOS.

CHNC, Teronto, Can. (350), 9-11 p. m., CHNC dance orchestra, Charles E. Bodley, director; Etrnest Caldwell, baritone; L. Grace Nicholls, reader.

CKAC, Montreal, Can. (411), 7 p. m., kiddles' stories; 7:30, Windsor hotel diffuse concert; 8:30, La Presse studio concert; 10:30, Windsor hotel grill dance orchestra.

chestra.

CNRO, Ottawa, Can. (435), 7:30 p. m., bedtime story
and lullaby, Aunt Agnes; S. James McIntyre and his
Chateau Laurier concert orchestra; S:30, Irene Babin,
soprano; A. Lewis, saxophonisi; Gordon Rogers, reader;
Frank A. Sim, tenor; C. C. Ballantyne Fuller, planist
"Geology in the Development of Mineral Resources,"

Frank A. Sim. tenor; C. C. Ballantyne Fuller, piants!;

'Geology in the Development of Mineral Resources,''
E. D. Ingall; dance muste.

KDKA, Pittsburgh, Pa. (309.1), 6 p. m., Westinghouse band; 7:30, Richard the Riddler; 7:45, last minute helps to Bible school teachers, Carnam Coyer Johnson; 8, Richard the Riddler, for the grownup; 8:30, Westingshouse band, T. J. Vastine, director; Mrs. Jessie Santmyer, sograno; Herbert Dugan, bartione.

PWX, Havana, Cuba (400), 8:30 p. m., studio concert, Cesar Simone, Augusto Carucchu, tenors; Emma Roldan, sograno; Prof. Julian de Campo.

WAHG, Richmond Hill, N. Y. (315.6), 12-2 a. m., special program, Glen C. Smith's Paramount orchestra.

WBBR, New York, N. Y. (272.6), 8 p. m., Syrian Oriental musicians, Toufic Moubaid, Elizabeth Awad; 8:15, Bible questions and answers, Judge Rutherford; 8:45, Syrian Oriental musicians.

WGAE, Pittsburgh, Pa. (461.3), 2:30 p. m., tea-dansant, Nixon restaurant; 4:30, orchestral program, Ed Lally's Rendezvous cabaret orchestra; 6:30, dinner concert, William Penn hotel; 7:30, Uncle Kaybee; 7:45, special feature; 8:30, artist-students, studios Charles le Sueur.

WCX. Detreit, Mich. (516), 6 p. m., dinner concert.

Feature; S.30, artist-students, studios Charles le Sueur.

WCX, Detroit, Mich. (516), 6 p. m., dinner concert, Rook-Cadillac hotel.

WEAF, New York, N. Y. (491.5), 4-4:10 p. m., Jack Holcombe, bartlone; 4:10-5. Eugene Ingraham's orchestra; 8-7. dinner music from Waldorf-Astoria hotel; 7-7:15. David Williams, Welsh tenor; 7:15-8, Lincoln High school orchestra of Jersey City; 8-9. Delta Upsilin glee club; 9-9-9-15, Waldorf-Astoria concert orchestra; 9:45-10:20, Mabelanna Corby and others; 10:20-10:50, Francis Moore, pianist; 11-12, Vincent Lopez Hotel Pennsylvania orchestra;

WFI, Philadelphia, Pa. (394.5), 3:30 p. m., Ethel Povlick Echard, soprano; Edna Lerieux, contrallo; Mary Houser, songs; Guet, Mae Heart, Edith Prettyman; 4.

hotel orchestra; 8, Bible talk; 8:30, talk on phychology, Mabel Dill; 9, banquet, American society Navai Engineers; 10, dance music, Vincent Lopez and his Hotel Mayflower orchestra; 11, Crandall hour of music, Crandall's Metropolitan theater; 12, organ recital, Otto F.

Beck.
WREO, Lansing, Mich. (285.5), 10-12 midnight, Frank
Logan and his orchestra.
WTAM, Cleveland, Ohio (389.4), 6-7 p. m., dinner
misic, Hotol Statler studio; 9-12, Ev. Jones and his
WTAM dance orchestra; Marian Stevens, blues singer;
George Luntz, boy baritone; Empire Hawailan quintet.
WWJ, Detroit, Mich. (352.7), 3 p. m., Detroit News
orchestra.

Central Time Stations

The following schedules of programs are given in Central time. To change to Eastern time, add one hour; Mountain time, subtract one hour; Pacific time, subtract two hours.

KFNF, Sheanadoah, Iowa (286), 6:30 p. m., orchestra from Morton Mills, Roy Rockwell, director.

KSD, 8t. Louis, Mo., (345.1), 8 p. m., 8t. Louis Symphony orchestra, Rudolph Ganz, director.

KTHS, Het Springs National Park, Ark. (374.8), 8:30-10 p. m., singers, bird imitators, old time fiddlers, Mount fals; 9:45-10:45, Meyer Davis New Arlington Orthestra.

orchestra.

KYW, Chicago, III. (535.4), 6:35-7 p. m., children's bedtime story; 7-7:39, dinner concert, Congress hotel 8-8:58, Nina Heden, contratto; Evelyn Parker, reader; Kathleen Kearney, Capt. Thomas J. Caughlin in Irish songs; 9:05. "Income Tax," H. A. Harris; 9:35-11:39, Congress classic; 12-1, Congress carnival; 1-2, Insomnia

club.

WBCN, Chicago, Ill. (266), 6-6-45 p. m., Blue Bird serenaders; 7-8, fireside hour, Lucas sisters; 8-1 a. m., Midway Gardens orchestra; George Cleveland, reader; Hazel O'Nell, soprano; Elizabeth Emmett Malone, soprano; Arlon glee club.

WGAL, Northfield, Minn. (386.9), 12 p. m., midnight musical.

musical.

WCCO, Minneapolis-St. Paul, Minn. (446.4), 2:30 p. m. Soo Line Brotherhood of Rullway and Steamship Clerks; 8. fireside philosophies, Rev. Roy L. Smith; 8:30, concert; 10. Joe Peyer's St. Paul Athletic club orchestra; Gold Medal Radio quartet.



Teresa
R. Nagel
(left) interviews some
person of importance afternoons at WGES,
New York, and
also gives timely
talks in the morning, Rev. James W.
Fifield, national
preacher, lecturer,
traveler and Radio
speaker, is on the staff
of WHB, Kansas City, and
is heard every Tuesday.

Thyrza Sloan
Stein, soprano
of WFI, also
writes many
of the talks on
music given
from this station. She has
become well
known in Fhiladelphia for
her musical
criticisms.

#### Headliners of the Week

NONSTANCE Talmadge, a favor-CONSTANCE Talmadge, a favorite with the motion picture audiences, will soon become popular with Radiophans. She will be on the air Saturday at 11 p. m., Pacific time from KNX. R. H. L. and his Line O' Type artists are becoming wanderers of the air. They will spend Saturday at WOC, Davenport.

Sunday night the Theater Guild and Vaudeville Tapestry Ball and Buffet Supper will be broadcast by WGBS, New York. Among the merry guests and entertainers will be Jascha Heifetz, Laurette Taylor and the Duncan Sisters. KFI, Los Angeles, is featuring this same evening Estelle Heart Dreyfus in a Lenten hour. She will sing songs of faith.

The WTAM program scheduled for Monday night will commend itself to fans. The WTAM Symphonic ensemble, Edwin Arthur Kraft, organist, and Marie Simmelink, soprano, are well-known WTAM artists.

Songs, Jiggs and reels of old Ireland will fill the ether Tuesday. KGO plans a special Irish program with

explanations on how St. Patrick's day began. Jay Bruce, a real lion hunter, who hunts for a living will also tell how one may become proficient in this occupation.

The Waterloo fiddle band, champions of Nevada County, Arkansas, will return to KTHS, Hot Springs National Park, Wednesday, and play all sorts of country quartets and specialties. Artists of campus fame will take the air this evening at KEMY Carleton college. KFMX, Carleton college.

The Euterpean club of Fort Worth and the Texas Christian university will divide the air Thursday at WBAP. These two organizations were well known throughout Texas and are now known nationally due to their good work on the air.

The WGY Opera company will sing the popular grand opera "II Trovatore." The entire four acts will be given. James Crapp, Viola Halles, Rose Mountain, Marion Brewer, A. O. Coggeshall and Joseph Kopczynski are taking the principal roles. The work of this opera company does not need any recommendation.

Ralph Walter's dance orchestra; 6, Rey Elrae dance orchestra; 6:39, Meyer Davis Bellevue Stratford concert orchestra; 7, Sunny Jin, the kiddies' pal; 8, Indian program, Deskeska, chief of six nations.

WGBS, New York, N. Y. (315.6), 3:19-3:29 p. m., Nelson Van Horn, pianist; 6-6:30, Uncle Geebee; 6:30-7:30, Harwood's Musical Aces; 9:30-9:45, "Inside Movie Chats," Sam Comly; 9:45-10, San Souel ladies trio; 10-10:39, songs, Kenneth Burdick; 10:30-11, Newman Levy and Frank Sullivan, the world's best humorists; 11-12, music.

chestra.

WIP, Philadelphia, Pa. (508.2), 4:15 p. m., ments
hygiene talk; 6:05, Charles Masters dance orchestra

7, Uncle Wip's bedtime stories; 8, Lenten talk; 8:11
concert, students Penn Charter school; 10:05, Howar
Lanin's dance occhestra; 11:05, organ recital, Ka

wlit, Philadelphia, Pa. (394.5), 7:30 p. m., Arcadia cafe concert orchestra.

WNYC, New York, N. Y. (528), 6:30-7:30 p. m., Club
Alabam orchestra; 7:35-8, Chateau Four: 8:15-8:25,
talk; 9:30-10, song and instrumental recitals; 10:10-

talk: 9:30-10, song and mercuminal 10:30, travel talk, WOO, Philadelphia, Pa. (508.2), Wanamaker crystal tea room orchestra, Robert E. Golden, director; 4:45, organ reoital, Mary E. Vogt.

WPG. Atlantic City, N. J. (299.8), 9 p. m., concert,
Hotel Traymore ensemble: 10:30, dance music, Chal-

Hotel Traymore ensemble; 10:30, dance music, Char-fonte-Haddon hall orchestra. WRC, Washington, D. C. (468.5), 6:45 p. m., children's hour. Madge Tucker; 7, trying Boernstein's Washington

WCEE, Elgin, III., (275), 7 p. m., The Boss' Own orchestra, Fred Hamm, director; Eddle Loftus, WCEE Radlo stars; II, midnight dance program, "Boss' Own" orchestra, Fred Hamm, director; Eddle Loftus, Frank Morris and other features.

WDAF, Kansas City, Mo. (365.6), 3:30-4:30 p. m., Star's Radlo orchestra; 6-7, plano tuning-in number on the Duo-Art; address, Roger W. Balson; Tell-Moral Carlotte, Lady: Trianon ensemble; II:45-I, Morry Old Chief, Plantation players; Eddle Kuhn's Kansas City Athletic club orchestra.

a-Story Lady; Trianon ensemble, 17-3-7, 2017, 2017, Chief, Plantation players; Eddie Kuhn's Kansas City Athletic club orchestra.

WEBH. Chicago, Ill. (370.2), 7-8 p. m., Edgewater Beach Oriole orchestra; Radio Sunday School lesson; 8, mausical bits from Balaban & Katz Riviera theater; 9-10, Edgewater Beach Oriole orchestra; Eleanor Gilmour, soprano solos; 10, Pat Barnes, songs and stories; Langdon Brothers, Hawaiian guitars; Marle Kelly, readings; 11-12, Edgewater Beach Oriole orchestra; Banks Kennedy, songs; 12, Loos Brothers, songs; Langdon Brothers, Hawaiian guitaris; Ned and Ches, sonss; Wayne Meyers, stories; Kay Ronayne, songs; Marle Kelly, readings.

WFAA, Dallas, Tex. (475.9), 6-7 p. m., vesper recital, Honey Boys orchestra; 8:30-9:30, John Thorwald, bartone; 11-12, Adolphus hotel orchestra.

WGN, Chicago, Ill. (370.2), 6 p. m., organ recital, Lyon & Healy; 6:30-7, Drake concert ensemble, Blackstone string quintet; 8-9, Maxwell Adams; 10-11, Don Bestor Drake dance orchestra; Jerry Conley Blackstone dance orchestra.

WHAS, Louisville, Ky, (399.8), 4-5 p. m., Louisville Conservatory of Music, Alamo theater organ; 7:30-9, Sylvian trio; T. H. Graf, plunist.

WLBL, Stevens Point, Wis. (228), 12 midnight, "Enemies of Sleep."

WLS, Chicago, Ill. (344.6), 7 p. m., lullaby time, Ford

of Sleep."

WLS, Chicage, III. (344.6), 7 p. m., lullaby time, Ford and Glenn's trip to Chile; 7:20, barn dance, Glenn's Threshers; Nubs Allan, Harmony Girls, Sears-Roebuck Four Aces of Harmony, Walter Peterson, Ford and Glenn, Ralph Emerson, Dave Nudelman; 11:15, Senate theater review

Glenn, Raiph Emerson, Dave Nudelman; 11:15, Sanate theater review.

WLW, Cincinnati, Ohio (423), 2:30 p. m., WLW program, Radio show; 6, dinner hour concert, Selinsky instrumental quintet; Lafafone, E. D. Leonard, WMAQ, Chicago, III. (447.5), 6 p. m., 'Daddy,' Church Athletic association; 8, Russell Pratt, Fred Daw; 8:30, 'Russia,' Frederick A. Mackenzie; 9, weekly Balaban & Katz Chicago theater revue.

WMC, Memphis, Tenn. (449.7), 8:30 p. m., program, students of the U. of T. doctors.

WOAW, Omaha, Neb. (526), 6 p. m., Davis Studie of Expression; 6:30, music; 6:45, dinner program, Brandels store restaurants; 7:30, weekly address, auspices Omaha Chamber of Commerce; 9, Saxon Family orchestra; 10, Randall's Royal Fontenelle orchestra; 11, Frank W. Hodek, Jr., and his Nightingale orchestra; 11, Frank W. Hodek, Jr., and his Nightingale orchestra; 11:30, Arthur Hays, ovranist.

WOC, Davenport, lowa (483.6), 6:30 p. m., sandman's visit, Val McLaughlin; 6:50, international Sunday school lesson, Rev. M. A. Getzendamer; 9, R. H. L. and his 'Line o' Type or Two' artists, Melo'd, Peter Pan, Lundee, Helen Henna, Snowshoe Al; 11. (Continued on page 10)

# "R. H. L." OF LINE FAME TO VISIT WOC

#### Saturday, March 14

#### (Continued from page 9)

(Continued from page 9)

Lonis Connor and his LeClaire hotel orchestra; Peter MacArthur, baritone.

WQJ. Chicago, Ill. (447.5), 7-8 p. m., Ralph Williams and his Rainbo Garden orchestra. Elsie Orr, soprano; Anne Burrows, accompanist; Agatha Karlen, reader; 10-2, Ralph Williams and his Rainbo Skylarks; Jerry Sullivan; Harry Gelse; Melodians; Alfred Tweed; Clarence Theders, tenor; George A. Little, Larry Shay; Yukona Cameron, soprano; Rick, Whalen, Gardner; Clyde Hager, 'The Dynamic Delineator of Characterization in Song."

WSB, Atlanta, Ga. (428.3), 6 p. m., Sunday school lesson, Dr. Martin MeHull; 8-9, Ed and Grace McConnell; 10:45, Robert Fulton orchestra.

WTAS, Elgin, Ill. (302.2), 8 p. m., WTAS dance program, 'Boss' Own' orchestra, Fred Hamm, director; Eddie Loftus and other features.

#### Mountain Time Stations

The following schedules of programs are given in Mountain time. To change to Eastern time, add two hours; Central time, add one hour; Pacific time, subtract

KOA, Denver, Colo. (322.4), 9-12 midnight, dance music, Joe Mann and his Rainbow-Lane orchestra.

#### Pacific Time Stations

The following schedules of programs are given in Pacific time. To change to Eastern time, add three hours; Central time, add two hours; Mountain time, add one hour.

KFI. Los Angeles, Calif. (468.5), 5:30-6 p. m., Examiner's musical half hour; 6:45-7, Radiotorial; 7-7-45, Lake Arrowhead dance orchestra, Mel Lemmon, leader;



Luetta Min-nick is one of the Seedhouse bunch which entertains regularly at KFNF, Shen-andoah. This bunch is noted

7:45-8, the bookshelf, Nancy; 8-9, Examiner, Trojan Five, dance orchestra; 9-10, male and mixed quartet in comic opera favorites; 10-11, Packard Radit club; The Varsity trio, Ruth and Lilah Carlson, Way Watts of the A. E. F. Blackface trio, Barney Weber, tenor. FOA, Seattle, Wash. (384.4), 6:45-8:15 p. m., Rhodes Department store program; 8:39-10, Seattle Times dance music; 10:05-11, Eddle Harkness and his orchestra.

obstanting the program of the control of the contro

man as Chief Lost Angel.

(NX, Hollywood, Calif. (336.9), 5:45-6:15 p. m., Wurlitzer pipe organ studio; sports talk, Std Ziff; 6:15-7:39, dinner hour music; 8:10, KNX feature program; 10-11, Abe Lyman's Coccanut Grove dance orchestra from Ambassador hotel; 11-1 a. m., Hollywood night, presenting Constance Talmadge, famous chema star. (90, San Francisco, Calif. (420.3), 3:30-5:30 p. m., tea dansant, Gene James' Rose Room Bowl orchestra; 6:20, garden hints; 8-12, Art Weldner's dance orchestra.

#### Sunday, March 15

inday, silent night for: AT9, CHNC, CKAC, CNRO, CNRT, KFAB, KFAE, KFKU, KFKX, KFMQ, KOB KSAC, WAHG, WBAV, WDAF, WEAO, WEAR WEBJ, WGST, WHA, WHAD, WHAS, WHAZ, WIP WKAQ, WLBL, WLIT, WOI, WRC, WTAM, WWJ

Eastern Time Stations

CFCA, Toronto, Can. (356), 11 a. m., services, Bloor Street Baptist church, Rev. W. A. Cameron, CKAC, Montreal, Can. (411), 4:30 p. m., band, City of Granby; talk, Mayor Boivin. KDKA, Pittsburgh, Pa. (309.1), 11 a. m., services, East End Christian church; 2:30 p. m., concert; 4. Dr. Charles Heinroth, organist; 4:45, vesper services, Shadyside Presbyterian church; 6:30, dinner concert, Pittsburgh Athletic association; 7:30, Calvary Episcopal church.

Pittsburgh Athletic association; 6:30, dinner concert, Pittsburgh Athletic association; 7:30, Calrary Episcopal church.

WBBR, New York, N. Y. (272.6), 10 a. m., T. Armstrong, violinist; Mrs. L. M. Brown, soprano; 10:30, Bible lecture; 11, Rita Rozada, soprano; 11:15, piano solos; 9 p. m., Mrs. Hans Haag, planist; 9:10, I. B. S. A. choral singers; 9:25, Bible lecture, Judge Rutherford; 10, I. B. S. A. choral singers; 10:10, Dr. Hans Haag, violinist; 10:25, clioral singers; 10:10, Dr. Hans Haag, violinist; 10:25, clioral singers, WCAE, Pittsburgh, Pa. (461.3), 10:45 a. m., services, Roder Shalom temple; 3 p. m., People's Radio church services; 4, Prof. Otto Kalteis, planist; 6:30, dinner concert, William Penn hote!; 7:20, Roxy and his gang. WCAU, Philadelphia, Pa. (278), 5:15 p. m., recital; 5:30, sermon, Rev. Dr. John Stockwell; 6, Hotto Pennsylvania Meyer Davis concert orchestra. WCX. Detroit, Mich. (516), 7:15 p. m., services, Central Methodist Episcopal church.

WDWF, Providence, R. J. (440.9), 10 a. m., chimes; 5:4:15, Venetian serenaders; Philharmonic pipe organ, WEAF, New York, N. Y. (491.5), 8:15-9:20 p. m., Roxy and his gang, Capitol theater; 9:29-10:15, organ recital, WEAF, Cieveland, Ohio (388.4), 1-2 p. m., Allen theater orchestra; 3:30-5, twillight concert, Ivan Francisci and his Hotel Cleveland orchestra.

WEEI, Boston, Mass. (475.9), 3:45-5:30, men's conference, Y. M. C. A.; 7:20-9:15, "Roxy and His Gang," New York Capitol theater; 9:15-10:15, organ recital, Columbia university.
WFI, Philadelphia, Pa. (394.5), 4:30 p. m., studio chapel services; 7:30, services, Arch Street Presbyterian church, WGBS, New York, N. Y. (315.6), 3:30-4:30 p. m., program, Pleadilly theater; 9:30-12, program, Theater Guild, Vaudeville Tapestry Ball, Buffer Supper, Jascha Heifetz, Laurette Taylor, Duncan Sisters.
WGR, Buffalo, N. Y. (319), 3-4 p. m., vesper service, Rev. F. L. Gangway, Westminster Presbyterian church; 4-5, Randolph Maynard, organist; 7:15, Central Presbyterian church service, William Wall Whiddit, organist, and Dr. Robert J. MacAlpine, speaker.
WGY, Schenectady, N. Y. (379.5), 11 a. m., First Presbyterian church; 3:35 p. m., WGY Symphony orchestra; 5, Dr. Frank Sill Rogers, organist; 7:30, First Presbyterian church; 3:35 p. m., WGY Symphony orchestra; 5, Dr. Frank Sill Rogers, organist; 7:30, First Presbyterian church; 8:45, Waldorf-Astoria orchestra; WJZ; 10, Tuskeegee institute quartet, WJZ, WHN, New York, N. Y. (361.2), 3-4 p. m., program, Queens County Christian Endeavor; 4:30-5, Collectate dance club; 5-5:30, Roseland dance orchestra; 5:30-6, Collectate dance services; 11:35-11:145, Cannel's Inn revue; 11:45-12:15 a. m., Harry Richman and his entertainers, wJY, New York, N. Y. (462.), 8:15-9:15 p. m., Bernhard Levitow's Hotel Commodore orchestra; 10-10:10, "Reminiscences of a Reporter," William H, Crawford, WJZ, New York, N. Y. (454.3), 4-5 p. m., Vesper services, St. Georges church; 7-8, Nathan Abas' Hotel Pennsylvania orchestra; 10-10:20, Hampton Institute quartet.

quartet.
WLIT, Philadelphia, Pa. (394.5), 2 p. m., Lenten services; 2:30, Arcadia cafe concert orchestra.
WNYC, New York, N. Y. (526), 9-11 p. m., Brooklyn
Mark Strand theater program, Edward L. Hyman, director, and program from stage and studio of Riaito
theater.

rector, and program theater, theater, WOO, Philadelphia, Pa. (508.2), 6 p. m., organ recital, Clarence K. Bawden; 7:30, services, Bethany temple; organ recital, Caroline Quipp; sermon, Rev. Gordon Caroline Quipp; sermon, Rev. Gordon

organ rectal, Caroline Quipp; sermon, Rev. Gordon A. MacLennan.
WREO, Lansing, Mich. (285.5), 10 a. m., chimes, beltry Plymouth Congregational church; 10:30, services, Plymouth Congregational church, Dr. Edwin W. Bishop, pastor; 7 p. m., Central M. E. church, Rev. Frank Kingdon, pastor.
WWJ, Detroit, Mich. (352.7), 11 a. m., services, St. Paul's Episcopal cathedral; 2 p. m., Detroit News orchestra; 7:20, Roxy and his Gang.

orchestra; 7:20, Roxy and his Gang.

Central Time Stations

CKY, Winnipeg, Can. (450), 7 p. m., service, Home Street Church of Christ; 8:45, First Baptist church. KFMX, Northfield, Minn. (336.9), 7 p. m., vesper speaker, Dr. Frederick F. Kramer.

KFNF, Shenandeah, lowa (266), 10:45 a. m., First M. E. church; 3 p. m., services, Christian church; 6:30, services, Golden Rule circle; 8. Christian church; 6:30, services, Golden Rule circle; 8. Christian church; 6:50, services, Golden Rule circle; 8. Christian church; 6:0, services, Golden Rule circle; 8. Christian church; 8:0, services, Golden Rule chu

Barden brothers.

WCAL, Northfield, Minn. (336.9), 8:30 p. m., sacred program, Macdowell: Louise Stenseth, planist; Marion Llandahl, mezzo-soprano; Scripture reading, Rev. Nils Kleven; Lloyal Tallakson, tenor.

Call, minister; Velda Grant Kelleher, soprano; Reginald W. Billin, bartione.
WHB, Kansas City, Mo. (385.6), 9:40-11 a. m., Linwood Boulevard Christian church, Dr. Burris A. Jenkins, minister; 2:45 p. m., Christian Science services; 8-9, independence Boulevard Christian church, Dr. B. H. Miller; 9-10, special classical program.
WHO, Des Moines, Iowa (326), 11 a. m., University Church of Christ, Dr. Charles S. Medbury; 4 p. m., program, Dean Holmes Cowper, director; 7:30, Reese-Hughes orchestra.
WLS, Chicage, Ill. (344.6), 6:30 p. m., Ralph Emerson, organist; 7, Apollo quartet, Nemeroff string trio.
WLW, Cincinnati, Ohio (423), 9:30 a. m., school, Editorial staff of Sunday school publications, Methodist book concern; 11, Church of Covenant, Dr. Frank Stevenson; 7:30 p. m., services, First Presbyterjan church, Dr. Frederick McMillan; 8:30, Western and Southern orchestra, William Kopp, director; Carl Wunderle, 2lther soloist.
WOAI, San Antonlo, Tex. (394.5), 11 a. m., First Presbyterjan church; 7:30, Central Christian church; 9:30, WOAI entertainers present "Cavalletia Rusticana."
WOAW, Omaha, Nob. (326), 9 a. m., Radio chapel service, Rev. R. R. Brown; 1:30 p. m., matinee program, May Seed and Nursery company; 6, Bible study period, Mrs. Carl R. Gray; 9, chapel service, Zion English Lutheran church, Rev. Nels Lundgren, pastor; Bernard Johnston, choir director; Evan Nelson, organist.
WOC. Davenport, Ia. (483.6), 8 p. m., St. Katherine's

organist,
WOC, Davenport, Ia. (483.6), 8 p. m., St. Katherine's
Enisconal school, Rev. Gites Sharpley; 9:30, Palmet

WOC, Davenport, Ia. (483.6), 8 p. m., 8t. Katherine's Episcopal school, Rev. Glies Sharpley; 9:30, Palmer Little symphony.
WO1, Ames, Iowa (270), 10:45 a. m., college chimes; 11, chanel services, Dr. Gerald Birney Smith.
WORD, Batavia, III, (275), 7-8 p. m., 1. B. S. A. choral singers; musicale; A. L. Seeley, Bible lecture.
WOS, Jefferson City, Mo. (444.0), 7:30 p. m., per; Preston Bradley's sermon, People's church; Clarence Eddy, organist; 8-10, Raiph Williams and his Rainbo Garden orchestra; Jeanette Van Lennep, scorpanist; Alerman J. Techantine, bartone; Oscar H. Williamson, tenor; Harry Abernethy, accompanist; Albert M. Tillon, Jr., tenor; Marie Watson Tilton, accompanist.
WSA1, Cincinnati, Ohie (325.9), 3 p. m., sermonette and chimes.

and chimes.

WSB, Atlanta, Ga. (428.3), 11 a. m., First Presbyterian church service; 5-6 p. m., First Georgia Methodist Bethany church; 7:30, Wesley Memorial church service, WTAS, Elgin, Ill. (302.8), 7 p. m. midnight star program, Kimball hall, "Boss' Own" orchestra, Fred Hamm, director; WTAS Radio Stars, Eddie Loftus, Frank Morris and other features.

#### Mountain Time Stations

Mountain Time Stations

KOA, Denver, Colo. (322.4), 11 a. m., Unity church, Dr. George Glimour, pastor; 4 p. m., Unity church organ recital; 7:45, service, Unity church.

Pacific Time Stations

KFI. Los Angeles, Calif. (486.5), 10 a. m., L. A. Church Federation service, "Un a "Pree," O. D. Conrey of Receue Mission; 10:45-12:30 p. m., Temple Baptist church, D. J. Whiteomb Brougher, pastor; Dr. Ray Hastings, organist; 4-5, vesper service, Federated Church Musicians; 6:45-7, music appreciation talk, Paul Resey, 7-8, specialities and orchestra from Mertor-politan theater; 8-9, Lenten song hour, Estelle Heartt-Dreyfus, soprano; Jay Plowe, flutist; Grace Andrews, accompanist; 9-10, Examiner, Anton Lada and his Louisians Five; 10-11, Thereon Bennett's Los Anhelenos orchestra.

KGO, Oakland, Calif. (364.2), 11 a. m., First Presbyterian church; 2:30 p. m., KGO Little Symphony orchestra, 7:30, First Presbyterian church.

KGW. Portland, Ore, (494.5), 10:30 a. m., service, First Presbyterian church, Dr. Harold Leonard Bowman, pastor; 3 p. m., municipal concert; 6, church services, Portland Gouncil of churches; 7, Colburn conservices, Portland Gouncil of churches; 7, Colburn c



A pirate ship sails across the ether every Tuesday night from midnight to 2 a. m., via WBCN, Chicago, carrying this crew of fierce pirates and cannibal princesses. Doughtery Iron Knuckle, the first mate, is here shown with his head on the block. The Captain, Bloody Bill McDonnell, the man at the right, has ordered the third mate, Terrible Terry Yagle, to cut off the head of Iron Knuckle. Princess Coo Coo Downs and Princess Kazooza Hoyt are pleading for his life. The Pirates conduct a real treasure hunt Tuesdays.

WCBD, Zion, III. (344.6), 8 p. m., special service, Wilbur Glenn Vollva; Zion choir.

WCCO, Minneapolis-St. Paul, Minn. (416.4), 11 a. m., Trinity Baptist church, Rev. Hryn-Jones, pastor; 4:10 p. m., House of Hope Presbyterian church, Rev. H. G. Swearingen, D. D., pastor; 7:30, First Baptist church, Rev. W. B. Riley, pastor; 9:15, classical concert, Sigrid Reosencranz, soprano; Adolph Eckstrom, violinist.

WDAF, Kansas City, Mo. (365.6), 4-5 p. m., program, Kansas City high school band, W. M. Ryder, director; 5-5:30, international Sunday school lesson, Dr. Watter L. Wilson.

5-5:30, International Sunday school lesson, Dr. Watter L. Wilson, Ill. (370.2), 5-6 p. m., twilight musicale; 7-9, selected artists program.
WEBW, Beloit, Wis. (268), 4:30 p. m., vesper service, Beloit college.
Beloit college.
Springs, Mich. (285.5), 11 a. m., wem.

WEBW. Beloit, Wis. (268), 4:30 p. m., vesper service, Beloit college.

WEMC, Berrien Springs, Mich. (285.5), 11 a. m., sacred music, Radio Lighthouse choir, Mrs. Madei Butterfield, soprano; Ruth Nelson, violinist; 11:40, sermon, Pastor W. R. French; 8:15 p. m., Radio Lighthouse choir, Prescott Fairchild, violinist; 8:50, sermon, Pastor John Knox.

WFAA, Dallas, Tex. (475.9), 6-7 p. m., Radio Bible class. Dr. William M. Auderson, pastor: 7:39-8:39, service, First Methodis. Episcopai church, Dr. Carl C. Gregory; 8:39-9:30, choristers, Gaston Avenue Baptist church; 9:39-11, Jack Gardner's orchestra.

WGN, Chicago, Ill. (370.2), 11 a. m., Lucle Wait's comics; 11:45, twin organ recital, Mr. and Mrs. Jesse M. Crawford; 2 p. m., organ recital, Eyon & Healy; 3, Ruth Marcotte, Catherine Wade Smith, violinists; James W. Wolfe, Daritone; 3:30, Chicago Musical college; 9-10. "An Evening with the Composers," Charles H. Gabriel, Jr.; Ethel Wakefield, soprano; Drury Lenington, tenor; Drake concert ensemble.

WHAS, Louisville, Kw. (399.8), 10 a. m., First Christian church, Rev. E. L. Powell; 4-5, vesper song service, auspices First Unitarian church, Rev. Lon R.

Hickman's Biltmore hotel concert orchestra, Edward Pitzpatrick, director; 7-7:30, organ recital, Arthur Blakely; 8-10, feature program, Harold Arnold, Inc., J. Howard Johnson, director.

KNX, Hollywood, Calif. (336.9), 5-6:15 p. m., Radio sunset service, theater of Ambassador hotel, Rev. Chas. F. Aked and Rev. Frank Dyer conducting, 7-7:45, International Bible Students' association hour of music; 8-9, Ambassador hotel concert orchestra, Josef Rosenfeld, director; 9-11, program, Globe Ice Cream company, KPO. San Francisco, Calif. (428.3), 11-12 m., church services, A. E. Kelley; Theodore J. Irwin, organist; 8:30-10, Rudy Seiger's Fairmont hotel orchestra.

#### Monday, March 16

CFCA. Toronto, Can. (356), 6:36-7:50 p. m., dinner music, Hippodrome theater. CHiC. Toronto, Can. (350), 10-11:30 p. m., classical

studio concert. Can. (350), 8:30 p. m., CHNC Little Symphony orchestra. Charles E. Bodley, director; mixed quartet, Norma Wilcox, 30prano, Jessie Bult, contralto, Albert David, tenor, Charles Leslie, bartone KDKA, Pittsburgh, Pa. (309.1), 6:10 p. m., KDKA Little Symphony orchestra; 7:39, children's period; 8.

Boy Scout meeting; 8:15, address, Universal burgh; 8:30, concert.

WAHG, Richmond Hill, N. Y. (315.6), 8-8:15 p. m., songs, Bernice Walker; 8:15-8:45, Walter Scott, violinist prodigy; 8:45-9, songs and monologues. Evan Davies; 9-9:30, Synchrophase string trio; 9:30-9:45, Jack Shatter, tenor; 9:45-10, Synchrophase string trio; 10:10:15, Margery Crego, soprano; 10:15-10:30. Evan Davies; 10:30-10:45, Maude Mason, planist; 10:45-11, Jack Shatter; 12-2 a. m., special program, Adams Jack Shatter, 12-2 a. m., special program, Ad

Symphonic concert orchestra.

WBBR, New York, N. Y. (272.6), 8 p. m., vocal duets,
Irene Kleinpeter, Fred Twaroschk; 8:10, Irene Kleinpeter, sorrano; 8:20, world new digest, editor of
Golden Are magazine; 8:40, Irene Kleinpeter, soprano;
8:50

8:50, vocal duets.

WCAE, Pittsburgh, Pa. (461.3), 6:30 p. m., dinner concert, William Penn hotel; 7:30, Uncle Kaybee; 8:30, concert; 9, concert, A. & P. Gypsy string ensemble 11, mythical dirigible, Press-Kaybee; Blackstone theater orchestra.

concert; 9, concert, A. & P. Gypsy string ensemble; 11. mythical dirigible, Press-Kaybee; Blackstone theater orchestra.

WCX. Detroit, Mich. (516), 6 p. m., dinner concert, Book-Cadillac hotel; 7, musical program.

WEAF. New York, N. Y. (491.5), 4-4:15 p. m., Beatrice Melaragno, soprano; 6-7, dinner music from Waldorf-Astoria hotel; 7-7415, Ralph W. Tagg, baritone; 7:15-8:39, Strand theater program; 8:39-9, Cushman's Sons, Inc.; 9-10, A. & P. Gypsies; 10-10:30, Hamilton college choir; 10:30-11:39, Ben Bernie's Hotel Roosevelt orchestra.

WEAR, Cleveland, Ohio, (339-4), 7-8 p. m., musical program, Loow's State theater.

WEI, Boston, Mass. (475.9), 6:30 p. m., Big Brother club; 7:15, Pathe News flashes; 7:30, Dok Elsenbourg and his Sinfonians; S, Balley's Whispering Jazz orchestra; 9, A. & P. Gypsies; 10, concert, May Delaney Beal.

WFI, Philadelphia, Pa. (394.5), 3 p. m., Japanese concert, students of University of Pennsylvania; talk, Dr. A. Walter Stevenson; 6:30, Meyer Davis' Bellewinders.

Stratord concert orenestra; i, Sunny 31m's beddine stories.

WGBS, New York, N. Y. (315.6), 3-3:10 p. m., interview, Louis Forgione, Terese Rose Nagel; 3:10-3:20. Genevieve Williams, soprano; 3:26-3:30, program, United Parents association; 3:30-3:40, Genevieve Williams; 3:40-3:50, Spanish lessons, Professor Perez des Vegas; 3:50-4, Genevieve Williams; 6-6:30, Uncline Geobee; 6:30-7:30, Lew Kreuger's Aliadin orchestra.

WGR, Buffalo, N. Y. (319), 6:30-7:30 p. m., dinner

Norma Farns Norma Farnsw o r t h, a
pretty Phi
Beta Phi sorority girl of
the Junior Beloit college,
Wisconsin, is
the versatile
artist on the
programs of
WEBW. She
sings, whistles
and plays the
plano.



music, Knell's Tokyo dance orchestra; S, lecture.

"The Board of Education and Its Relation to the
Public"; 9-10, Robertson-Cataract program; 10-10:30,
Robert Fletcher, baritone; 10:30-11, song writing contest, Fred Dempsey, Danny Engle, Harry Murtaugh;
11-1, supper-dance music, Vincent Lopez Hotel Statler
dance orchestra, Harold Gleser, director.

WGY, Schemestady, N. Y. (379.5), 6:40 p. m., Hotel
Ten Eyck trio; 7:30, Julia P, Lemmie, planist; Marton
McKeon, soprano; George A. Avery, tenor; Eurette M.
Avery, reader; Ralph Martin, planist
WHAZ, Troy, N. Y. (379.5), 9 p. m., St. Patrick's
day program; 10, boys, Berkshire Industrial farm;
11, Wilson orchestra.
WHN, New York, N. Y. (361.2), 6:30-7 p. m., violin
solos, Olcott Vail; 7-7:10, fashion chats, Mme. Belle;
7:30-7:35, health talk, Dr. Landis; 7:35-8. Hotel
Carlton Terrace orchestra; 8-8:15, "Storage Batteries,
H. B. Shontz; 8:15-8:35, Roseland dance orchestra;
8:35-8:45, "Correcting Oily or Dry Scalp Conditions."
H. W. Carlough, Terminal Barber shops; 8:50-9:20,
Lituman's Employees' orchestra; 9:30-10, Dan Gregory
and his Crystal Palace orchestra; 12-12:30 a. m., Siver
Sipper revie with Harry Rose.
WIT, Philadelphia, Pa. (502.), 3 p. m., "Everlasting
Uzer, Wall Street Journal review, 8:10-8:20, NYU Air
college; 8:40-8:55, Patrick Lynch, accordion; 8:55-9:15,
Royal trio; 9:15-9:30, a. might with Thomas Moore;
10:45-11:45, Jacques Green and his Club Deauville
orchestra.
WLIT, Philadelphia, Pa. (394.5), 7:30 p. m., Dream

Areadia cafe dance orenestra; value value

10.03, organ recital, Mary E. Vogt; 10:30, Vincens Rizzo's dance orchestra.

WTAM, Cleveland, Ohio (389.4), 6-7 p. m., Guy Lombardo and his Royal Canadians; 8-9, instrumental hour, Walter Locan and the WTAM Symphonic ensemble; 9-11, WTAM Symphonic ensemble; 9-11, WTAM Symphonic ensemble, artists from Frank Farnaban musical studies; 11-12, Edwin Arthur Kraft, organist; Marie Simmelink, soprano.

WWJ, Detroit, Mich. (352.7), 3 p. m., Detroit News orchestra; 6, dinner concert; 8, Detroit News orchestra.

#### Central Time Stations

Central Time Stations

KFAB, Lincoln, Nebr. (240), 7:30-9 p. m., Orville Andrews, Bulck song bird; musical program, Lincoln Telephone & Telegraph company; Walter R. Carpenter, bartione; Mrs. Hazel Miller, soprano.

KFKU, Lawrence, Kan. (275), 6:50 p. m. piano tuning in number; 7, music; 7:15, "The Hurdle Races," Karl Schlademan; 7:30, play production, "Selecting the Cast." Prof. Allen Crafton; 7:45, Spanish lesson XI.

KFKX, Hastings, Neb. (288.3), 9:30-11:39 p. m., program, auspices Gaston Music and Furniture company.

KFNF, Shenandoah, lowa (266), 6:30 p. m., seedhouse concert.

concert.

KSAC, Manhattan, Kan. (340.7), 7:20 p. m., seednouse bordert.

KSAC, Manhattan, Kan. (340.7), 7:20 p. m., college bund, H. P. Wheeler, director; 7:30, "Types of Sheep," E. E. Reed; 7:40, tollege band; 7:50, "Products," N. E. Olson.

KSD, St. Louis, Mo. (345.1), 8 p. m., Morning Etude piano quartet; Mrs. Edward Meisenbach, soprano; Paul Friess, planist.

KTHS, Hot Springs National Fark. Ark. (374.8), 8:30-10, p. m., All Star quartet; Louis Davis, Charles Medill, director; Peter Penn jazz orchestra; 10-11, dance music, Charles L. Fischer orchestra; 12:15, Charles L. Fischer, dance lark.

(Continued on page 11)

# ST. PATRICK'S DAY JIGS TUESDAY

#### Monday, March 16

(Continued from page 10)

(Continued from page 10)

WBAP, Fort Worth, Texas (475.9), 7:30-8:30 p. m.,

"Camp Fire Giris" program, Lucia Walker, director;

9:30-10:45, Ward's Trail Blazers.

WGAL, Northfield, Minn. (336.9), 11 p. m., organ recital, Ellinor Overland, Grand theater.

WGBD, Zion, III. (344.6), 8 p. m., mixed quartet,
trombone quartet; Fred Faassen, organist; Carl Newcomer, saxophonist; flute duets, DePew, Randall; vocal
tric; Carcy sisters; Erma Reynolds, soprano.

WGO, Minneapolis-St. Paul, Minn. (416.4), 6:15 p. m.,
dinner concert; 8, boys and girls club work, T. A.
Erickson, University Farm school; 8:15, lecture; 8:30,
hockey game; 10:30, Dick Long's Nankin cafe orchestra.

WGEE, Elgin, III. (275), 11 p. m. the Charline Star
Monday midnight program, Kimball hotel; the "Boss'

9-10, program, Walter M. Murphy Motors company, Apollo male quartet; Virginia Flohri, soprano; Hazel Schertzinger Brewster, harpist; 10-11, Examiner, Ray West and his Alexandria hotel dance orchestra. KFOA, Seattle, Wash. (384.4), 6:45-8:15 p. m., Sherman Clay and company program; 8:30-10, Seattle Times studio program.

Clay and company program; 8:30-10, Seattle Times studio program.

KGO, Oakland, Calif. (361.2), 8 p. m., Arion trio; address on agricultural subjects; "A Lesson in English," Wilda Wilson Church; "How to Improve Your Memory," Albertine Richards Nash; "On Being a Good Hostess, and on Being a Good Guest," Edith Stevens; "Chats about New Books," Joseph Henry Jackson; 10-1, Henry Halstead's orchestra.

KGW, Portland, Ore. (491.5), 6 p. m., William Robinson Boone, organist.

KLX, Oakland, Calif. (508.2), 9:30-10 p. m., American theater orchestra; 10, meeting of the Lake Merritt Ducks.

theater orchestra; 10, meeting of the Lake Merritt Ducks.
KNX, Hollywood, Calif. (336.9), 5:45-6:15 p. m., Wur-litzer pipe organ studio; sports talk by Sid Ziff; 7-8, program, West Coast theaters, Inc.; 8-10, program, Los Angeles Ice and Cold Storage company; 10-11, Goodrich Silvertown Cord orchestra; Lillyam May Challenger.

ply company; 8-8:15, talk, Bank of America; 8:15-8:30, Le Roy Fisher, baritone; 8:30-9, Gold Dust twins; 9-10, Everacidy hour.

WEAR, Cleveland, Ohio (389.4), 7-8 p. m., Vincent H. Percy, organist; 8-10, concert from WEAF.

WEBJ, New York, N. Y. (233), 7-7:15 p. m., Lillian Bucknam, soprano; 7:30-7:45, E. De Bona, tenor; 7:45-8 songs, Victor Wilbur and Joe Maeey; 8-8:10, rallroad talk, G. T. Geer; 8:15-9, Johnny Basilone and his Harlem Tea Garden orchestra,

WEEL, Beston, Mass. (475.9), 6:30 p. m., Big Brother club; 7:15, Fleur Brousseau, mezzo-soprano; 7:30, Dok-Eisenbourg and his Sinfonians; 8, from New York; 8:30, Gold Dust Twins; 9, Eveready hour; 10, Goodrich Silvertown Cord orchestra,

WFI, Philadelphia, Pa. (394.5), 3:45 p. m., Camp Fire Girls' concert; 6:30, Meyer Davis' Bellevue Stratford concert orchestra; 7, Boy Scouts; 8, concert from WEAF; 9, Eveready hour; 10, banquet, Friendly Sons of St. Patrick.

WGBS, New York, N. Y. (315.6), 3-4 p. m., St. Patrick's day program with Uncle Hee Bee, Terese Rose Nagel and children; 6-6:30, Uncle Geebee; 6:30-7:30, Jersey Collegians orchestra; 9-9:30, John Murry, alley



Own' orchestra, Fred Hamm, director; WCEE Radio Stars and other features to be announced.
WDAF, Kansas City, Mo. (395.6), 330-4:30 p. m., Newman and Royal theaters; 6-7, piano tuning-in number on the Duo-Art; Cecile Burton, reader; Tell-Me-a-Story Lady; Trianon ensemble; 8-10, "Around the Town with WDAF"; 11:45-1, Merry Old Chief, Plantation players.
WEBW, Beloit, Wis. (268), 8 p. m., girls' glee club; talk, Vice-President L. E. Holden.
WEMC, Berrien Springs, Mich. (265.5), 8:15 p. m., orchestral music, Radio Lighthouse music pakers.
WFAA, Dallas, Tex. (475.9), 6:30-7:30 p. m., Buddy's Blue Melody Boys orchestra; 8:30-9:30, Wednesday Morning choral club.
WGST, Atlanta, Ga. (270), 9-10 p. m., Georgia Tech. band, Frank Roman, bandmaster.
WHA, Madison, Wis. (535.4), 7:30 p. m., address on food and nutrition, Mrs. Nellie Keckle Jones, WHAD, Milwaukee, Wis. (275), 7:30-8:30 p. m., Marguette university studio program.
WHAS, Louisville, Ky, (398.8), 4-5 p. m., concert, Louisville Conservatory of Music.
WHB, Kansas City, Mo. (365.6), 2-3 p. m., ladies' hour program, Sweeney Radio trio; 7-8, "Art and Life" R. A. Holland; music, Mrs. A. Julian Bagby; Irish songs, R. H. Richardson; 8-10, St. Patrick's day program, Georgia Tence Snyder, director; Ruth Younkin, Fred Turner; vocal solos, Tille Schormesser; songs, Elzabeth Knorr, Marcella Scigfried; Irish folk songs, Mrs. Grace Bosnoik Morris; songs, Mary Joan Parks, Martha Rogers, Euth Younkin, Mrs. Raymond Charkson.

Parks, Martha Rogers, Ruth Younkin, Mrs. Raymond Clarkson.

'HO, Des Moines, la. (526), 12:15 p. m., "The Begining of Iowa," E. R. Harlan; 2:15, Camp Fire Girls' program; 7:30-8, Leone Paul Cavanaugh, violinist; Irene Mencrney, accompanist: Ardith Kirkwood, soprano; Bernard Mason, violinist; Edith Usry, accompanist: 8-9, program, Dean Holmes Cowper; 11-12, L. Carlos Meier, organist.

'LW, Cincinnati, Chio (423), 6 p. m., dinner hour concert: 8, Legion-Air night, American Legion; 9, Times-Star program; Kari Kirksmith, celles; Howard Hafford, tenor; Senator Schultz; Times-Star orchestra, William Kopp, director.

Hafford, tenor; Senator Schultz; Timea-Star orchestra, William Kopp, director Schultz; Timea-Star orchestra, WOAW, Omaha, Mebr. (526), 6 p. m., Arthus Hays, orzanist; 6:30, music; 6:45, dinner program; 9, program, auspices Hannan-Van Brunt company.
WOI. Ames. Ia. (270), 10 p. m., popular music, WORD, Batavia, Ill. (275), 7-8 p. m., children's hour, Lincle Jim; 8-9, orchestral, solos, duets.
WOS, Jefferson City, Mo. (440,0), 8 p. m., addresses, Homer F. Williams, Earl E. Roberts, Lon S. Hayes; "Relation of Physical Education to Radial Survival," Dr. Henry S. Curtis; Prof. F. J. Zeisberg, planist, WSAI, Cincinnati, Ohio (325.9), 10 p. m., Cliff Burns' Country club orchestra.
WSB. Atlanta, Ga. (428.3), 8-9 p. m., anniversary program; 10:35, Warners Seven Aces, WTAS, Elgin, Ill. (302.8), 8 p. m., Villa Oliva Monday night Radio concert; the "Boss" Own" orchestra, Fred Hamm, director; Eddle Loftus, Frank Morris and other features.

Mountain Time Stations

KOA, Denver, Colo, (322.4), 8 p. m., ten minutes of music, Fred Schmitt and his Rialto theater orchestra; 8:10, Irish numbers; educational description of Irish songs, Rev. William O'Ryan; Irish skit. "The Courting of Widow Maione."

KOB, State College, N. M. (348.6), 7:30-8:30 p. m., "Superstitions in Medicines, Part II," Dr. R. E. MeBride; "The Spring Flower Garden," member Agricultural faculty; "The Home Garden."

Cultural faculty; "The Home Garden," memory AgriPacific Time Stations

KFAE, Pullman, Wash. (348.6), 7:30-9 p. m., marimbaphone dueta, readings, Cooper sisters; Velma Olson,
soprano; old-fashloned songs; "Opportunities in Civil
Engineering," Frof. M. K. Synder; "Can We Legislate Morals?" Rev. Clay E. Palmer; "Opportunities
with Bummer Lambs," C. M. Hubbard; "Diseases Affecting Animals and Men," Dean E. E. Wegner,
KFI. Los Angeles, Calif. (468.5), 5:30-6 p. m., Examiner's musical half hour; 6:45-7, Radiotorial talk; 7-8,
Evening Herald, Radiolans' dance orchestra; Charlie
Melson, tenor; 8-9, Indian program, Coso Hot Springs;

soprano, courtesy B, F. Goodrich Rubber company: 11-12, Abe Lyman's Cocoanut Grove dance orchestra from Ambassador hotel, KPO, San Francisco, Calif. (428.3), 4:30-5:30 p. m., Rudy Seiger's Fairmont hotel orchestra; 8-9, Irish folk lore, P. J. Kelleher; Irish "Folk Musie," Redfern Mason; 9-10, program, Emile Lichtig, baritone.

#### Tuesday, March 17

Tuesday, silent night for: AT9, CHNC, CNRO, CNRT, KFAB, KFAE, KFNF, KFKU, KFKX, KFMX, KFUO, KLX, KOA, KOB, WAHG, WBAY, WBBR, WCAL, WGBD, WEAO, WEMC, WGST, WHA, WHAD, WHAZ, WHO, WOI, WOO.

WHAD, WHAZ, WHO, WOI, WOO.

Eastern Time Stations

CKAC, Mentreal, Can. (411), 7:30 p. m., Windsor hotel dinner concert; 8:30, Irish hour; 10:30, Windsor hotel dinner concert; 8:30, Irish hour; 10:30, Windsor hotel dinner concert; 22 midnight, frolles.

ONE, Moncton, Can. (313), 6:30 p. m., juvenile artists; 7:30, ct. (313), 6:30 p. m., juvenile artists; 7:30, ct. (313), 6:30 p. m., dinner concert, Pittsburgh, Par (309, 10), 6:10 p. m., dinner concert, Pittsburgh Athletic association; 7:30, children's period; 7:45, "Overcoming Racial Prejudice," Dr. John Ray Ewers; 8, concert; 9, Brunswick hour of music; 11, Pittsburgh Post studio; 11:30, concert, Grand theater, WCAE, Pittsburgh, Pa. (461,3), 6:30 p. m., William Penn hotel concert; 8, program from New York; 9, Eveready hour; 10, Goodrich Silvertown Cord orchestra.

WCAEL, Philadelphia, Pa. (278), 7 p. m., Paul Specht's WCAEL, Philadelphia, Pa. (278), 7 p. m., Paul Specht's

Eveready hour; 10, Goodrich Silvettown Cord orchestra,
WCAU, Philadelphia, Pa. (278), 7 p. m., Paul Specht's
dance orchestra; 7:30, recital, N. Snellenberg store; 8,
Cleve-Chandler Hawailans; 8:20, Media Melodians;
8:40, Symphonic Surety orchestra; 9, recital.
WCX, Detroit, Mich. (516), 6 p. m., dinner concert,
Book-Cadillae hotel; 10, The Red Apple club.
WDWF, Providence, R. I. (440.9), 8-9:30 p. m., Vincent
Lopez Arcadia dance orchestra.
WEAF, New York, N. Y. (491.5), 4-4:15 p. m., Sara
Hammond, soprano; 4:30-5, women's program; 6-7,
dinner music from Waldorf-Astoria hotel; 7-7:15,
Sophie Sopo, soprano; 7:20-7:30, Charles C. Green,
advertising agent; 7:30-8, Royal Eastern Electric Sup-

organ; 9:35-10. Irish meladies, Christine Thompson, planist; 10-10:30, Irish playlet.

WGR, Buffale, N. Y. (319), 6:39-7:30 p. m., Hallpryd string trio; 8-11, joint broadcasting with WEAF, 9-10, Eveready hour.

WGY, Schenectady, N. Y. (379.5), 6:30 p. m., New Kenmore hotel orthestra; 7:30, "Financing a College Education," Hartley F. Dewey; 7:40, WGY orchestra; Joseph Culhane, tenor; 9, Brunswick hour of music, WIZ, DRC, KDKA, KYW; 10:30, Meyer-Davis orchestra, WJZ, WRC; 11:30, Stephen E. Boisclair, organist.

Joseph Culhane, tenor; 9, Brunswick hour of music, WJZ, DRC, KDKA, KYW; 10:30, Meyer-Davis orchestra, WJZ, WRC; 11:30, Stephen E. Boisclair, organist, WJZ, WRC; 11:30, Stephen E. Boisclair, organist, WJZ, WRC; 11:30, Stephen E. Boisclair, organist, WHN, New York, N. Y. (361.2), 6:30-7 p. m., Strand roof ofchestra; 7:30-7:35, health talk, Dr. Landis; 7:35-8:16, Mah Jong Inn orchestra; 8:30-9, Dave Harman and his Cinderella orchestra; 9:9:15. Bob Miller and Jimmy Flynn, popular sons; 10-10:30, St. George hotel orchestra; 10:30-11, the New Rockwell torrace revue; 11:11:30, Everglades revue; 11:30-12, Club Alabam orchestra; 12:12:30 a. m., Parody club orchestra and revue.

WIP, Philadelphia, Pa. (508.2), 3 p. m., Wayne Branchman, tenor; Margaret Anders, soprano; Flora Ripka, accompanist; 6:95, sonss, Mark Fisher and Joe Burke; 6:15, Harvey Marburger's dance orchestra; 7, Uncle Wip's bedtime stories; 8 two-plano recital; 8:15, 'The Theater,' Elliott Lester; 9, Boy Scouts' concert; 9:15, 'The Kiwanis Scout Exhibit' talk; 9:30, recital, George T. Hottele; 10:05, 'Emo's Weekly Movie Broadeast;' 10:30, Harvey Marburger's dance orchestra, Chem. Pire Girls' program. Pettal; 9:130-19:15, Camp Fire Girls' program.

WIZ, New York, N. Y. (454.3), 7-7:15 p. m., dog talk, Frank Dole; 7:13-8, Joseph Strissof's Hotel Vanderbilt orchestra; 8-8:10, Wall Street Journal review, 8:10-8:20, N. Y. U. Air college; "Foreign Trade," Frof, J. Anton De Haas; 9-10, Brunswick hour; 10-10:15, Trish sones, Mme, Marie Narelle, WKAQ, San Juan, P. R. (340-7), 8-9:30 p. m., Euterpead, 10-10-10, Trish sones, Mme, Marie Narelle, WKAQ, San Juan, P. R. (340-7), 8-9:30 p. m., sports talk, Thornton Fisher; 7:35-8:45, Riesenfeld's Rialto program; 8:45-9:45, concert program from studio; 10:10-10:10, lecture service, board of education.

WCCO, Minneapolis-St. Paul, Minn. (416.4), 8:15 p. m., dinner concert. Diek Long's Nankin cafe orchestra; 7:30, lecture; 8, national program from New York.
WCEE, Elgin, Ill. (275), 70 m., the Boss' Own' orchestra, Fred Hamm, director; Eddie Loftius, Frank Morris, WCEE Radio Stars; 11, midnight dance program; the "Boss' Own' orchestra. Fred Hamm, director; Eddie Loftius, Frank Morris and other features;

gram; the "Boss' Own" orchestra, Fred Hamm, director; Eddie Loftus, Frank Morris and other features.

WDAF, Kansas City, Mo. (365.6), 3:30-4:30, Star's Radio trio; 5-5:30, weekly child talent program; 6-7, piano tuning-in number on the Duo-Art; Tell-Me-a-Story Lady; Maudellen Littlefield, planist; Trlanon-ensemble; 11:43-1, Newman Nighthawk night.

WEBH, Chicago, Hl. (370.2), 7-8 p. m., Edgewater Beach Oriole orchestra; Dennis sisters, songs; Dean Remick, pianist; Ray Ronayne, songs; 11-12, Edgewater Beach Oriole orchestra; Dennis sisters, songs; Dean Remick, pianist; Ray Ronayne, songs; 11-12, Edgewater Beach Oriole orchestra; Loos brothers, songs; Jack Penewell, twin Rultar; Frank Magini, songs; Barks Kennedy, songs.

WEBW, Beloit, Wis. (268), 8 p. m., concert, band, Fairbanks, Morse and company, F. R. Lhotak, director.

WFAA, Dallas, Tex. (475.9), 6:30-7:30 p. m., Hauulea School of Hawaiian music, J. B. Stevenson; 3:30-9:30, Camp Fire Girl's Schubert choral club; 11-12, Palace theater organ recital, Dwight Brown.

WGN, Chicago, Ill. (370.2), 6 p. m., organ recital, Lyon & Healty; 6:30-7. dinner concert, Drake concert ensemble, Blackstone string quintet; 8-9, St. Patrick's day. Hermanus T. Baer, bartione; 10-11, Don Bestor Drake dance orchestra.

WHAS, Louisville, Ky. (399.8), 4-5 p. m., Louisville Conservatory of Music; Alamo theater organ; 7:30-9, Carl Zoeller's Melodists; chapter Billy and Jane stories.

WHO, Des Moines, Ia. (526), 12:15 m., "The Beginning of lows," E. R. Harlan; 2:15, Camp Fire Girls' program.

WLBL, Stevens Point, Wis. (278), 8 p. m., music, avenical Stevens Point, Chember of Comperce

or town, 5. R. Harling, 2(1), (278), 8 p. m., music, auspices Stevens Point Chamber of Commerce.
WLS, Chicago, III. (345), 6:30 p. m., Ralph Emerson, organist; 6:50, Senate theater studio; 7, Iuliaby time, (Continued on page 12)

# WGY OPERA COMPANY TO SING ENTIRE OPERA, "IL TROVATORE," FRIDAY

#### Index to Talks, Lectures and Addresses

TABULATED below is a time table of the stations giving talks, lectures and addresses this week. These range from the instructive and serious to the humorous and frivolous. The stations listed are divided into the four different kinds of time in use. The hours are given in the kind of time in use at each listed station. By using this table as an index and referring to the complete programs below, full information will be obtained.

10:10, WCAU,
day, March 19: 7, WEAF;
EAF, WGY, WHN: 8, WJZ.
8:15, WJY, WNYC: 8:20,
8:30, WGBS; 8:40, WCAU;

#### Central Time Stations

aturday, March 14: 6, WDAF, AW: 6:50, WOC; 8:30, WMAQ; 9,

Tuesday, March 17 (Continued from page 11)

Priday, March 18: 6:40, KOA; 7:30,

#### Wednesday, March 18

DANCING

#### Index to Popular and Classical Concerts

TABULATED below is a time table of the stations giving popular and classical concerts this week. The concerts are divided into two classes, popular and classical. Stations are likewise divided into the four different standard times in use. The hours are given in the kind of time in use at each listed station. By using this table as an index and referring to the complete programs below, full information will be obtained,

Saturday, March 14: 6, KHJ; 6:15, NX; 6:45, KFOA; 8, KNX. Sunday, March 15: 6:30, KHJ; 7, JW, KHJ, KNX; 8, KFI, KNX,

Monday, March 16: 8, KOA; 8:10,

#### Thursday, March 19

KTHS, Hot Spring National Park, Ark. (374.8), 8:30-9 p. m., Meyer Davis, comedy trio; Phil Wall, pianist, Sam Izen, soloist; Jack Cressy, clarinetits; 9-19, Laws, Reid, organist; 12:15-1:45, Phil Baxter and his sing-

hawks. WBAP. Fort Worth, Tex. (475.9), 7:30-8:30 p. m. Euterpean club; 9:30-10:45, artists, Texas Christian

university.

WBCN, Chicago, III. (266), 7-8 p. m., classical program: 8-12. Elmer Jordan jamboree; 12-1 a. m., popu

pianist; Herbert Hauge, saxophonist; John Gaardsmoe, barltone.

WGBD, Zion, Ill. (344.6), 8 p. m., mixed quartet, string quartet; Mr. and Mrs. R. M. Steel, tenor and soprano; Mrs. Beem, Mrs. Crow, soprano and contralto; Erwin Rendail, futist; Grace Detienne, reader; Evelyn Uhlik DePew, planist.

WCCO, Minneapolis-St. Paul, Minn. (416.4), 7 p. m., National program, from New York.

WDAF, Kanasa City, Mo. (365.6), 3:30-4:30 p. m., Star's Radio trio; 6-7, plano tuning-in number on the Duo-Art; address, book talks, Louis Mecker; Tell-Me-a-Story lady; Trianon ensemble; 11:45-1 a. m., Merry Old Chief, Plantation players; Eddle Kuhn's Kanasa City Athletic club orchestra.

WEBH, Chicago, Ill. (370.2), 7-8 p. m., Edgewater Beach Oriole orchestra; Dan Russo, violinist; Ted Fortoc, Cleister; musical bits, Balaban & Katz Rivica thester 9-10, Edgewater Beach Oriole orchestra; Belle Forbest Cutter, soprano; Howard Neumiller, accumpanist; John Stamford, tenor; 11-12, Edgewater Beach Oriole orchestra; Banks Kennedy, songs; Dean Rentlet, planist; Loos Brothers, 2002.

12. Edward Cramer, violinist. WGN, Chicago, Ill. (379.2), 6 p. m., organ recital, Lyon & Healy; 6:30-7, Drake concert ensemble, Blackstone string quintet; 8-9, Mable Sharp Heriden; 10-11, Hiram college glee club; Don Bestor's Drake dance

orchestra.

WGST, Atlanta, Ga. (270), 7-8 p. m., string quartet,
W. W. Leffingwell, violinist; Mrs. Mary Emma PhilHips, violinist; Mary Leffingwell, violinist; Van Fergurson, violinist; T. S. Dunn, Prof. of geology and metal-

ists.

WHB, Kansas City, Mo. (365.6), 2-3 p. m., ladies' hour program; 7-8, "The Church a Community Asset," Dr. Henry C. Rogers; 8-10, Jack Roberts, pianist; Mrs. Nellle Heatherford, soprano; trio, Jack Brill, violinist; John Kane, cellist, Jack Roberts, pianist; Jack Roberts, tenor; Lyra Furgison, reader; 0. Kane, cellist.

WHO, Des Moines, Iowa (526), 11-12 m., Melo-Blue drane, ordered transportation.

U. of C lecture; 9:15, announced,
WOAI, San Antonio, Texas (394.5), 9:36 p. m., Jimmie
Joy's Hotel St. Anthony orchestra.
WOAW, Omaha, Nebr. (526), 6 p. m., every child's
story hour, Grace Sorenson; 6:20, musie; 6:45, Randall's Royal Fontenelle orchestra; 9, J. E. Brill, violinist; 10, musie; 10:30, Frank W. Hodek, Jr., and
his Nichtingale orchestra.

his LeClaire hotel orchestra; Peter MacArthur, barlwone.
Woll, Ames, lowa (270), 8:15 p. m., musical program,
WORD, Batavia, Ill. (275), 7-9:15 p. m., Gerald Okland, sopramo; Mrs. Roscoe Stryker, mezzo-soprano;
Victor Lowry, tenor; Alfred Loughtry, reader; Endle
Berzer, inapist; E. H. Drugsert, riolinist; Jahn concert trio; Sunday school lesson, B. P. Hollister.
WQl. Chicago, Ill. (447.5), 7-8 p. m., dinner concert,
Ralph Williams and his Rainbo Garden orchestra; fraLordia Lochner, contralto; Dorothy Davie Dillow, soprano; Blanche E. Robinson, planist; Mildred Perlin,
reader; 10-1 a. m., Ralph Williams and his Rainbo
skylarks; Verdi trio, Louis Sabella, director; Lew
Butler, Ned and Ches; Marie Wright, soprano; James
J. Whalen, tenor; 1-2, Hotsy Totsy hour, Ralph Williams, the gingerman, little skylarks.
WSAI, Cincinnati, Ohio (325.9), 7 p. m., hookup with
WEAF, Victor record artists.
WSB, Atlanta, Ga. (428.3), 8-9 p. m., Ritz Harmony
Boys orchestra; 19-35, Dr. Charles A. Sheldon, organist.
WTAS, Elgin, Ill. (302.8), 7:15 p. m., WTAS dance
program, "Boss" own" orchestra.

#### Mountain Time Stations

NRC, Calgary, Can. (450), 9 p. m., CNRC's Little Symphony orchestra; B. Joyce, clarinetist; E. Harris, soloist; Alf Carter, flutist.

#### Pacific Time Stations

KGO, Oakland, Calif. (361.2), 7:15 p. m., golf lesson. Joe Novak: 8. "Billy," KGO players; Arion trio;

Joe Novak; 8, "Billy," KGO players; Arion trio; 10-1.

KGW, Portland, Ore. (491-5) 8 p. m., Oregonian concert orchestra; 10, Multnomah Hotel Strollers.

KH1. Los Angeles, Calif. 405.2), 6-6:30 p. m., Art Hickman's Biltmore hotel concert orchestra, Edw. Fitzpatrick, director; 6:30-7:30, little stories, American history, Prof. Walter Sylvester Hertzog; Dickie Brandon, screen stariet; Uncle John; 7:30, "Art," Harold Swartz, 7:45, "Care of Body," Dr. Phillip M. Lovell; 8-10, program, Ray F. Chesley, Ford dealer; Piggly Wiggly girls trio; 10-11, Art Hickman's Biltmore hotel dance orchestra, Earl Burtnett, leader. KNX, Hollywood, Calif. (336-9), 5:45-6:15 p. m. Wurlikzer pipe organ studio, sports talk, Sid Ziff; 6:30-7:30, Ziegler's orchestra presented by L. A. County Association of Optometries; 8-10, KNX, feature program; 10-11, Abe Lyman's Coconut Gröve dance orchestra.

chestra. PO, San Francisco, Calif. (428.3), 5:30-6:30 p. m., children's hour. Big Brother; 7-7:30. Theodore J. Irwin, organist; 9-10. Patricia Galloway, soprano: 10-11, Gene James' Rose Room Bowl orchestra.

#### Friday, March 20

silent night for: AT9, CHNC, CKAC, CNRO, U, KFKX, KFMQ, KFMX, KFUO, KGO, KSO, V, WBER, WCBD, WEAO, WEBW, WFI, F, WHAZ, WIP, WKAQ, WLBL, WLW, WOAI, WRC, WREO, WSAI, WSUI.

#### Eastern Time Stations

mount orchestra.

WBAV. Columbus, Ohio (293.9), 8-10 p. m., concert, Columbus division, Pennsylvania railroad.

WCAE, Pittsburgh, Pa. (461.3), 6:30 p. m., dinner concert, William Penn hotel; 8:30, concert, Schubert

dance orchestra.

WCX, Detroit, Mich. (516), 4:15 p. m., musical program;
6, dinner concert, Book-Cadillac hotel; 7, musical program; 10, dance music, Arcadia ballroom.

WDWF, Providence, R. I. (440.9), 8 p. m., lectures and talks, faculty, Brown university.

www. Frovinence, R. I. (440.9), 8 p. m., rectures and talks, faculty, Brown university.

WEAF, New York, N. Y. (491.5), 4-4:15 p. 10. Mayme Anderson, soprano; 4:15-4:39, C. Bryce Little baritone; 6-7, dinner music from Waldorf-Astoria; 7-7:15, Premier male quartet; 7:39-7:45, childrent stories; 7:45-8, Nancy McCord, soprano; 8-8:30, Happiness Candy Boys; 8:39-10:39, Rutgers College musical club; 11-12, Meyer Davis Lido Venice orrhestra.

WEAR, Cleveland, Ohio (389.4), 7-8 p. m., program, alumni of Akron university; 8-10, International quartet; Florence Wasson, soprano; James Blair, bass; Marie Simmelink, contralto; Sam Roberts, tenor; Mrs. J. Powell Jones, accompanist; Rudolph Ringwall, violinist; Budd Cross, pianist.

WEEI, Boston, Mass. (475.9), 6:30 p. m., Big Brother club; 7:30, program, Whiting Milk company; 8, program, Neapolitan male quartet; 8:30, Sedrian trio; 9, Broderick's orchestra; 10, Louis Weir, organist.
WFI, Philadelphia, Pa. (394.5), 3 p. m., "Story of Kenneth" Chauncy Shortlidge; 6:50, Meyer, Davis Bellevue Stratford concert orchestra; 7, Sunny Jim, bedtime stories.

Marjorie Suner by refesse Rose Nagel; 3:10-8:20
Marjorie Fouts, soprano; 3:20-3:23, interriew Davis
Robinson; 3:30-3:49, Marjorie Fouts; 3:40-3:59, theory
and composition lessons, Dr. A. G. Robyn; 3:30-4.
Marjorie Fouts; 6-6:30, Uncle Geebee; 6:30-6:40,
"Radio Problems," Herman Bernard; 6:40-7:59, Larry
Funk's ordestra.

WGY, Scheneciady, N. 1. 1078-1088.

Strand theater orchestra; 7:30, health talk; 7:30, 1. Strand theater orchestra; 7:30, health talk; 7:30, 1. Trovatore, "WGY opera company.

WHN, New York, N. Y. (361.2), 6:30-7 p. 41, violin solos, Olecut Vall; 7-7:30, Harry Richman and his entertainers; 7:30-7:35, health talk, Dr. Lancis; 8-8:10, fashion chats, Mme. Belle; 8:30-9, Dave Harman and his Cinderella orchestra; 9:30-10, Dan Gregory and his Crystal Palace orchestra; 10:25-10:30, "Storage Batteries," H. B. Shontz; 10:30-11, 1

Mynne's Greenwich Village inn orchestra; 10-10:30, Monte Carlo Virginians, 12, New York, N. Y. (454.3), 7-7:30 p. m., Savarin ensemble; 8-8:10, Wall Street Journal review; 8:10-8:20, N. Y. U. Air college; 8:40-8:50, Harry J. Coffrey, tenor; 9:15-9:45, U. S. Navy; 10:30-11:30, Duke Yellman and his Irene Castle orchestras, LIT, Philadelphia, Pa. (394.5), 7:30 p. r., Dream Daddy's bedtime stories; 8, book review; 8:15, Sam Wingfield's humor talk; Philadelphia Uhter Pipe band; 10:03, Arcadia cafe dance orchestra; Morning Glory club concert.

10:03, Arcadia cafe dance orchestra; Morning Glory club concert.

WNYC, New York, N. Y. (526), 7:35-7:45 p. m., resume of meeting of Board of Estimate; 7:45-8:45, instrumental program; 9-10, German music hour; 10:10-10:30, book talk, Professor J. G. Carter Trago.

WOO, Philadelphia, Pa. (508.2), 4:45 p. m., argan recital, Mary E. Vogt; 7:30, A. Candeler's orchestra from Hotel Adelphia; 8:15, recital; 9, Asser dance orchestra from West; 10:03, organ recital, Mary E. Vogt; 10:39, Vincent Rizzo's dance orchestra.

WREO, Lansing, Mich. (285.5), 1 a. m., special orchestra from Series of Pacific Coast.

WTAM, Cleveland, Ohio (389.4), 6-7 p. m., dinner dance music, Guy Lombardo and his Royal Canadians.

WWI, Detroit, Mich. (38.27), 3 p. m., Detroit News orchestra; 6, dinner concert; 8, Detroit News orchestra; 9, Jean Goldsette's Victor Recording orchestra.

#### Central Time Stations

Central Time Stations

CKY, Winnipeg, Can. (450), 7:30 p. m., university lecture; S., studio program.

KFAB, Lincoln, Nebr. (240), 7:30-9 p. m., Buick entertainers; 9-9:30, Serenaders orchestra.

KFDM, Beaument, Tex. (315.6), 7-7:30 p. m., children's half hour; S-10:33, band concert, Magnolia Petroleum Company's Refinery band.

KFNF, Shenandesh, la. (266), 6:30 p. m., concert.

KSAC, Manhattan, Kan. (340.7), 7:20 p. m., college quartet; 7:30, "The Sanitary Control of the Milk Supply," A. C. Fay; 7:40, college quartet; 7:50, "Third Claimant," T. J. Anderson.

KTHS, Hot Springs National Park, Ark. (374.8), 8:30-9 p. m., Fischer orchestra trio; 9-10, Meyer Davis Arlington concert; ensemble, Jacques Renard.

KYW. Chicago, Ill. (536), 6:35-7 p. m., Thele Bob; 7-7:30, Congress hotel dinner concert; San. m. midnisht revue; 1-2, Insomnia club, Coon-Sanders Original inighthawks.

night revue; 1-2, Insomna cluo, Coole anders nighthawks.

WBAP, Fort Worth, Tex. (475.9), 4 p. m., weekly book review, Peter Molymeaux; 7:30-8:30, Wagner's old time fiddlers; 9:30-10:45, Texas Woman's cellege.

WBCN, Chicago, III. (266), 7-9 p. m., Becker Ryon company popular program; 9-10, Tegtemeir classical program; 10-10:30, orchestra.

WCAL, Northfield, Minn. (336.9), 8:30 p. m., book talk, Dr. George Weids Spohn.

WCCO, Minneapolis-St. Paul, Minn. ((416.4), 6:15 p. m., dinner concert, Minneapolis Athletic cipb orchestra, 1:30, lecture; 8, St. Cloud night; 9, The F. & R. Family; 19, Original George Osborn's Nicollet hotel orchestra.

Family; 10, Original George Osborn's Model notes orchestra.

WCEE, Eigin, Ill. (275), 7 p. m., "Boss Own" orchestra, Fred Hamm, director; Eddie Loftus, WCEE Radic Stars; 11 p. m., midnight dance program. Fred Hamm, director; Eddie Loftus and other features to be announced.

WDAF, Kansas City, Mo. (365.6), 3 20-4139 p. m. Star's Radio trio; 6-7, plano tuning-in number on the Duo-Art; book talk, Louis Mecker; Tuli-Me-a-Story Lady; Trianon ensemble; 8-10, p. pulsar program; 11:45-1, Merry Old Chief, Plantation viavors.

WHA. Madison, Wis. (535.4), 9 p. m., "The Law-Do We Know It," Prof. W. H. Page; University Hares-

foot club. WHAD, Milwaukee, Wis. (275), 8-10 p. m., program, Wisconsin theater.

pianist; Henrietta Nolan, violinist; 10-1, Ralph Wil-liams and his Rainbo Skylarks; Rogers Boys; West Brothers; Lauretta Giles, soprano; Nate Caldwell, planist; Zeigler Sisters; 1-2, Hotsy Totsy hour, Ralph

Williams. Gs. (428.3), 8-9 p. m., Kimokalohis Honolulu Maids; 10:45, entertainment. WTAS, Elgin, III. (302.8), 8-11 p. m., WTAS dance program, "Boss" Own" orchestra, Eddle Loftus and

#### Mountain Time Stations

CNRE, Edmoston, Can. (517), 7:30 p. m., children's half hour; 8:30, Gitsy Mahaffy, violinist; Mary Paradis, soprano; W. E. Buckley, vocalist; vocal duet, Mary Paradis, Emilie Paradise; Marguerite Patzis, pianist; Vivian Anderson, reader Gitsy Mahaffy, vocalist.

KOA, Denver, Colo. (322.4), 8 p. m., Fred Schmitt and his Rialto theater orchestra; 8:10. Blanche Dingley-Mathews Piano Work, Inc., program: "Music in the Life of the Child," Mrs. Frederika H. Wadley; KOA

orchestra.

KOB. State College, N. M. (343.6), 7:30-8:30 p. m.
popular science course, Dr. D. S. Robbins; "The Datil
and Gila National Forests," John D. Jones; musical
numbers, Prof. and Mrs. John C. Overpeck.

Pacific Time Stations

KFAE, Pullman, Wash. (348.6), 7:30-9 p. m., Vera
Bohlke, soprano; Marguerite MacLachian, violinist;
"Keeping Rabbits," Charles Stone; "What is Wort
Seeing in Paris," Prof. Carl M. Brewster; "Planning
Spring Pageants," Prof. M. L. Daggy book chat,
Alice Lindsey Webb.

Spring Pageants, Prof. M. L. Dagg; book chat, Alice Lindsey Webb.

KFI, Los Angeles, Calif. (468.5), 5:30-6 p. m., Examiner's musical half hour; 6:35-7, Radiotorial talk; 7-8, Examiner, vocal recital, pupils of Thomas Taylor Drill; 8-9, Dan McFarland, organist; 9-10, Evening Herald's hour of dance music; 10-11, Marguerite Goebel Le Grand, concert planist.

KFOA, Seattle, Wash, (384.4), 6:35-8:15 p. m., Sherman, Clay and company program; 8:30-10, Seattle Times studio program; 10:05-11, Eddie Harkness and his orchestra.

KGW. Portland, Ore. (491.5), 6 p. m., dinner concert; 8, lecture, University of Oregon Extension division; 10:30, Hoot Owls.

KHJ. Los Angeles, Calif. (405.2), 6-6:30 p. m., Art Hickman's Biltimore hotel concert orchestra, Edward Fitzpatrick, director; 6:30-7:30, little stories, American highory, Prof. Walter Sylvester Hertzog; Richard Headrick, screen juvenile; 7:30, "The Santa Fe Trail," Gladys De Witt; 8-10, program, Western Auto Supply company, arranged by J. Howard Johnson; 10-11, Art Hickman's Biltimore hotel dance orchestra, Earl Burtnett, leader.

KLX, Oakland, Calif. (508.2), 6-7 p. m., organ recital;

room.

KNX, Hollywood, Calif. (336.9), 5:45-6:15 p. m., Wurlitzer pipe organ studio; sports talk, Sid Ziff; 6:30-7:30, dinner hour music; 8-10, college 'frat' program; 10-11, June Pursell, the KNX girl, singing popular songs; 11-12, Abe Lyman's Coccanut Grove dance orchestra from Ambassador hotel.

KPO. San Francisco, Calif. (428.3), 4:30-5:39 p. m., Rudy Seiger's Fairmont hotel orchestra; 8-10, Cleveland Six orchestra; one act play, members Theater Arts club, Talma Zetta Wilbur, director.



# Supereflex Means

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# OPERATING AND TROUBLE SHOOTING

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THIS receiver possesses several unusual features both as to appearance and construction which make it materially different from any other receiver on the market. While it would come under the general classification of tuned Radio frequency, the transformers used to couple the tubes are radically different from any others and there is an unique volume control provided in the audio frequency part of the set. As can be seen from the illustration there are no dials on the face of the cabinet as is the usual practice but instead A. H. Grebe & company have utilized their well-known method of rheostat control and adapted it to tuning. The shafts of the condensers are vertical instead of horizontal and only the edges of the dials protrude through openings in the panel while, at the bottom of the panel, three knurled discs protrude which can be easily moved with the thumb. There is a vernier action, between the bottom controls and the dials, of about five to one. In the illustration, 1, 2 and 3 are the graduated dials while 4 is the volume control and 5 is the rheostat.

Connecting Accessories

tom of the panel, three knurled discs protrude which can be easily moved with the thumb. There is a vernier action, between the bottom controls and the dials, of about five to one. In the illustration, 1, 2 and 3 are the graduated dials while 4 is the volume control and 5 is the rheostat.

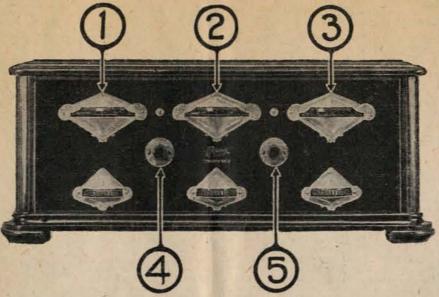
\*\*Connecting Accessories\*\*

The equipment required with this set consists of five 201A tubes, one 6-volt storage battery, 96 volts of 8 battery, one 4½-volt C battery and one loud speaker. This receiver was tested on a 66-foot vertical aerial with a ground that was known to be good, connected to the radiator. If four 22½-volt dry cell B batteries are used they should be connected in series, that is, the positive of one to the negative terminal open at one end and a positive terminal at the other. Wires sufficiently long to reach from the batteries are used they should be connected to the negative terminal at the other. Wires sufficiently long to reach from the batteries as Fahnstock cilp at the left end of the second battery from the negative terminal of these open terminals and a third should be two. B battery units believe the should be two B battery units believe the second battery from the negative end; the first and the second battery from the negative end; the first and the first and the rheostat knob 5 should be turned to the extreme left.

The antenna binding post will be found as a Fahnstock cilp at the left end of the second battery from the negative end; the first and the first and the rheostat knob 5 should be turned to the extreme left.

The antenna binding post will be found as a Fahnstock cilp at the left end of the second battery from the negative end; the first and the rheostat knob 5 should be turned to the extreme left.

The antenna binding post will be found as a Fahnstock cilp at the left end of the first and the rheostat knob 5 should be t



ready to tune for stations. It will be found that dials 2 and 3 run practically identical throughout the scale while dial 1 will not vary from their settings by more than one or two dial divisions.

We first tried for Station WEAF with a wave length of 492 and found it at dial settings of 84.5, 83, 83. Going down the scale, WCAP at Washington, D. C., on 469 was heard with maximum volume at 75, 74, 73 and just why the last dial deviated from the setting of number 2 is hard to say. The selectivity was well demonstrated on WCAP and KFI of Los Angeles, both of which were supposedly on 469 meters, and probably were not more than two meters apart. A turn of all three dials, one-fourth of a division to the left from the WCAP setting, brought in KFI and the Hotel Alexandria orchestra.

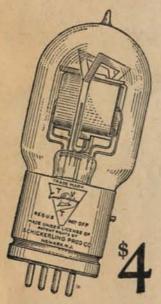
to the left from the WCAP setting, brought in KFI and the Hotel Alexandria orchestra.

Dials 2 and 3 were moved together, one division at a time to the right and dial 1 was kept slightly above them. At settings of 62, 62, 62 we found WDAF of Kansas City on 411 meters. Going further down to 59, 58, 58 the east was heard from through WDAR of Philadelphia on 395 meters.

All this time we were, of course, going through local stations and it was at these points that the volume control came in handy. The energy put into the loud speaker by this set is terrific and, without reduction, is apt to cause distortion due to the inability of the last tube and the speaker to handle it. Once the program from a moderately strong station is tuned in, the volume control can be set at the point where volume and clearness balance for enjoyable reception.

Provision is made for the many types of antennas which purchasers can put (Continued on page 20)

# The NEWEST **Schickerling Tube!**



MODEL S-1600

5 volt, standard base /100 amp., Oscillator, etector, Amplifier, Plate ltage, 16 volts to 90 slts. Operates on a 20 um rheostar with a 6 lt storage battery or 3

#### OTHER MODELS

5 volt—¼ amp. Standard Base
Model S-200 Detector . \$3.00
Model S-4000 Amplifier . \$3.00
Model S-700 Special Oscillator and Power Tube for all multi-tube sets . \$7.00
3 volt—1/10 amp. Miniature Base Model S-600 Det.-Amp. . . \$3.00

#### A standard base 5 volt tube consuming but 16/100 amperes!

THINK of it! A big husky tube with the equal volume and sensitivity of the quarter ampere tube, yet consuming only 16/100 ampere filament current!

This combined Detector, Oscillator, Amplifier tube is the true economy tube for multi-tube sets. Imagine—a 5 tube set equipped with these new Schickerling tubes will consume only 8/100 fan ampere as against 1¼ amps using the usual ¼ ampere tubes.

Can be used in all sets now using ¼ amp.

tubes, with absolutely no changes necessary.

Call at any authorized Schickerling dealer—at our factory—or at any of our branches and listen to an actual demon-stration. It's the most convincing test.

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# Be sure — that your transformers Amplification without Distortion

Acme Transformers give maximum of sound, clearly and distinctly

W HEN you put a lot of time and money into a radio set you want to be sure that it will give the best results. You want to know that your set will bring in the stations so that you can enjoy listening and be proud to call in your friends. You want Amplification, but above all you want Amplification without Distortion. Be sure to use amplification transformers that increase the sound without spoiling the increase the sound without spoiling the

The Acme A-2 Audio Amplifying Transformer is the result of 5 years of research and experimenting. It gives amplification without distortion to any set. Whether you have a neutrodyne, superheterodyne, regenerative or reflex, the addition of the Acme A-2 will make it better.

If you are not getting loud, clear radio try Acme Transformers and note the dif-

Each transformer is tested and carries a guarantee tag. If you want Amplification without Distortion use Acme Transformers in the set you build and insist on them in the set you buy. (That's one of the big reasons why the Acmeflex Kit-set gives such good results—it uses Acme Transformers.) Send for our 40-page booklet which explains how to get the best results by proper amplification and also contains a number of valuable wiring diagrams. It will help you build a set. Mail the coupon with 10 cents.

ACME APPARATUS COMPANY Transformer and Radio Engineers and Manufacturers Dept. N-3, Cambridge, Mass.

~ for amplification

lification ortion" use ACM

sformers in the

u build. Insist on the set you buy

Radio

The Amplifying Trans-former is the Magnify-ing Glass of Radio

Have the fun of making

your own radio set

Gent stamps	APPARATUS COMPANY, N-3, Cambridge, Mass. lemen: I am enclosing 10 cents (U. S or coin), for a copy of your book
	ification without Distortion."
Street	
City	State

# Radio Digest

Published by the Radio Digest Publishing Company, Inc. 510 North Dearborn Street Chicago, Illinois Telephones: State 4372, 4373, 4374, 4375

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Vol. XII

Saturday, March 14, 1925

#### Don't Blame Amateurs

W HEN broadcasting started a few years ago there were many complaints of interference caused by amateur transmitting sets, and thanks to proper legislation and a spirit of co-operation, this bugbear has almost completely disappeared.

There is no excuse for an amateur transmitter to cause interference, if a decent Radio receiving set is used and tuned properly. Most broadcast listeners use aerials which are far too long and these are bound to pick up a lot of interference. Naturally an amateur station a short distance away is going to cause some trouble if this is the case.

Picking up interference of this kind is probably more the fault of the receiving set than the transmitter.

more the fault of the receiving set than the transmitter.

It should be possible to completely cut out any transmitting station within less than ten meters, and there is no broadcasting station within ten or even twenty meters of an amateur station. Amateurs are observing the rules and regulations and actual cases where the amateurs have been at fault are mighty few and far between.

It is hardly fair that any one class should have the air all the time and the amateur has shown his willingness to co-operate fully. It is now up to the broadcast listener to do the same. If you hear an amateur after 10:30 at night, or during the day, you have no cause for complaint. Remember the amateur is giving up his choicest evening hour so that you may enjoy your broadcasting. Yon can hardly expect him to "stay off the air" altogether.

The amateur as a general rule is a "good scout" and will be more than willing to help you over the bumps. A little diplomacy may do a whole lot more good than calling down the wrath of the gods on his head.

#### Tune in While You Sleep

Tune in While You Sleep

We have had all kinds of sets, sets in clocks, in home savings banks, in hats, in automobiles, railroad parlor cars and all manner of places where a built-in cabinet can be used, but now comes the latest which is built into a bed. An ideal place. Why didn't some inventive genius think of this before? The old-time bed spring is right there for the aerial and the mantel head provides a place for the loud speaker. The cabinet can be placed below the loud speaker where the dials may be turned by the hands, or at the foot where a skillful operator can tickle the dials with his toes. What a joy for the DX hound who can take his ease and bring in all stations when he is dressed for dreaming. The manufacturer expects to roll in wealth on the Radio wave.

#### Penetrating Steel Walls

A NEWS item has this heading, "Bank Vault's Walls Penetrated by Radio." In order to satisfy themselves that Radio can enter their strong box the board of directors stepped into their own vault with a superheterodyne set and listened in to a concert with the ten-ton door closed and locked and twenty-seven inches of concrete and steel surrounding them. To the minds of the masses the Radio is most mysterious, to the ones who have made it a study, perplexing, and a great many theories have been propounded, but the great mystery of all, how do Radio waves get through such walls? Is it a wave or not?

#### Make Speeches Short

AN ANALYST of Radio program reception says the average fan will not listen to a single feature for more than twelve minutes. Many of them will not let their dials alone longer than a minute or two, he says, except when they are staging a party and dancing to Radio music.

This is offered as a suggestion to both program managers and broadcast lecturers who want to retain the attention of their audiences during their falks. The answer seems to be—hold talks, speeches and lectures to about ten minutes or less!

#### RADIO INDI-GEST

#### Walla Walla Expedition Near Port (Continued from Last Week)



During the night, Henry, who is better known on board as "Sparks," crawled from his bunk and tied the leader of the buccaneers hand and foot. After doing this, he called Capt. Oneoar and they began to beat up the rest of the pirates. The pirates, unable to stand the punishment inflicted upon them, jumped into the sea and were drowned.

During the melee, the pirate chief loosed his bonds and tried to escape. "Sparks," ever alert and on the job, saw him running down the deck and pursued him. Seeing that the chief was about to escape, "Sparks' picked up a marlin spike and threw it at the chief's head. The shock was so great that it knocked the chief overboard and he met the fate of the rest of his crew. When the sun arose that morning, Capt. Oneoar took bearings with his sextant and then rechecked the bearing again at noon. When he entered the mess room he addressed the crew:

"Gentlemen adventurers, unacustomed as I am to public speaking, it behooves me on this grand and auspacious occasion to say a few words to those of you who have suffered since we started on this trip. In a few days, we will be in the vicinity of Walla Walla. At that time, I will thank you one and all for the bravery shown during the crisis that we have just gone through.

"There is one thing that I want you to bear in mind, and that is this: beware of the chief of the island of

gone through.

"There is one thing that I want you to bear in mind, and that is this: beware of the chief of the island of Walla Walla. He is a feroclous cannibal, and not the least bit adverse to taking a few bites from the leg of any man. I say this, just to show you how democratic he is. He plays no favorites, and may pick on any one of you for the feast. That is all that I can say." As he uttered these words, the crew cheered for the brave commander.

#### Now Ma's a Radiophan

Dear Indi:—As my husband and I are great admirers of "Radio Digest" and have noticed your "Radio Indi-Gest" column, I thought you may be able to use the following poem, which I composed after observing the fact that in most cases it is the man who first becomes interested in Radio, and as he installs a Radio in spite of his wife's wishes, it is she, who, in a short time, becomes the most enthused of the two.

Who'll put the ban on the Radiophan? He's a nuisance, I won't have him 'round! He has talked my old man Into joining his clan, And now he's a Radio hound.

All night until morn, goes the musical horn, For the want of sweet sleep I could cry; I don't mean to scorn, But why was he born—
The man who urged hubby to buy.

Come, leave it alone! Can the warble and groan! You're not satisfied when you do get a town—You shift this and turn that 'Til it howls like a cat, For two cents, I tear the thing down!

Let me try it, old man—Oh, I've got it! My land! Wait, I'll try this—No, I'll tune in on that! Shucks! I bet a pin I had Frisco just then, Here's Chicago, right off the bat!

Well, go to bed then, if you're felling like sin!
Good-night dear! No, I'll not be sore—
I'll just listen in
Until 'round about ten,
Sweet baby! It's quarter past four!

MRS. FAN.

#### Radio Reactions

We are average folks and so
We endure a Radlo—
Pa's the owner, I'm the "Op,"
Tinker, fixer, batt'ry man;
Gran'pa, Gran'ma, Ma and Sue
Constitute the Listen-Clan.

'Course I'm pestered with advice,
Told what's swell or bunc or nice—
Guess you think Dad wants a speech,
Or that Ma want recipies;
Gee! You're off your base because
All they say is "Tune off, please!"

Old Time Fiddlin' pleases Dad;
'Nuff of jazz Ma's never had;
Sister Sue likes rustic dance,
Barn affairs and such, you know—
Oh, I never please 'em ali,
Don't care where the dials go!

"Darlin' I Am Growin' Old"
Sends my Gran'ma to behold
In the glass how true it is;
"Maggie, When We Both Was Young"
Causes Gran'pa to instruct,
"Let's hear somethin' lively sung." (Continued next week)

#### All in the Day's News



#### Condensed By DIELECTRIC

Do not be surprised if, on tuning in on the new movie station in Hollywood, KFWB, Warner Brothers, you find a familiar voice handling the microphone. Edward Murphey, he of the deep voice, was drafted from the ranks of KHJ for the new station, as was Roi Cronkhoit, former chief of the monitor room at KHJ. This brings up a question. How shall we phrase the fact that an announcer has left the microphone at one station for a very similar looking microphone at another? Like the minister, shall we say he has accepted a call?

And while we are speaking of KFWB do all the movie fans realize that Monte Blue is one of Warner Brothers' stars, and that Monte, by reason of his many appearances from KFI, makes an unusually good announcer? Personally, I'm willing to lay odds that while Mr. Murphey may be announcer at KFWB, more often than not we will find Monte Blue introducing his fellow stars from that station whenever he is not out of town on location, or forced by an unfeeling director to work nights on the lot.

Prisoners are having their chance to show what talents they possess as Radio entertainers, incidentally, to reach the members of society against whom they have sinned. When WEEI Radiocast a concert from Charlestown state prison, listeners were impressed with the skill of a violinist and quality of voice of a baritone soloist. These men no doubt enjoyed the experience as much as those for whom they sang and played. I feel some of the artists in should be out, and some out—in!

WSB gave us a very entertaining evening as we were escorted through rows of cotton plants, down in the sunny southland, picturing the scene by aid of banjos and singing. Many of those old melodies haunt one's memory for a long time after the music

If you choose a Saturday night to visit Philadelphia the jazz bands will be found to be in full action and nothing slow about it either. With my three dials set in position there was nothing to stop WOO from filling the loud speaker with syncopation from the Sylvania orchestra. An especially attractive feature is the blank space where, in so many programs, appears this: "Waiting for the Sunrise."

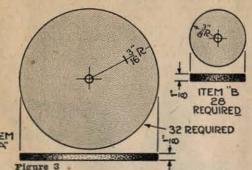
What an evening KSD made for lovers of violin art in presenting a full program by that eminent American virtuoso Francis Macmillen. Nights when the phonograph companies allow us to hear their artists, only a few numbers are given by each, but here was a complete program of classical selections from those demanding purely musicianship to others calling for the utmost in technical proficiency. What a treat!

Special programs are featured by many of the Radiocasting stations, which include addresses in a foreign tongue and music by composers speaking the same language. One of these was presented through WEBH with Dr. Steinbach, German consul general, addressing his invisible audience both here and abroad. It's the thrill of imagining a vast group of listeners across the pond which makes such features of interest.

# Four Filter Eight Tube Super-Heterodyne

#### Part II—Construction of the Filters

By Jacques Fournier



PARTITION TO BE

bakelite or hard rubber, and any of these materials are just as good and possibly better than the heavy cardboard.

In figure 3 is shown the dimensions for the discs, and it will be noted that the larger discs are 2% inches in diameter and 32 are required, while the smaller discs are % inch in diameter and 28 are required. No matter what material these are made from, care should be used in cutting them out and smoothing the edges so that when they are assembled into forms, the small discs will fit together smoothly as the core on which the wire is wound and the larger discs will pack tightly against them with no sharp edges to cut the fine wire to be wound on the forms.

Transformer Assembly

In figure 4 is shown the assembly for one of the transformers. Each of the discs must have a hole in the center about ½ inch in diameter for the the discs are to be stacked.

Pigure 3.

Separate the primary from the secondary instead of the large ½-inch disc, item "C."

The insertion of these smaller discs moves the primary ½ inch from the secondary. In the one transformer. The wire to be used in winding these transformers is number 32 dsc., of which one pound will be enough for the whole job.

Winding of the primary is begun at the end away from the secondary and 525 turns are to be wound in the first secondary and 525 turns are to take the primary and 525 turns are to take the primary and 525 turns are to be wound in the first secondary slot, the wire is then carried over the large disc and 525 more turns wound on. From the second slot it is carried over to the wire is then carried over into the second slot and 525 more turns wound on. From the second slot it is carried over to the wire is then carried over the hird it is continued in the first secondary slot, the wire is then carried over into the second slot it is carried over to the wire is then carried over the hird it is continued in the first secondary slot, the wire is then carried over the hird it is continued in the first secondary slot, the wire is then carried

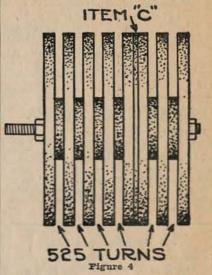
The shielding Box with the four forms are to be constructed as the four form and the larger discs. The two slots at one and which are isolated from the rest by item "C" are for the primary windings.

There will probably be many other fans who have a supply of \( \frac{1}{16}\)-inch fiber or \( \frac{1}{16}\)-inch fib

The Shielding Box

The Shielding Box

The start of the primary winding which, was an inside end, is to be the B plus connection, while the outside or finishing end of the primary in the second slot is the P or plate connection. The starting or inside end of the secondary winding, which is in the slot nearest the primary, is to be the F connection, while the outside or finishing end at the last slot of the secondary is the G or grid connection. is to be the F connection, while the outside or finishing end at the last slot of the secondary is the G or grid connection. The copper or brass box in which these transformers are to be enclosed is shown in figure 4. This pattern may be enlarged on paper and traced on to the sheet metal or may be laid out directly on the sheet metal itself. As shown in figure 4, the sides and ends are bent up toward the reader and the k inch flanges are to be bent inwards. The flaps which were left at the ends of the side walls are to be bent in, of course, and are to be soldered to the end walls. When these have been soldered sufficiently to hold the sides and ends together, solder should be run along the corners so that an airtight box will result. The transformers described above, and the four small condensers with which they are to be tuned, will be suspended from the bakelite or hard rubber panel placed on top of the box and the edges will be sealed. There are several small condensers on the market, any make of which may be used to tune the secondaries. These small variable condensers should have a maxi-



5 by 3½ inches and flaps are provided at each side so they may be bent over at right angles and soldered to the side walls of the box. Copper or brass are specified as solder can be used on these materials. Aluminum might make a lighter and possibly a more workable material, but it is almost impossible for the home builder to solder to it. The points at which the dividing pieces are to be soldered to the side walls are indicated in figure 4, and if soldered as shown, and the small panel (Continued on page 18)

### The Maker's Name--A Public Promise

BRISTOL" on the new Bristol's Loud Speakers indicates established responsibility and safeguards the buyer who knows the name.

Technical engineers know that for 36 years The Bristol Com-pany has made for the great plants of America, highly accurate and sensitive Recording Instruments, and that they are fully qualified to make loud speakers of great excellence. They

Cabinet Model, \$30.00

There are five loud speakers, but all alike in those essentials, which give true quality to the reproduction of voice or instrumental music. The "Voice" is not a mere phone unit, but an electromagnetic device, and the horns of non-metallic material with long sound chambers allow free and full vibration. Prices \$12.50 to \$30.00. If not at your dealer's, send for Bulle-



know that Bristol experience, scientific knowledge and honest purpose, must be this loud speaker's full

AUDIOPHONE Loud Speaker

The BRISTOL COMPANY, Waterbury, Conn.





### Notice the rich finish on this panel -built to order for radio

SURFACE that is good-look-A SURFACE that is good-looking and useful, too. That was one of the demands we made of the engineers who developed Radion especially to order for radio purposes.

The high-polished, satin-like fin-ish of Radion Panels does more than add to the beauty of your set. It keeps out dirt and moisture, thus preventing the possibility of caus-ing short circuits from this source and reducing good reception.

Lowest losses and greater

efficiency
But the worth of Radion is not just on the surface. Authoritative laboratory tests give it the highest rating as radio-frequency insulation. It reduces surface leakage and leakage noises, This means lowest losses and greater efficiency, especially noticeable in super-sensitive circuits

Radion Panels resist warping. It's the easiest material to cut, saw or drill. It comes in eighteen stock sizes and two kinds, Black and sizes and t Mahoganite.

Mahoganite.

Send for our new booklet, "Building Your Own Set," giving wiring diagrams, front and rear views, showing a new set with slanting panel, sets with the new Radion built-in horn, lists of parts and directions for building the most popular circuits—mailed for ten cents. Mail coupon today.

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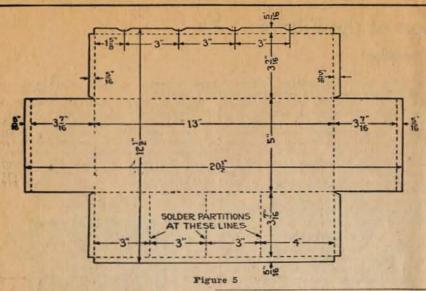


The Supreme Insulation PANELS

Dials, Sockets, Binding Post Panels, etc.

American Hard Rubber Company Dept. DE-3, 11 Mercer St., New York City. Please send me your new booklet "Building Your Own Set" for which I enclose 10 cents (stamps or coin).

#### LAYOUT FOR FOURNIER FILTER BOX



#### FOUR FILTER SUPER

(Continued from page 17)

layout to be shown next week is followed carefully, the transformers and condensers will fit into their respective compartments with good clearance all around. (The assembly will be gone into next week and the sharpest super made will begin to take tangible form.—Editor's Note.)

#### The Reader's View

Announcers Reading Telegrams

In your excellent publication, for which I am a subscriber, you have frequently commented editorially upon the station director who fails to announce his station frequently. I heartily concur in your comments.

Realizing that the policy of broadcasters is fixed largely by public opinion and that public opinion can be made known only through the expression of a large number of individual opinions, I am submitting the following for your consideration.

cent of the time. I invariably tune them out. I believe that nearly all telegrams sent are sent for egotistical reasons by people who want to hear their names broadcast. (This does not apply to applause cards or letters of appreciation, of which I approve, nor do I object to the sending of telegrams to encourage the artists at the time. It is the broadcasting of them that I object to.) Now, I believe that most stations sincerely try to please their patrons or circle of listeners. Suppose a station has 5,000 listeners on a certain broadcast period and that it receives and reads 50 telegrams. Then for every person they please by reading a telegram they annoy one hundred. I believe these figures are conservative and that the annoyance is much worse.

Another point is the objection raised by music publishers to the broadcasting of their copyrighted music. As one example of the result—yesterday my wife bought six pieces of music. She does this at irregular intervals. All this music is music she has heard over the Radio and music which otherwise she would not have heard or would not have known the name or title, if she had heard it in a movie theater. Multiply this by many thousands and where have the publishers any kick?

Still another point of controversy—the broadcasting of music by controversy—the

people. We enjoy hearing them out here but never have an opportunity to hear or see them in person. So our hearing them does not cut down the attendance at the theater. Neither do I believe it reduces the attendance in New York, Boston, Chicago or other large cities. Having heard them by Radio I know that if I were in a city where they were appearing I would go to see them. In other words, in my case, hearing them by Radio gives me enjoyment that otherwise I might never have and increases my desire to have their records. And I believe my case is typical of many thousands.—Robt. Whitfield, Fort Sam Houston, Texas.

Silent Night for New York
One of the best moves in favor of the DX hound would be a silent night for New York and vicinity. They are having silent nights for the western stations, why can't we follow suit? At present there are over a dozen Radiocasting stations in this locality including Newark and New York city. To receive real distance one has to sit up until most of the locals sign off which usually means one o'clock in the morning. It isn't a case of Chas. Stevenson, Hasbrouck Heights, N. J.

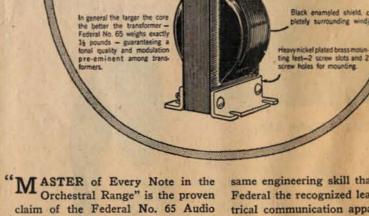




Our 53 Year Old Gu

# Montgomery

The Oldest Mail Order House is Today the Most Progressive Chicago Kansas City St. Paul Portland, Ore. Oakland, Calif. Fort Worth



Frequency Transformer! Volume without distortion is the basis for the beauty of Federal Tone.

Why it is Better

From its oversize locking nuts to its heavy brass mounting feet the Federal No. 65 Transformer incorporates the

New York

Pittsburgh

same engineering skill that has made Federal the recognized leader in electrical communication apparatus since 1890.

Insist upon Federal parts for your "pet" hook-up. There are over 130 standard parts bearing the Federal iron-clad performance guarantee.



# Broadcast Listener's Reference Library

### Part VI—Audio Frequency Amplification

By Edward Thomas Jones, A. I. R. E.

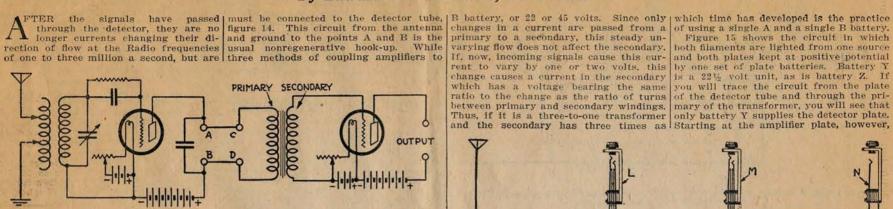


Figure 14-A step of audio frequency amplification added to a three-circuit receiver.

now direct current flowing continuously in one direction and varying in strength from 16 to 20,000 times a second. Passed into the head receivers, they cause the diaphragms to vibrate at this rate which makes air waves following each other at audible frequencies.

The Audio Frequency Transformer

The Audio Frequency Transformer

Pulsating Direct Current

The currents to be strengthened then, so that they will actuate a loud speaker, terminals of an audio frequency trans-

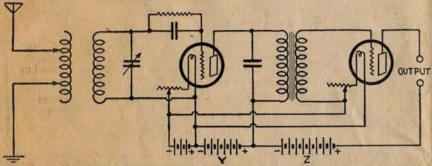


Figure 15—A single A battery and single B battery may be used for a number of tubes

are not Radio frequency currents but former. Such a transformer consists of varying direct current. The piece of apparatus which will accomplish this strengthening or amplification is a vacuum tube identical in construction with that used for detection.

Let us consider how this second tube former. Such a transformer consists of an iron core, made either of iron wire or thin flat strips, on which are wound several layers of fine wire, called the primary, and many thousand additional turns called the secondary. Through the primary flows a steady current, from the



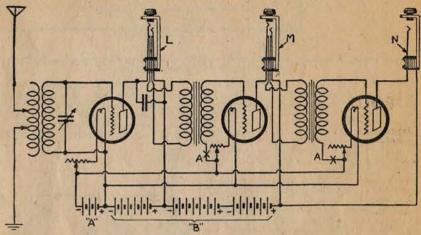
Save Time, Stationery, Telegrams and Postage

if not DELIGHTED Name (Print Clearly)

nostman after cards arrive Prepaid if you prefer to have with order. We GUARANTEE Satisfaction, Order NOW Posterd City Postage prepaid if you prefer to pay with order

tractive special radio design. They get results. Send applause cards with my name and sign. They get results. I printed FREE. Enclose Log absolutely FREE.

Money Returned if I am not DELIGHTED. I am to be the sole



Pigure 16-Jacks in each stage of amplification permit use of any number of tubes.

many turns as the primary, the voltage in the secondary will be three when the changes in the direct current in the primary is one volt more or less than normal.

The Single Current Source

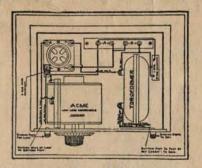
Who Single Current Source

The Single Current Source

The circuit shown in figure 14 contains two filament or A batteries and two plate or B batteries. Early experimenters nat-urally connected their current sources in this way, but among other improvements

This practice of utilizing but two sets of batteries for more than one tube can be carried out indefinitely, as shown by figure 16. In this diagram we have added

(Continued on page 20)



#### Increase the Efficiency of Your Reflex

by adding the Toroformer Attach-ment ahead of the Circuit.

diagram above illustrates the Toroformer in use as a stage of tuned Radio frequency amplification.

Attachment furnished complete on Panel for \$22.00 Or in Kit form for \$18.00

full size drawing of the separate Toroform Attachment Unit is available for 25c postpaid.

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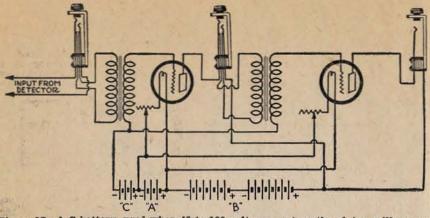
UP TO 120 VOLTS OF "B" BATTERY CAN BE CHARGED IN SERIES. No fuss or trouble, just connect the charger clips to the battery terminals and turn on the current. Simple—Speedy and Efficient. The France Super-Charger also charges 2, 4, 6 or 8 volt radio or auto batteries at a 5 to 7 amores rate into

clent. The France Super-Charger also charges 2, 4, 6 or 8 volt radio or auto batteries at a 5 to 7 ampere rate, tapering as the battery is charged.

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The France Mfg. Co. 10321 Berea Rd., Cleveland, O.



Pigure 17—A C battery, used when 45 to 100 volts are put on the plates, will prevent distortion and give more volume.

tips of the cord of the head receivers and may be inserted either in jack L, jack M or jack N. Jacks M and N are known as two-circuit jacks because, when no plug is inserted in jack M, the plate circuit includes the primary of the first audio frequency transformer; when the phone plug is inserted, the primary is eliminated and the phones substituted for it. Jack N is a single open-circuit jack because, when the plug is out, the single circuit which is possible is open (not completed). This last may also be a double-circuit jack, in which case the phones are in circuit when the plug is in, and the loud speaker horn is automatically connected when the phone plug is withdrawn.

The C Battery

#### The C Battery

Another refinement of audio frequency amplification, and one which is very recent—it came in with the thoriated-tungsten filament tubes—is the use of a third or C battery. It was found, when using the four tubes UV-201A, C-301A, UV-199 and C-299, that, if more than 45 volts were applied to the plates, distortion was likely to occur, and a volume less than that expected was produced. Tests and experimentation showed that the insertion of a third battery which would make the grid 4½ or 6 volts negative.

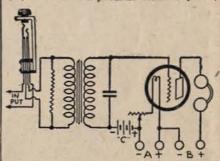


Figure 18—A leak across the primary or a condenser across the secondary will usually clear up reproduction.

and the higher notes from stringed and reed instruments seem to hang on, instead of breaking off sharply as they should. Since it is usually impossible to deter-mine just what part of the amplifying system is at fault, the two slight addi-

REFERENCE LIBRARY

(Continued from page 19)

To Clear Up Signals

It will frequently be found, when using it the use of the detector only, one stages amplification or two stages. A device nown as a phone plug is attached to the stages of and music which comes out that the voice and music which comes out that the voice and music which comes out that the voice and music which comes out able fuzziness, try grid leaks of various Fahnstock clips as anything but a personnection at one of the separately. First try connecting a small fixed mica condenser of .00025 or .0005 is eparately. First try connecting a small fixed mica condenser of .00025 or .0005 indeed and seven were juggled around from one separately. First try connecting a small fixed mica condenser of .00025 or .0005 indeed and seven were juggled around from one separately. First try connecting a small fixed mica condenser of .00025 or .0005 indeed and seven were juggled around from one separately. First try connecting a small fixed mica condenser of .00025 or .0005 indeed and seven were plugled around from one separately. First try connecting a small fixed mica condenser of .00025 or .0005 indeed and seven were juggled around from one separately. First try connecting a small fixed mica condenser of .00025 or .0005 indeed and seven were juggled around from one separately. First try connecting a small fixed mica condenser of .00025 or .0005 indeed and seven were stissfied that the full fixed mica condenser of .00025 or .0005 indeed and seven were stissfied that the full fixed mica condenser of .00025 or .0005 indeed and seven were juggled around from one separately. First try connecting a small fixed mica condenser of .00025 or .0005 indeed and seven were juggled around from one separately.

tions shown in figure 18 should be tried separately. First try connecting a small fixed mica condenser of .00025 or .0005 mfd. capacity across the secondary of the last audio frequency transformer and, if readily available, even a .001.

If this does not remedy the objectionable fuzziness, try grid leaks of various values connected across the primary. One or the other of these methods should clear up the reproduction. This may cut down the volume from three to five percent, but the gain in faithfulness to the original music more than offsets it.

(Multi-tube receivers contain many places where trouble may occur, so Mr. Jones will take up the operation and kinks of larger sets in his next article.—Editor's Note.)

#### HOW TO OPERATE SET

(Continued from page 15)

(Continued from page 15)
up and the various lengths are taken care
of by a link connecting two binding posts
on the rear left corner of the baseboard.
If the antenna is very long, or one is
located unusually close to a high-power
broadcast station, this link is to be released from one of the posts. If a short
antenna is in use, or the owner is located
out in the country, the link should be
closed and greater volume will result.

Due to the use of binocular coils, operation on a loop was very successful. There
is no external field around these coils and
the use of a loop, usually impractical in
tuned R. F. sets, because of feedback between coils and loop, is permitted. Another movable link enables the owner of
Synchrophase to use either loop or outside antenna. Thrown to the right, the
former functions while, to the left, the
latter is utilized.

After trying out various combinations
of antennas and link positions, we resumed our tuning and, at 41.5, 41, 41.5,
found WCAL of Northfield, Minn., with a
wave length of 360 meters. WHK of
Cleveland uses 283 meters so we swung to
them and found their settings to be 23.5,
23, 24. It was plain from the curve we
were drawing that this set would go
down below the broadcast range so tuning
further was unnecessary.

Trouble

Troune

The construction of this receiver is exceptionally good and it is extremely unlikely that anything will go wrong inside. Should howls or whistles develop, the accessories and connections should be examined carefully before complaint is made to the dealer. High class tubes were found essential to clearness in our tests,

realized.

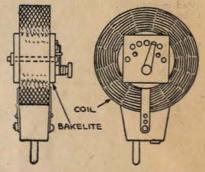
Be sure that corrosion or jar has not produced a poor connection at one of the Fahnstock clips as anything but a perfect electrical contact in any of them will manifest itself as whistles or scratchy sounds in the speaker. Test the A, B and C batteries frequently and recharge or replace before any of them get too low.

Antenna and ground should be examined at frequent intervals, especially if they were not soldered. If they were not, the connections should be scraped and remade at least every three months.

#### Tapped Honeycomb Coil

In experimenting with honeycomb coils I have found a very good coil which may be made at the cost of a very few cents that will work efficiently. The coil is varied by means of taps.

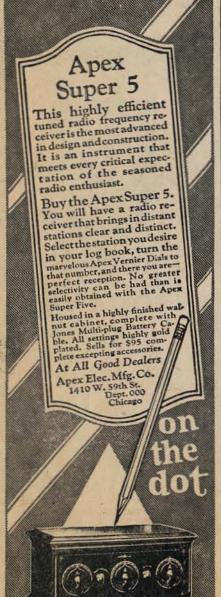
If a coil is desired for the amateur and music wave lengths a 150-turn coil is about the best. This can be made up of a 50-turn coil as a base. The other turns are placed on and taps taken at every



25 turns and at the end. The wire may be wound in the ordinary manner.

A piece of panel material 1½ by 2 inches is placed across the center of the coil. A small switch and five taps are put on the piece. The five wires leading from the coil are soldered to the tap bolts. The connections from the coil are from the open coil end and from the switch lever center.—Walter W. Mulchay, Sparks, Nevada.

The cause for unsteady regenerative tuners is too large a tickler coil or too much regeneration.





"By their tubes you shall know them." There are two kinds of Radiophans. Those who are satisfied with ordinary who are satisfied with ordinary clearnes; and volume, and those particular ones who deman the utmost in enjoyment from their sets. In the sets of the first kind you may find any make of tube—good, bad or indifferent. In the sets of a swiftly growing majority of the other kind Meco Tubes have become standard. have become standard.

Greater volume without sacrificing clear, distinct receptive tones are the reason for Meco popularity.

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# Neutralizing First Tube in Reflex

#### Radiator, Long Battery Leads Cause Trouble

After building a four tube reflex set and had it working very well a certain high-powered station leaked through too much, even on a loop, also the directional

#### 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

effect was not pronounced enough to suit me. This I lay to long battery leads and the close proximity of a large radiator and it was impossible to alter conditions so I approached it in another way which was none other than neutralizing the first tube. This I did and was really aston-ished at the improvement in selectivity, directional effect and decreased tendency to oscillate. oscillate.

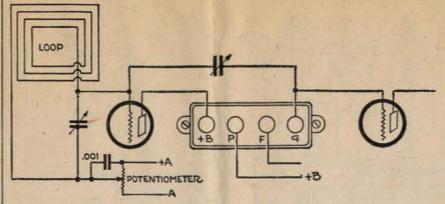
The neutralization was accomplished in the following manner: The connections on the primary of the first Radio frequency transformer were reversed, i. e., the plate of the first tube was connected to the terminal marked B+ and the B battery was connected to the terminal marked P. It was necessary to do this to make the grid of the second tube out of phase with the grid of the first tube, then a regulation neutralizing condenser of the sleeve type was connected, one side to the grid of the first tube and the other to the grid of the second tube. The filament of the first tube was turned out and the strongest station at home tuned in as loud as possible then the sleeve was moved until the signal entirely disappeared and it really did entirely disappeared and it really did entirely dis-

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#### REVERSING CONNECTION TO PLATE



Station or Set at Fault

Noise and distortion are inexcusable faults, but it is well to remember it isn't always the fault of the receiving set. Background noises which can be heard under the voice, as well as certain classes of distortion, are sometimes actually transmitted and there is little you can do to get away from it. This can be checked up by listening in to one or two other stations. If the signals come through clean cut and free from noise, rest assured your set is O. K. and the broadcasting station is at fault.

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appear. The results were very gratifying. The complete diagram is not shown because it is the regulation four tube reflex hook-up. This same scheme could be used on any set using untuned Radio frequency amplification, although on some transformers it may not be necessary to reverse the primary connections because the grids may be out of phase in their normal conditions.—C. K. Beebe, Chicago, Illinois.

Space Parts

Electrical losses through improper placement of parts are considerable in many home made sets. Inductances should be placed so that the magnetic fields of no two coils inter-act on each other. This can be done by placing the coils at right angles to each other; but even when so placed, it is advisable to lay the parts out, so that the coils will be as far apart as possible, without too greatly increasing the length of coil leads.

It is not a good policy to construct a three-tube set on a panel that is only large enough for a one-tube set.

THE RADIO RABAT COMPANY



# Attachments for Radiola III and III-A Antenna Selector Switch The full range of antenna adjustments can be made by simply turning the two knobs and without loosening a nut. Remove the knurled nuts, slip the awitch on the binding posts and replace the nuts. The antenna wire attaches to the one binding post on the rear. 0 Four Phone Post This post will take any number of head sets from one to four and all in series. It is equipped with prongs that push through the phone holes in the face of the panel. Radiolog III

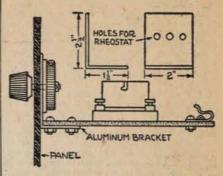
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A small sheet of aluminum makes a substantial bracket for mounting a sub base to a panel. The aluminum bracket is held to the panel with the screws that



fasten the rheostat in place. The illutration gives details of its construction. F. A. Mann, Hinsdale, Ill.



The Ideal Reflex Detector but equally suitable for crystal sets The Ideal Reflex Detector but equally suitable for crystal sets. The Crystalistat embodies the following features: A super-sensitive crystal in an air tight enclosure. A brush cat whisker of gold tinsel strands. A micrometer adjustment by means of which the most delicate adjustment by means of which the most delicate adjustment may be had. The multiple contacts of fine gold filaments prevent howling and give light but sure contact. The crystal is our wonderful Star-ite, the pick of the Earth's best crystal.

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#### **Ouestions** Answers

Plate Voltage

(12349) CEJ, Little Rock, Ark.

My set consists of three tubes with a regenerative detector built after one of your articles which appeared last summer. At first I had 67 volts on the plates of the amplifier tubes and later I put on 90. This seemed to increase the volume a great deal, but there was a slight blur in the signals. After reading over the article on C batteries I put in one of these units and the signals cleared up so that the tone is now very pleasing. All of your diagrams call for 90 volts on amplifier tubes and I have never seen you specify anywhere a higher voltage. Is there any reason why I cannot use a higher voltage on these tubes and get more volume?

A.—You do not state what tubes you

volume?

A.—You do not state what tubes you are using, but we presume they are of the 6-volt filament type, such as UV-201A or C-301A. Voltages up to 125 can be applied on these tubes, but the increase in volume over that found at 90 volts is imperceptible and not worth the extra expense. At the same time there is some harm done the tubes as too high a plate voltage will pull the thorium off the filament and considerably decrease the efficient life of the tube. The filament will light, but signals will be weak and wavery. When tubes reach this stage it is necessary to disconnect the B battery and light the tubes brilliantly for two or three hours, which usually will restore a layer of thorium on the surface of the filament and enable the tube to function for many more hours of service. This will not be necessary, however, if 90 volts are used.

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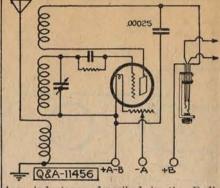
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loss inductance described in the Radio Digest of November 29, 1924. A.—We are presenting herewith hook-up suitable for the inductance described in Radio Digest.

X Wire Key to Neutrodyne Success
(12330) GWS, Youngstown, Alberta, Can.
In your December 27 issue there appeared an article on "X Wire Key to
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Men to build radio sets in spare time Leon Lambert, 501-H Kaufman Bldg. Wichita, Kansas.

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give me any pointers on it? Can I use a 5-plate condenser in place of the 7-plate one in the "Hetduogen," recently described in your paper?

A.—Answering your letter of February 9, the procedure for adjusting the third neutrodon is as follows:

The third neutrodon is set at minimum and two individual tube neutrodons are adjusted in the usual manner by placing a small piece of paper on one of the filament springs. When the circuit has been adjusted in this as far as possible the dials are then adjusted for resonance on a low wave length, and if there is a tendency for the receiver to oscillate the third neutrodon is increased in capacity until the tendency to whistle disappears. If this latter part of the procedure is done on the lowest wave length one wishes to receive, there will be no whistle

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or oscillation on any wave lengths above it.

it.

Relative to the use of a 5-plate condenser in place of a 7-plate unit in the Hetduogen, we must advise that this will not be large enough, as a 7-plate just covers the range as it is. In fact, if the 7-plate condenser happens to be made with rather small plates and large spacing between plates the builder of this set is unable to get above 485 meters.

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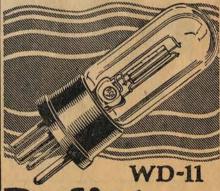
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### Corrected Every Week-Part II

#### FIND MISTAKES AND YOU'LL GET DOLLAR

NE DOLLAR will be paid to the Radiophan reader of Radio Digest submitting the most errors in any one station's listing in the Directory of Radiophone Stations, which appears in five parts, serially continuously on the next to last page. Letters must reach Radio Digest's office not later than one week from date of issue corrected. Readers are not limited to correcting one station, but such corrections must be verified by the stations themselves, and NOT by comparison to other so-called accurate Radio directories or lists. Turn in corrections for as many stations as you can find—if you can find errors! Use separate sheet of paper for each station submitted and place name and address on each sheet. In case of tie, duplicate awards will be made.

#### United States (Cont'd)

attle, Wash. 273 meters. 100 watts. Louis

ner.

Sibtipoe, Minn. 421 meters. 500 watts. Steele
Program Irregular.
Stockton, Calif. 255 meters. 5 watts. Gould.
Light Man. Wed, Sat. 9-11 pm, dance music.

7:45-8 pm. Department of Commerce. Fri, 7:45-8 pm. treasury department.
WAAB. New Orleans, La. 273 meters. 100 watts. Valdemar Jensen.
WAAC. New Orleans, La. 275 meters. 100 watts. Tu-lane Unvi. Announcer. P. S. Lelaup. Fri, 7:15-7:39 pm. reports; 8-9:39, educational and entertainment program. Central.
WAAD. Cincinnati, O. 258 meters. 25 watts. Ohio Mechanics Inst. No regular schedule.
WAAF. Chicago, Ill. 278 meters. 290 watts. Chicago Daily Drovers Journal. Announcer. Carl. Ulrich. Daily ex Sun, 8:40 am, 10:39, 10:45, 12:30 pm. paily ex Sun, 8:40 am, 10:39, 10:45, 12:30 pm. paily ex Sun, 8:40 am, 10:39, 10:45, 12:30 pm. watter reports. Central.
WAAM. Newark. N. J. 263 meters. 250 watts. I. R. Nelson Co. Announcer, J. B. Bayley. Slogan, "Electrical Repairing and Manufacturing." Daily ex Sun, 11:12 m, music, talks, markets. Mon, Tues, Wed, Fri, 7-11 pm. Eastern.
WAAN. Columbia, Mo. 254 meters. 50 watts. Univ. of Mo. Announcer, Otto S. McDaniel.
WAAW, Omaha, Neb. 278 meters. 509 watts. Omaha Grain Exchange. Slogan, "Where Agriculture Accumulates Wealth." Daily ex Sun, 9:45, 10:15, 10:45, 11:15, 11:45, 12:54-115 pm. 8, market reports. Tues, 8-8:39 pm. corect. Thurs, 7:39 pm, bridge talk; 8, educational program. Central.
WABB. Harrisburg, Pa. 266 meters. 10 watts. Lake Forest university. Wed, 8-9 pm, music, talks. Central. WABB. Harrisburg, Pa. 266 meters. 10 watts. Harrisburg, Fri, S pm, sports, music. Sun, 9 pm, church services. Eastern.
WABH, Sandusky, O. 240 meters. 20 watts. Lake

Milkin Univ. University activities. 100 dominer schedule.

WBAP, Fort Worth, Tex. 472.9 meters. 1000 watts. Fort Worth Star-Telegram. Announcer, "The Hired Hand" Club, "Radio Truth League." Daily ex Sun, 10, 11, 12 m. 1 pm, 2, market reports, weather; 4. "Port of Missing Men." Mon, Tues, Wed, Thurs, Fri, 12:05-

B. Watson, Robert Robbins. Mon, 8:30-10 pm.
Central.

WBON, Chicago, Ill. 266 meters, 500 watts. Southtown
Economist. Announcer. Wm. H. McDonnell. Slogan,
"World's Best Community Newspaper." Daily ex
Sat. Sun, 6-6:30 pm. children's hours. Daily ex Surg.
6:45-7 pm. police bulletins. Tues. Thurs, 6:30-1,
Wed, Fri, 6:30-10:15 pm. Sat, 6-1 am. Sun, 10:3012 m. church service; 4-5 pm. concert; 5:15-6-15,
vespers; 7-8, classies; 8:10, popular; 10-10:15; dance
music. Central.

WBOC, Grand Rapids, Mich. 256 meters. 50 watts.
Baxter Laundry and Dry Cleaning Co. Announcer,
Richard Smith.
WBES, Takoma Park, Md. 222 meters. 100 watts. Bliss
Elec. school.

WBR, Butler, Pa. 203 meters. 250 watts. Pa. State.

WBR, Butler, Pa. 203 meters. 250 watts.

10 pm-1 am. Sat, 9:30-12 mid. Sun, 9:30-11 ptaEastern.

WCBO, Memphis, Tenn. 250 meters. 20 watts. The
Radio Shop, Inc. Wed, Sun, 8:30 pm. Central.

WCBQ, Nashrille, Tenn. 236 meters. 100 watts. First
Saptist church. Announcer, R. G. Monahan.

WCBR, Providence, R. I.

WCBR, Providence, R. I.

WCBU, Arnold, Pa. 229 meters. 50 watts. Arnold

Wireless Supply Co. Announcer, F. J. Ambrone.

Siogan, The Little 50 Watt Station in a 50 Kilowatt Town. Wed, Sun, 9:10 pm. Sat, 10-11 pm.

Eastern.





# Why Tuning is So Easy with the Grebe

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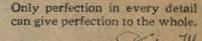
This Company owns and operates Station WAHG



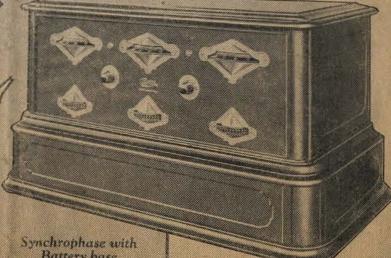


TRADE MARK

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Battery base

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