

Antenna Compensation and the Magic
Hay Recoups Lead in Gold Cup Race; D

Radio

EVERY
WEEK

INVEST
PROGRAMS

REG. U. S. PAT. OFF.

Vol. XIII

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SATURDAY, J

SECRET RADIO PERFECTED

OFFENBACH'S OPERA NEXT ON WEAF LINK

TO BROADCAST "TALES OF
HOFFMAN" JUNE 16

Eight Stations Are in Chain—"Il Trovatore" Next to Be Staged
—Public Applauds

NEW YORK.—Station WEAF, located in this city, has a large following of radio opera fans. From time to time, the WEAF Grand Opera company have rendered various operas, meeting with wonderful ovations from the listening public. Now comes another opportunity! The WEAF Grand Opera company will present another opera. This time it will be Offenbach's masterpiece, "Tales of Hoffman."

On Tuesday evening, June 16, from 8 to 9 p. m., Eastern time, this opera will be broadcast through the WEAF "link." The stations that will be connected for this program are: WEAF, New York; WEEI, Boston, Mass.; WFI, Philadelphia, Pa.; WCAE, Pittsburgh, Pa.; WEAR, Cleveland, Ohio; WGR, Buffalo, N. Y.; and WWJ, Detroit, Mich.

Other operas will be broadcast in the future. They will be announced in these columns. The next opera to be given will be "Il Trovatore." The time has not been definitely set as yet.

Elsa Bottorff, contralto, who appeared recently at Station WEMC at Berrien Springs, Mich.



Belle Forbes Cutter, one of the artists who appears regularly at the Edgewater Beach hotel station, WEBH.

FAN MUST PAY FOR PRIVILEGE OF TUNING IN

New Project Is Ready

Accessory for Set Makes "Tapping" into Messages Impossible Under New System

By A. C. Blackali

LONDON, England.—A company has just been formed here under the title of "Secret Wireless, Ltd.," to exploit a new method of secretly broadcasting radio programs so that only those who pay a subscription can receive them.

The directors, who include such well-known public men as Sir Walter de Frece, member of parliament, and Sir Malcolm Smith state they have already established a station, which will be in operation shortly.

J. D. Chisholm, who is the inventor of this system which renders "tapping" of messages impossible, claims that the aid of an accessory attachable to all existing radio receiving sets will be necessary for the picking up of messages by the system. The principle of the system is this receiving attachment, which automatically adapts itself to any number of changes in wave length, however rapid the changes.

The concern has been negotiating with
(Continued from page 4)



2LO Failures Create Urge for Second London Station

LONDON.—Does the British metropolis need another broadcasting station? This question has been raised in an acute manner by the complete failure of Station 2LO for an hour and a half during a program—its second failure in two weeks. During these breakdowns the ether in Southern England was rendered blank for the majority of listeners. Several parliament members intend to bring the matter up when the Radio bill goes through the house of commons in June.

HOTEL LOBBY RADIO FOR GUESTS' SET UP

NEW YORK.—Of all the thousands of exercise fans, who follow the Radio directions of Arthur Bagley every morning, one of the strangest groups is in a small town hotel in northern New York where all the guests get out of bed at 6:45 a. m. and assemble in the lobby to perform the Radio twists and turns.

CONSENSUS OF OPINION VOTE

Send to Radio Digest, 510 N. Dearborn Street, Chicago To be forwarded by Radio Digest to the Department of Commerce for the attention of members of Congress.

- 1. Do you want less class B (500 watts or more power) stations? Yes No
2. Shall B stations be reduced to 94 in number, so that they can be accommodated satisfactorily in the "ether roadways" now available for the use of broadcasting stations? Yes No
3. How far away, approximately, is the nearest class B station? mi.
4. Are you troubled by B stations heterodyning and interfering with one another? Yes No
5. Have you read a description of the Klutner plan? Yes No
6. Are you in favor of it or some similar plan which will help clear the air of the present "traffic" congestion? Yes No
7. Do you favor the appointment of an unbiased, non-partisan broadcasting control board for the settlement of all differences pertaining to broadcasting and the interpretation of present or future Radio legislation? Yes No
8. Include separately a list of five stations you like most and five you dislike most.

How many members Name
In your family? Address
Are all of the same mind as yourself? City, County, State.
(Check here if more blanks are desired) 6-13-25

HAY RECOVERS LEAD IN ANNOUNCER RACE

PUTS ON BURST OF SPEED FOR 1925 GOLD CUP

World's Most Popular Radio Announcer Still Conjecture—H. W. Arlin Rises to Fourth Place

Back into the lead comes George D. Hay, WLS "Solemn Old Judge," this week in the 1925 Annual Gold Cup Award—thus disproving the old theory that "champs" never come back.

Outside of the main thriller, Hay recouping the lead, the Radio Digest Gold Cup contest for the world's most popular radio announcer is quiet.

Among the more interesting side shows, however, H. W. Arlin, KDKA's chief, displaced Henry Field, KFNF, for fourth place, dropping Mr. Field to fifth, and Jerry Sullivan, WQJ, advanced from thirteenth to eleventh position.

Many Surprises to Come

Who will be at the top next week? Will some surprise await the reader? It seems so from the past behaviour of the candidates.

The bonus feature of the voting, which makes consecutive votes held for a long time count more, will undoubtedly change the standing of all concerned when the final tabulation is made.

The standing of the sixteen leaders with the total number of votes received at the close of this week is as follows:

Table with 3 columns: Position, Name of Station, Votes. Lists top 16 announcers and their vote counts.

The nomination business picked up during the week and brought in six new names. New factors to be considered are therefore: KDKA, Frank E. Mullon; KFNU, John F. Patt; KFNU, Dean Fritz; KOCH, Arnold Cister; WCAP, Paul Gascoigne and WHT, Pat Barnes.

How to Vote and Get Bonus

Don't miss a single ballot, for when these are turned in to Radio Digest in a group of CONSECUTIVE numbers, extra bonus votes are allowed the announcer for whom you are voting.

The ballots, top of page two, numbered consecutively, will appear in each issue of the Radio Digest until the close of the contest, with the August 22 number.

Each of these ballots will count for one vote when sent in separately. You can hold these ballots until you have 4 that are consecutively numbered, and when they are sent in a bonus of 8 votes will be allowed for your favorite announcer. For each 8 consecutively numbered bal-

lots your candidates will receive a bonus of 20 votes. For each 12 consecutively numbered ballots, 30 votes. For each 16 consecutively numbered ballots, 40 votes. For each 20 consecutively numbered ballots, 50 votes, and for each 22 consecutively numbered ballots, 60 votes bonus will be allowed.

Send nominations or ballots to the GOLD CUP AWARD EDITOR, Radio Digest, 510 N. Dearborn St., Chicago.

New Radio Club Formed

ELDORADO, Kansas.—Formation of a new club to aid in untangling present day Radio problems and better the science in any way possible has been announced here. The organization will be called the "Eldorado Radio Club." They invite correspondence with other clubs for mutual aid and betterment.

World's Largest Carillon Broadcast by London 2LO

LONDON.—The world's largest carillon, construction of which has just been completed here, was relayed from the bell foundry to 2LO and special times broadcast from there by M. Lefevre, the world-famous carillonneur of Malines cathedral, Belgium. The carillon, which consists of 55 bells, is the gift of John D. Rockefeller, Jr., in memory of his mother, to the Park Avenue Baptist church, New York, where it soon will be transported.

The permission of the Director of Telegraph of Norway has to be obtained before Radio receivers or parts can be imported into that country. This is provided for in a Royal resolution which became effective May 1.

HOOVER SAYS MUST GET NEW LAW SOON

CAMPAIGN FOR CLEAR AIR MAKES GOOD PROGRESS

Hope to Show Congress Million "Consensus of Opinion" Votes as Petition for Relief

CHICAGO.—Official recognition of the campaign Radio Digest is waging for less broadcast congestion has been received from D. B. Carson, commissioner of navigation of the department of commerce. Mr. Carson states, "The vote indicating the popularity of stations is interesting and somewhat surprising. The bureau will be interested in the final result of your campaign."

That a new Radio law is absolutely essential, is brought out by Secretary of Commerce Hoover, who is thoroughly committed to the idea that the legislation must be passed at the coming session of congress.

A number of different plans, including that proposed by S. M. Klutner, are under consideration by Secretary Hoover and experts of his department. From these some workable plan will be built and submitted to the next session of congress.

Must Show Congress Need

In order to impress upon congress the need for action, Radio Digest inaugurated its "Consensus of Opinion" vote (ballot at top of page two) and campaign for less air congestion. The number of ballots received to date is close to fifty thousand. However, the more ballots received, the greater the impression made upon congress. If one million ballots were to be collected by Radio Digest and taken to congress as an indication of public opinion, the passage of remedial legislation would be assured.

With this thought in mind this publication has been appealing to broadcasting stations, Radio clubs and newspapers to put this campaign before the public and to urge the filing of "Consensus of Opinion" voting blanks.

The campaign is making rapid headway as a result, but too rapid headway is impossible.

Extra Voting Blanks Available

To expedite polling a heavy vote among non-readers as well as readers of Radio Digest, the voting blank has been printed in large quantities. These blanks are free for the asking, and any broadcasting station, newspaper, Radio club or individual wishing to help in the campaign may obtain a supply simply by writing to Radio Digest.

The reception which congress gives to the proposed new Radio legislation next fall will depend entirely on the reaction of public opinion. If one million listeners agree that something is wrong, congress very likely will take heed and devote some time to correcting the difficulty.

Enthusiastic Helpers Work Hard

Enthusiastic helpers in all parts of the country are helping to awaken interest in the campaign for less air congestion. They are evidently spending much time to put the campaign over.

An old time amateur, A. L. Groves, 3B1D, of Brook, Va., has submitted a very excellent plan which he believes is an improvement on the Klutner scheme. Mr. Groves' plan is good, and he evidently has put considerable thought and time into the development of it. His plan will be referred to the department of commerce.

Only one example is cited. There are hundreds. While still in the embryonic state the campaign for decent reception conditions is making healthy progress.

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Looking Ahead

The Now Famous Wheatstone Bridge Circuit, for which we have all been waiting, is positively in the next issue. The preliminary articles which Milo Gurney has been writing are now finished, and the reader's mind is ready for the new principle and its advantages.

WWJ, the Pioneer Newspaper Broadcasting Station of the World, will be described in next week's issue. Largely as an experiment dedicated to science, WWJ was conceived in the days when receiving sets were the mystery of the age. Now it has become a service for the readers of the Detroit News and all other persons within range of this Michigan broadcaster. See it in pictures next issue.

The "Dope Bucket" Is Being Upset So Much in the 1925 Radio Digest Gold Cup Award that not even the Gold Cup Editor can predict what is going to happen next. Will George Hay keep the lead that he regained this week? Or will some other microphone favorite take the top position? Watch for next week's standing.

Storage Batteries Are Secondary Cells and their ability to store electrical energy is due to chemical changes, not to the amount of space within the case. The plate material, the paste which is pressed into the plates and the liquid poured in are all taken up next week by Prof. Moreton in a way that this subject has never before been presented to Digest readers. Most set troubles are battery troubles so learn all that is within your battery.

Newsstands Don't Always Have One Left

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STATION GLEANINGS AND NEWSY BRIEFS

KIWANIS NIGHT AT WCCO TO REACH 1,350 CLUBS

Charles E. Hughes on WEAJ Chain July Fourth—WRC Arranges Luncheon Music Series

The largest organized Radio audience in history, it is claimed, will be tuned to WCCO, Gold Medal station at Minneapolis, when on the evening of June 22 the international convention of the Kiwanis clubs in St. Paul will be broadcast. Approximately 100,000 members of 1,350 Kiwanis clubs will listen in.

Looking forward to the Fourth of July, when all stations no doubt will have patriotic programs, WEAJ and its allied chain of listeners will be greeted on this date by an address from Hon. Charles Hughes, former secretary of state and president of the American Bar association. His will be the conclusion of a series of six Tuesday evening talks by outstanding citizens of the United States.

Daily concerts of luncheon music for the summer months have been arranged by WRC, Washington, D. C., and will be broadcast alternately from the Hotel Mayflower, the Shoreham hotel, the New Willard hotel and the Hotel Washington. The concerts will be on the air from one to two o'clock, Eastern time. The Shoreham hotel orchestra will play on Monday and Saturday. The Hotel Mayflower orchestra on Tuesday and Friday; the Hotel Washington orchestra on Wednesday, and the New Willard orchestra on Thursday.

Father Rivard's sun spot weather forecast has become a marker for KFI listeners. The "Beloved Padre of the Rains," as he is known, has made remarkable, precise predictions, and his fame has spread. His forecast is scheduled each Sunday night at 6:45, Pacific time.

While the weekly half hour programs by the "Blue Ribbon Quartet" from WEAJ, New York; WEEI, Boston, and WOC, Philadelphia, are practically new to the Radio audience, the period from 9:00 to 9:30, Eastern time, each Monday evening is awaited with interest on the part of listeners. This male quartet arranges a most unique program including songs of yesterday, standard ballads and one or two of the popular hits of the day.

The concerts by the U. S. Marine band, which are broadcast every Thursday evening from the Sylvan theater, Washington, D. C., by a chain of stations, including WRC, Washington; WJZ, New York; WGY, Schenectady and WBZ, Springfield, have become one of the outstanding eastern features of summer broadcasting. Capt. William H. Santelmann is leader of the famous band. The concerts are on the air from 7:30 to 9:00, Eastern time, every Thursday night.

Every evening at 6:15, Eastern time, throughout the summer season, M. J. Wathey, sports authority of the New York Evening Telegram-Mail, is broadcasting results of important athletic events throughout the United States through the microphone of WOR, Newark, N. J. On Friday evening Mr. Wathey broadcasts at 5:15 p. m.

KFOA employs a gong to precede all the announcements of Seattle Times programs. It is the only Seattle station that has such a means of attracting attention and identifying itself.

The Willard Storage Battery company's plant and Station WTAM, Cleveland, was subjected to a tour of inspection by the Electrical Maintenance Engineers at their June 1 meeting. A special program was given.

Musical comedy was to be featured in a two-hour studio program, Wednesday evening, June 10 over KOA, Rocky Mountain station of the General Electric company at Denver. "The Captain of Plymouth," a three-act comic opera was the unusual offering, at which time Ina Rains of the KOA staff was heard as Priscilla.

KJR, Northwest Service company, Seattle, Wash., is now broadcasting weather reports daily at 12:30 and 8:30 p. m., Pacific time.

Edward H. Smith, former director of the WGY players, made his first return to Radio recently at WHAZ, Rensselaer Polytechnic Institute, Troy. Mr. Smith has joined the Troy Proctor Players for the summer season.

Shriners countrywide listened every night to seven bands picked from fifty present at their recent annual conclave at Los Angeles. The brass and drum vid for supremacy over Anthony's superstation, KFI, nightly from 11 to 12, Pacific time.

AMERICAN IN BRAZIL PLEASSED WITH KDKA

SAO PAULO, Brazil.—Using only two tubes with head phones and three for the loud speaker, an American exporter here reports that he is constantly in touch with Station KDKA at Pittsburg. He stated in a letter that the people of Sao Paulo were much pleased when announcements were made in Spanish for special programs.

PORTUGUESE REBELS RADIO PROPAGANDA

LISBON, Portugal.—Radio played an important part in the recent short-lived Portuguese military revolution. Radio is not greatly developed in this country, but the rebel element made it a point to build stations for sending out seditious propaganda. Seven secret broadcasters were traced down and the operators taken as political prisoners.

THEY SING SONGS CENTURIES OLD



POPULAR ballads and "jazz" songs of 500 years ago are regularly sung over Superstation WHT, Chicago, by the Misses Julia (left) and Ruth Brock, former vaudeville and choir singers. The songs, themselves a repudiation of the idea that jazz is something new, will be taken from a collection in a rare old song book, "The Musical Companion," by John Playford and printed in England in 1673. Many of the songs were 250 to 500 years old when the book was printed.

The title page informs the reader that

the book contains "Catches and Rounds for three voices, and dialogues, glees, ayres and songs for two, three and four voices." It is dedicated to "all ingenious lovers of Musick."

The Brock sisters, known as the "Barmy twins," because of the fact that they dress exactly alike, are from Marshalltown, Iowa. They sang so well in the choir there that they landed an act on the vaudeville stage, and now are WHT staff artists. They are shown above holding "The Musical Companion."

FANS HEAR SPEED BOAT BEAT TRAIN

Plane Relays Race to WGY and WJZ as Wood's Craft Down Century

SCHENECTADY, N. Y.—As the speed boats Baby Gar IV and Baby Gar V raced and beat the Twentieth Century Limited train from Albany to New York, a mile-by-mile descriptive report was broadcast on low power from a transport plane and rebroadcast on high power by WGY, of Schenectady and WJZ of New York.

By means of a 50-watt aircraft telephone and telegraph transmitter installed on the Sikowsky S29A, a giant twin-engined transport plane, call KPCZ, those tuned to either of the two stations were given a thrilling picture of the early morning race over the waterway traveled by the historic Halfmoon and the Clermont.

The Baby Gars covered the distance in less than three hours, while Robert Fulton's first steamboat required thirty-two hours for the journey.

Photographers and representatives of the New York World were aboard the plane and a new record in news gathering and dissemination was made, as an added feat to the victory of speed boats over the king of trains.

Metropolitan Chimes Miniatures Do Work

Mystery Is Explained—Was Not Intentional Hoax

NEW YORK.—Many inquiries have been received from listeners with a scientific turn of mind, who want to know how the chimes in the tower of the Metropolitan Life Insurance company are registered on the WEAJ microphone with such an even tone. If these inquirers could have been present when the first attempts to "catch" those chimes were made they would wonder still more.

The chief difficulty lies in the fact that the bells sound on different sides of the tower, requiring four microphones, which also could not be within fifty feet of the bells or the sound would register too loudly. Four microphones in the air fifty feet out from the tower and subject to weather vicissitudes would have been impractical.

The solution was hit upon by John C. Knight, fifth vice-president of the company, who secured a set of small chimes which exactly reproduced the tones of the big tower chimes, but with less volume. This smaller set was placed in the studio and connected with the electrical mechanism of the tower chimes.

WLW CHIEF IS FIRST RADIO AMBASSADOR

JOURNEYS TO EUROPE IN INTEREST OF ART

Will Tell Europeans of American Broadcasting Stations—Foreign Directors Welcome Him

CINCINNATI.—Fred Smith, studio director of Crosley WLW here, with his wife, has left for Europe as America's first Radio ambassador.

Every detail of his voyage and European tour was completed before his departure. Even such details as typewriter and camera were not neglected.

In preparing for this journey, the first of its kind in history, and which has won for him the title, "The First Radio Ambassador," Mr. Smith wrote to twenty-five of the leading broadcasting stations in America, asking them for photographs and publicity matter which he might be permitted to use in foreign publications. Practically every one of his fellow studio directors responded with letters of encouragement and good wishes, as well as copious information and numbers of photographs. With this material, Mr. Smith hopes to spread the fame of American stations in many foreign countries.



Fred Smith

Will Be Greeted Royally

At the same time he wrote to representative foreign stations in the countries he expects to visit, telling them of his plans and asking for their cooperation upon his arrival. Within three weeks after these communications were sent out he received his first reply—an enthusiastic letter from the director of one of the Paris stations, that of l'Ecole Supérieure. Later came letters from La Tour Eiffel in Paris, as well as from Brussels, Amsterdam, Hamburg, Rome and many other capitals. All of these assure Mr. Smith of a sympathetic welcome on the other side.

While abroad, Mr. Smith will prepare a series of exclusive articles on European Radio conditions which will be published weekly in Radio Digest. These will be the first stories of European broadcasting stations as seen through the eyes of an American school program director.

CUT POWER OVER DISAGREEMENTS

Program Discussion Ends in Temporary Closing of WFBH by Majestic Hotel Men

NEW YORK.—When the Concourse Radio corporation, owners of Station WFBH, on the Hotel Majestic here, refused to change their programs to meet with the contract formed with the hotel, Copeland Townsend, director of the hotel, cut off the power during a program.

Mr. Townsend, through his attorneys, served notice on the corporation to change their style of programs some time ago, but they refused to comply with his wishes, he says. Complaints were received from fans by the hotel management against the programs being broadcast, who believed that WFBH was operated by the hotel.

"The Hotel Majestic had nothing to do with the operation or management of Station WFBH," said Mr. Townsend, "and had no interest in it whatever other than that existing between landlord and tenant. We cut off the power when we got no satisfaction from the tenants."

The hotel's objection related to the "House of Health" talks, to which the New York County Medical association had objected, it is said.

Broadcasting was resumed following a conference in which the Radio corporation agreed to allow the hotel to pass upon all programs.

Use First Remote Control in Northwest at Seattle

SEATTLE.—Under the auspices of the Seattle Times, the first long distance remote control broadcast to be attempted in the northwest, was recently arranged by the engineers of KFOA, the Rhodes department store station. The occasion of this special program was the opening of the Monte Cristo hotel in Everett, Washington, 32 miles from Seattle.

SET NEW RECORD IN RADIO FOR 'PLANES

CONVERSATION IS PERFECT IN TWO-WAY AIR TESTS

Communication Is Clear at Distance of 110 Miles—Make New Tests Soon

CHICAGO.—World Radio records were broken in remarkable tests made between land and airplane stations during the recent military tournament in Chicago, according to Curtis D. Peck, engineer-in-charge of WLS, the Sears-Roebuck station, who had charge of the tests made with army airplanes.

Rebroadcasting of the conversations between WLS and the flying machines so that the public heard everything that was said, was another feat performed successfully. During these same tests the world record for plane-to-plane two-way radio communication also was broken.

The previous record for two-way communication between a land station and an airship by Radio was forty miles. The record made between WLS and the army airplane, in command of Lieutenants Lawrence P. Hickey and Charles H. Howard, was 110 miles, and the reception was so clear at this record point that Engineer Peck says another attempt to break this new record will be made in the near future. The plane-to-plane record was 15 miles, as compared to a previous record of five miles. The army operators were Lieutenants Johnson and Salsman.

Tests at 4,000 Feet

"The tests were made while the flyers were 4,000 feet in the air," said Mr. Peck, "and the reception was very clear at both ends. From our station we kept in constant touch with the flyers all the time. When they reached Harvey, Ill., we were delighted at the clearness of the talking. Then we heard them from Madison, Monee, Peotone, Bourbonnais and Kankakee. The army flyers came down at Chanute field, which was a distance of 110 miles, and our communication was so good then that I am sure we can make a much greater distance record in our next tests, which will be in the near future."

The army airplanes used a 50-watt master oscillator sending set. WLS used a five tube receiving set, while the army men used an army eight tube super-heterodyne. A two-pound lead weight held down the trailing antenna. Within the city limits the army men had a 50-foot wire over the side of the airplane, while as they got farther away they used a 200-foot aerial to transmit.

The spectators could hear both conversations as they watched the airplanes obey the broadcast orders.

PERFECT SECRET RADIO

(Continued from page 1)

the government for some time and has been granted certain wave lengths on which to experiment. It will present a scheme to the Theatrical Managers' association in opposition to that of the British Broadcasting company, which is now under consideration.

As no actual arrangement for the broadcasting of plays exists between the B. B. C. and the T. M. A., the new concern believes it can break down the B. B. C.'s monopoly and establish competition in broadcasting.

"It we come to an arrangement with the theater managers," said Mr. Chisholm in an interview, "we would broadcast plays which could only be heard by those in possession of our patent component and of our weekly program, which would give the wave lengths upon which we propose to broadcast each program."

"There is no doubt whatever about the success of our experiments, and the government will probably take up the system and use it for official and naval purposes. That is really the chief scope for the scheme."

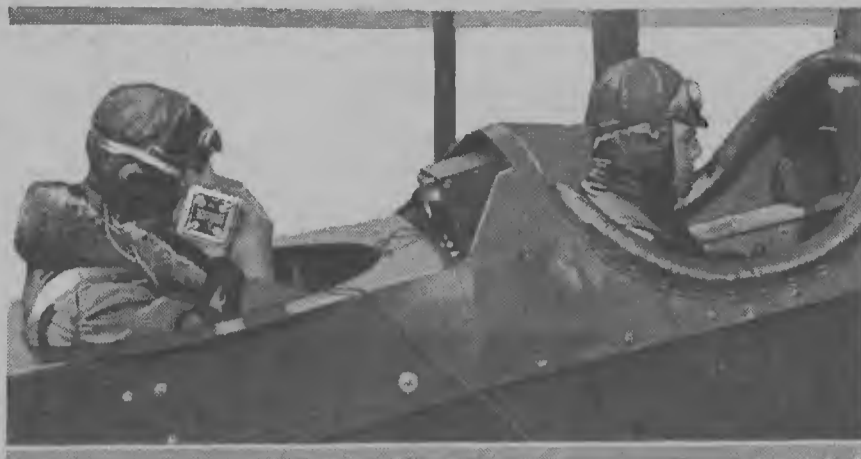
Means Privacy in Radio

The system was demonstrated some months ago before representatives of the British air ministry and the war office. The method employed is a variation of wave lengths made synchronously on both the transmitter and the receiver.

While one object of the new concern is competition with the B. B. C., it is also said that the chief idea behind the launching of the enterprise is to enable radio messages to be sent privately, and furthermore that the system may be adopted by the B. B. C. to circumvent the activities of those fans who refuse to pay their licenses.

The broadcasting monopoly held by the British Broadcasting company does not expire until the end of 1926, and no other broadcasting license can be issued during the intervening period unless the post office finds serious fault with the conduct of the company in possession of the contract.

AIRPLANE DH4B CALLING WLS (WA1)



Lieut. J. S. Salsman at transmitter in plane, Call DH4B, conversing with WLS (WA1) in tests in which a two-way talk world's record was made.

Troy Station Presents Big Patriotic Pageant

WHAZ Presents Thirteen Scenes of Revolutionary Days

TROY, N. Y.—One of the most unusual Radio pageants ever presented to listeners in, was recently produced by Station WHAZ here in commemoration of the sesqui-centennial of the outbreak of the American Revolution.

The pageant was given in thirteen scenes and presented a vivid series of mental and oral pictures of the stirring times of the Minute Men. Among the scenes was the ride of Paul Revere, the brawl in the Province House, Boston, the battle of Lexington, the retreat of the British and the introduction of the first American patriotic song, "Yankee Doodle."

By the use of cleverly contrived devices more than fifty different sounds and noises were made to add to the "scenes." Among them were the sound of the clock striking, the scuffle in the tavern, the clatter of horses hoofs, the midnight alarm and the firing of musketry and the clash of battle.



Selectivity?

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The experienced radio fan has learned the value of guaranteed parts in his set. He knows that Allen-Bradley Radio Devices, such as the Bradleystat, Bradleyleak, Bradleyohm, Bradleydenser etc., provide noiseless control. He incorporates them into his new set for maximum selectivity, and he is not disappointed. The stepless, noiseless adjustment eliminates the harsh noises produced by inferior devices. Any Allen-Bradley dealer will gladly show you why Allen-Bradley Radio Devices increase selectivity. Stop in, today, and see the new line.

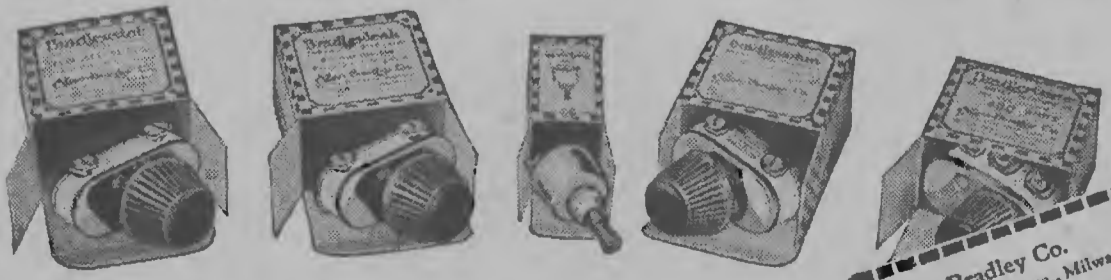
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The Famous Richmond Hill Station—WAHG

To the right is Marie Dressler, famous comedienne, who acts as announcer at WAHG when she's in town. Below is Evan Davies, Scotch comedian, and one of the most popular men at the station. His voice always brings a load of mail from Bonnie Scotland.

Below is "Ole Bill" Diehl, the Radio question box man at WAHG. But Bill does not devote all his time to answering fan mail on how to do it. He's one of the country's best known engineers and is responsible for the designing of Grebe receivers.



Below is Thornton Fisher, noted sports writer and cartoonist, announcing a race at Belmont Park from auto station WGMU. Fisher is one of the regulars.

By "Bishop" Heber MacDonal

EIGHT years ago, when Mayor Hylan of New York was just entering the lists for the mayoralty, a young experimenter invited him out to his station on Richmond Hill. There the first political speech was broadcast. The experimenter was A. H. Grebe. So you see Grebe and broadcasting seem synonymous. And this proves that Kipling was right when he said:

*The wisest thing, we suppose,
That a man can do for his land
Is the work that lies under his nose,
With the tools that lie under his hand.*

Eight years has brought many changes in broadcasting. Today the studios and transmitter occupy the entire top floor of the big Grebe plant. The mechanical equipment of the station is in the hands of Pat Rooney and Alfred Hiler. Walter Neff is the station announcer.

Evan Davies, Scotch comedian, is one of the regular features of WAHG and many letters from across the briny deep attest the excellent reach of the station and the immense popularity of Davies, who is a personal friend of Sir Harry Lauder.

Mudelyn Marshall Simon, wife of Robert Simon, the novelist, is the studio accompanist. Prior to her engagement at WAHG, Mrs. Simon was accompanist on the tours of Sigrid Onegin, the Swedish contralto of the Metropolitan Opera company.

Burr McIntosh, the Cheerful Philosopher, known as the man with 10,000,000 friends, has the 8:00 to 8:30 period every Friday night. Last September and October the Cheerful Philosopher was the daily noon hour feature, but motion picture engagements changed this time to the once-a-week appearance.

Thornton Fisher, the well-known sports announcer, was formerly at WJAF. He touches every phase of the world of sports and graces everything he touches. The mobile broadcaster WGMU and the marine broadcaster WRMU are also in the keeping of Mr. Fisher. No matter whether it is horse races at Belmont Park or boat races on the Hudson, Thornton Fisher is on the job for WAHG. Incidentally it might be mentioned that Thornton Fisher is one of the leading newspaper cartoonists when he is not handling the mike for the Grebe station.

John Finnegan, tenor of Saint Patrick's cathedral, Fifth avenue and Fiftieth street, New York city, is another regular Friday feature at WAHG. Granting that John McCormack is the first Irish tenor, John Finnegan is easily the second.

Mikail Lambert, cellist, was long a member of the New York Symphony orchestra under Walter Damrosch. Mr. Lambert is on every Friday night and his concert tours are so arranged that the itinerary never interferes with WAHG time.

A deep niche has been (Continued on page 6)



Walter J. Neff, chief announcer at WAHG. Not only is Neff the announcer, but (sotto voice) it is said he can sing a mean song.



Above is Pat Rooney, chief operator. It is said he is not so sad as he looks. Below is the A. H. Grebe plant and the WAHG towers.



The Synchronphase Buick which calls for the artists and takes them home. Looks Synchronphase, doesn't it?

FULL KDKA CONCERT GETS TO AUSTRALIA

PERFECT TRANSMISSION IS RECORDED DURING TEST

Fan Mail From Sydney Shows Reception Was Distinct and Clear Over 9,000 Miles

E. PITTSBURGH.—Perfect transmission for 9,000 miles, with every word and note clear and distinct. KDKA here claims this feat.

Several weeks ago a number of hardy and interested Radio entertainers pulled out of their nice warm beds at 4 o'clock in the morning and hied them to Station KDKA, where they sang and played for more than an hour. Their efforts were not in vain. The entire program, sent under high power, reached Australia intact and brought a flood of official and fan letters back.

The program was rather unusual in that it was more or less secret. This was done so thousands of fans would not squeal up the air with frenzied tuning. However, lots of fans seemed to know about it and wrote to KDKA and reported the numbers on the test program almost perfectly.

Great Excitement in Australia

One of the most interesting letters was received by Chief Announcer H. W. Arlin. It was from a fan named E. P. Davidson, living in Sydney. He told of the excitement that prevailed in the town next day when those who had heard KDKA recited their experiences to others. Davidson said he heard the whole program clearly and named the numbers that were given.

Every newspaper in Sydney carried long accounts of the feat and described it in detail. The only mistake made was that most of the listeners thought Arlin's name "Arnold," and recorded it so.

Numerous other newspaper accounts and fan letters show that stations in Davenport, Chicago and New York have been heard, but never so distinctly or fully as KDKA.

WIBO Transmitter Tubes Cooled in Unique Manner

CHICAGO.—The transmitter of WIBO, Nelson Brothers and the Russo-Morito Orchestral Exchange, recently launched upon the air, is unique in design and embodies one entirely new idea, that of cooling the plates of the tubes with oil under forced feed.

Standard water-cooled 500-watt tubes are used, but these have been found to be more effectively cooled by oil than by water, and with less electrical losses. J. Elliott Jenkins, prominent Radio engineer, is responsible for the design and construction of WIBO, which is breaking many records.

Program Director of WCX Leaves to Direct Husband

DETROIT, Mich.—Lucille O'Connell, who well may be called one of the pioneer program directors of the United States, leaves WCX, the Detroit Free Press station, to marry Dr. Frank Cutler, a famous bacteriologist of New York. Mrs. O'Connell came to WCX two weeks after the opening of the station and has taken care of the programs for almost three years.

Australia Applauds WOR

NEWARK, N. J.—Australians currently arriving in New York have brought more than 300 letters from Australian Radio fans, who comment on the quality of reception of the WOR program broadcast in the American-Australian program.

Cross-Word Solution

W	K	B	F	W	K	A	Q
C	Y	L	K	D	K	A	W
A	W	W	F	A	A	W	D
E	W	E	A	F	W	M	B
W	C	E	E	W	C	A	H
W	S	A	I	W	E	B	H
W	O	R	W	C	A	D	C
A	E	W	T	A	Y	K	F
O	W	R	A	L	W	D	C
C	J	C	M	W	A	B	N

And here's the solution to the cross-word puzzle published last week. Have you tuned in all the stations represented? Incidentally, horizontal 1 is no longer WIEF, but WDWF. Horizontal 18 is no longer WTAY, but WGES, and vertical 6 is no longer WDBH, but WCTS. All of which helped to make the puzzle a puzzle.

GENE ROUSE, WOAW "HEAVENLY VOICE"



Gene Rouse

YES suh! You are listening to the Woodmen of the World Life Insurance association, Station WOAW at Omaha, the city surrounded by the United States, and this is G. R. talking. Yes suh!

Thousands of Radio fans who have picked up their receivers have been thrilled to hear that deep, well-modulated and clear voice of "G. R." whose full title is Gene Rouse, the "man with the heavenly voice." For more than two years "G. R." has been handling the microphone for WOAW, the powerful 1,000-watt station, owned and operated by the Woodmen of the World.

"G. R." made his first announcements to a curious adult world in the year 1892 at Boulder, Colorado. He has successfully maintained secrecy about his activities and failures up to the age of eighteen but one finds no difficulty in coolly calculating that he harbored dreams of Shakespearian triumphs across the footlights.

At the age of nineteen we find him associated with theatrical road companies, and we surmise that at this dangerous period his main preoccupation was the counting of railroad ties. In 1917 we find him a future author as a cub reporter on the Kansas City Star. In due course of time he associated with the Denver Post, the Rocky Mountain News, the Omaha Daily News and the Omaha Bee. Now he is more or less responsible for many of the feature stories which appear in the Omaha Bee.

That experience which he acquired as a news reporter was also a valuable addition to his personality as Radio announcer. It gave him an extensive knowledge of people; of names; of locations and a peppy style of expression which is an outstanding virtue in comparison to the overdone formality and dignity of so many announcers.

WAHG, RICHMOND HILL

(Continued from page 5)

made for the Synchrophase Trio in the heart of the great Radio audience. Both Europe and Australia have sent letters of applause, with thousands nearer home.

Wednesdays and the Davison Sisters. Charming young women. Excellent voices blended harmoniously. They would be stars on any bill anywhere.

Guests who appear at WAHG are usually surprise features. The printed program is issued so long ahead that men and women of national importance often appear without announcement. Among these might be mentioned Com. Donald MacMillan, Gen. Charles G. Dawes, vice-president of the United States; Secretary of the Navy Wilbur, Col. Theodore Roosevelt, Senator James Wadsworth, Congressman Robert L. Bacon, Miss Jean Nolan and Eida Vittori.

Marie Dressler, famous comedienne, has acted as station announcer twice recently and will appear again in the near future. Other stage stars on programs at WAHG include Amelia Bingham, Muriel Pollock, Florence Nash, Janet Beecher, Olive Wyndham, Carol McComas, Elizabeth Hines, Marguerite Namara, Helen MacKellar and Billie Burke.

The microphone at WAHG has carried messages for such society leaders as Miss Anne Morgan, Mrs. Newcomb Carlton, Miss Robinson Smith and Mrs. W. K. Vanderbilt.

The first "cross-word puzzle in the air" contest originated at WAHG and the money prize list for the winners was a long one. The Radio Santa Claus was another original feature at WAHG. Sixteen hundred presents covering the forty-eight states and thirty foreign countries found lodgment in the WAHG Santa's pack. The Radio Saint Valentine of WAHG was another original stunt. The Radio Saint Valentine offered money and Synchrophase broadcast receiving sets in exchange for good valentine verse. Fifty thousand fans sent verses and hundreds were awarded prizes.

EVEREADY HOUR EVERY TUESDAY AT 8 P. M.

Eastern Standard Time

For real radio enjoyment, tune in the "Eveready Group." Broadcast through stations—

- WEAF New York
- WJAR Providence
- WEEL Boston
- WFI Philadelphia
- WGR Buffalo
- WCAE Pittsburgh
- WEAR Cleveland
- WSAI Cincinnati
- WWJ Detroit
- WCCO Minneapolis
- WOC St. Paul
- Davenport

Evereadys have long-lasting power

THE long-lasting power of Evereadys more than justifies their price. It is false economy to buy batteries that may be cheaper in first cost, but which you will find to be much shorter lived. Considering price and size, Evereadys are the most economical batteries there are, and in addition they are most satisfactory. Buy Eveready "B" Batteries. To light the filaments of all radio dry cell tubes, use the famous Eveready Columbia Ignitor—*it lasts longer.*

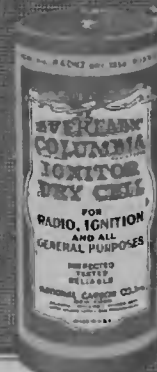
Manufactured and guaranteed by

NATIONAL CARBON COMPANY, Inc.
New York San Francisco

Canadian National Carbon Co., Limited
Toronto, Ontario

EVEREADY Radio Batteries

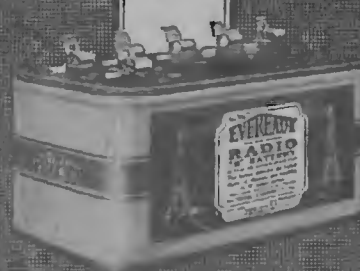
—they last longer



Eveready Columbia Ignitor "A" Battery The proven dry cell for all radio dry cell tubes 1 1/2 volts



No. 772 45-volt Large Vertical Price \$3.75



No. 766 22 1/2-volt Large Horizontal Price \$2.00



No. 764 22 1/2-volt Medium Vertical "B" Battery Price \$1.75

AIR STOCK COMPANY IS BRITAIN'S LATEST

FIRST IN WORLD TO TOUR AND PLAY AT STATIONS

Players Begin Ten-Weeks Tour With 32 Plays—B. B. C. Dramatic Director Predicts Future

LONDON.—The world's first touring Radio theatrical company has been organized here. No other "first-timers" ever had an audience of millions. Yet the event has come about without a single drum-beat.

The new arrangement of Radio plays will in no way overlap stage plays that may be broadcast according to the agreement reached between the theatrical managers and the broadcasting authorities. The Radio play will be a form of art in itself.

"The preliminary season which is to lead up to a permanent run of Radio plays has just begun," said R. E. Jeffreys, dramatic director of the British Broadcasting company, when interviewed.

Players Start Tour

"The London Radio Repertory Players have started on a ten-weeks' tour of the kingdom, playing 32 plays at the various Radio stations. By next fall their performances will have become permanent, and we are working throughout the summer to provide the finest possible set of dramatic companies for the Radio public.

"Most of the players have been drawn from the legitimate stage, but they are only becoming Radio players after having a thorough training in Radio technique. Everything depends on the voice. A good figure and Pickford curls mean nothing; the voice, all."

LITTLE AND SMALL ARE IOWA PRODUCT

"LITTLE and Small, the Midgets of the Air, entertaining, but you're always in for a big time when you hear them broadcast their piano-song acts." That's about as good a way as any to begin a sketch concerning one of the most popular Radio teams. Yes, those are their true names. Jack Little, crack pianist, and Paul Small, popular songster, both hail from Iowa and both are composers of many popular musical hits. Open wide the portals of the hall of fame of the tall corn state.

Radio brought Jack from Waterloo and Paul from Des Moines and installed them in the hearts of many listeners in. The two met and have been teamed together for a year, and for the same length of time have kept diads stationary on every station where they have performed.

The two have just closed a successful Radio tour of all the larger stations in the Middle West. Now they have separated for the summer while Paul remains in Chicago doing the local stations and theaters and Jack stays in New York working on some new songs which will be featured during the coming season. September 1 marks the start of their next tour, this time embracing stations from coast to coast.

The "Midgets of the Air" feature numbers that they have written and had published by the Henry Waterson Music company. Among the best sellers this year were: "My Sugar," "Because They All Love You," and "Where's My Sweetie Hiding?" Cameo records of their hits may be had. The boys will open their fall tour in Chicago. "We'll be kept busy from morning to night, too," says Paul Small, "for by fall there will be at least twenty stations in Chicago."

Which statement is distasteful, not because the "midget" team will perform, but because there are "umpteen" too many broadcasters already in Chicago, let alone next fall.

Avoid sharp turns with bus-bar wire and bend only with round-nose pliers.



Jack Little



Paul Small

SPELLING BEES BUZZ OVER MICROPHONE OF WLIT



Here is the way they conduct a spelling bee at WLIT, Lit Brothers, Philadelphia. WLIT has been broadcasting one spelling bee each week between pupils of rival schools. Considering the examples of spelling produced by our best business men, the idea has its merits. The program not only teaches the pupils to spell, but the listeners as well.

Yale-Princeton Game to Be Put on Ether

Alumni Reunion Celebration to Be Broadcast from WJZ

NEW YORK.—On Saturday afternoon, June 13, the Yale-Princeton baseball series will be broadcast from Princeton.

N. J., and in addition to the baseball game, the entire alumni reunion celebration will be described to the listening audience.

It is the custom at Princeton for all the alumni of the university to gather on the campus prior to the baseball game, each class being rigged out in some sort of freak garb, and just as the game is about to start a parade is formed with the college band at its head and the staid old "grads" become boys again in a grand old "peerade" across the field.

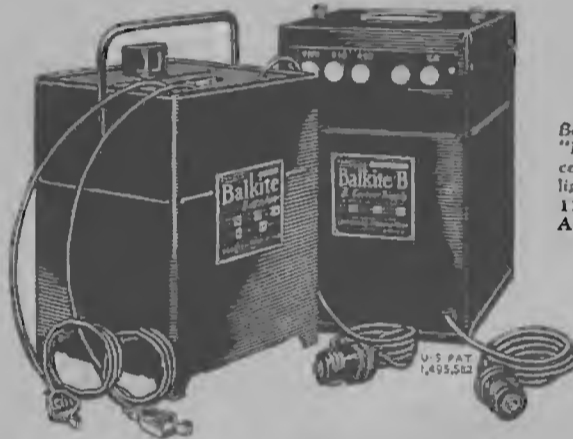
All this atmosphere and local color will be described to the listening audience by the announcer, together with the exciting moments of the baseball game which will follow.

Form New Radio Clubs

SEATTLE.—Two new Radio clubs have been formed here to aid local fans in overcoming troubles of the air. The first is the Broadcast Listeners club. The name of the other is not given.

Balkite Battery Charger. Charges 6 volt "A" storage batteries.

Price \$19.50
West of Rockies \$20
In Canada \$27.50



Balkite "B"—replaces "B" batteries and dry cells. Operates from light socket. 60 cycle 110-120 A. C. current. Also 50 cycle model.

Price \$55
In Canada \$75

A uniform, constant power supply for both "A" and "B" circuits

Here at last is a convenient and unfailing power supply for your radio set. Balkite Radio Power Units furnish constant uniform voltage to both circuits, and will give your radio set greater clarity, power and range. The Balkite Battery Charger keeps your "A" storage battery charged. Balkite "B" replaces "B" batteries entirely and supplies plate current from the light socket.

Based on the same principle, both the Balkite Battery Charger and Balkite "B" are entirely noiseless. They have no bulbs or moving parts, and nothing to break, adjust or get out of order. They have a very low current consumption, are simple and efficient in operation, and can be put in use at any time by merely connecting to a light socket. Both are guaranteed to give satisfaction.

Sold by leading radio dealers everywhere

FANSTEEL **Balkite** Radio Power Units

BALKITE BATTERY CHARGER—BALKITE "B" PLATE CURRENT SUPPLY

Manufactured by FANSTEEL PRODUCTS COMPANY, Inc., North Chicago, Illinois

SPECIAL FLAG DAY PROGRAM AT KDKA

Saturday, June 13

Saturday, silent night for: ATR, CHIC, CHNC, CHYC, CNRT, CKY, KFAE, KFOM, KFKU, KFKX, KFMQ, KFMX, KLOS, KLX, WBAV, WDAV, WBB, WCAU, WCOB, WCV, WDFW, WEAO, WEBJ, WEEI, WGR, WHA, WHAD, WHAZ, WHB, WHO, WIV, WKAG, WLIT, WOAH, WOI, WOS, WRBC, WSUI, WTIC, WWJ.

Atlantic or Eastern Daylight Saving Time Stations

CKAC, Montreal, Can. (410), 7 p. m., talks on hygiene, Dr. S. Boudier, Dr. Walter Kennedy; 7:30, Windsor hotel dinner concert; 8:30, talk on Quebec attraction.

CNRO, Ottawa, Can. (435), 8 p. m., Chateau Laurier concert orchestra; 9, Richard Pontland, tenor; Myrlah Kendall, pianist; 10, Edythe Young, violinist; Christine Williams, cellist; Myrlah Kendall, pianist; Walter A. Moser, whistler; Miriam Kaplan, reader; Chateau Laurier dance orchestra.

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

WBBR, New York, N. Y. (272.6), 8 p. m., Mrs. Hans Haag, pianist; 8:15, Bible questions and answers; 8:45, Mrs. Hans Haag, pianist.

WCAE, Pittsburgh, Pa. (461.3), 6:30 p. m., William Penn hotel; 8, address; 8:15, Prof. Otto Kaitels, pianist; 8:30, concert.

WCAU, Philadelphia, Pa. (247), 6 p. m., Hotel Pennsylvania concert orchestra.

WEAF, New York, N. Y. (492), 6 p. to 10, dinner music, Hotel Waldorf-Astoria; 7, Marie Oppinger, soprano; James Haupt, tenor; Adolph Oppinger, pianist; 7:30, "Trips and Adventures," Fred J. Turner; 7:50, Harmony Girls; 8, Flag Day talk, Dwight Brannan; 8:15, Hugler's Forenoon Hour; 8:45, Harmony Girls; 8:55, James Family orchestra; 9:15, Alexander Crawford, baritone; 9:30, Elizabeth Kunzer, pianist; 9:45, James Family orchestra; 10:05, Alexander Crawford, baritone; 10:20, Elizabeth Kunzer, pianist; 10:30, humorous half hour; 11-12, Vincent Lopez Hotel Pennsylvania orchestra.

WFI, Philadelphia, Pa. (394.5), 6 p. m., Elsie Hays and his dance orchestra; 8:30, Bellinus Stratford concert orchestra; 7, bedtime orchestra; 8, Arlan Ladies' quartet; 9:30, playlet, St. Anatha players; 10, U. C. I. Music Masters dance orchestra.

WGBS, New York, N. Y. (315.6), 6 p. m., Uncle Gee Beo; 6:30, the Crittertons; 8:15, grand radio program; 10, Thomas Jefferson centennial program.

WGR, Buffalo, N. Y. (319), 2:30-4:30 p. m., WGR's afternoon program, A. J. Erlman, director; 5-5:15, George C. Lehmann, secretary of the Buffalo Chamber of Commerce, addressing special train carrying Brooklyn Chamber of Commerce.

WHN, New York, N. Y. (361.2), 7:30 p. m., health talk, Dr. Landis; 8:30, Strand Roof orchestra; 9:30, Metropolitan trio, violin, cello and piano.

WIP, Philadelphia, Pa. (505.2), 3 p. m., Polesek and Krupinski, violin and piano accompanist; Iris Virginia Grober, contralto; Flora Blinn, pianist; 6:15, songs, Charles Higgins; 6:15, Hotel St. James concert orchestra; 7, Uncle Wip's bedtime stories; 8, Civil service examination talk; 8:15, concert, inmates of Eastern Penitentiary; 10:05, Howard Landis's dance orchestra.

WJAR, Providence, R. I. (305.9), 7:05 p. m., studio program.

WJZ, New York, N. Y. (455), 3 p. m., Yale vs. Princeton baseball; 6:30, baseball; 8, baseball; 7, dinner music; 8, baseball; 8:30 "Airline," dramatic association of Yale university; 10:30, Joseph Knicht's Waldorf-Astoria dance orchestra.

WLIT, Philadelphia, Pa. (394.5), 2:30 p. m., Sarah Miller Crosby, soprano; Abram Crosby, baritone; Marcelle North, pianist; 3:30, dance music; 7:30, Arcadia safe concert orchestra.

WMA, New York, N. Y. (340.7), 4:15 p. m., Mary Gleason, reader; 8:15, House of Health; 9:15-9:45, Gene Cirina and his orchestra; 11:15-12, Ernie Golden and his Hotel McAlhally orchestra; 12-2 a. m., Broadway Bright Lights.

WNYC, New York, N. Y. (526), 7 p. m., Chateau four; 7:35, baseball results; 7:55, chateau four; 8, talk; 8:15, instrumental feature; 8:30, Police quartet; 10, Mische Goodman, violinist.

WOO, Philadelphia, Pa. (508.2), 4:45 p. m., organ recital, Mary E. Vogt; 7:30, A. Candelori's concert orchestra.

WOR, Newark, N. J. (405.2), 7:30 p. m., the Commandora; 11, Clio's orchestra.

Eastern Standard or Central Daylight Saving Time Stations

KDKA, Pittsburgh, Pa. (309.1), 2:30-5 p. m., baseball scores; 7, baseball; 8:45, annual dinner, American Flag Day association; 9:35, baseball.

KYW, Chicago, Ill. (530), 4-6:30 p. m., Congress hotel; 7-8, Carol Hebert, soprano; William Hinks, tenor; Marlan Laffey, violinist; Thomas B. Stephenson; 8:35-10:30, Congress classic.

PWK, Havana, Cuba (409), 8:30 p. m., concert, Agrupacion Artistica Galega, program dedicated to the South American Republics.

WBBM, Chicago, Ill. (226), 8-12 midnight, Cort Banks, ukulele; Harold Weil, Jimmie Garland, Jerry Cromack, Tell Taylor, Tommy Gagan, Harold Winston, Tiny Dave Nadelman, Crillon orchestra.

WBCN, Chicago, Ill. (266), 8-12 p. m., request jam-boree; Homolito serenaders, string orchestra; "Big Boy" Karko, pianist; Johnny Spedal, harmonica soloist; Elizabeth Malone, soprano; Peggy O'Neil, soprano and pianist; Gordon Brothers, harmony duo.

WCEE, Elgin, Ill. (275), 10:30-12 midnight, Charlene

Headliners of the Week

MANY stations are observing Flag Day this year. KDKA will broadcast the American Flag Day association dinner given Saturday night. Other stations are observing Flag Day Sunday and Monday.

Howard and Smith, florists, are featuring a rose program Sunday at KHJ. As June is a rose month, this music will be more than appropriate. This orchestra is famous in Kentucky for its syncopation. A new series of golf lessons begins this same evening at KOA, Denver. Joe Novak, well-known golf instructor, will conduct these Tuesday and Thursday meetings.

WJZ announces a special program Wednesday. Robert Armbruster, pianist, and Maurice Leost and his trio will give the early classical program. Monte Carlo's Virginians will conduct the late frolic.

Mrs. H. P. Armstrong, contralto, formerly a Metropolitan opera singer, is the feature of the Thursday program at WTIC. Her selections will be taken from popular operas. Laura Gaudet, staff pianist, will give an evening of Chopin.

Carl Zoeller's Melodists have appeared fifty times at WHAS, Louisville. Tuesday will be their fifty-first appearance. This orchestra is famous in Kentucky for its syncopation. A new series of golf lessons begins this same evening at KOA, Denver. Joe Novak, well-known golf instructor, will conduct these Tuesday and Thursday meetings.

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The man of the house will want the ear phones Friday when he learns that the Mickey Walker-Harry Greb fight will be broadcast by both WGBS and WGY.

Pacific Standard Time Stations

KFI, Los Angeles, Calif. (467), 5:30-8 p. m., Examiner's matinee program; 8-8:15, McDaniel's nightly, doctory; 6:45-7, radio talk; 7-7:45, vocal recital, pupils of John Smallman; 7:45, the Bookshelf, Miss Nancy; 8-9, Examiner; program by Zoeller (Conservatory of Music); 9-10, play by KFI players, George Fromer, director; 10-11, Parkland Radio club, Way Watts and his ukulele, baritone slaker, Jack Kutz, pianist; Dorothy Cleveland, blues singer; 11-12 a. m., KFI midnight frolic arranged by Don Mooney of screenland.

KFOA, Seattle, Wash. (454.3), 8:45-8:15 p. m., program; 8:30-10, Eddie Harkness and orchestra; 10:05-11:30, dance music.

KFWB, Hollywood, Calif. (252), 7:45-9 p. m., program, Monte Mar Vista Subdividers, Ron Wilson's Monte Mar dance orchestra, Eccleston string quartet; Beaughan, tenor; Monte Mar Vista string quartet; Miller's International Hawaiian trio; 9-10, Warner Bros. symposium, Irene Authier, Ernest Karpal, Monty Collins and others singing songs of the day; 10-11, Warner Bros. frolic, direction Charlie Wellman.

KGO, Oakland, Calif. (381.2), 8 p. m., Grand Piano company; All-American composers' program; double mixed quartet; Carolyn Crew Hill, soprano; Gwynn Jones, tenor; Mrs. John S. Mills, contralto; Robert Bourke, violinist; Elbert Cowan, organist; "The Holy City," oratorio, Carolyn Crew Hill, Beatrice L. Sherwood, Ruth Waterman, Mrs. John S. Mills, contralto; Gwynn Jones, Harold Houston, Richard Lundgren, Waldemar Eschberg; 10-1 a. m., Henry Ininstead's orchestra.

KGW, Portland, Ore. (491.5), 12:30-1:30 p. m., Rose City trio; 8-8, Portland hotel, Jonkie Souder's orchestra; 10-12, Portland hotel, Jackie Souder's orchestra.

KHJ, Los Angeles, Calif. (405.2), 5:30-6 p. m., Lehigh's Arcade cafeteria orchestra, Jack Cronshaw, leader; 6-6:30, Art Heilman's Billmore hotel concert orchestra, Edward Fitzpatrick, director; 6:30-7:30, Hill's stories, American history, Prof. Walter Sylvester Herzig; pupils of Hill, W. Major; Viola Von, screen juvenile; Annis Hooker and Emily Wright, readings; 8-10, program, Pacific Electric Railway company, arranged by J. Howard Johnson; 10-11:30, Art Heilman's Billmore hotel dance orchestra, Carl Burnett, leader; 11:30-2 a. m., Lost Angels of KHJ, Majestic Six orchestra.

KMX, Hollywood, Calif. (336.9), 5:30-8 p. m., Wur-litzer tube organ studio, Bill Ziff's sports talk; 6:15, travel talk, W. F. Alder; 6:30-7:30, dinner hour music; 7:30-8, Wur-litzer pipe organ studio; 8-9, program, West Coast Musicians; 9-10, KMX dinner hour; 10-11, Ann Lyman's Coconut Grove dance orchestra from Ambassador hotel; 11-2 a. m., Hollywood night (presenting movie stars and entertainers).

KPO, San Francisco, Calif. (428.3), 6:15-8:30 p. m., baseball; 6:45-7:30, Johnny Bulek's Chiffrans; 8-12, Johnny Bulek's Cabrians.

Sunday, June 14

Sunday, silent night for: CKAC, CHIC, CHNC, CNRT, KFAE, KFAE, KFKU, KFKX, KFMQ, KFMX, KLOS, KLX, WBAV, WDAV, WBB, WCAU, WCOB, WCV, WDFW, WEAO, WEBJ, WEEI, WGR, WHA, WHAD, WHAS, WHAZ, WHB, WHO, WIV, WKAG, WLIT, WMA, WOI, WOR, WRC, WSAI, WSBM, WTAM.

Atlantic or Eastern Daylight Saving Time Stations

WBBR, New York, N. Y. (272.6), 10 a. m., Watchtower orchestra; 10:10, L. Marion Brown, soprano; 10:30, Watchtower orchestra; 10:30, "The Wisdom from Above," H. H. Riemer; 11, L. Marion Brown, soprano; 11:15, Watchtower orchestra; 9 p. m., I. B. S. A. choral singers; 9:10, Prof. Arthur Martens, mandolinist; 9:20, I. B. S. A. choral singers; 9:30, "Abraham Back in Jerusalem Soon," H. H. Riemer; 10, L. Marion Brown, soprano; 10:10, Prof. Arthur Martens, mandolinist; 10:20, I. B. S. A. choral singers.

WCAE, Pittsburgh, Pa. (461.3), 3 p. m., People's Bullu church service; 4, John Wesley quartet; 6:30, dinner concert, William Penn hotel.

WCAU, Philadelphia, Pa. (247), 5:15 p. m., undenominational church services, Rev. John W. Stockwell, pastor, Mande Hanson Pettit, musical director; 6, Hotel Pennsylvania concert orchestra; 7, Hotel Pennsylvania concert orchestra.

WOWF, Providence, R. I. (440.9), 11 a. m., chimes; 5 p. m., Venetian serenaders; 6:30 organ recital.

WEAF, New York, N. Y. (492), 3 p. m., Sunday hymn sing, Greater New York Federation of churches, Dr. William B. Miller; 4-5, Greater New York Federation of churches, Dr. William B. Miller, presiding; address, Rev. Arthur B. Whitlow; 7:20-9:15, Roy and his quartet; 9:15-10:15, organ recital, 8thmer organ.

WEEI, Boston, Mass. (475.9), 7:20 p. m., Roy and his quartet; 9:20, Skinner organ recital.

WFI, Philadelphia, Pa. (394.5), 7:30 p. m., services, Arch Street Presbyterian church.

WGBS, New York, N. Y. (315.6), 9:30 p. m., Douglas Fairbanks; 10:15, symphony orchestra.

WGR, Buffalo, N. Y. (319), 3-4 p. m., vesper service, Rev. H. A. Root; 4-5, John W. Newton, organist; 7:45, Central Presbyterian church service, William Walford Whitfill, organist, and Dr. Robert J. MacAlpine, speaker.

WHN, New York, N. Y. (361.2), 3-4 p. m., Queen's County Christian Endeavor program; 5-5:30, Roseland dance orchestra; 5:30-6, Olcott Vail and his string

(Continued on page 9)



The WBAF Grand Opera company has been heard and enjoyed by many fans this spring through WBAF and the link stations—WEEI, WFI, WCAE, WFR, WGR and WWJ. They will give "Tales of Hoffman" this Tuesday. From left to right: Elsa Ward, soprano; Olive Cornell, contralto; Devora Nadworny, contralto; Elvira Boni, lyric soprano; George Walker, bass; Giuseppe Di Benedetto, tenor, and William Tucker, baritone.

ROSE MUSIC SUNDAY FEATURE AT KHJ

Sunday, June 14

(Continued from page 8)

trio; 10:10-11:35, Ben Razor entertainers; 10:45-11:35, James' Holman orchestra.
WIP, Philadelphia, Pa. (508.2), 10:45 a. m., services, Holy Trinity church.
WIAR, Providence, R. I. (305.9), 7:20-9:15 p. m., Roxy and gang; 9:15-10:15, piano recital.
WIZ, New York, N. Y. (453), 11 a. m., broadcast address, Dr. N. Ansell, 2:30 p. m., Sunday Radio Forum, Dr. John L. Davis; 8, Ethel Haskell, tenor; 8:15, Jocal Ifo; 10, Godfrey Ludlow, violinist.
WKAQ, San Juan, P. R. (840.7), 8-10 p. m., municipal band.
WLIT, Philadelphia, Pa. (394.5), 2:30 p. m., Arcadia cafe concert orchestra.
WMCA, New York, N. Y. (340.7), 7-7:30 p. m., Ernie Golden and his orchestra; 7:35, health talk.
WNYC, New York, N. Y. (526), 4-5:30 p. m., hand concert; 9-11, program, Brooklyn Mark Strand theater program; Edward L. Hyman, director.
WOO, Philadelphia, Pa. (508.2), 2:30 p. m., Sunday school exercises, Bethany temple; 8, organ recital, sacred music, Clarence K. Bawden; 7:30, services, Bethany temple.

Eastern Standard or Central Daylight Saving Time Stations

KDKA, Pittsburgh, Pa. (309.1), 9:15 a. m., East End Christian church; 8 a. m., Dr. Charles Helfrich, organist; 8:45, Shadoble Presbyterian church; 6:45, First United Presbyterian church.
KYW, Chicago, Ill. (536), 10 a. m., Central church service, Rev. Dr. Frederick F. Shannon; 3-4 p. m., studio program.

ouis orchestra; Dr. C. R. Roe, baritone; Dr. Robert N. Roe, tenor; Dr. Howard M. Payne, violinist; Anna Alban, accompanist; Rose Quinn, contralto.
WREO, Lansing, Mich. (285.5), 10 a. m., chimes, Belfry Plymouth Congregational church; 10:30, First Presbyterian church, Rev. Guy W. Simons; 7:30, First Baptist church, Rev. Ralph W. Hobbs.
WSAI, Cincinnati, Ohio (328), 3 p. m., sermonette and sacred chimes.
WTAS, Elgin, Ill. (302.8), 2-5 p. m., Sunday afternoon popular concert, Joe Rudolph and the Boss' Own orchestra; 8-12, Villa Olivia Radio concert, Joe Rudolph and the Boss' Own orchestra, Frank Morris, Polly Willis, Fanny and Eddie Cavanaugh.
WVJ, Detroit, Mich. (352.7), 11 a. m., St. Paul's Episcopal cathedral; 2 p. m., Detroit News orchestra; 6:20, Roxy and his gang.

Central Standard Time Stations

CKY, Winnipeg, Can. (364.4), 7 p. m., Westminster Presbyterian church.
KFDM, Beaumont, Texas (315.6), 11-12 m., sacred program; 8-9, music.
KFNF, Shennadoah, Iowa (266), 10:45 a. m., First M. E. church; 2:30 p. m., Rev. and Mrs. Hanley Radio

KFWB, Hollywood, Calif. (252), 9-11 p. m., Warner Bros. West Coast motion picture studios presenting their Sunday movie night frolic.
KGO, Oakland, Calif. (361.2), 11 a. m., Calvary Presbyterian church; 3:30 p. m., KGO Little Symphony orchestra; 7:30, Calvary Presbyterian church.
KGW, Portland, Ore. (491.5), 10:30-12 m., First Presbyterian church service; 7:30-9, First Presbyterian church.

KHJ, Los Angeles, Calif. (405.2), 6-6:30 p. m., Leighton's Arcade orchestra, Jack Crumshaw, leader; 6:30-7, Ari Hickman's Billmore hotel concert orchestra, Edward Fitzpatrick, director; 7-7:30, organ recital, Arthur Blakeley, organist; 8-10, program, Howard and Smith, soloists, arranged by J. Howard Johnson, a two program.

KNX, Hollywood, Calif. (356.9), 7-8 p. m., First Presbyterian church of Hollywood, Stewart P. MacLennan, pastor; 8-9, Ambassador hotel concert orchestra, Josef Rosenfeld, director; 9-10:30, program, Valhalla Memorial Park and Mausoleum association.
KPO, San Francisco, Calif. (428.3), 6-15-6:30 p. m., baseball; 6:35-8, Palm Court concert orchestra; 8-8:30, Palm Court concert orchestra; 8:30-10, Rudy Salger's Fairmont hotel orchestra.

Charles P. Shoffner; Safety talk; 8:30, Oswald Blake, tenor; 9:30, Stanley theater concert; 10, Arcadia cafe dance orchestra; Snike Hamilton's dance orchestra; vaudeville features, Jay's Knickerbocker theater.
WMCA, New York, N. Y. (340.7), 6:30-7:30 p. m., Ernie Golden and his Hotel McAlpin orchestra; 9, Alice Ambrookian, pianist; 9:30, Alice Ambrookian; 10:30, McAlpin Radio forum.
WNYC, New York, N. Y. (526), 7 p. m., piano recital; 7:25, baseball results; 7:55, health talk; 8:15, concert program; 10:10, "Trend to the Times," Dr. Sidney Fisher.

WOO, Philadelphia, Pa. (508.2), 1:15 p. m., organ recital, Mary E. Vogt; 7:30, A. Canteluri's concert orchestra; 8, Mark Strand theater concert; 9, A. & P. Gypsies; 10:03, Blue Ribbon quartet; 10:30, Bonnie's orchestra; 11, Vincent Rizzo's dance orchestra.
WOR, Newark, N. J. (485.2), 6:15 p. m., Kimie Kriebel, contralto; 7:15, sports talk, Bill Wathley; 8:15, "Learn to Swim," Frank E. Dalton; 8:30, Al Held's hour; 9:30, Dr. Frank H. Vignette, lexicographer; 9:45, Dr. Sigmond Spaeth, music critic; 10:45, Perry and Russell.

Eastern Standard or Central Daylight Saving Time Stations

KDKA, Pittsburgh, Pa. (309.1), 2:30-7 p. m., baseball; 8-15, baseball.
WBBM, Chicago, Ill. (226), 6-7 p. m., Crillon orchestra.
WBZ, Springfield, Mass. (333.3), 6 p. m., Capitol theater orchestra; 6:30, baseball; 8:35, Capitol theater orchestra; 8, Aleppo Drum Corps of Harlow's band; 8:30, to be announced; 9, Mrs. Alice F. Steele, reader; 9:15, Charles H. Young, tenor; 9:30, at the theater; 9:50, baseball.
WCEE, Elgin, Ill. (275), 10:30-12 midnight, Joe Rudolph and the Boss' Own orchestra; Frank Morris, Polly Willis, John Post, Eddie and Fannie Cavanaugh.
WCX, Detroit, Mich. (316.9), 1:15 p. m., musical program; 9, dinner concert, Book-Cadillac hotel; 8:30, musical program.
WEAR, Cleveland, Ohio (388.4), 3:30-5 p. m., musical.



Eldon Smith, left, is tenor on the WEI staff. His interpretations of popular airs are well liked. Water Reagler, tenor, sings regularly at WGY, Schenectady. His fine tenor voice helps to keep WGY's programs among the best. Elizabeth Coles, violinist, plays this week at KDKA, Pittsburgh.

WBBM, Chicago, Ill. (226), 4-4 p. m., Homer's orchestra; Charlie Garland, pianist; Joe Allsbaugh, ukulele soloist; Melina Sisters; Dave Nudelman; 8-10, Sandy Meek, Scotch humor; Lester Kelsey, Joe Allsbaugh, ukulele soloist; William Mulvihill, tenor; Crillon orchestra; Harry Smith, pianist; Heyerstein Sisters; Charlie Garland, pianist; Jerry Bromack; 12-1 a. m., midnight not club frolic; Ralph Atlas; Charlie Garland, pianist; Dave Nudelman; Crillon orchestra.

WBCN, Chicago, Ill. (286), 10:30-12 noon, services, People's Liberal church; 1-3 p. m., classical concert; 7-8, vocal and instrumental artists; 8-11, popular program; Midway Dancing Gardens' orchestra; Casey and Gervais, harmony team; Gertrude Pageite, dramatic reader; artists.

WBZ, Springfield, Mass. (333.3), 9:55 a. m., South Congregational church; 8, Flag Day program, William L. Anderson, director; 8:30, to be announced.

WCX, Detroit, Mich. (316.9), 10:30 a. m., services, Central Methodist Episcopal church.

WEBB, Chicago, Ill. (370.2), 7-9 p. m., artists' program.

WGES, Oak Park, Ill. (250), 5-6 p. m., Bliss School of Music and Dramatic Art; 10:30-11 a. m., A. Cavallo and his 11 Master musicians; Edwin Kemp, tenor; Coyne Electrical School serenaders; Ralph Olson, Sandy McTeach, studio hosts.

WGN, Chicago, Ill. (370.2), 3:30 p. m., Chicago Musical college; 9-10, Drake concert ensemble.

WGY, Schenectady, N. Y. (379.5), 9:30 a. m., services, First Lutheran church; Rev. Dr. Chalmers E. Frontz, pastor; 6:30 p. m., Flag Day services, First Lutheran church; 7:15, Hotel Commodore orchestra; Bernhard Levitow, conductor.

WHT, Chicago, Ill. (399.8), 9 a. m.-11:30 p. m., Paul Rialer.

WIBO, Chicago, Ill. (226), 10:15 a. m., church service, Rev. A. J. Perry; 2-1 p. m., Northwestern university glee club; Otto Moore, baritone; Alvin Beckel, soprano; 6-8, Bessie Odell Marx, soprano; Fern Dencke, accompanist; Anna Alben, pianist; Lila Groff, violinist; Albert Hallman, accompanist; 10-12, Don Russo, Ted Fiorito; Harry Gales.

WKRC, Cincinnati, Ohio (422.3), 6:45 p. m., Walnut Hills Christian church; 10, classical program.

WLS, Chicago, Ill. (344.6), 7:30 p. m., Ralph Emerson, organist; 8-8:45, WLS Little Brown church.

WLW, Cincinnati, Ohio (422.3), 9:30 a. m., school, editorial staff of Sunday school publication, Methodist Book concern; 11 Church of Evangelists, Dr. Frank Stevenson; 7:30, First Presbyterian church of Walnut Hills, Dr. Frederick McMillan; 8:30, Western and Southern concert; Fernon Pugh, tenor soloist.
WMBB, Chicago, Ill. (250), 7-8:30 p. m., semi-classical program; J. Bodewalt Lampe, director; Beatrice Teller and Trilane ensemble; Ambrose Wyrick, Rita McFawn, Hazel O'Neill, Armin P. Hand and the Woodlawn theater orchestra; 8:30-10:30, Doll Lampe and Trilane orchestra; Seattle Harmony Kings, Alvin Fry, Gertrude Doyle, Morey Abwag, Armin P. Hand and the Woodlawn theater orchestra.
WMBF, Miami Beach, Fla. (384.4), 6:30-7 p. m., Fleetwood Radio orchestra; 7-7:30, dance music, Fleetwood Radio orchestra; 10-12, Fleetwood Radio orchestra and specialties.

WORD, Batavia, Ill. (275), 10 a. m., hymns, Mr. and Mrs. B. F. Lofstrom; address, G. A. Hall; 6:45 p. m., I. B. S. A. choral singers; Adelaide Jones, soprano; John Reed, bass; 7:30, address, D. J. Morehouse.
WQJ, Chicago, Ill. (447.5), 10:30 p. m., Dr. Preston Bradley; 8-10, Ralph Williamson and his Rainbow Gar-

chaplains; 3, Brethren Sunday school, Miles Sparrow, director; 6:30, Golden Rule circle; 8, Christian church.

KLOS, Independence, Mo. (268), 11 a. m., Stone church, Rev. C. Edward Miller; 8:30, vesper services; Mrs. Harold Burgess, soprano; Mrs. Henry Stahl, contralto; Fred Friend, tenor; Paul N. Craig, bass; sermon, Branzelst U. W. Greene; 9, Amy Whiting, organist; Grace Duxee, soprano; Mrs. Elma Katon Karr, violinist; Hazel Scott, pianist; 9:30, lecture, Ralph W. Farrel.

KTMS, Hot Springs National Park, Ark. (374.8), 11-12:30 p. m., Central Methodist church; 8:30-9:15, Do Luxe classical program, New Arlington hotel-Meyer Davis orchestra; 9:25-10, orchestra; 10-11, frolic, Chuck Ross and his De Soto Garden orchestra.

WBAP, Fort Worth, Texas (475.9), 11 a. m., First Methodist church, Rev. J. W. Borgh; 12:30 p. m., Uncle Billy reads the Star-Telegram comic section; 4 p. m., Radio theater; 11, Knickerbocker Buddies.

WCBO, Zion, Ill. (344.6), 8 p. m., male chorus, quartet in celestial bells; Mr. and Mrs. R. M. Steel, tenor, soprano; B. B. Paxton, baritone; Mrs. R. M. Steel, soprano; Mrs. E. B. Paxton, reader; Amelia Nelson, pianist.

WCCO, Minneapolis-St. Paul, Minn. (416.4), 10:20 a. m., Plymouth Congregational church; 4:10 p. m., House of Hope Presbyterian church; 7:45, Hennepin Avenue M. E. church; 8, baseball; 9:15, classical concert.

WDAF, Kansas City, Mo. (365.6), 6:30 p. m., 4, 4:30, 5, baseball; 5:30, Sunday school lesson, Dr. Walter L. Wilson.

WFAA, Dallas, Texas (475.9), 6:30-7:30 p. m., Radio Bible club, Dr. William M. Anderson; 8-9, City temple service; 6:30-11, Hallow Brothers orchestra.

WHAS, Louisville, Ky. (399.8), 9:37 a. m., organ music; 10, Broadway Baptist church, Rev. Dr. Russell Johnson; 4-5 p. m., vesper song service, Seventh Day Adventist church.

WHO, Des Moines, Iowa (526), 11 a. m., University Church of Christ; 4 p. m., program, Dean Holmes Cooper, director; 7:30-9, Reese-Hughes orchestra.

WMC, Memphis, Tenn. (499.7), 11 a. m., St. Mary's Episcopal cathedral.

WOAN, Lawrenceburg, Tenn. (282.8), 9-10 p. m., sacred orchestra, male quartet.

WOAW, Omaha, Neb. (526), 6:30-7:30 p. m., Radio chapel service, Rev. R. K. Brown; 9, Immanuel Baptist church.

WOC, Davenport, Iowa (483.6), 8-8:30 p. m., church services; 9:30-11:30, Palmer Little symphony, Erwin Swindell, conductor.

WOS, Jefferson City, Mo. (440.0), 8 p. m., First Presbyterian church, Rev. A. B. Jackson.

WRBC, Valparaiso, Ind. (278), 7:30 p. m., Immanuel Lutheran church.

WSB, Atlanta, Ga. (428.3), 11 a. m., First Presbyterian church service; 6-8 p. m., Dayno Memorial church; 8, Ponce De Leon Baptist church.

WSUI, Iowa City, Iowa (484), 9 p. m., familiar hymns.

Mountain Standard Time Stations

KOA, Denver, Colo. (322.4), 11 a. m., Immaculate Conception cathedral; 4 p. m., Malcolia C. Marks, organist; 8, annual Flag Day exercises, No. 17, Benevolent and Protective Order of Elks.

Pacific Standard Time Stations

KFI, Los Angeles, Calif. (467), 6:30 p. m., McDaniels' nightly doings; 6:15, musical appreciation talk; 7-8, from stage and studio of the Metropolitan theater with 45-piece orchestra; 8-9, Flag Day program; 9-10, Examiner; Anton Lada and his Louisiana Fire dance orchestra; 10-11, Packard Elght duos orchestra, Bill Hennessy, leader, Starr Russell, blues singer.

Monday, June 15

Monday, silent night for: AT9, CKAC, CKY, CNRT, KFDM, KFMX, KFMX, KGW, KLDG, KYW, PWX, WBBM, WBCN, WCAU, WDFW, WEAO, WEBB, WEBJ, WFI, WGN, WGBS, WHAS, WIBO, WJY, WKAQ, WLS, WMAQ, WMBB, WOC, WOAI, WQJ, WRC, WRO.

Atlantic or Eastern Daylight Saving Time Stations

CHNC, Toronto, Can. (356), 8 p. m., CHNC orchestra.
WAHG, Richmond Hill, N. Y. (315.8), 7:30 p. m., Thurston Fisher, sport talk; 8, Viola Sherer, soprano; 8:15, Horace J. Taylor, reader; 8:30, C. C. Jones, baritone; 8:45, Synchrophase string trio; 9:15, Viola Scherer, soprano; 9:30, William Morgan, pianist; 9:45, C. C. Jones, baritone; 10, Synchrophase string trio; 10:30, Kentucky Ramblers; 11:30, Kentucky Ramblers.
WBBR, New York, N. Y. (272.6), 8 p. m., Syrian Oriental music; Toufic Moubald, Elizabeth Award; 8:10, vocal selections; 8:15, World News Digest; 8:30, vocal selections; 8:40, "The Lamp of God"; 8:50, Syrian Oriental music.

WCAE, Pittsburgh, Pa. (461.3), 6:30 p. m., dinner concert, William Penn hotel; 8:30, concert; 9, Hamilton ensemble; 11, mythical dialogue, Press-Kaybee.

WEAF, New York, N. Y. (492), 6 p. m., dinner music, Rose room, Hotel Waldorf-Astoria; 7, Gene Lockhart, reader; 7:15, Mark Strand hoster; 8:30, Ralph Berkowitz, pianist; 8:45, Tower health talk; 9, A. & T. Gypsies; 10, Giuseppe Di Benedetti, tenor; 10:15, Veru Curtis, soprano; 10:30-11:30, Ben Bernie's Hotel Roosevelt orchestra.

WEEL, Boston, Mass. (475.9), 6:30 p. m., 119 Brother club; 7:30, Harmon Hicab, tenor; Orlando Bivade, baritone; 8, sustains; 8:45, Tower health talk; 9, A. & T. Gypsies; 10, Blue Ribbon quartet; 11, popular songs, Marie and Estelle Meinhard; Hilda Gear, pianist.

WFI, Philadelphia, Pa. (394.5), 3 p. m., talk, "Flag Day," James K. Helms; 6:30, Meyer Davis concert orchestra; 7, bedtime stories.

WGBS, New York, N. Y. (315.6), 6 p. m., Uncle Geo Bee; 6:45, Aladdin dance orchestra.

WGR, Buffalo, N. Y. (319), 2:30-4:30 p. m., WGR's afternoon program, A. J. Blomberg, director; 6-7, Ruth States and his Terrace orchestra; 8-10, Howard G. Bales and the Barney O'Connor entertainers; 10-10:15, Katherine Zink, reader; 11-11 a. m., supper dance music, Vincent Lopez Hotel Statler dance orchestra, Harold Gieser, director.

WHN, New York, N. Y. (361.2), 5 p. m., Vladimir Tochanski, baritone; 6:30, Palala D'Oro orchestra; 7:30, health talk, Dr. Landis; 8, "Stonore Batteries," H. B. Slomby; 8:05, Buseland dance orchestra; 8:30, Lithuanian Employees' orchestra; 9:30, Clover Gardens' entertainment; 11, Loew's Lexington theater organ recital; 11:30, Silver Slipper revue and orchestra; 12-12:30 a. m., Harry Hickman and his entertainers.

WIP, Philadelphia, Pa. (508.2), 3 p. m., Sounds of the Surf; 8:30, Confort's philharmonic orchestra; 6:05, Benjamin Franklin concert orchestra; 7, Uncle Wip's bedtime stories.

WIAR, Providence, R. I. (305.9), 8 p. m., Berry Spring dance team; 9, A. & P. Gypsy string ensemble.

WJZ, New York, N. Y. (455), 8:15 p. m., Yale glee and banjo club concert.
WLIT, Philadelphia, Pa. (394.5), 4:30 p. m., Magazine concert; 7:30, Dream Daddy; 8, "Short Agro Waves,"

Ivan Prandel and his Hotel Cleveland orchestra; 7-8, musical program; 8-9, organ recital, Vincent H. Perry; 9:10, evening hour.

WGES, Oak Park, Ill. (250), 5-6:30 p. m., Blue Devil's orchestra; Loreta Chisman, soprano; Loyne Electrical school serenaders; 6:30-7, Cornelia Donagan, bedtime story teller.

WGY, Schenectady, N. Y. (379.5), 5:30 p. m., dinner music, John Fink's orchestra; 6, sport review, Harold Anson Bruce; 6:45, program, Scotch music; "The Scotchman's Utopia," Rev. Dr. David Paton.

WHAZ, Troy, N. Y. (380), 8:15 p. m., opera by Edith Ellis; Troy Grade school orchestra; Cora Hilley Miller, soprano; Mrs. George W. Fredenburg, contralto; 10, Horley's orchestra.

WHT, Chicago, Ill. (399.8), 7-8:30 p. m., Northland trio; Ceola Akman, soprano; John Clark, baritone; Adele Brandt, contralto; (288), 8-10-10:05, Elmer Kaiser's Riverview Park Ballroom orchestra; Al Carney, organist; (309.8), 10:30-12:30 a. m., Lucida Boyd, vocalist; Milton Grossman, saxophonist; Walter Donovan, tenor; Brock Sitters; 12:30-1, Al Carney, organist.

WKRC, Cincinnati, Ohio (422.3), 10 p. m., Benzel entertainers; 11, popular program; 12, midnight program, Kodel gang.

WLW, Cincinnati, Ohio (422.3), 7 p. m., dinner hour concert, Hotel Gibson orchestra, Robert Vlasenti, director; 8:15, entertainment, theater of Cincinnati Zoological Garden; 9:30, instrumental trio, Famous Lyric male quartet.

WMBF, Miami Beach, Fla. (384.4), 6:30-7 p. m., Fleetwood Radio orchestra; 7-7:30, dance music, Fleetwood Radio orchestra; 10-12, Fleetwood Radio orchestra, specialties.

WORD, Batavia, Ill. (275), 8:30 p. m., Bible questions and answers, B. M. Rice; B. Arcadia male quartet.

WSAI, Cincinnati, Ohio (326), 10 p. m., Edith Tolken, violinist; Mrs. Joseph Volk, harpist; 11, popular songs, Marie and Estelle Meinhard; Hilda Gear, pianist.

WTAM, Cleveland, Ohio (389.4), 6-7 p. m., Golden Heasant studio, dinner music, Austin W. Hill and his Golden Heasant orchestra; 8-9, Willard Symphony; 9-11, studio program; 11-12, William Metcalf, organist.

WTAS, Elgin, Ill. (302.8), 8-10:30 p. m., Joe Rudolph and the Boss' Own orchestra; Eddie and Fannie Cavanaugh; Frank Morris, Polly Willis, John Post.

WTIC, Hartford, Conn. (348.6), 6 p. m., Emil Heimberger's Hotel Bond trio; Florence West, contralto; 8:50, baseball; 7, dinner program.

WWJ, Detroit, Mich. (352.7), 8:35 p. m., baseball scores; 9, dinner concert; 8, WEAF concert; 9, Detroit News orchestra.

Central Standard Time Stations

KFKU, Lawrence, Kan. (275), 6:50 p. m., piano tuning-in number; 7, music; 7:15, "The Story of Volcanic Ash Deposits," Prof. R. S. Knapton; 7:50, "Have We an American Literature?" Myra Hill; 7:45, Spanish lesson.

KFNF, Shennadoah, Iowa (266), 7:30 p. m., Smith-Belding orchestra.

KSO, St. Louis, Mo. (545.1), 9 p. m., Gardner Motor company; 10, program.

KTMS, Hot Springs National Park, Ark. (374.8), 9-10 p. m., classical selections, New Arlington-Meyer Davis orchestra.
WBAP, Fort Worth, Texas (475.9), 7:30-8:30 p. m., musical program; 9:30-10:15, Ward's Trail Blazers; 11, George C. Orum's Palace theater orchestra.

(Continued on page 10)

SURF RIDES OVER MICROPHONE OF WIP

Monday, June 15

(Continued from page 9)

WCBO, Zion, Ill. (344.6), 8 p. m., ladies' chorus; marinet chorus; Carl Newcomer, saxophone; Evelyn Roudal, flutist; Mark Whiteside, baritone; Edith Carey, contralto; Mrs. J. A. McShaffey, reader; Eleanor Phil, pianist.

WCCO, Minneapolis-St. Paul, Minn. (416.4), 4 p. m., baseball; 1:05, readers' club; 6:00, sports talk; 7:15, F. & H. family; 8, "The Magna Charta Day Movement," J. W. Hamilton; 8:15, talk, prevention of tuberculosis; 8:30, Fort Snelling program, Capt. F. C. Whitcomb; 9, baseball; 10, Original George O'Brien's Nimitz hotel orchestra.

WOAF, Kansas City, Mo. (365.6), 6-7 p. m., Cecile Jurion, leader; Plantation players; 11:45-1, Merry Old Chief, Plantation players; Charles Doruberger's Kansas City Athletic club orchestra.

WFAA, Dallas, Texas (475.9), 6:30-7:30 p. m., Honey Boy's orchestra; 8:30-9:30, Mike H. Thomas, operator; F. H. Freeman, buyer; John T. Orr, president, American Citizens' orchestra.

WHA, Madison, Wis. (535.4), 7:45 p. m., alumni address, M. B. Olbrich; Robert C. Bentley, reader.

WHAO, Milwaukee, Wis. (275), 4-7 p. m., dinner hour organ; 8-10, Marquette university studio program.

WHO, Des Moines, Iowa (526), 7:30-8 p. m., Mrs. Kate Miller, whistler; Maude Hughes, pianist; program, Dean Holmes Cowler, director; 11:15-12, organ recital, A. H. Hank theater.

WNC, Memphis, Tenn. (499.7), 8:30 p. m., Washington symphony.

WOAN, Lawrenceburg, Tenn. (282.8), 12:15-12:45 p. m., orchestra; 9-10, a. m., orchestra, male quartet.

WOAW, Omaha, Neb. (526), 8 p. m., Phyllis Grizwold, organist; 9:30, McHenry's popular period; 6:15, orchestra; 9, classical program.

WOC, Davenport, Iowa (483.8), 8 p. m., baseball scores.

WOL, Ames, Iowa (270), 10 p. m., program, popular music.

phonists; solos and duets, Marlam, Eben Cameron; H. L. Parsons, bass; J. A. Laviolette, baritone; UNRA orchestra.

WCAE, Pittsburgh, Pa. (461.3), 6:30 p. m., dinner concert, William Penn hotel; 8, program from New York; 8:30, Gold Dust Twins; 9, Eveready hour; 10, grand opera.

WCAU, Philadelphia, Pa. (274), 6 p. m., Hotel Pennsylvania Interfraternity orchestra; 7:30, concert, N. Snellmberg and company; 8, talk, Clara Zillessen; 10:30, Jack Myer's Musical Architects dance orchestra.

WDFW, Providence, R. I. (440.9), 8:30 p. m., Arcadia orchestra.

WEAF, New York, N. Y. (492), 4 p. m., Violet Miller, contralto; 4:15, Max Ewing, pianist; 4:30, Women's League of the United Synagogue; 6, dinner music; 7, Myro Glava, baritone; 7:10, Columbia university lecture course; 7:30, Mozart string quartet; 8, "States Responsibility," Gov. Albert C. Ritchie; 8:30, Gold Dust Twins; 9, Eveready hour; 10, "Tale of Hoffman," scores; 8:45, concert; 10:30, concert, Grand theater.

WBBM, Chicago, Ill. (228), 8-12 midnight, Al Purry, Frank Johnson, harmonica, banjo specialties; Sylvia Galine, soprano; Dave Nusselman; Charlie Garland, pianist; Crillon orchestra; Sunset male quartet; Cort Baker, ukulele soloist; William Moltaire, tenor.

WBCN, Chicago, Ill. (266), 8-9 p. m., popular program; Borden Brothers, baritone duo; Midway Dancing Gardens' orchestra; George McGonigle, tenor; 10-11, classical concert; 11-12, popular program; Midway Dancing Gardens' orchestra; Jesse and Nan Muller; Scotch harmony duo; Kathryn Krauter, guitarist; 12-2, a. m., Prate 8:10.

WBZ, Springfield, Mass. (333.3), 6 p. m., Leo Holman's Hotel Lenox ensemble; 8:30, baseball; 8, "The Four Melodists"; 8:30, Lenox Music company, Cable club comedians; 9, Hotel Brunswick orchestra; 9:30, baseball.

WCEE, Elgin, Ill. (275), 10:30-12 midnight, Charlene Star midnight dance program, Joe Hudolji and the

and Trianon ensemble; Ambrose Wyrtek; Imita McEawn; Hazel O'Neill; John S. Everett; Arlin F. Hain and Woodlawn theater orchestra; 8:30-10:30, Imita Lampe and Trianon orchestra; Johnnie Keane, Bob Duff, Geraldine Doyis, Charles Krenn and Trianon orchestra; Fisher and Smith, Eugene Penny, Little Orphan Annie presentation, Phyllis Harris, Andie, Emily Schreiber, Tony the Janitor's Boy, Clyde Hager, Cop, Irish Woman, Pedro, the Organ Grinder.

WIBF, Miami Beach, Fla. (384.4), 6:30-7 p. m., Fleetwood Radio orchestra; 7:30 dance music, Fleetwood Radio orchestra; 10-12, Fleetwood Radio orchestra, specialties.

WORD, Batavia, Ill. (275), 8:30 p. m., musicale, Edna Winfield Cookingham, director; 4:30, world news digest G. L. Pyle.

WQJ, Chicago, Ill. (447.5), 7-8 p. m., Ralph Williams and his Balzharis Gardens orchestra; Tola Miller, Soprano; Markaree Wallman, contralto; Sheppard Lovino, tenor; Helen Foster, accompanist; Marie Leiders, reader; 10-11, a. m., Ralph Williams and Balzharis Gardens Shylocks; Ned and Chas; Tommy Janosek, harmonica player; Mack Slaters; Will Rosler; 1-2, Gloger hour, Ralph Williams.

WSAI, Cincinnati, Ohio (326), 6:45 p. m., Chimes; 7, Eoyal Sinton instrumental trio; 8, Eveready hour of music; 8:15, studio, Randolph Wadsworth, baritone; Stella Kent, soprano; Margie Hand, accompanist.

WTAM, Cleveland, Ohio (389.4), 6-7 p. m., Hotel Statler, concert orchestra.

WTAS, Elgin, Ill. (302.8), 8-10:30 p. m., Joe Rudolph and the Boss's Own orchestra; Frank Morris, Polly Willie, John Cuddy, Eddie and Frankie Cavanaugh, baritone; Stella Kent, soprano; Margie Hand, accompanist.

WTIC, Hartford, Conn. (348.8), 6:50 p. m., baseball; 7, organ recital, Austin Organ company; 7:30, Hartford Symphony Mandolin orchestra; 8:30 songs in English and Swedish, Edna Hansen, soprano; 9, Bill Tsallou's orchestra.

WJL, Detroit, Mich. (352.7), 8:55 p. m., baseball scores; 9, dinner concert; 7, WEAF, concert.

Baseball Scores

TABULATED below is a time table of the stations giving baseball scores this week. Stations are divided into the different standard times in use. The hours are given in the kind of time in use at each listed station:

Atlantic or Eastern Daylight Saving Time Stations

Saturday, June 13: 4:30, WJZ; 5:30, WJZ; 7:25, WNYC; 8, WJZ.

Monday, June 15: 4:30, WCAE; 7:25, WNYC; 8:30, WEEL.

Tuesday, June 16: 7:25, WNYC; 7:45, WEEL.

Wednesday, June 17: 7:25, WNYC; 7:45, WEEL.

Thursday, June 18: 7:25, WNYC; 7:45, WEEL.

Friday, June 19: 7:15, WEEL; 7:25, WNYC.

Central Standard Time Stations

Saturday, June 13: 3:15, WHAS; 3:30, WDAF; 4:30, WDAF; WFAA; 5, WDAF; 6, WCO; WDAF; WOC; 6:24, WOAW; 6:30, WSMB; 8:30, KTHS; 9, WCCO.

Sunday, June 14: 4:30, WFAA; 5:05, WOS; 6:45, WOC; 9, WCCO; 9:15, KTHS.

Monday, June 15: 3:15, WHAS; 3:30, WDAF; 4, WCCO, WDAF; 4:30, WFAA; 5, WDAF; 5:05, WOS; 6, WCCO, WDAF; 6:30, WSMB; 8:30, KTHS; 9, WCCO.

Tuesday, June 16: 3:15, WHAS; 3:30, WDAF; 4, WCCO, WDAF; 4:30, WFAA; 5, WDAF; 6, WCCO, WOC; 6:20, WOAW; 6:30, WSMB; 8:30, KTHS; 9, WCCO.

Wednesday, June 17: 3:15, WHAS; 3:30, WDAF; 4, WCCO; 4:30, WDAF; WFAA; 5, WHAF; 5:05, WOS; 6, WCCO, WDAF, WOC; 6:30, WSMB; 8:30, KTHS; 9, WCCO.

Thursday, June 18: 3, WDAF; 3:15, WHAS; 4, WCCO, WDAF; 4:30, WFAA; 5, WDAF; 6, WCCO, WDAF, WOC; 6:20, WOAW; 6:30, WSMB; 9, KTHS, WCCO.

Friday, June 19: 3, WDAF; 3:15, WHAS; 4, WCCO, WDAF; 4:30, WFAA; 6, WCCO, WDAF, WOC; 6:20, WOAW; 6:30, WSMB; 8:30, KTHS; 9, WCCO.

Eastern Standard or Central Daylight Saving Time Stations

Saturday, June 13: 2, WGY; 2:30, KDKA; 2:45, KDKA, WMAQ; 2:30, KDKA; 3, KDKA; 3:15, KDKA; 3:30, KDKA; 3:55, WWJ; 4, WMAQ; 4:15, 4:30, KYW; 4:45, 5, KDKA; 5:55, WTIC; 6, WGN, WLS; 6:50, WTIC; 7, KDKA; 9:55, KDKA; 10, WREO.

Sunday, June 14: 6:55, WTIC.

Monday, June 15: 2, WRC; 2:45, WMAQ; 3:30, KDKA; 3:45, WEAR; 3:55, WWJ; 4, KDKA, WMAQ; 4:30, KYW; 5, KDKA; 5:55, WTIC; 6, WGN, WLS; 6:30, WBZ; 6:50, WTIC; 9:50, WBZ; 9:55, KDKA; 10, WREO.

Tuesday, June 16: 2, WRC; 2:45, WMAQ; 3, 3:30, KDKA; 3:45, WEAR; 3:55, WWJ; 4, WMAQ; 4:30, KYW; 5, 7, KDKA; 6, WGN, WLS; 9:50, WBZ; 9:55, KDKA; 10, WREO.

Wednesday, June 17: 2, WRC; 2:45, WMAQ; 3, 3:30, KDKA; 3:45, WEAR; 3:55, WWJ; 4:30, KYW; 5, WWJ; 6, WGN, WLS; 6:50, WTIC; 7, KDKA; 9:55, KDKA; 10, WREO.

Thursday, June 18: 2, WRC; 2:45, WMAQ; 3, 3:30, KDKA; 3:45, WEAR; 3:55, WWJ; 4:30, KYW; 5, KDKA; 6, WGN, WLS; 6:50, WTIC; 9:50, WBZ; 9:55, KDKA; 10, WREO.

Friday, June 19: 2:30, KDKA; 2:45, WMAQ; 3, 3:30, KDKA; 3:45, WEAR; 3:55, WWJ; 4, WMAQ; 4:30, KYW; 5, KDKA; 6, WGN, WLS; 6:50, WTIC; 9:50, WBZ; 9:55, KDKA; 10, WREO.

Mountain Standard Time Stations

Monday, June 15: 6, KOA.

Tuesday, June 16: 6, KOA.

Wednesday, June 17: 6, KOA.

Thursday, June 18: 6, KOA.

Friday, June 19: 6, KOA.

Pacific Standard Time Stations

Saturday, June 13: 2-5, KNX; 6, KFOA; 6:15, KPO.

Monday, June 15: 6, KFOA; 6:30, KPO; 6:45, KGO; 7:30, KGW.

Tuesday, June 16: 6, KFOA; 6:15, KPO; 6:45, KGO; 7:30, KGW.

Wednesday, June 17: 2, 3, 4, KNX; 6, KFOA; 6:15, KPO; 6:45, KGO; 7:30, KGW.

Thursday, June 18: 6, KFOA; 6:15, KPO; 6:45, KGO; 7:30, KGW.

Friday, June 19: 2, 3, 4, KNX; 6, KFOA; 6:15, KPO; 6:45, KGO; 7:30, KGW.



Helen Nugent, contralto, is a member of the Bicycle Playing Card Index quartet. This quartet gave a special program, which was well liked by the fans, last Saturday to celebrate the anniversary of WSAI. Miss Nugent will again appear with this group at WSAI this Saturday.

WOS, Jefferson City, Mo. (440.9), 8 p. m., Missouri night, Missouri association; Audra Chamber of Commerce, music; address, George A. Piekens.

WRBC, Valparaiso, Ind. (278), 7:30 p. m., music.

WSD, Atlanta, Ga. (428.9), 8-9 p. m., excerpts from Light Opera productions; 10:45, Stars, Light Opera week.

WSMB, New Orleans, La. (319), 6:30-7:30 p. m., dinner musicale, baseball, (withcut tales; 8:30-10:30, Leslie Georgia and his Patio Royal dance orchestra, Fuzzy-Wuzzy Twins.

WSUI, Inwa City, Iowa (484), 8 p. m., Celeste Fuhrman, soprano; Zita Fuhrman, pianist.

Mountain Standard Time Stations

KOA, Denver, Colo. (322.4), 8 p. m., Fred Schmitt and his Maito theater orchestra; 8:10, one-act comedy, KOA players; "Spanish Compadres, in Colorado," Joseph Emerson Smith; KOA orchestra; "The Gorgas Memorial Institute," Dr. W. W. Grant; instrumental numbers, pupils Inez Arnold Allen.

Pacific Standard Time Stations

KFAE, Pullman, Wash. (348.5), 7:30-8 p. m., Mrs. Herbert Kimbrough, contralto; Lillian Barakian, soprano; Lillian Pettibone, pianist; E. Craig Beardman, tenor; "What Should a Student Expect of His High School," Prof. George A. Doe; "Cost of Harvesting Wheat," H. N. Miller; "Agricultural Engineering," Prof. C. C. Johnson.

KFI, Los Angeles, Calif. (467), 5:30-6 p. m., Examiner's matinee program; 6:45, McArthur's nightly doling; 6:45-7, radioatorial talk; 7-8, California Sereators orchestra, George Cronk, leader, Sigmond Sachs, violin soloist; 8-9, program, Owl Ring company; 9-10, program, Walter Bl. Murphy Motors company; 10-11, Examiner presenting Roy West and his Alexandria hotel dance orchestra.

KFOA, Seattle, Wash. (454.3), 6:45-8:15 p. m., Sherman, Clay and company program; 8:30-10, Times program.

KFWB, Hollywood, Calif. (252), 6:30-8 p. m., program, John A. Evans corporation; 8-9, program, Chick-Nest Office company, Maxwell House coffee string quartet, Columbian trio, Sid Huppel's Hawaiian trio, Newton Hall, boy singer; 9-10, program, E. P. James, contractor of Altadena, Great Western male quartet, Bill Hatch's orchestra, Ira Mitchell Butler, soprano, Miller's International trio; 10-11, Warner Bros. folie, directed by Charlie Wellman.

KGO, Oakland, Calif. (318.2), 6-7 p. m., dinner concert, Sherman, Clay and company; 8, Anglin trio; "The Need of a National Reclamation," Prof. David Weeks; "Inside Dope on Curing Automobiles Ills," Louis P. Singer; "Problems of the Adolescent Boy," Dr. Virgil E. Dickson; "The Voltra River;" 10-11, Henry Helton's orchestra.

KGW, Portland, Ore. (491.5), 6-7 p. m., William Robinson, organist.

KHJ, Los Angeles, Calif. (405.2), 6-7 p. m., Leighton's Amadeo cafe orchestra, Jack Cronshaw, leader; 8-10, program, Roanoke's Camp No. 2 Sons of Veterans and Auxiliary in honor of Flag Day.

KNX, Hollywood, Calif. (590.5), 5:30-6:15 p. m., Wuritzer piano organ studio, Sid Ziff's sports talk; 6:15, travel talk, W. F. Alder; 6:30-7:30, dinner hour music; 7:30, program, Columbia Outfitting company; 8-9, program, L. W. Stockwell company; 9-10, program, Listerwater & Gough, Zenith orchestra, Ruth male quartet; 10-11, Goodrich Silverstone Cord dance orchestra, June Purcell, KNX girl, soloist; 11-12, The Lyman's Coconut Grove dance orchestra from Ambassador hotel.

KPD, San Francisco, Calif. (428.3), 6:15-6:30 p. m., baseball; 6:40-7, States Restaurant orchestra; 7-7:30, Rudy Setzer's Palmont hotel orchestra; 8-9, Theodore J. Irwin, organist; 9-10, Peter Norman's mixed quartet; 10-11, States Restaurant orchestra.

Tuesday, June 16

Tuesday, silent for: CFCA, CHNC, CHIC, CHYC, CNRT, WKAJ, KFVU, KFCK, KFNF, KEX, KOA, PAX, WAIB, WBAJ, WBBB, WCCO, WEAD, WHA, WHAO, WHAZ, WKAQ, WOI, WOS, WRBC, WSUI, WTAM.

Atlantic or Eastern Daylight Saving Time Stations

CNRA, Moncton, Canada (313), 8:30 p. m., Mrs. W. F. Wheeler, pianist; Fred McNulty, Gordon Douglas, saxo-

grand opera company; 11-12, Vincent Lopez' Hotel Pennsylvania orchestra.

WEEI, New York, N. Y. (233), 7 p. m., Dan Barnott's orchestra; 7:45, Viola Verduin, soprano; 8, Eddie Burke, Irish pipe; 8:15, Lillian Bookman, soprano; T. Gerard Hughes, pianist; 8:30, Riddle Burke, Irish pipe; 8:45, Henrietta Turner, ukulele girl.

WEEI, Boston, Mass. (475.9), 6:30 p. m., Big Brother club; 7:15, talk, Edna Hertz; 8, musical from New York; 8:30, Gold Dust Twins; 9, Eveready hour; 10, Grand Opera.

WFI, Philadelphia, Pa. (394.5), 3 p. m., Caroline Hoffman, pianist; 8:30, Bellevoe Stratford concert orchestra; 7, headline stories; 8:30, Gold Dust Twins; 9, Eveready hour.

WGBS, New York, N. Y. (315.6), 6 p. m., Uncle Goe Bee; 6:30, Jersey Collectors; 7:30, "For Distinguished Service," jazz, light music; 8:15, Ballin and Race, phonists; 9:15, Hitham, program, James Brown; 9:30-10, mystery quartet; 10-11, Helen Hurman, contralto.

WGR, Buffalo, N. Y. (319), 2:30-4:30 p. m., WGR's afternoon program, A. J. Friedman, director; 8-11, jointly with WEAJ, including address, "States Responsibility," Gov. Albert Ritchie of Maryland; Gold Dust Twins, Eveready hour, grand opera, "Tales of Hoffman."

WHN, New York, N. Y. (361.2), 6:30 p. m., Olcott Vall and his string trio; 7:10, Colonial Accs. steel mill, Scotch guitar, mandolin and ukulele; 7:30, headline talk, Dr. Landis; 7:35, Will Oakland's Cluetau, 8, songs, Bob Miller, Mabel Wayne; 9:30, Palisades Amusement Park orchestra; 11:30, Club Alabam orchestra; 12-12:30, a. m. Parody ribz revue orchestra.

WIP, Philadelphia, Pa. (508.2), 3:30 p. m., Comfort's Philharmonic orchestra; 6:05, Benjamin Franklin concert orchestra; 7, Fedsel Wip's bedtime stories; 8, Comfort's Philharmonic orchestra; 8:45, Sounds of the Surf; 8:50, Veseloff's band; prominent soloist; 10, Emo's weekly movie talk; 11, Howard Lanin's dance orchestra.

WJAR, Providence, R. I. (305.9), 8:30 p. m., Gold Dust Twins; 9, Eveready hour.

WJZ, New York, N. Y. (453), 10:30 p. m., Nazarene Congregational choir.

WLIT, Philadelphia, Pa. (394.5), 2 p. m., Arcadia cafe concert orchestra; 7:30, Drasin Duddy.

WMCA, New York, N. Y. (340.7), 4:15 p. m., beauty talk, Mme. Belle; 6:30-7:30, Lew Krueger's Aladdin orchestra; 8:15, health talk; 9:15, George Dale, tenor; 9:45, tenor; 10-11, Philharmonic line of music; 11-12, Edna Golden and his Hotel Metropia orchestra.

WCK, Detroit, Mich. (318.8), 4:15 p. m., musical program; 6, dinner concert, Rock-Cadillac hotel; 8:30, musical program; 10, The Red Apple club.

WEAR, Cleveland, Ohio (389.4), 7-9:15 p. m., Akron Central High school boys' glee club; 9:15-10:15, Blingwell, string trio.

WEBB, Chicago, Ill. (370.2), 7:30-8:30 p. m., Orlole concert orchestra; Lydia Lochner, contralto; musical hit, Riviera theater; 9:30-10:30, Orlole dance orchestra; Frank Borden, baritone; songs, Dennis Slaters; Frank Macell, songs; 11:30-1 a. m., Orlole orchestra; Jack Penwell, Irish military; songs, Dennis slaters; Frank Magin, songster; feature acts, Riviera theater.

WGES, Oak Park, Ill. (250), 5-8:30 p. m., Katherine Forbes, soprano; Edgar Scott, tenor; Edna Wallace, soprano; Howard Noumiller, pianist; 6:30-7, Corrella Duncan; 10:30-1 a. m., A. Cavallo and his 11 Menace Musicians; Rudolph Hess; Sandy McEvin; Coyne Electrical school serenaders.

WGN, Chicago, Ill. (470.2), 6:30-7:30 p. m., Drake Hotel ensemble, Blakeslee string quartet; 8:30-9:30, Charles A. Stevens' chorus; 10:30-11:30, Drake Hotel Terrace Garden program.

WGY, Schenectady, N. Y. (379.5), 5:30 p. m., dinner music, Hotel Van Curler orchestra; 6:35, Stanley Hummel, pianist; Earl Hummel, violinist; 7:10, program, Wamaker and Farlow; 8:10, "The American Constitution," Waldo P. Foster; 8:20, Ayla Larsen Richardson, pianist; 9, "Over the Seven Seas;" 10, Meyer Davis orchestra.

WHT, Chicago, Ill. (399.8), 7-8:30 p. m., Ed Kemp, tenor; Dorothy Wilkins, Thora Martens; Agatha Park, reader; (238), Elmer Kalam's Riverdale Park Ballroom orchestra; Al Carney, organist; (391.8), Dorothy Herman Blum, soprano; Eleanor Gilmore, soprano; Jane McComel, contralto; Ned Becker, humorist; 12:30-1, Al Carney, organist.

WKRC, Cincinnati, Ohio (422.3), 10 p. m., Cosmopolitan quintet; 11, Doc Howard's WKRC entertainers.

WLS, Chicago, Ill. (344.6), 6:30 p. m., Ralph Emerson, pianist; Martha Meier, contralto; 7:15, Cornelia George; 8, Howa program, first act of "Macbeth"; 8:45, "Macbeth," Anthony Wons; 9, Kenneth Clark, guitarist; Jack Friedenber, harmonica soloist; 10, Cornhuskers orchestra; 10:15, Nubs Adan, contralto; 10:30, Williamson Brothers; 10:45, Grace Wilson, contralto; 11, WLS Harmony trio; 11:30, Solomon Old Justice's program; Joe Hess's mixed company; 12-1, Cornhuskers orchestra; Ralph Emerson, organist.

WLW, Cincinnati, Ohio (422.3), 4 p. m., student recital, pupils of Leo Stuffergen and Wm. Kyle; 6:30, organ concert; 7, dinner hour concert; 8, orchestra selection; twenty minutes of song, Madame Basela Arnold, soprano; solo on Wurlitzer-unit organ; 9, concert program; 10, Formula concert orchestra; Richard Whiteacre, soloist.

WMAQ, Chicago, Ill. (417.5), 6 p. m., Chicago Theater organ; 6:30, Hotel LaSalle orchestra; 8, Harry Hanson, literary editor; 8:30, musical collection, Sidney Silber; 8:45, "Canadian Trail Riders," Capt. Kirby Harris; 8:50, lecture, University of Chicago; 9:15, Anna Weske, pianist; Moe Neuman, soprano.

WMBR, Chicago, Ill. (250), 7-8:30 p. m., semi-classical program, J. Budevalti Lampe, director; Beatrice Teller

WCCO, Minneapolis-St. Paul, Minn. (416.4), 6 p. m., baseball; 6:05, dinner concert, Hotel St. Paul hotel orchestra; 7, program from WEAF; 8, Silver Lake concert band; 9, baseball.

WOAF, Kansas City, Mo. (365.6), 6-7 p. m., Tell-Plantation players; Maudellen Littlefield, pianist; Plantation players; 11:45-1, Newman Nighthawk night.

WFAA, Dallas, Texas (475.9), 6:30-7:30 p. m., Hauntes School of Hawaiian music; 8:30-9:30, Jack A. Davis; 11-12, Dwight Brown, organist.

WHAO, Milwaukee, Wis. (275), 6-7 p. m., organ music.

WHAS, Louisville, Ky. (399.8), 7:30-8:30 p. m., Carl Zoeller's Metolists; 8:30-9:30 concert, anapesta Ben Snyder.

WHO, Des Moines, Iowa (526), 7:30-9 p. m., musical program.

WAC, Memphis, Tenn. (499.7), 8:30 p. m., George Luttrill; 11, Harry O. Nichols, organist.

WOAN, Lawrenceburg, Tenn. (282.8), 12:15-12:45 p. m., Vaughan Radio orchestra; 9-10, Vaughan Radio orchestra; male quartet; Vaughan Recording male quartet.

WOAW, Omaha, Neb. (526), 6 p. m., "Advice to Loren," Cynthia Gray; 6:20, baseball; 6:25, May Seed and Nursery company; 9, program, auspices Hamman-Van Brunt company.

WOC, Davenport, Iowa (483.6), 8:31-9 p. m., "Safety— from a Locomotive Engineer's Viewpoint," G. A. Wheeler; 8:15-9:15, musical program; Crescent orchestra.

WSB, Atlanta, Ga. (428.3), 8-9 p. m., program; 10:45, Vlek Myers, Melody artists.

WSMB, New Orleans, La. (319), 6:30-7:30 p. m., dinner music, baseball.

Mountain Standard Time Stations

CNRR, Regina, Can. (356), 8 p. m., bedtime travel tale; Pat's Novelty orchestra.

Pacific Standard Time Stations

KFI, Los Angeles, Calif. (467), 5:30-6 p. m., Examiner's matinee music; 6, McArthur's nightly doling; 6:15, radioatorial talk; 7, Cecilia residence pipe organ recital, Dan McFarland, organist; 8-9, Examiner's program, Police Department, City of Los Angeles; 8-10, Tullian song hour; 10-11, Packard hall hour, Ashley sisters Bud Jamison, Hilmard entertainer, Billy and Polly Hall, Marjorie Boger and others.

KFOA, Seattle, Wash. (454.3), 6:45-8:15 p. m., studio program; 8:30-10, "Tina program; 10-11, Edillo Harkness and his orchestra.

KFWB, Hollywood, Calif. (252), 7:45-8 p. m., program, Western's Super-service garage, Harry Jackson's instrumental trio; Charles Heuchamp, tenor; Frank Bradwood, rowley baritone; 9-10, program, Enlow Oil company of California Linden Oil orchestra, Russian Gypsy trio, Frank Bradwood baritone, Miller's International Hawaiian trio; 10-11, Warner Bros. folie, directed Charlie Wellman.

KGO, Oakland, Calif. (318.2), 6-7 p. m., dinner concert, Sherman, Clay and company; 8, mixed quartet; Claire Harba (Gardner, soprano; Edna Fischer Hall, contralto; George R. Hunter, tenor; Morton H. Gleason, bass; Clara McCall, accompanist; instruments, trio; Robert Bourke, violinist; Flad Gough, cellist; Ebert Cowan, harmonium soloist; William W. Caruth, pianist; Allan Wilson, tenor; 10-11, Henry Halstead's orchestra.

KGW, Portland, Ore. (491.5), 9-10 p. m., Woolach and Lloyd company; 10-12, Herman Kent's Millinmah hotel dance orchestra.

KHJ, Los Angeles, Calif. (405.2), 8:30-9 p. m., Leighton's cafeteria orchestra, Jack Cronshaw, leader; 6:30, Art Hickman's Hillman hotel concert orchestra, Edward Fitzpatrick, director; 6:30-7:30, little stories American History, Prof. Walter Sylvester Houston, weekly visit of Queen Thania and Sandron from Fairyland, Louis F. Klein, auto-harp and harmonica; Chas. Leslie Hill, readings, Uncle John; 7:30, Dixie Wicked girls string trio; 8-10, program, Los Angeles Income Propulese company, arranged by J. Howard Johnson; 10-11, Art Hickman's Hillman hotel dance orchestra, Earl Burtooth, leader.

KNX, Hollywood, Calif. (590.5), 5:30-6:15 p. m., Wuritzer piano organ studio, Sid Ziff's sports talk; 6:15, travel talk, W. F. Alder;

CARL ZOELLER'S MELODISTS AT WHAS

Tuesday, June 16

(Continued from page 10)

his La Monda ballroom symphonic dance orchestra; 7:30, movie talk, Meyer Siegel, Jr.; 7:45, health talk, Dr. Robt. T. Williams; 8:9, program, First National-Pacific Southwest Trust and Savings bank; 9-10, program, Independent Furniture Manufacturing company; 10-12, movie night at the Ambassador, Abe Lyman's Coconut Grove dance orchestra.

KPO, San Francisco, Calif. (428.3), 6:15-6:30 p. m., baseball; 6:30-6:40, Ye Towne Cryer; 6:40-7, States Restaurant orchestra; 7-7:30, Rudy Selger's Fairmont hotel orchestra; 8-10, municipal night on KPO; 10-11, Johnny Buick's Cablrians.

Wednesday, June 17

Wednesday, silent night for: **ATB, CFAC, GFCA, CHIC, CHNC, CKAC, CKY, CNRT, KFDN, KFKX, KFMQ, KGO, KLDS, KOB, WBAV, WBBR, WCAL, WCBQ, WQWF, WEBI, WEBW, WFAA, WFI, WGBS, WGY, WHAR, WHAZ, WJY, WMC, WQAW, WOI, WORD, WPG, WRBC, WRD, WRD, WSUI, WTIC.**

Atlantic or Eastern Daylight Saving Time Stations

CNRO, Ottawa, Canada (435), 8 p. m., Chateau Laurier orchestra; 9, "The Patriotic Peony," Fred H. Byshe, Salvation Army Citadel band; Gertrude Phillips, contralto; male choir; instrumental quartet; Chateau Laurier dance orchestra.

WAHG, Richmond Hill, N. Y. (315.6), 7:30 p. m., sport talk, Thornton Fisher; 8, Joe Zimmerman, pianist; 8:15, J. J. Kimmel trio; 8:45, Charles Weber, tenor; 9, J. J. Kimmel trio; 9:30, Charles Weber,

Eastern Standard or Central Daylight Saving Time Stations

KOKA, Pittsburgh, Pa. (309.1), 2:30-7 p. m., baseball; 8:15, Dixy Sills Hour of Music.

PWX, Havana, Cuba (400), 8:30 p. m., Cuban navy band.

WBBM, Chicago, Ill. (226), 8-10 p. m., Harold Winston tenor; Charlie Garland, pianist; Sylvia Galie, soprano; Dave Nudelman; instrumental specialties; Trillon orchestra.

WBCN, Chicago, Ill. (266), 7-8 p. m., classical concert, Pearl Fischel, pianist; artist; 8-9, popular program; Axel Christensen, pianist; quartet; Midway Dancing Gardens orchestra; 9-10, popular program; Arendt Sisters, violinist, pianist; Isabel Hopewell,

pianist; Brooks Kelly, violinist; 10, Cornhuskers orchestra; 10-10, Handel's "Messiah," Apollo club; 11, Williamson Brothers; Phil string quartet; 11:20-11:30, Cornhuskers orchestra.

WLW, Cincinnati, O. (422.3), 1 p. m., Shut In program; 7, dinner hour concert, Hotel Gibson orchestra, Robert Visconti, director; 8, "Farm Land Values," J. R. Sedgwick, Ill., program, ensemble and solos, instrumental trio; The Ohio male quartet; 11, organ concert, Johann Gross; other features.

WMAQ, Chicago, Ill. (447.5), 6 p. m., Chicago theater organ recital; 6:30, stories, George Paulkner; 8, lecture, Northwestern university; 8:25, piano concerto; 8:35, WMAQ players.

WMBB, Chicago, Ill. (250), 7-8:30 p. m., operatic program, J. Indevall Laine, director; Beatrice Teller and Trianon ensemble; Ambrose Wyrick, Rita McFawn, Hazel O'Neil, Rosemary Aquinick, Marie Caruso, Armin F. Hand and Woodlawn theater orchestra; 8:30-10:30, Dell Lampa and Trianon orchestra; Cecil Ward,

WHAQ, Milwaukee, Wis. (275), 6-7 p. m., Wisconsin theater organ; 8-10, dance music, Wisconsin Band; 11:30, popular program.

WHAS, Louisville, Ky. (309.6), 7:30-9 p. m., Keith Rainard and his Kentucky Hamblers; baseball.

WHO, Des Moines, Ia. (526), 6:30-7:30 p. m., Reese-Hushee orchestra; 7:30-9, Arthur Cohen, violinist; Dr. and Mrs. H. A. Hurd, Hawaiian guitarists; Alice Jones Cameron, soprano; Helen G. Ross, soprano; 9-9:45, Dos Madres theater symphonic orchestra; 9:45-11, dance program.

WQAN, Lawrenceburg, Tenn. (282.8), 12:15-12:45 p. m., Vaughan Radio orchestra; 9-10, Vaughan Radio orchestra; male quartet.

WOC, Davenport, Ia. (483.6), 4:45 p. m., Louis Crowder, pianist; Edward Crowder, ukulele; Ann Bradfield, vocalist; 9-10, musical program; S. J. Tuttle, organist; Mrs. Harry Veltner, soprano.

WOS, Jefferson City, Mo. (440.9), 8 p. m., "Southwest Missouri, the Second Valley of the Nile," H. O. Harwood; Flower City quartet.

WSE, Atlanta, Ga. (428.3), 10:45 p. m., Bohemians' orchestra.

WSME, New Orleans, La. (319), 8:30-7:30 p. m., dinner music, baseball; 8:30-10:30, entertainment.

Mountain Standard Time Stations

KOA, Denver, Colo. (322.4), 8 p. m., Fred Schmitt and his Rialto theater orchestra; 8:10, "Trouble Brewing," KOA players; KOA orchestra; 10-12, Dave Ginsburg and his Argonaut orchestra.

Pacific Standard Time Stations

KFAE, Pullman, Wash. (348.6), 7:30-9 p. m., Dorothy Hutchinson, soprano; John Naamuth, harmonica soloist; George Siskler; Cleah Cooper, leader; Mrs. Carl Brunsler, pianist; "The Field Mouse in His Religion to Humm Huggins," William Morley; "What are Roses Do?" Dr. F. D. Heald; book club, Alice Linder Webb.

KFI, Los Angeles, Calif. (467), 5:30 p. m., Examiner's outstee half hour; 8-8:15, McDaniels' nightly dramas; 6:15-7, radiatorial talk; 7, Nick Harris detective story; 7:30, dance orchestra; 8, program, Ventura Refining Company; 9-10, Examiner, program by the Examiner Radio girls; 10-11, Patrick-Marah dance orchestra; Betty Patifeck, blues singer.



Mary Groom Richards, contralto, may be heard Thursday, June 18, at KGO, Oakland. Miss Richards is well known on the Pacific coast and her appearances are always popular with western fans.



Beatrice Teller, violinist, and the Trianon ensemble always take part in the regular semi-classical programs at WMBB, Chicago. These programs have received much favorable comment.

tenor; 9:45, Glen C. Smith's Paramount orchestra; 11:15, Glen C. Smith's orchestra.

WCAE, Pittsburgh, Pa. (461.3), 6:30 p. m., dinner concert, William Penn hotel; 7:30, Sunshine Girl; 8:30, concert; 9, concert.

WCAU, Philadelphia, Pa. (247), 6 p. m., Hotel Pennsylvania Interfraternity orchestra; 6:30, Charles Yerna's dance orchestra; 8:45, N. B. T. Boy's concert.

WEAF, New York, N. Y. (492), 8 p. m., dinner music, Rose Room, Hotel Waldorf Astoria; 7, Synagogue services; 7:30, U. S. Army band; 9, "Ipana Troubadours"; 10, Royal Little Symphony; 11-12, Ben Bontje's Hotel Roosevelt orchestra.

WEBB, New York, N. Y. (233), 7-9 p. m., to be announced.

WEEI, Boston, Mass. (475.9), 6:30 p. m., Big Brother club; 7:15, musicale; 8, Traveler shoe concert; 8:30, Minsky Cohen's half hour musicale; 9, Ipana Tooth Paste concert; 10, organ recital, Boston Chamber of Commerce.

WFI, Philadelphia, Pa. (394.5), 6:30 p. m., Bellevue Stratford concert orchestra; 7, bedtime stories.

WGBS, New York, N. Y. (315.6), 6 p. m., Rite dance orchestra.

WGR, Buffalo, N. Y. (319), 2:30-4:30 p. m., WGR's afternoon program; 8-10, musical program by Mr. and Mrs. Vernon Curtis and associates; 10-11, musical program, Cairo Sanatorium, No. 35, United Order of Splendor and Perfection; 11-11 a. m., supper-dance music, Vincent Lopez Hotel Statler dance orchestra, Harold Glasser, director.

WHN, New York, N. Y. (361.2), 7, Harry Richmond and his entertainers; 7:30, health talk, "Dr. Landis"; 8, program, Union of Orthodox Jewish Congregations of America; 9, Consolidated Dairy orchestra; 10, Roseland dance orchestra; 10:30, Pallades Amusement Park orchestra; 11:30, Silver Slipper revue and orchestra; 12-12:30 a. m., Strand Roof orchestra.

WIP, Philadelphia, Pa. (308.2), 8 p. m., Comfort's philanthropic orchestra; 8:05, Benjamin Franklin concert orchestra; 7, Uncle Wip's bedtime stories.

WJAR, Providence, R. I. (305.9), 7:30 p. m., program from New York.

WJZ, New York, N. Y. (455), 9:30 p. m., Robert Armstrong, pianist; 10, Maurice Lee and his trio; 10:30, Monte Carlo Virginians.

WKAQ, San Juan, P. R. (340.7), 8-10 p. m., municipal band.

WLIT, Philadelphia, Pa. (394.5), 4:30, "Care of Children," Mrs. Lullie Lorr; 7:30, Dramm Daddy's bedtime stories; 8:30, Margaret Barr, contralto; Eleanor Wynkoni, soprano; Edward Holloway, tenor; Ronald Miles, baritone; sports talk; 9:30, Hains Evangelistic Party; 10, Arzella late dance orchestra.

WMCA, New York, N. Y. (340.7), 5:30-7:30 p. m., Fannie Golden and his Hotel McAlpin orchestra.

WNYC, New York, N. Y. (526), 7 p. m., some recitals; 7:45, baseball results; 7:50, "Progress of New York City," Mayor John F. Hylan; 8:15, choral program; 9:45, Five Messner Brothers.

WOD, Philadelphia, Pa. (308.2), 4:45 p. m., organ recital, Mary E. Vort; 7:30, A. Chundelori's concert orchestra; 8, concert from WEAF; 10:45, organ recital, Mary E. Vort; 10:30, Vincent Rizzo's dance orchestra.

WOR, Newark, N. J. (405.2), 6:15 p. m., Tivoli theater orchestra; 7:15, sport talk; 7:30, Vincent Lopez or-

whistler; Johnny Sperry, harmonic soloist; 10-11, Honolulu serenades, string orchestra; Ruth Gross, dramatic reader; Ruth Kline, soprano; artist.

WBZ, Springfield, Mass. (333.3), 6 p. m., Hobd Kimball trio; 6:30, baseball; 6:35, Radio nature story, Thornton W. Burgess; 8, Alberta M. Kellner, violinist; 8:15, Anne Wolter, soprano; 8:30, concert, Mrs. E. B. Heywood, director; 9, to be announced; 9:40, "Recreational Attractions of New England," Denny B. Goode; 9:50, baseball.

WCEE, Elgin, Ill. (275), 10:30-12 midnight, Joe Rudolph and the Boss's Own orchestra; Frank Morris, dramatic reader; John Post, Edith Cavanaugh.

WCK, Detroit, Mich. (516.5), 4:15 p. m., musical program; 8, dinner concert, Book-Cadillac hotel; 8:30, musical program.

WEAO, Columbus, Ohio (203.9), 7:30 p. m., bedtime stories, Justice Carter; 8, "Trend of the Wool Market," J. F. Walker; Chillihohe Ladies' quartet.

WEAR, Cleveland, O. (389.4), 7-8 p. m., dinner concert, Hotel Cleveland orchestra; Ivan Francis, director.

WEBH, Chicago, Ill. (370.2), 7:30-8:30, Orville concert orchestra; "Brooks of the Day," Lewellyn Jones; musical hits, Riviera theater; 9:30-10:30, Oriole dance orchestra; songs, Kay Rosayne; brass quartet; Robert York, tenor; 11:30-1 a. m., Oriole dance orchestra; Kay Rosayne, songs; Leon Brothers, songs; Ivan Russo and Ted Florita, celesta and violin duo; Robert York.

WGES, Oak Park, Ill. (250), 5-6:30 p. m., Margaret Hayes, soprano; Frank Orif, tenor; Lydie Thorpe, pianist; 6:30-7, Cornelia Dunham; 10:30-1, A. Cavalli and his 11 Mazzer Musicians; Irwin Plicky, tenor; Ralph Olson, pianist; Coyne Electrical School serenaders.

WON, Chicago, Ill. (370.2), 6:30-7:30 p. m., Drake concert ensemble, Blackstone string quintet; 8:30-9:30, studio program; 10:30-11:30, Drake Hotel Terrace Garden program.

WGY, Schenectady, N. Y. (379.5), 5:45 p. m., Albany Sirens symphony orchestra; Julius Rothman, conductor; Floyd H. Walters, organist; 6:30, feature, Child's Book of Knowledge.

WHT, Chicago, Ill. (399.8), 7-8:30 p. m., Oscar Heather, tenor; Adelle Brandt, contralto; Herman Hunt, baritone; (388), 8:45-10:05, Elmer Kalace's Hivertow Park Ballroom orchestra; Al Carney, organist; (409.8), 10:30-12:30 a. m., Brock Sisters; Lydia Lockner, contralto; Church, Weaver, Quasano, band; 12:30-1, Al Carney, organist.

WKRC, Cincinnati, Ohio (422.3), 8 p. m., weekly book review, reading course, Alice H. Coy; 8:15, Lella Lemarr, pianist; 8:45, special features; 9:35, Bob Green, Jim Mischler.

WLS, Chicago, Ill. (544.6), 8:30 p. m., Ralph Emerson, organist; 7:15, Cornhuskers; 7:45, lullaby trio, Aunt Martha, Uncle George; 8:15, WLS Lane Scout orchestra; 8:45, Anthony Wons; 9, Ralph Emerson, or-

George Forsythe, Morey Alewang, Gills and Owen, Anita Finlayson Kenney, Lindsey McPhail, Clyde Rager.

WMBF, Miami Beach, Fla. (384.4), 6:30-7 p. m., Fleetwood Radio orchestra; 7:30, dance music, Fleetwood Radio orchestra; 10-12, Fleetwood Radio orchestra, specialties.

WORD, Batavia, Ill. (275), 8:30 p. m., hymns and sacred songs; address, W. H. Wandley.

WOL, Chicago, Ill. (447.5), 7-8 p. m., Ralph Williams and his Balboa Gardens orchestra; Lillian Schoenaling, mezzo-soprano; Esther Brock, pianist; Kate McDuffee, whistler; Everett G. Mitchell, baritone; 10-1, Ralph Williams and his Balboa Gardens Skyarks; Bert Davis, Queen of the Air; Melodians; Fred A. Jacobsen; Zeltzer Sisters; Hickey and Johnson; Brundage and Ersmore; 1-2, Ginger hour.

WSAI, Cincinnati, O. (326), 10 p. m., art talk; 10:10, Congress Playing Card string quartet; 10:20, member faculty, University of Cincinnati; 10:30, Congress Playing Card string quartet; Mrs. Emma Burkhart Stebbins, contralto; Pauline Steuber, accompanist; 11, Mrs. Frank Peters, soprano.

WTAM, Cleveland, Ohio (389.4), 5-7 p. m., music box studio, Phil Spillins' orchestra; 8-10, studio program; 10-11, Bullen's hour, Carl Rupp and his Hotel Bullen's entertainment; 11-12, Euclid Beach orchestra.

WTAS, Elgin, Ill. (302.8), 8-10:30 p. m., Joe Rudolph and the Boss's Own orchestra; Frank Morris, Polly Willis, John Post, Edith Cavanaugh.

WTJC, Hartford, Conn. (348.6), 6:50 p. m., baseball scores; 8, concert; 8:35, Detroit News orchestra; Anna Campbell, poet.

Central Standard Time Stations

KFNF, Shenandoah, Iowa (266), 7:30 p. m., concert from Elmo, Mo. Luella Speer, director.

KRO, St. Louis, Mo. (545.1), 7:30 p. m., Lyric Skydome.

KTHS, Hot Springs National Park, Ark. (374.8), 9:10 p. m., ballad program, New Arlington hotel ensemble.

WEAP, Fort Worth Texas (475.9), 7:30-8:30 p. m., musical program; 9:30-10:45, Fred Caboon's Texas hotel orchestra.

WCCO, Minneapolis-St. Paul, Minn. (416.4), 6 p. m., baseball; 7, midweek church service, First Baptist church; 8:30, musical program; 10:30, Dick Long's Nardin cafe orchestra; 11:30, Eddie Dunstetter, organist.

WOAF, Kansas City, Mo. (375.0), 6-7 p. m., address, speaker, Mast Council of Greater Kansas City; Plantation players; 8-10, Star's Radio orchestra; 11:45-1 a. m., Merry Old Chiel; Carl Nordberg's Plantation players; Charles Dornberger's Kansas City Athletic club orchestra.

WMA, Madison, Wis. (535.4), 8 p. m., alumni address, William James of class of 1915; musical program, Mrs. John A. Moore, director; Mrs. John A. James, vocalist; Mrs. L. C. Gunderson, violinist; Mrs. J. W. Snell, violinist.

Carl Zoeller is the director of Carl Zoeller's Melodists, a famous Kentucky synop-copating orchestra. This orchestra has been heard from WHAS, Louisville, fifty times, and may be heard again Tuesday, June 16.

KFOA, Seattle, Wash. (454.3), 6:15-9:15 p. m., Hopper Kelly company program; 8:30-10, Times music.

KFWB, Hollywood, Calif. (252), 7-8 p. m., program, Beverlyridge company, Beverlyridge Collegians; 8-9, program, Arrowhead Springs company, Harry Jackson's string quartet; Co Rose male quartet, Shlomo Shlomo's band; 9-10, program, Big Bear Land and Water company; 10-11, Warner Brothers frolic, direction Charlie Wallman.

KGO, Oakland, Calif. (361.2), 6-7 p. m., Ben Clark's orchestra.

KGW, Portland, Ore. (491.5), 6-7 p. m., Jackie Souder's orchestra; 8-10, Western Auto Supply company; 10-11, Sherman, Clay and company studio.

KHJ, Los Angeles, Calif. (405.2), 5:30-6 p. m., Leighton's Arcade caterer's orchestra, Jack Cronshaw, leader; 6-6:30, Art Hickman's Billmore hotel concert orchestra, Edward Fitzpatrick, director; 6:30-7:30, Little stories American library, Prof. Walter Sylvester Heitzman; Dick Winklow, juvenile reporter; Baby Muriel MacCormac, Mickey Melian, screen starlets, Uncle John; 8, Dr. Max Bumgarth, scientific lecturer; 8:30-9:30, program, Fitzgerald Music symphony; 9:30-10:30, program, Alva Radio company; 10:30-11:30, Art Hickman's Billmore hotel dance orchestra, Earl Burnett, leader.

KNX, Hollywood, Calif. (336.9), 5:30-6:15 p. m., Wurliizer pipe organ studio; Sibley Ziff's sports talk; 6:15, travel talk, W. P. Alder; 6:30, talk on Inland life, Harry W. Spalden; 7-8, Ambassador hotel concert orchestra, Josef Josefowitz, director; 8-9, concert, Security Trust and Savings Bank; 9-10, KNX feature program; 10-11, program, Hercules oil company.

KPO, San Francisco, Calif. (428.3), 6:15-6:30 p. m., baseball scores; 6:40-7, States Restaurant orchestra; 7-7:30, Rudy Selger's Fairmont hotel orchestra; 8-8, program, Mabel Jones, director; 9-10, Goodrich Sibley-town Cord orchestra; 10-11, Johnny Buick's Cablrians.

Thursday, June 18

Thursday silent night for: **CHIC, CHYC, CNRT, KFAB, KFAE, KFOA, KFMX, KFOA, KGA, KOB, KSD, PWX, WAHG, WBAV, WCEE, WEAG, WEBJ, WEDW, WHA, WHAD, WHAZ, WJJO, WKRC, WOS, WRBC, W8AC, WSUI, WTAM.**

Atlantic or Eastern Daylight Saving Time Stations

CHNC, Toronto, Can. (356), 9 p. m., Charles E. Bodley and his orchestra; Bert Petch, reader; Edith Jackson, tenor.

CNRM, Montreal, Canada (411), 9 p. m., orchestra, White Star-Dominion line; Viola Benoit, soprano.

WBBR, New York, N. Y. (272.8), 8 p. m., Hawaiian quintet; Eric Hawley, Roger Kuzlich, Donald Haslett, Albert Koons, Harry Pinner; 8:10, Ruth de Boer, contralto; 8:20, Sunday school lesson, S. M. Van Sippers; 8:30, Ruth de Boer, contralto; 8:50, Hawaiian quintet.

(Continued on page 13)

WALKER-GREB FIGHT FROM WGBS; KGO

Index to Popular Concerts

TABULATED below is a time table of the stations giving popular concerts this week. Stations are 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.

Popular

Atlantic or Eastern Daylight Saving Time Stations

Saturday, June 13: 6:05, WIP; 7, WNYC; 7:35, WNYC; 8:15, WFAE; 8:55, WFAE; 10:30, WFAE; 12, WMCA.

Sunday, June 14: 7:20, WFAE; 7:30, WJAR; 8, WFAE; 10, WHN.

Monday, June 15: 7:45, WAHG; 8, WRG; 8:30, WOR; 9, WFAE; 9:30, WJAR; 9:30, WHN; 10, WLIT; 10:45, WOR.

Tuesday, June 16: 7:30, WHAR; 7:30, WCAE; 7:30, WVEI; 7:30, WFI; 7:30, WGBS; 12, WHN.

Wednesday, June 17: 8:15, WHN; 10, WGLI; 10:15, WGR.

Thursday, June 18: 7:30, WFAE; 7:30, WGBS; 8, WGLI; 9, CHNC; 9:30, WFAE; 10, WHN; 12, WHN.

Friday, June 19: 7, WGR; 7:30, WFAE; 8:30, WFAE; 9:30, WHN; 10, WLPT; 10:10, WHN; 11:30, WHN; 12, WHN.

Eastern Standard or Central Daylight Saving Time Stations

Saturday, June 13: 4, WIBO; 7, WFAE; 8, WBBM; 8:30, WLS; 8:30, WMAQ; 8:30, WMBB; 9, WBBM; 9:30, WBBM; 9:30, WBBM; 9:30, WBBM; 10, WBBM; 10:30, WBBM; 10:30, WBBM; 11, WBBM; 11:30, WBBM; 12, WBBM.

Sunday, June 14: 6:20, WWJ; 8, WBBM; 8:30, WBBM; 9:30, WBBM; 10, WBBM; 10:30, WBBM; 11, WBBM; 11:30, WBBM; 12, WBBM.

Monday, June 15: 8, WTAS; 9, WTAS; 10, WKRC; 10:30, WCEB; 11, WKRC; 12, WKRC.

Tuesday, June 16: 7, WSAI; 8, WBBM; 8:30, WBBM; 9:30, WBBM; 10:30, WBBM; 11, WBBM; 11:30, WBBM; 12, WBBM.

Wednesday, June 17: 8, WBBM; 8:30, WBBM; 9:30, WBBM; 10, WBBM; 10:30, WBBM; 11, WBBM; 11:30, WBBM; 12, WBBM.

Thursday, June 18: 8, WBBM; 8:30, WBBM; 9:30, WBBM; 10, WBBM; 10:30, WBBM; 11, WBBM; 11:30, WBBM; 12, WBBM.

Friday, June 19: 8, WBBM; 8:30, WBBM; 9:30, WBBM; 10, WBBM; 10:30, WBBM; 11, WBBM; 11:30, WBBM; 12, WBBM.

Thursday, June 18: 6:30, WSAI; 8, WBBM; 8:30, WBBM; 9:30, WBBM; 10, WBBM; 11, WBBM; 12, WBBM.

Friday, June 19: 8, WBBM; 8:30, WBBM; 9:30, WBBM; 10, WBBM; 11, WBBM; 12, WBBM.

Saturday, June 13: 6:30, WFAA; 8, WSB; 8:30, WSB; 9:30, WSB; 10, KFVE; 10:45, WSB; 11, KFAB; 11:45, WDAF.

Sunday, June 14: 10, KTHS; 10:30, WFAA; 11, WBAF.

Monday, June 15: 6:30, WQAW; 6:45, WCCO; 7:30, WBAF; 8, WHAD; 8:30, WMC; 9, KSD; 9:30, WBAF; 10, WOI; 10:45, WSB; 11:45, WDAF.

Tuesday, June 16: 8, WSB; 9, WQAW; 10:45, WSB; 11, KFAB; 11:45, WDAF.

Wednesday, June 17: 7:30, KFAB; 8:30, KFAB; 9:30, KFAB; 10:30, KFAB; 11:45, WDAF.

Thursday, June 18: 6:30, WFAA; 7, WQAW; 8, WSB; 11, WFAA; 11:45, WDAF.

Friday, June 19: 6:30, WFAA; 7:30, KFAB; 8:30, KFAB; 9:30, KFAB; 10:30, KFAB; 11:45, WDAF.

Saturday, June 13: 8, KOA.

Monday, June 15: 8, KOA.

Tuesday, June 16: 8, KOA.

Wednesday, June 17: 8, KOA.

Thursday, June 18: 8, KOA.

Friday, June 19: 8, KOA.

Saturday, June 13: 8, KFVB; 8:30, KFVB; 9:30, KFVB; 10, KFVB; 11, KFVB; 12, KFVB.

Sunday, June 14: 8, KHJ; 9, KFVB; 10, KFVB.

Monday, June 15: 8, KFVB; 9, KFVB; 10, KFVB; 11, KFVB.

Tuesday, June 16: 8, KFVB; 9, KFVB; 10, KFVB; 11, KFVB.

Wednesday, June 17: 8, KFVB; 9, KFVB; 10, KFVB; 11, KFVB.

Thursday, June 18: 8, KHJ; 9, KFVB; 10, KFVB.

Friday, June 19: 8, KFVB; 9, KFVB; 10, KFVB.

Saturday, June 13: 8, KFVB; 9, KFVB; 10, KFVB; 11, KFVB.

Sunday, June 14: 8, KHJ; 9, KFVB; 10, KFVB.

Monday, June 15: 8, KFVB; 9, KFVB; 10, KFVB; 11, KFVB.

Tuesday, June 16: 8, KFVB; 9, KFVB; 10, KFVB; 11, KFVB.

Wednesday, June 17: 8, KFVB; 9, KFVB; 10, KFVB; 11, KFVB.

Thursday, June 18: 8, KHJ; 9, KFVB; 10, KFVB.

Friday, June 19: 8, KFVB; 9, KFVB; 10, KFVB.

Saturday, June 13: 8, KFVB; 9, KFVB; 10, KFVB; 11, KFVB.

Sunday, June 14: 8, KHJ; 9, KFVB; 10, KFVB.

Monday, June 15: 8, KFVB; 9, KFVB; 10, KFVB; 11, KFVB.



Alex De Sto, cellist, has played for Meyer Davis at Philadelphia and Atlantic City. He is now with the Meyer Davis orchestra at the New Arlington hotel at Hot Springs National Park and may be heard at KTHS regularly, both in ensembles and solos.



Here is Unit No. 1, or rather the hub of that mysterious but famous Coyne Electrical School orchestra, heard every Thursday at WGHS. Henry Martin is the trap drummer and contortionist de luxe.

WGN, Chicago, Ill. (370.2), 6:30-7:30 p. m., Drake concert ensemble; Blackstone string quintet; 8:30-9:30, United Chorus of German Baptist churches; 10:30-11:30, Drake Hotel Terrace Garden program.

WGY, Schenectady, N. Y. (379.5), 6:30 p. m., dinner music; John Fluk's orchestra; 6:55, book chat; William E. Jacob; 8:15, "A Cruise Up the West Coast of Southern America," Dr. Sigel Rausch; WGY orchestra; 7:30, U. S. Marine band; 10:30, organ recital; Stephen G. Buisson.

WHD, Chicago, Ill. (399.8), 7-8:30 p. m., Marilla Walsworth, soprano; Tony Corcoran, baritone; Margaret Garly, pianist; Martin and Wilkins; (298), 8:45-10:05, Elmer Kalser's Riverview Park Ballroom orchestra; Al Carney, organist; (399.8), 10:30-12:30 a. m., Walter Donovan, tenor; Ned Becker, humorist; Ed Berg, pianist; Anita Karlen, reader; Sandy Meek, tenor; Ida McEwan, soprano; 12:30-1, Al Carney, organist.

WLS, Chicago, Ill. (344.6), 8:30 p. m., Ralph Emerson, organist; 7:15, Combustion orchestra; 7:45, lullaby time; 8, second act of "Tinafore."

WLW, Cincinnati, O. (422.3), 4 p. m., French lesson; Madame Ida Telmptidis; piano recital; Adelaide Apfel; 7, dinner hour concert; Hotel Gibson orchestra; Robert Visconti, director; 8, Sekatary Hawkins; 10, three minute message from Civil Service Dept. of U. S. Government; 10:45, orchestra concert; 11:15, organ recital; other features to be announced.

WMAQ, Chicago, Ill. (447.5), 6 p. m., Chicago theater organ recital; 6:30, Hotel LaSalle orchestra; 8, speaker, announced; 8:15, M. G. Moon, tenor; 8:40, financial talk; 8:50, University of Chicago lecture; 9:15, Arlon Musical and Dramatic club.

WMBB, Chicago, Ill. (250), 7-8:30 p. m., semi-classical program; J. Redwatt Lampe; Beatrice Teller and Trianon ensemble; Ambrose Wyrick, Rita McEwan, Hazel O'Neil, John S. Everett, Armin E. Hand and Woodlawn Theater orchestra; 8:30-10:30, Dell Lampe and Trianon orchestra; 10:30-11:30, Dell Lampe and Smith, Charles Anna and Trianon symphony; Johnnie Keene, Bob Duffy, Geraldine Doyle, Little Orphan Annie presentation.

WMBF, Miami Beach, Fla. (384.4), 6:30-7 p. m., Fleetwood Radio orchestra; 7-7:30, dance music; Fleetwood Radio orchestra; 10-12, Fleetwood Radio orchestra, specialties.

WBD, Batavia, Ill. (275), 8:30 p. m., Christian Church choir; Sunday school lesson.

WQJ, Chicago, Ill. (447.5), 7-8 p. m., Ralph Williams and his Rainbo Gardens orchestra; Henrietta Greenfield, violinist; Jeanette Simons, accompanist; Margaret Cade, soprano; Madeline Huff, pianist; Izora Logan Reynolds, reader; 10-1, Ralph Williams and his Rainbo Gardens Strykers; 11, Shonetrook, soprano; Ned and Ches; Marie Wright, soprano; Lucas Sisters; Lew Butler; 1-2, Ginger hour.

WSAI, Cincinnati, O. (328), 6:30 p. m., Hotel Sinton instrumental trio; 7, Neopolitan ensemble; 8, Atwater Kent Radio artists; 9, Silvertown Cord orchestra.

WTAM, Cleveland, Ohio (389.4), 6-7 p. m., Hotel Statler concert orchestra.

WWS, Elgin, Ill. (302.8), 8-12 midnight, Joe Rudolph and the Boss's Own orchestra; Frank Morris, Polly Willis, John Post, Eddie and Fannie Caravaggio.

WTC, Hartford, Conn. (348.6), 8 p. m., Emil Helmberger's Hotel Bond trio; 8:50, baseball; 7, dinner program.

WVJ, Detroit, Mich. (352.7), 3:45 p. m., baseball scores; 6, dinner concert; 7, WFAE concert.

Central Standard Time Stations

CKY, Winnipeg, Can. (344.4), 8 p. m., Canadian National Railway's program.

CNRW, Winnipeg, Can. (411), 8:30 p. m., bedtime travel tales; 9, Canadian National Transcona shops brass band.

Shenandoah, Iowa (268), 7:30 p. m., concert from Rockport, James E. Gore family, Genevieve Gore, director.

KLDS, Independence, Mo. (288), 8 p. m., Maudie Nesbitt, soprano; Alice Burgess, contralto; Mrs. E. G. Haberlein, reader; Emma Snead, violinist; "Independence Industries."

KTHS, Hot Springs National Park, Ark. (374.8), 9:10 p. m., Lawson Reid, organist.

WHAD, Milwaukee, Wis. (275), 6-7 p. m., organ music.

WHAS, Louisville, Ky. (399.8), 7:30-9 p. m., concert, auspices Liberty Insurance bank, baseball.

WHO, Des Moines, Ia. (526), 7:30-9 p. m., musical program; 11-12, dance program.

WMC, Memphis, Tenn. (499.7), 8:30 p. m., musical program.

WOAN, Lawrenceburg, Tenn. (282.8), 12:15-12:45 p. m., Vaughan Radio orchestra; 6-10, Vaughan Radio orchestra; male quartet.

WOAW, Omaha, Neb. (526), 6 p. m., Every Child's hour; Grace Sorenson; 6:20, baseball; 6:30, to be announced; 7, Randall's Royal Foutenelle orchestra; 9, classical period.

WOC, Oavenport, Ia. (483.6), 5:45-6 p. m., chimes concert; 6:30-6:50, Sandman's visit; Val McLaughlin; 7-8, Atwater Kent artists; 8-9, Silvertown Cord orchestra; 11-12, Louis Connor and his LeClair Hotel orchestra; Peter MacArthur, baritone.

WOI, Ames, Ia. (270), 8:15 p. m., musical program.

WSB, Atlanta, Ga. (428.3), 8-9 p. m., annual prize winners, Morgan Stephens Conservatory of Music; 10:45, Dr. Charles A. Sheldon, organist.

WSMB, New Orleans, La. (319), 6:30-7:30 p. m., dinner musicale; 8:30-10:30, serenaders.

Mountain Standard Time Stations

CNRC, Calgary, Can. (435), 7 p. m., bedtime travel tale; Mrs. Conquest; 9, Holdens Academy dance orchestra; Hazel Campbell, violinist; Jack Rushton, saxophonist; J. E. Holdens, vocalist, pianist.

Pacific Standard Time Stations

KFI, Los Angeles, Calif. (467), 5:30-6 p. m., Examiner's matinee program; 6-6:15, Mellanale's nightly doings; 6:45-7, radiotelefilm; 7-8, Packard 814 dance orchestra; 8-9, one act play, KFI players and studioville acts; 9-10, by remote control from Chockering Hall, Southern California Music company; 10-11, Examiner program, Jean Jacques, popular pianist.

KFOA, Seattle, Wash. (454.3), 6:45-8:15 p. m., Moran school for boys.

KFWB, Hollywood, Calif. (252), 7:45-8 p. m., Jack Boaz, fishing boat, talking on fishing streams; 8-9, program, Starr Photo company; 9-10, program, Don P. Smith, Inc., Kathryn Martin, soprano; Charles Deuschamp, tenor; Albert Keselove, boy marvel violinist; Miller's International Hawaiian trio, and Don P. Smith dance orchestra; 10-11, Warner Brothers frolic, direction Charlie Wellman.

KGO, Oakland, Calif. (361.2), 8 p. m., National Carbon company program; de Grassi trio; Harrison Coles, tenor; Mary Groom Richards, contralto; George Madison, bass; Florence Hiron, soprano; selections from "Il Trovatore"; 10-1, Henry Hilsted's orchestra.

KGW, Portland, Ore. (491.3), 8-9 p. m., Shellville-Hizon Lumberjack band; 10, Fields Motor Car company; 10-12, Herman Kerdin's Multnomah hotel orchestra.

KHI, Los Angeles, Calif. (403.2), 5:30-6 p. m., Lefkovich's Arcade cafeteria orchestra; Jack Cronshaw, leader; 6-6:30, Art Hekman's Biltmore hotel concert orchestra, Edward Fitzpatrick, director; 6:30-7:30, little stories American history, Prof. Walter Sylvester Hertzog, Dickie Brandon, screen juvenile, and Uncle John; 7:30, talk on insurance; 8-10, program, Pacific Clay Products company, arranged by Uncle John; 10-11, Art Hekman's Biltmore hotel dance orchestra, Earl Hurnett, leader.

KNX, Hollywood, Calif. (336.9), 5:30-6:15 p. m., Wuritzer pipe organ studio, Sid Zitt's sports talk; 6:15, travel talk, W. F. Alder; 6:30-7:30, program, Los Angeles County Ass'n of Optometrists; 7:30-8, one act play, KNX players, Edward Murphy, director; 8-9, program, Brent Furniture company; 9-10, program, Running Springs Park; 10-11, Abe Lyman's Coconut Grove dance orchestra from Ambassador hotel.

KPO, San Francisco, Calif. (428.3), 6:15-6:30 p. m., baseball; 6:40-7, States Restaurant orchestra; 7-7:30, Rudy Selzer's Fairmont hotel orchestra; 8-9, popular music, George W. Caswell company; 9-10, Flaudora J. Irwin, organist; 10-11, Johnny Bueck's cabaret.

Thursday, June 18

(Continued from page 11)

WCAE, Pittsburgh, Pa. (461.3), 4:30 p. m., dinner concert, William Penn hotel; 7:30, Uncle Kaybee; 8, recital; 9, Atwater Kent Radio artists from WFAE; 10, Goodrich Silvertown Cord orchestra.

WCAU, Philadelphia, Pa. (247), 6 p. m., Hotel Pennsylvania instrumental orchestra; 7:30, N. Spellenburg & Co. symphony orchestra; 8, talk, Clara Zillesen; 8:30, recital; 9:10, Sunday school lessons; 10:45, Jack Meyer's Musical Architects dance orchestra.

WOWF, Providence, R. I. (440.9), 6:30-8 p. m., Narragansett hotel orchestra.

WFAE, New York, N. Y. (492), 4 p. m., Ilancho Yurba, soprano; 4:15, bookman review, Amy Elsdiner; 4:30, Radio Home, dance; 4:45, current events, Dr. William Carter; 6, dinner music, Rose Room, Hotel Waldorf-Astoria; 7, Greater New York Federation of Churches; 7:30, Cushman's serenaders; 8, Neopolitan ensemble; 8:30, "Touring in a Packard Eight," George Elliott Cooley; 9, Atwater Kent Radio artists; 10, Silvertown Cord orchestra; 11-12, Vincent Lopez Hotel Pennsylvania orchestra.

WEBJ, New York, N. Y. (233), 7 p. m., dance music; 7:45, Rudolph Tuskowitz, violinist; Norman Hennefeld, pianist; 8:15, Ksitra Connolly, soprano; M. Web, pianist; Lillian Marling Kahler.

WEEI, Boston, Mass. (475.9), 8:15 p. m., French poetry, Ernest Perrin; 8:30, Big Brother club; 7:45, Stanley Greenlaw, musical saw soloist; 8, Boston Mechanics building concert; 8:30, musicale, New York; 9, Atwater-Kent Radio artists; 10, Goodrich Silvertown Cord orchestra.

WFI, Philadelphia, Pa. (394.5), 3 p. m., Loretta Kerk, pianist; farm talk, W. H. Roberts; 6:30, Bellevue Standard concert orchestra; 7, bedtime stories; 8, concert from WFAE; 9, Atwater Kent Radio artists; 10, Goodrich Silvertown Cord orchestra.

WGBS, New York, N. Y. (315.6), 6 p. m., Uncle Gee Hee; 6:15, Parl house orchestra; 7:30, California Rambles; 9, Hilda Hymon, mezzo-soprano.

WGB, Buffalo, N. Y. (319), 2:30-4:30 p. m., WGR's afternoon program, A. J. Erlmann, director; 6:30-7:30, two-piece piano recital, Gospel Melodists; 8-11, jointly with WFAE, including Neopolitan ensemble, Atwater Kent and Silvertown Cord orchestra.

WGL, New York, N. Y. (361.2), 8:30 p. m., Olcott Vail's string trio; 7, Silver Slipper revue; 7:30, death talk, Dr. Landis; 8, Will Oakland's Chebeau Show; 8:30, Palisades Amusement Park orchestra; 10, Louis's vaudeville headliners; 12-12:30 a. m., Parody club revue, orchestra.

WIP, Philadelphia, Pa. (508.2), 8:30 p. m., Comfort's Philharmonic orchestra; 6:30, Benjamin Franklin concert orchestra; 5, Uncle Wip's bedtime stories; 8, Comfort's Philharmonic orchestra; 8:15, Sounds of the Surf; 8:30, Vessella's band; 10:05, Howard Janin's dance orchestra.

WJAR, Providence, R. I. (305.9), 8 p. m., program from New York studio; 9, Victor presentation; 10, Goodrich Silvertown Cord orchestra.

WJZ, New York, N. Y. (453), 8:30 p. m., U. S. Marine band; 10, Keith McLeod, pianist; Godfrey Ludlow, violinist; Milton J. Cross, tenor.

WKAQ, San Juan, P. R. (340.7), 8:30-10 p. m., musical concert, La Cafetera.

WLIT, Philadelphia, Pa. (384.5), 4:30 p. m., talk, "Care of Eyes," Dr. Harris Gruman; 7:30, Dream Daddy's bedtime stories.

WMOA, New York, N. Y. (340.7), 11-12 p. m., Ernie Golden and his Hotel McAlpin orchestra.

WNYC, New York, N. Y. (528), 7 p. m., Harnett Donaldson and his orchestra; 7:25, baseball results; 7:50, Harnett Donaldson and his orchestra; 8:30, songs recital; 9:30, Municipal trio; 10, dance program.

WOO, Philadelphia, Pa. (508.2), 4:45 p. m., organ recital, Mary E. Vogt; 7:30, A. Candelori's concert orchestra.

WOR, Newark, N. J. (405.2), 6:15 p. m., Easley Miller's orchestra; 7:15-7:30, sport talk.

Eastern Standard or Central Daylight Saving Time Stations

KOKA, Pittsburgh, Pa. (309.1), 2:30-7 p. m., baseball; 8, program, National Steelman and Farmer studio; 8:45, Terryberry time; 10:30, Pittsburgh Post studio.

WBBM, Chicago, Ill. (228), 8-12 midnight, Maurice Silverman, tenor; Meridene Borresen, baritone; Charlie Garland, pianist; Jerry Cromack; Dr. Lucille Long, harmonica soloist; William Molnar, tenor; Dave Sidelman; Griffin orchestra.

WBCN, Chicago, Ill. (268), 8-9 p. m., popular program; Borden Brothers, harmony duo; Midway Dancing Gardens' orchestra; piano duet team; 10-11, semi-classical concert; 11-1 a. m., Owl matinee; Midway Gardens' orchestra; Clarence Jones, pianist; artists.

WBZ, Springfield, Mass. (333.3), 8 p. m., Leo Reisman's Hotel Lenox ensemble; 6:30, baseball; 7:30, U. S. Marine band; 9, concert, Lawrence Square and Company ice club; 9:40, "Bringing the World to America," Our World; 9:50, baseball.

WCK, Detroit, Mich. (518.9), 4:15 p. m., musical program; 6, dinner concert, Book-Cadillac hotel; 8:30, musical program.

WEAR, Cleveland, O. (389.4), 7-8 p. m., talks; 8-10, Larry Kenneth and his Gang; 10-11, organ recital, Vincent H. Percy.

WBBM, Chicago, Ill. (370.2), 7:30-8:30 p. m., Oriole concert orchestra; Edwin Kemp, tenor; musical hits, Riviera theater; Victor Young, violinist; 9:30-10:30, Oriole dance orchestra; Beulah Lodon, violinist; Percy North, pianist; 11:30-1 a. m., Oriole dance orchestra; songs, Paul Small; stories, Wayne Myers; Edwin Kemp, tenor; Oriole orchestra.

S; KGO GOLF LESSONS BEGIN TUESDAY



Marjorie Nash, organist at the Kialto theater, entertains the housewives every noon with a well chosen program at KOA, the General Electric company station, Denver, Colorado.

Index to Classical Concerts

TABULATED below is a time table of the stations giving classical concerts this week. Stations are 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.

Classical

Atlantic or Eastern Daylight Saving Time Stations

Saturday, June 13: 6, WCAU, WFAF; 6:15, WIP; 6:30, WFI; 7, WFAF; 7:05, WJAR; 7:30, CKAC, WLIT, WOO; 8, WBBR; 8:15, WCAE, WFAF, WIP; 8:30, WCAE, WFI, WGBS, WJZ; 8:45, WBBR; 9, WFI, WGBS; 9:15, WFAF; 9:30, WFAF, WHN, WNYC; 10, WGBS, WNYC; 10:05, WFAF; 10:20, WFAF.

Sunday, June 14: 6, WCAU, WOO; 6:30, WCAE; 7, WCAU; 8, WJZ; 8:15, WJZ; 9, WBBR, WNYC; 9:15, WFAF, WJAR; 9:20, WEEI; 9:30, WGBS; 10, WBBR, WJZ.

Monday, June 15: 6, WCAU, WFAF; 6:05, WIP; 6:30, WCAE, WFI; 7, WNYC; 7:15, WFAF; 7:30, WCAU, WOO; 8, WBBR, WOO; 8:15, WJZ; 8:30, WCAE, WFAF, WLIT; 8:35, WBBR; 8:45, WNYC; 9, WCAE, WMCA; 9:30, WLIT, WMCA; 10, WFAF, WEEI; 10:03, WOO; 11, WCAE, WHN.

Tuesday, June 16: 6, WCAU, WFAF; 6:05, WIP; 6:30, WCAE, WCAU, WFI; 7, WFAF; 7:30, WFAF, WGBS, WOO; 7:45, WEBB; 8, WCAE, WEEI, WFI, WGR, WIP; 8:10, WJZ; 8:15, WEBB; 8:45, WCAU; 8:50, WIP; 9, WCAE, WFAF, WEEI, WFI, WGBS, WGR, WJAR; 9:45, WMCA; 10, WCAE, WFAF, WEEI, WMCA; 10:30, WJZ; 10:40, WGBS.

Wednesday, June 17: 6, WCAU, WFAF; 6:05, WIP; 6:30, WCAE, WFI; 7:30, WCAU, WFAF, WJAR, WOO; 8, WEEI, WHN, WOO; 8:30, WCAE, WCAU, WEEI, WLIT; 8:45, WNYC; 9, WCAE, WFAF, WEEI, WGR; 9:30, WJZ, WLIT; 10, WFAF; 10:03, WOO; 10:15, WOR; 10:30, WGR.

Thursday, June 18: 6, WCAU, WFAF; 6:30, WCAE, WGR; 7, WFAF; 7:30, WOO; 8, WBBR, WCAE, WCAU, WFAF, WEEI, WFI, WIP, WJAR; 8:30, WNYC; 8:40, WBBR; 8:50, WIP; 9, WCAE, WFAF, WEEI, WFI, WJAR; 9:30, WNYC; 10, WCAE, WJZ.

Friday, June 19: 6, WFAF; 6:05, WIP; 6:30, WCAE, WFI, WHN; 7, WEEI; 7:15, WFAF; 7:30, WEEI, WOO; 7:45, WEBB; 8, WEEI, WJAR; 8:15, WJZ, WLIT; 8:30, WCAE, WEEI, WNYC; 8:45, WLIT; 9, WFAF, WGR, WJAR, WMCA, WOO; 9:30, WFAF, WLIT; 9:40, WFAF; 9:45, WJZ; 10, WEEI; 10:30, WGR, WOO; 10:35, WFAF.

Mountain Standard Time Stations

Saturday, June 13: 6, WCAU, WFAF; 6:15, WIP; 6:30, WFI; 7, WFAF; 7:05, WJAR; 7:30, CKAC, WLIT, WOO; 8, WBBR; 8:15, WCAE, WFAF, WIP; 8:30, WCAE, WFI, WGBS, WJZ; 8:45, WBBR; 9, WFI, WGBS; 9:15, WFAF; 9:30, WFAF, WHN, WNYC; 10, WGBS, WNYC; 10:05, WFAF; 10:20, WFAF.

Sunday, June 14: 6, WCAU, WOO; 6:30, WCAE; 7, WCAU; 8, WJZ; 8:15, WJZ; 9, WBBR, WNYC; 9:15, WFAF, WJAR; 9:20, WEEI; 9:30, WGBS; 10, WBBR, WJZ.

Monday, June 15: 6, WCAU, WFAF; 6:05, WIP; 6:30, WCAE, WFI; 7, WNYC; 7:15, WFAF; 7:30, WCAU, WOO; 8, WBBR, WOO; 8:15, WJZ; 8:30, WCAE, WFAF, WLIT; 8:35, WBBR; 8:45, WNYC; 9, WCAE, WMCA; 9:30, WLIT, WMCA; 10, WFAF, WEEI; 10:03, WOO; 11, WCAE, WHN.

Tuesday, June 16: 6, WCAU, WFAF; 6:05, WIP; 6:30, WCAE, WCAU, WFI; 7, WFAF; 7:30, WFAF, WGBS, WOO; 7:45, WEBB; 8, WCAE, WEEI, WFI, WGR, WIP; 8:10, WJZ; 8:15, WEBB; 8:45, WCAU; 8:50, WIP; 9, WCAE, WFAF, WEEI, WFI, WGBS, WGR, WJAR; 9:45, WMCA; 10, WCAE, WFAF, WEEI, WMCA; 10:30, WJZ; 10:40, WGBS.

Wednesday, June 17: 6, WCAU, WFAF; 6:05, WIP; 6:30, WCAE, WFI; 7:30, WCAU, WFAF, WJAR, WOO; 8, WEEI, WHN, WOO; 8:30, WCAE, WCAU, WEEI, WLIT; 8:45, WNYC; 9, WCAE, WFAF, WEEI, WGR; 9:30, WJZ, WLIT; 10, WFAF; 10:03, WOO; 10:15, WOR; 10:30, WGR.

Thursday, June 18: 6, WCAU, WFAF; 6:30, WCAE, WGR; 7, WFAF; 7:30, WOO; 8, WBBR, WCAE, WCAU, WFAF, WEEI, WFI, WIP, WJAR; 8:30, WNYC; 8:40, WBBR; 8:50, WIP; 9, WCAE, WFAF, WEEI, WFI, WJAR; 9:30, WNYC; 10, WCAE, WJZ.

Friday, June 19: 6, WFAF; 6:05, WIP; 6:30, WCAE, WFI, WHN; 7, WEEI; 7:15, WFAF; 7:30, WEEI, WOO; 7:45, WEBB; 8, WEEI, WJAR; 8:15, WJZ, WLIT; 8:30, WCAE, WEEI, WNYC; 8:45, WLIT; 9, WFAF, WGR, WJAR, WMCA, WOO; 9:30, WFAF, WLIT; 9:40, WFAF; 9:45, WJZ; 10, WEEI; 10:30, WGR, WOO; 10:35, WFAF.

call dance orchestra: Spike Hamilton's Barbary Coast dance orchestra; Morning Glory club concert. WMCA, New York, N. Y. (340.7), 6:30-7:30 p. m., Ernie Golden and his Hotel McAlpin orchestra; 9-10, Hardman hour of music. WJVC, New York, N. Y. (326), 7 p. m., Castle Royal orchestra; 7:30, Board of Estimates meeting; 8, Castle Royal orchestra; 8:30, concert hour; 10:10, "Books that Everyone Should Know," Prof. J. G. Troop. WOO, Philadelphia, Pa. (508.2), 9:45 p. m., organ recital, Mary E. Vort; 7:30, A. Candelori's concert orchestra; 9, WOO orchestra; 10:30, organ recital, Mary E. Vort; 10:30, Vincent Rizzo's dance orchestra. WOR, Newark, N. J. (405.2), 6:15 p. m., Hotel Lorraine orchestra; 6:30, Man in the Moon stories; 7-7:30, Hotel Lorraine orchestra.

Eastern Standard or Central Daylight Saving Time Stations

CNRT, Toronto, Canada (337), 5:30 p. m., Luliel Romanelli and his King Edward hotel concert orchestra; 8:30, Canadian Melodians, Alfred Heather, director; Margaret Curtis, violinist; quartet; Alfred Heather, tenor; Frank Oldfield, bass; V. Mackenzie Baker, tenor; John Dettler, baritone; Luigi Romanelli and his King Edward hotel dance orchestra.

KOKA, Pittsburgh, Pa. (309.1), 2:30-7 p. m., baseball; 8:45, concert.

WBBM, Chicago, Ill. (226), 8-10 p. m., Sandy Meek, Scotch tenor; Harry Sosnik, pianist; Joe Allbaugh, ukulele soloist; Dave Nudelman; Lester Kelley; Al Perry and Frank Johnson, Cullin orchestra.

WBCW, Chicago, Ill. (285), 8-9 p. m., dance hour. Hobby club; Dr. S. Wall, dialect comedian and saxophonist; "Big Boy" Tazie, pianist; 10-12, Ann Kelly, soprano; artists.

WBZ, Springfield, Mass. (333.3), 6 p. m., Hotel Kimball trio; 6:30, baseball; 7:15, "Pantry Ploek Management," Prof. William C. Monahan; 8, Boston Saxophone orchestra; 8:30, J. A. Watts, tenor; 8:45, to be announced; 9, Philadelphia male quartet; 9:40, U. S. Naval History 8, R. R. Brandt; 9:50, baseball.

WCEE, Elgin, Ill. (275), 10:30-12 midnight Joe Rudolph and the Boss's Own orchestra; Frank Morris, Polly Willis, Eddie and Fannie Cavanaugh.

WGX, Detroit, Mich. (516.3), 4-15 p. m., musical program; 6, dinner concert, Book-Cadillac hotel; 8:30, musical program; 10, dance music, reading auditorium.

WEAR, Cleveland, Ohio (389.4), 7-8 p. m., children's hour; 8-11, dance music.

WESH, Chicago, Ill. (370.2), 7:30-8:30 p. m., Oriole dinner concert; talk, Rev. Claude Perrin; songs, Cambridge Sisters; Leroy North, pianist; 9:30-10:30, Oriole dance orchestra; violin trio; Cambridge Sisters; Carroll and Gosden, songsters; Jack Penwell, twin guitarist; Rita McFawn, soprano; 11:30-1 a. m., Oriole dance orchestra; songsters, Carroll and Gosden; Rita McFawn; Jack Penwell, twin guitarist; Sandy Reika, tenor.

WGES, Oak Park, Ill. (250), 5-6:30 p. m., Madeline Reed, contralto; Melville Sisters; John Randle, baritone; 6:30-7, bedtime stories, Cornelia Dunagan; 10:30-11 p. m., A. Cavallo and his 11 Master Musicians; Rudolph Hess, Sandy McTavish, Jimmy Egger, Coyne Methodist School serenaders.

WGN, Chicago, Ill. (370.2), 6:30-7:30 p. m., Drake concert ensemble, Blackstone string quintet; 8:30-9:30, studio program; 10:30-11:30, Drake hotel Terrace Garden program.

WGY, Schenectady, N. Y. (379.5), 5:30 p. m., International Sunday school lesson; 6, Mark Strand symphony orchestra; 6:35, WGY orchestra; 8:15, Mickey Walker-Harry Greb fight; 7:30, "The Engineering College and its Opportunity for Service," Dean A. Potter; 9, operetta, "Peppita," community chorus; Carl Danahanger, director.

WHT, Chicago, Ill. (309.8), 7-8:30 p. m., Bryce Talbot, baritone; Genevieve Barry Burnham, soprano; Dean Renneck, pianist; (238), 8-15-10:30, Elmer Kaiser's River-view Park Ballroom orchestra; Al Carney, organist; (399.8), 10:30-12:30 a. m., Fred Agard, tenor; Brock Sisters; Milton Grossman, saxophonist; 12:30-1, Al Carney, organist.

WLS, Chicago, Ill. (344.6), 9:30 p. m., Ralph Emerson, organist; Martha Meier, contralto; 7:15, Cornhuskers; 7:45, lullaby time; 8, employees, Illinois (Central railroad); 8:45, "William and Victoria," Anthony Wans; 9, Harold Smith, saxophonist; Williams Brothers; 10, Cornhuskers orchestra; 10:10, "Eljah," Apollo club; 11-11:30, Cornhuskers orchestra.

WMAQ, Chicago, Ill. (447.5), 9 p. m., organ recital, Chicago theater; 6:30, Hotel LaSalle orchestra; 6:50, Family After League; 8, Wide-Awake club program, Frances M. Ford, director; 8:30, musical recital, Mr. and Mrs. Max E. Oberdorfer; 9, Christian Endeavor tones; 9:15, musical program.

WMBB, Chicago, Ill. (250), 7-8:30 p. m., home circle program, J. Bodewalt Lampe, director; Beatrice Teller and Trilphon ensemble; Rita McFawn, Hazel O'Neil, Marie Carson, Armin E. Hand and Woodlawn theater orchestra; 8:30-10:30, Dell Lampe and Trilphon or-

DANCING

(Central Time)

Saturday, June 13: 8, Kgw, Wpr; 8:05, Wip; 8:30, Ksd, Wch, Wgs; 8:35, Wef, Wgr, Wps, Wqj, Wlas; 9:30, Wgn, Wre; 10, Kfr, Koa, Kpo, Waj, Wca, Wcc, Wcd, Wcf, Wch, Wci, Wcj, Wck, Wcl, Wcm, Wcn, Wco, Wcp, Wcq, Wcr, Wcs, Wct, Wcu, Wcv, Wcw, Wcx, Wcy, Wcz; 10:30, Kfoa, Wca, Wcb, Wcc, Wcd, Wce, Wcf, Wch, Wci, Wcj, Wck, Wcl, Wcm, Wcn, Wco, Wcp, Wcq, Wcr, Wcs, Wct, Wcu, Wcv, Wcw, Wcx, Wcy, Wcz; 11:45, Wdai; 12, Kgo, Kex, Kxz; 12:05, Kfoa; 1, Kpx; 2:30, Ksh.

Monday, June 15: 6, Wlt, Wny, Wta, Wwj; 8:30, Kfwb, Wfa, Wma, Wwo, Wwsb; 8:45, Whn; 9, Kfl, Wta; 9:30, Wce, Wjld, Wma, Wor; 10, Wgr, Wta; 10:30, Kfoa, Wca, Wcb, Wcc, Wcd, Wce, Wcf, Wch, Wci, Wcj, Wck, Wcl, Wcm, Wcn, Wco, Wcp, Wcq, Wcr, Wcs, Wct, Wcu, Wcv, Wcw, Wcx, Wcy, Wcz; 11:45, Wdai; 12, Kgo, Kex, Kxz; 12:05, Kfoa.

Tuesday, June 16: 8, Wta, Wny, Wta, Wwj; 8:30, Kfwb, Wfa, Wma, Wwo, Wwsb; 8:45, Whn; 9, Wgr, Wta; 9:30, Wce, Wjld, Wma, Wor; 10, Wgr, Wta; 10:30, Kfoa, Wca, Wcb, Wcc, Wcd, Wce, Wcf, Wch, Wci, Wcj, Wck, Wcl, Wcm, Wcn, Wco, Wcp, Wcq, Wcr, Wcs, Wct, Wcu, Wcv, Wcw, Wcx, Wcy, Wcz; 11:45, Wdai; 12, Kgo, Kex, Kxz; 12:05, Kfoa.

Wednesday, June 17: 8, Wta, Wny, Wta, Wwj; 8:30, Kfwb, Wfa, Wma, Wwo, Wwsb; 8:45, Whn; 9, Wgr, Wta; 9:30, Wce, Wjld, Wma, Wor; 10, Wgr, Wta; 10:30, Kfoa, Wca, Wcb, Wcc, Wcd, Wce, Wcf, Wch, Wci, Wcj, Wck, Wcl, Wcm, Wcn, Wco, Wcp, Wcq, Wcr, Wcs, Wct, Wcu, Wcv, Wcw, Wcx, Wcy, Wcz; 11:45, Wdai; 12, Kgo, Kex, Kxz; 12:05, Kfoa.

Thursday, June 18: 8, Wta, Wny, Wta, Wwj; 8:30, Kfwb, Wfa, Wma, Wwo, Wwsb; 8:45, Whn; 9, Wgr, Wta; 9:30, Wce, Wjld, Wma, Wor; 10, Wgr, Wta; 10:30, Kfoa, Wca, Wcb, Wcc, Wcd, Wce, Wcf, Wch, Wci, Wcj, Wck, Wcl, Wcm, Wcn, Wco, Wcp, Wcq, Wcr, Wcs, Wct, Wcu, Wcv, Wcw, Wcx, Wcy, Wcz; 11:45, Wdai; 12, Kgo, Kex, Kxz; 12:05, Kfoa.

Friday, June 19: 8, Wta, Wny, Wta, Wwj; 8:30, Kfwb, Wfa, Wma, Wwo, Wwsb; 8:45, Whn; 9, Wgr, Wta; 9:30, Wce, Wjld, Wma, Wor; 10, Wgr, Wta; 10:30, Kfoa, Wca, Wcb, Wcc, Wcd, Wce, Wcf, Wch, Wci, Wcj, Wck, Wcl, Wcm, Wcn, Wco, Wcp, Wcq, Wcr, Wcs, Wct, Wcu, Wcv, Wcw, Wcx, Wcy, Wcz; 11:45, Wdai; 12, Kgo, Kex, Kxz; 12:05, Kfoa.

Friday, June 19

Friday, silent night for: ATO, CHIC, CHNC, CHYC, CKAC, KFKU, KFKX, KFMQ, KGO, KLOS, KWZ, WBBR, WCBQ, WEDQ, WFBW, WFI, WGBS, WHAZ, WKAC, WKRC, WLW, WOI, WRBC, WRC, WREO, WSAI, WSUI, WTAM.

Atlantic or Eastern Daylight Saving Time Stations

CNRA, Moncton, Canada (315), 8:30 p. m., Sellsbury Cornet band, male chorus, Harry N. Crandall, director; Dorothy Mitton, pianist; CNRA orchestra.

WAHG, Richmond Hill, N. Y. (315.6), 7:30 p. m., sport talk, Thornton Fisher; 8, Ted Snyder, Bill Hines; 8:15, Adelaide Travers, contralto; 8:30, M. Lamberti, cellist; 9, Ted Snyder, Bill Hines; 9:15, Adelaide Travers, contralto; 9:30, Ascinto Brothers dance orchestra.

WCAE, Pittsburgh, Pa. (461.3), 6:30 p. m., dinner concert, William Penn hotel; 8:30, Keystone male chorus, WCAU, Philadelphia, Pa. (247), 8 p. m., Hotel Pennsylvania Interfraternity orchestra; 8:30, Charles Verma's dance orchestra; 8, recital; 9:10, "What We See and Hear in Music," talk by Maude Hanson Pettit; 10:30, Charles Verma's dance orchestra.

WEAF, New York, N. Y. (492), 4 p. m., Mabel Barr, soprano; Frankie Barr, contralto; 4:10, Elizabeth Bond, pianist; 4:25, Mabel Barr soprano, Frankie Barr, contralto; 4:35, Elizabeth Bond, pianist; 4:45, "Goldfish," Ida M. Miller; 6, dinner music, Rose Room, Hotel Waldorf-Astoria; 7, "Authoring," Louis Joseph Vance; 7:15, James McKinley Ruse, tenor; 7:30, "Sir Hologuin and the Magic Circle," Blanche Elizabeth Wade; 7:45, Voe Lavinhurst; 8, the Happiness Candy Boys; 8:30, Maple Neutrodyne trio; 9, Father's Day program; 9:30, "Advertising and the Public," Charles C. Green; 9:40, Caroline Moffett, soprano; Chester Moffett, baritone; 9:50, Sol Deutsch, pianist; 10:05, Adele Rosenthal, pianist; 10:20, Caroline and Chester Moffett; 10:35, Sol Deutsch, violinist; 10:45, Adele Rosenthal, pianist; 11-12, dance orchestra.

WEEI Boston, Mass. (475.9), 6:30 p. m., Big Brother club; 7:30, Whiting Milk company; 8, Neapolitan Ice Cream company; 8:30, organ recital, Boston Chamber of Commerce; 9, Gray Gables quintet; 10, Broderick's orchestra.

WFI, Philadelphia, Pa. (394.5), 3 p. m., Caroline Hoffmann, pianist; 6:30, Meyer Davis concert orchestra; 7, bedtime stories.

WGBS, New York, N. Y. (315.6), 6 p. m., Uncle Gee Bee; 6:15, the Harolmans.

WGR, Buffalo, N. Y. (319), 2:00-4:30 p. m., WGR's 15-noon program, J. Erdman, director; 7-7:30, Winger's Crescent Park Entertainers; 9-10:30, Nuttner's orchestra; 10:30-11, Mona M. Roff featured in a voice, violin and piano recital; 11, supper-dance music, Vincent Lopez' Hotel Staller dance orchestra, Harold Gieser, director.

WHN, New York, N. Y. (361.2), 6:30 p. m., Murray Lindy, concert; 7, Harry Richman and his Entertainers; 7:30, health talk, Dr. Landis; 9:15, Estelle Grossman, pianist; 9:30, Clover Gardens' entertainment; 10, old time medleys, Fitzpatrick Bros.; 10:10, Jimmy Clarke and his Entertainers; 10:30, Roseland dance orchestra; 11:30, Club Alabam orchestra; 12-12:30 a. m., Parody club revue.

WIP, Philadelphia, Pa. (508.2), 3 p. m., Sounds of the Surf; 7:30, Comfort's philharmonic orchestra; 8:05, Benjamin Franklin concert orchestra; 7, Uncle Wip's bedtime stories.

WJAR, Providence, R. I. (30.5), 8 p. m., musical program; 9, Maine Creamery hour; 11, Providence Biltmore hotel orchestra.

WJZ, New York, N. Y. (455), 8:15 p. m., Wurlitzer musical; 9:45, Matfield trio.

WLIT, Philadelphia, Pa. (394.5), 7:30 p. m., Dream Daddy's bedtime stories; 8:15, Mrs. Wilson's quartet; 8:45, Emmet Welch's minstrel; 9:30, Ethel Richter Wilson, soprano; Alice Fidler Decker, contralto; Frank Oglesby, tenor; Arthur Seyonour, bass; 10, Ar-

Central Standard Time Stations

CKY, Winnipeg, Canada (384.4), 8:30 p. m., lectures; 8:45, concert.

KFDM, Beaumont, Texas (315.6), 7-7:30 p. m., Children's program; 8-10:30, Magnolia Petroleum company's refinery band.

KFNF, Shenandoah, Iowa (266), 7:30 p. m., Hawaiian music, Hugh Emert.

KSO, St. Louis, Mo. (545.1), 7:30 p. m., commence hour, John Henry, accordionist; Bartlett and Cantillon; 8, program.

KTHS, Hot Springs National Park, Ark. (374.8), 9:10 p. m., Meyer Davis instrumental quartet.

WBAP, Fort Worth, Texas (475.9), 7:30-8:30 p. m., musicale; 9:30-10:45, musicale.

WCCO, Minneapolis-St. Paul, Minn. (410.4), 6 p. m., baseball; 8:15, dinner concert, Original George Osborn's Nicolet hotel orchestra; 8, musicale; 9, baseball; 10, Arnold Frank's St. Paul hotel orchestra.

WDAF, Kansas City, Mo. (365.6), 6-7 p. m., literary

(Continued on page 14)

An Evening at Home with the Listener In

(FOR PACIFIC TIME)

STATIONS IN ORDER OF WAVE LENGTHS USED

Meters	Call	Meters	Call	Meters	Call	Meters	Call	Meters	Call	Meters	Call
226	WBBM	275	KFKU	315.6	KFDM	361.2	KGO	405.2	WJY	468.5	WCAP
226	WBO	275	WAHL	315.6	WAHG	361.2	WHN	405.2	WOR	468.5	WRC
233	WBJ	275	WHAD	315.6	WGBS	365.6	WDAF	406	WBAR	475.9	WBAP
240	KFAB	275	WHAR	319	WGR	365.6	WHB	410.7	CKAC	475.9	WEEKI
240	KFVB	275	WORD	319	WSMB	370	CYB	416.4	WCCO	475.9	WFAA
240	WOAX	275.3	WJAS	322.4	KOA	370.2	WEBB	421	KIAP	480	CYL
243.8	WAMD	278	WLBL	325.9	WSAI	370.2	WGN	422.3	WLW	483.6	WOC
248	WCAU	278	WRBC	330	CYN	374.8	KTHS	428.3	WSB	483.6	WSUI
250	WGES	280.2	WNAC	333.3	WRZ	379.5	WGY	434.5	CNRO	491.5	WEAF
250	WMBR	285.5	WKAR	336.9	KPMX	379.5	WHAZ	428.3	KPO	491.5	WMC
252	KFWB	285.5	WREO	336.9	WCAL	384.4	CKY	434.5	NAA	499.2	KLX
261	KFWA	285.5	KPKX	336.9	WSAC	384.4	KJR	434.5	NAA	499.2	KLX
261	KSL	288.3	WFO	339.9	KNX	384.4	WMBF	435	AT9	508.2	WIP
265.5	WMAK	293.9	KJS	340.7	WKAQ	389.4	WEAR	435.5	CFCN	508.2	WIP
266	KPNT	293.9	WBAY	340.7	WMCA	389.4	WTAM	440.9	WDWF	508.2	WOO
266	WBCN	293.9	WFAO	344.6	WCBP	391.5	KFRU	440.9	WOS	516.9	CJCA
268	WFRW	299.8	KFMQ	344.6	WLS	394.5	WFI	447.5	WMAQ	516.9	WCX
270	WGST	299.8	WPG	348.6	KFAE	394.5	WLIT	447.5	WQJ	526	WHO
270	WOI	302.8	WJJD	348.6	KOB	394.5	WOAI	454.3	KFOA	526	WNYC
272.6	WBBR	302.8	WTAS	348.6	WVIC	399.8	WHAS	454.3	WJZ	535.4	KYW
272.6	WFRH	305.9	WJAR	352.7	WWJ	399.8	WHT	455	KTV	535.4	KYW
273	WRW	309.1	KDKA	356.9	CFCF	400	PWX	461.3	WCAR	545.1	KFUD
275	KFAU	313	CNRA	356.9	CHNC	405.2	KHJ	467	KPI	545.1	KSD

INSTRUCTIONS FOR USE OF TABLES

THE "Evening at Home with the Listener In" table is not difficult to understand and use. It is this fact that makes it so popular with the readers of Radio Digest. It is presented here in three different standard times; Eastern, Central and Pacific. Listeners using one of the three kinds of time named, should utilize the table printed in that time and so designated by its headline.

For listeners whose standard of time is not shown here, the following instructions should be remembered:

Listeners using **Mountain time**: Use table for Pacific time but add one hour to every figure given. Can also use Central time table by subtracting one hour from every figure given.

Listeners using **Eastern daylight saving, or Atlantic time**: Use Eastern time table by adding one hour to every figure given.

Listeners using **Central daylight saving time**: Use Eastern time table. No changes are necessary.

The periods given in the "Evening at Home" tables are only representative of each station's evening sign-on and sign-off hours, and on Sunday, the late afternoon sign-on and sign-off. If a station has an intermittent rather than continuous program, the table cannot show this.

Above is given a list of all stations in the "Evening at Home" tables, arranged in order of the wave lengths used (or supposed to be used) by the stations. This arrangement provides a handy index for the other tables.

The "Evening at Home" tables are corrected every week. The number of changes often run as high as thirty per cent of the whole. Keep the "Evening at Home" tables from the current issue at the side of your receiver.

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Friday, June 19

(Continued from page 13)

talk, H. Clay Harvey; address, Kansas City Children's bureau; Tell-Me-a-Story Lady; Plantation players; 8-10, golf lesson; 11:15-1, Merry Old Chief; Plantation players, Johnnie Campbell's Kansas City club orchestra.

WFAA, Dallas, Texas (475.9), 6:30-7:30 p. m., Roy Ledbetter and his orchestra; 8:30-9:30, musical program, W. D. DeBorde and assisting Dallas musicians.

WHA, Madison, Wis. (535.4), 7:15 p. m., alumni address, George I. Haight of 1899; William P. Powers, class of 1890.

WHAO, Milwaukee, Wis. (275), 6-7 p. m., organ recital; 8:30-10, Wisconsin Quater weekly revue.

WHAS, Louisville, Ky. (399.8), 7:30-9 p. m., orchestra, club, Louisville and Jefferson County Children's home; talk, George A. Colvin, superintendent.

WHO, Des Moines, Iowa (520), 7:30-9 p. m., Des Moines Post Office band; 11-12, Beese-Hughes orchestra.

WMC, Memphis, Tenn. (499.7), 8:30 p. m., Britling Novelty orchestra; 11, Bob Miller's orchestra.

WOAN, Lawrenceburg, Tenn. (262.8), 12:15-12:45 p. m., Vaughan Radio orchestra; 3-4, Vaughan Radio orchestra; Vaughan Recording music quartet.

WOAW, Omaha, Neb. (526), 6:20 p. m., baseball; 8:30, orchestra; 7-10, sport events, Ivan L. Gault; D. program, "Seeing by Radio Television Covered by the Burlington Route," Dr. G. R. Gendry; 10:30, Brandeis tea room orchestra.

WOC, Davenport, Iowa (493.6), 8 p. m., baseball scores; 8:30-9:50, Sandman's vlad, Val McLaughlin; 7:30-7:50, "Current Agricultural News Digest"; "Club Winners in Iowa," National Radio Farm council; 8-9, W. L. Wright, reader; John Wilson, entertainer; Jeanette Drewbaker, soprano; Ted Sloan, baritone.

WOS, Jefferson City, Mo. (449.8), 8 p. m., rendition of Missouri Romps; musical program, Mrs. Carter F. Enloe, director.

WSB, Atlanta, Ga. (428.3), 8-9 p. m., entertainment; 10-12, Radio entertainment.

WSMR, New Orleans, La. (319), 8:30-7:30 p. m., dinner musicale; baseball.

Mountain Standard Time Stations

CNRE, Edmonton, Can. (515.9), 6 p. m., dinner program, Macdonald hotel; 8:30, Dennis Clayton, pianist; E. J. Casely, bass; Wilfred Cooper, Lloyd Brown, Hawaiian Melody Boys; Sydney Keeling, baritone; Mrs. S. Keeling, pianist; Gladys Brown, soprano.

KOA, Denver, Colo. (322.4), 8 p. m., Fred Schmidt and his Hullo theater orchestra; 8:10, Howard Warden, cornetist; comic readings, Grace June Freese; "Personality," S. W. Ashe; KOA orchestra; vocal duets, Edwina Bush, contralto; Florence Ethel Reed, soprano; Hove Mary Whitney Carpenter, pianist; "The Glitter of the Goldbrick," Charles B. Enloe.

Pacific Standard Time Stations

KFI, Los Angeles, Calif. (467), 6:30 p. m., Examiner's musical minutes; 8, McFarland's nightly duets; 6:45, radiodrama, "The Examiner," program arranged by Leonard Bohling; 8, Ardian residence pipe organ studio, Dan McFarland, organist; 9, an hour of American folk songs and humorous sketches, arranged by George Frenger; 10, vocal recital, arranged by John Smallman.

WQJ CELEBRATES FIRST BIRTHDAY

Celebrities Talk and Entertain as Telegrams Flood Popular Middle West Station

CHICAGO.—If a birthday party presages anything of a station's popularity, WQJ at Chicago has gleaned its full measure.

More than 100 artists and entertainers, well-known judges, civil, state and government officials, and fully a thousand fans attended when the Rainbo Gardens-Calamet Baking Powder station celebrated its first year on the air.

The program began at ten in the evening and continued until daylight. It was under the direction of Announcer Jerry Sullivan, who, between handshakes and the reading of telegrams of congratulations, led the speakers and entertainers to the microphones, where they talked and sang for the thousands who tuned in the celebration.

Celebrating her birthday with that of the station was Doris Ann Donovan, the official mascot, who was born on the precise hour WQJ first took to the air. Thousands of telegrams and flowers from all parts of the country flooded the station, sent by the fans who were unable to attend personally. To complete the birthday party effect a studio party was given for the artists and friends in an adjoining suite of rooms.

All About 6XAD and 6ZW!

CATALINA ISLAND, Calif.—In order to answer the thousands of queries that have been received asking who and what and where is 6XAD and 6ZW, Major Lawrence Mott, Signal Corps, O. R. C. has made public the fact that he is and will continue to do a great deal of experimental work with voice and music working with the above call letters.

Clark Named Radio Aid

SEATTLE.—Kenneth G. Clark has been appointed assistant to O. R. Redfern, supervisor of Radio, seventh district. For the last two months, Mr. Redfern has been without assistance, although the work is very heavy.

Call	Met.	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Met.	Call
AT9	435	Silent	3:00-4:00	Silent	Silent	Silent	5:00-7:55	Silent	435	AT9
CFCA	356.9	Silent	4:00-5:00	Silent	5:15-6:15	5:15-6:15	Silent	Silent	356.9	CFCA
CFGN	434.5	9:00-11:00	Silent	Silent	Silent	Silent	7:00-8:00	Silent	434.5	CFGN
CHNC	356.9	Silent	Silent	5:30-6:30	Silent	Silent	Silent	Silent	356.9	CHNC
CJCA	518.9	8:00-10:00	6:30-7:30	8:30-9:30	6:30-7:00	5:00-7:00	8:00-10:00	7:00-11:00	518.9	CJCA
CKAC	410.7	4:00-5:30	1:30-2:30	Silent	4:30-5:30	Silent	4:30-5:30	Silent	410.7	CKAC
CKY	384.4	Silent	5:00-6:45	Silent	5:30-8:00	Silent	6:00-7:00	5:30-8:00	384.4	CKY
CNRA	313	Silent	Silent	Silent	6:00-7:30	Silent	Silent	4:00-5:30	313	CNRA
CNRO	434.5	4:30-5:30	Silent	Silent	Silent	1:30-2:30	Silent	Silent	434.5	CNRO
CYB	370	8:15-9:45	Silent	Silent	Silent	Silent	Silent	Silent	370	CYB
CYL	480	Silent	Silent	Silent	8:00-9:30	Silent	Silent	8:00-9:30	480	CYL
CYX	330	Silent	Silent	7:15-8:30	Silent	Silent	Silent	7:15-8:45	330	CYX
KOKA	309.1	5:45-6:55	12:00-4:30	8:45-9:55	5:15-6:30	5:15-6:30	8:00-9:30	5:45-6:55	309.1	KOKA
KFAB	240	9:00-10:30	2:00-3:00	5:30-8:00	Silent	5:30-8:00	Silent	5:30-8:00	240	KFAB
KFAE	348.6	Silent	Silent	7:00-9:00	Silent	7:00-9:00	Silent	7:30-9:00	348.6	KFAE
KFAU	275	Silent	Silent	7:00-9:00	Silent	Silent	Silent	7:00-9:00	275	KFAU
KFDM	315.6	Silent	Silent	Silent	6:00-7:00	Silent	Silent	6:00-7:00	315.6	KFDM
KFI	467	6:15-12:30	4:00-11:00	6:45-11:00	6:45-11:00	6:45-11:00	6:45-11:00	6:45-11:00	467	KFI
KFKU	275	Silent	Silent	4:30-6:00	Silent	Silent	Silent	4:50-6:00	275	KFKU
KFKX	289.3	Silent	Silent	7:30-9:00	Silent	Silent	Silent	7:30-9:00	289.3	KFKX
KFMQ	299.8	Silent	Silent	Silent	7:00-8:00	Silent	5:30-6:30	Silent	299.8	KFMQ
KFNX	338.9	Silent	5:00-8:00	Silent	8:00-9:00	Silent	Silent	Silent	338.9	KFNX
KFNB	268	3:30-5:30	4:30-8:00	5:30-8:30	Silent	5:30-6:30	5:30-6:30	5:30-6:30	268	KFNB
KFOA	454.3	8:00-11:30	Silent	6:00-10:00	6:00-11:30	6:00-11:30	Silent	8:00-11:30	454.3	KFOA
KFRU	394.5	5:30-10:00	3:00-5:00	5:00-8:30	6:30-10:00	6:30-10:00	6:30-9:30	9:00-11:00	394.5	KFRU
KFUO	545.1	Silent	7:15-8:15	Silent	Silent	Silent	7:15-8:15	Silent	545.1	KFUO
KFVE	240	8:00-10:00	Silent	8:00-10:00	8:00-10:00	8:00-10:00	Silent	8:00-10:00	240	KFVE
KFWA	261	Silent	8:00-9:00	8:00-9:00	8:00-9:00	8:00-9:00	Silent	8:00-9:00	261	KFWA
KFWB	252	7:00-11:00	0:00-11:00	6:20-11:00	7:45-11:00	7:00-11:00	7:00-11:00	7:00-11:00	252	KFWB
KGO	361.2	9:00-1:00	3:30-6:00	8:00-1:00	Silent	8:00-1:00	Silent	8:00-1:00	361.2	KGO
KGW	491.5	6:00-12:30	7:30-10:00	6:00-7:00	9:00-12:00	6:00-11:00	8:00-12:00	9:00-12:00	491.5	KGW
KHJ	405.2	6:30-11:00	0:00-11:00	6:00-7:30	5:30-11:00	5:30-11:00	5:30-11:00	5:30-11:00	405.2	KHJ
KIAP	421	Silent	2:00-3:00	7:00-8:00	Silent	7:00-8:00	Silent	7:00-8:00	421	KIAP
KJR	384.4	Silent	7:00-8:00	6:00-10:00	Silent	8:30-10:00	10:30-12:00	8:30-10:00	384.4	KJR
KJS	293.9	Silent	7:15-9:30	Silent	8:00-9:00	Silent	8:00-9:00	Silent	293.9	KJS
KLX	508.2	Silent	Silent	0:00-11:00	Silent	0:00-11:30	Silent	6:00-10:30	508.2	KLX
KNX	336.9	6:30-2:00	5:00-12:00	6:30-12:00	6:30-12:00	7:00-12:00	0:30-12:00	6:30-2:00	336.9	KNX
KOA	322.4	8:00-11:00	3:30-7:30	7:00-8:00	Silent	7:00-11:00	Silent	7:00-8:00	322.4	KOA
KOO	348.8	Silent	Silent	6:20-7:30	Silent	Silent	Silent	6:20-7:30	348.8	KOO
KPO	428.3	4:25-12:30	6:30-10:00	8:30-11:00	0:20-11:00	6:30-11:00	6:30-11:00	7:00-11:00	428.3	KPO
KSO	545.1	5:00-7:30	Silent	7:00-9:00	4:30-6:30	5:00-6:00	Silent	6:30-8:00	545.1	KSO
KSL	261	7:00-10:00	8:00-10:00	7:00-10:00	8:00-10:00	7:00-10:00	7:00-10:00	8:00-10:00	261	KSL
KTHS	374.8	6:30-8:00	6:30-9:00	6:30-8:00	6:30-8:00	6:30-8:00	6:30-8:00	6:30-8:15	374.8	KTHS
KTW	435	Silent	7:00-9:30	Silent	Silent	Silent	Silent	Silent	435	KTW
KYW	535.4	1:00-10:30	1:00-5:00	Silent	4:00-8:30	4:00-10:30	4:00-10:30	4:00-10:30	535.4	KYW
NAA	499.2	Silent	Silent	4:45-5:00	Silent	4:25-5:40	4:35-5:00	4:15-5:00	499.2	NAA
PWX	489	5:30-8:00	Silent	Silent	Silent	Silent	Silent	Silent	489	PWX
WABL	275	Silent	Silent	1:00-9:00	Silent	4:00-6:00	Silent	4:00-6:00	275	WABL
WAHG	315.5	9:00-11:00	Silent	4:00-10:00	Silent	5:30-8:00	Silent	4:00-7:30	315.5	WAHG
WAMD	243.8	8:00-9:00	12:00-8:00	Silent	8:00-9:00	8:00-9:00	8:00-9:00	8:00-9:00	243.8	WAMD
WBAP	473.0	5:00-6:00	9:00-10:00	5:30-10:00	6:30-8:15	5:30-8:15	5:30-8:15	5:30-8:15	473.0	WBAP
WBAR	406	Silent	8:00-9:00	7:00-8:00	Silent	6:00-7:00	Silent	6:00-7:00	406	WBAR
WBAV	293.9	Silent	Silent	5:00-7:00	Silent	Silent	Silent	5:00-6:00	293.9	WBAV
WBBM	226	8:30-9:00	1:00-7:00	Silent	5:00-9:00	5:00-9:00	5:00-9:00	5:00-9:00	226	WBBM
WBBR	272.6	4:00-4:45	3:00-6:05	4:00-4:30	Silent	Silent	4:00-4:50	Silent	272.6	WBBR
WBCN	268	6:00								

An Evening at Home with the Listener In

(FOR CENTRAL TIME)

(Tabular form and listings copyrighted. Reproduction is forbidden.)

(FOR EASTERN TIME Or Cities Using Central Daylight Saving Time)

Call	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Call	Location	Met.	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Call	
AT9	Silent	5:00-6:00	Silent	Silent	Silent	7:00-8:55	Silent	AT9	Fair Bragg, N. C.	435	Silent	6:00-7:00	Silent	Silent	Silent	8:00-9:55	Silent	AT9	
CFCA	Silent	6:00-7:00	Silent	7:15-8:15	7:15-8:15	7:15-8:15	Silent	CFCA	Toronto, Ont.	356.9	Silent	7:00-8:00	Silent	8:15-9:15	8:15-9:15	10:00-11:00	Silent	CFCA	
CHNC	Silent	Silent	7:30-8:30	Silent	Silent	Silent	Silent	CHNC	Toronto, Ont.	356.9	Silent	Silent	8:30-9:30	Silent	Silent	Silent	Silent	CHNC	
CJCA	10:00-12:00	8:30-9:30	8:30-10:30	8:30-9:00	7:00-9:00	10:00-12:00	9:30-12:00	CJCA	Edmonton, Can.	516.9	11:00-1:00	9:30-10:30	8:30-11:30	9:30-10:30	8:00-10:00	11:00-1:00	10:30-1:00	CJCA	
CKAC	3:30-4:30	Silent	Silent	5:30-9:30	Silent	6:30-7:30	Silent	CKAC	Montreal, Que.	410.7	6:30-10:30	Silent	Silent	6:30-10:30	Silent	7:30-8:30	Silent	CKAC	
CKY	Silent	7:00-8:45	Silent	7:30-10:00	Silent	8:00-9:00	7:30-10:00	CKY	Winnipeg, Man.	384.4	Silent	8:00-9:45	Silent	8:30-11:00	Silent	9:00-10:00	8:30-11:00	CKY	
CNRA	Silent	Silent	Silent	6:30-7:30	Silent	Silent	6:30-7:30	CNRA	Moncton, Can.	313	Silent	Silent	Silent	7:30-8:30	Silent	Silent	7:30-8:30	CNRA	
CNRO	6:30-11:30	Silent	Silent	Silent	6:30-11:30	Silent	Silent	CNRO	Ottawa, Ont.	434.5	7:30-12:30	Silent	Silent	Silent	7:00-12:30	Silent	Silent	CNRO	
CYB	10:30-11:45	Silent	Silent	8:15-10:15	Silent	Silent	Silent	CYB	Mexico City, Mex.	370	11:30-12:45	Silent	Silent	10:15-11:15	Silent	Silent	Silent	Silent	CYB
CYL	Silent	Silent	Silent	10:00-11:30	Silent	Silent	Silent	CYL	Mexico City, Mex.	480	Silent	Silent	Silent	11:00-12:30	Silent	Silent	11:00-12:30	CYL	
CYX	Silent	Silent	9:15-10:30	Silent	Silent	Silent	10:15-10:15	CYX	Mexico City, Mex.	330	Silent	Silent	10:15-11:30	Silent	Silent	Silent	10:15-11:45	CYX	
KOKA	7:45-8:55	2:00-6:30	7:45-8:55	7:45-10:30	7:45-8:55	7:00-10:30	7:45-8:55	KOKA	Pittsburgh, Pa.	309.1	8:45-9:55	3:00-7:30	8:45-9:55	8:45-9:55	8:45-9:55	8:00-11:30	8:45-9:55	KOKA	
KFAB	11:00-12:30	4:00-5:00	7:30-10:00	Silent	7:30-10:00	Silent	7:30-9:30	KFAB	Lincoln, Neb.	240	12:00-1:30	5:00-6:00	8:30-11:00	Silent	8:30-11:00	Silent	8:30-10:30	KFAB	
KFAE	Silent	Silent	9:30-11:00	Silent	9:30-11:00	Silent	Silent	KFAE	Pullman, Wash.	348.6	Silent	Silent	10:30-13:00	Silent	10:30-13:00	Silent	10:30-12:00	KFAE	
KFAU	Silent	Silent	9:00-10:00	Silent	9:00-10:00	Silent	Silent	KFAU	Baile, Idaho	275	Silent	Silent	10:00-11:00	Silent	Silent	Silent	10:00-11:00	KFAU	
KFOM	Silent	Silent	Silent	8:00-9:00	Silent	Silent	Silent	KFOM	Beaumont, Texas	315.8	Silent	Silent	Silent	9:00-10:00	Silent	Silent	9:00-10:00	KFOM	
KFI	8:45-2:00	0:00-1:00	8:45-1:00	8:45-1:00	8:45-1:00	8:45-1:00	8:45-1:00	KFI	Los Angeles, Calif.	467	9:45-2:00	7:00-2:00	9:45-2:00	9:45-2:00	9:45-2:00	9:45-2:00	9:45-2:00	KFI	
KFKU	Silent	Silent	6:50-8:00	Silent	Silent	6:50-8:00	Silent	KFKU	Lawrence, Kan.	275	Silent	Silent	7:50-9:00	Silent	Silent	7:50-9:00	Silent	KFKU	
KFKX	Silent	Silent	9:30-11:00	Silent	Silent	9:30-11:00	Silent	KFKX	Hastings, Neb.	288.3	Silent	Silent	10:30-12:00	Silent	Silent	10:30-12:00	Silent	KFKX	
KFMQ	Silent	Silent	Silent	9:00-10:00	Silent	7:30-8:30	Silent	KFMQ	Fayetteville, Ark.	299.8	Silent	Silent	Silent	10:00-11:00	Silent	6:30-9:30	Silent	KFMQ	
KFNX	Silent	7:00-8:00	Silent	10:00-11:00	Silent	10:00-11:00	Silent	KFNX	Northfield, Minn.	338.9	Silent	6:00-9:00	Silent	11:00-12:00	10:00-11:00	Silent	Silent	KFNX	
KFNK	7:30-8:30	6:30-10:00	7:30-8:30	Silent	7:30-8:30	7:30-8:30	7:30-8:30	KFNK	Shonandaob, Ia.	206	8:30-9:30	7:30-11:00	8:30-9:30	8:30-9:30	8:30-9:30	8:30-9:30	8:30-9:30	KFNK	
KFOA	8:00-1:30	Silent	8:00-12:00	8:00-1:30	8:00-12:00	Silent	8:00-1:30	KFOA	Seattle, Wash.	454.3	0:00-2:30	Silent	9:00-2:00	9:00-2:30	9:00-2:30	9:00-2:30	9:00-2:30	KFOA	
KFRU	7:00-12:00	4:00-7:00	7:00-12:00	7:00-12:00	7:00-12:00	10:30-11:30	11:00-1:00	KFRU	Brislow, Okla.	394.5	8:30-1:00	6:00-8:00	8:00-11:30	8:00-11:30	8:00-11:30	11:30-12:30	12:00-2:00	KFRU	
KFUO	Silent	0:15-10:15	Silent	Silent	8:15-10:15	Silent	Silent	KFUO	St. Louis, Mo.	545.1	Silent	10:15-11:15	Silent	Silent	10:15-11:15	Silent	Silent	KFUO	
KFVE	10:00-12:00	Silent	10:00-12:00	10:00-12:00	10:00-12:00	Silent	Silent	KFVE	University City, Mo.	240	11:00-1:00	Silent	11:00-1:00	11:00-1:00	11:00-1:00	Silent	11:00-1:00	KFVE	
KFWA	Silent	10:00-11:00	10:00-11:00	10:00-11:00	10:00-11:00	Silent	Silent	KFWA	Ogden, Utah	251	Silent	11:00-12:00	11:00-12:00	11:00-12:00	11:00-12:00	11:00-1:00	11:00-1:00	KFWA	
KFWB	9:00-1:00	11:00-1:00	8:30-1:00	0:45-1:00	0:00-1:00	0:00-1:00	0:00-1:00	KFWB	Hollywood, Calif.	262	10:00-2:00	12:00-2:00	9:30-2:00	10:35-2:00	10:00-2:00	10:00-2:00	10:00-2:00	KFWB	
KGO	10:00-3:00	3:30-11:00	10:00-3:00	10:00-3:00	10:00-3:00	Silent	10:00-3:00	KGO	Oakland, Calif.	361.2	11:00-4:00	0:30-12:00	11:00-4:00	11:00-4:00	11:00-4:00	11:00-4:00	Silent	KGO	
KGW	8:00-2:00	9:00-13:00	8:00-2:00	11:00-2:00	10:00-1:00	11:00-2:00	11:00-2:00	KGW	Portland, Ore.	491.5	9:00-3:00	10:30-1:00	9:00-1:00	12:00-3:00	11:00-2:00	11:00-3:00	12:00-3:00	KGW	
KHJ	7:30-1:00	8:00-1:00	9:00-3:30	7:30-1:00	7:30-1:00	7:30-1:00	7:30-1:00	KHJ	Los Angeles, Calif.	405.2	8:30-2:00	9:00-2:00	10:00-1:30	8:30-2:00	8:30-2:00	8:30-2:00	8:30-2:00	KHJ	
KIAF	Silent	4:00-5:00	9:00-10:00	Silent	9:00-10:00	Silent	Silent	KIAF	Sihlhopk, Minn.	421	Silent	3:00-4:00	8:00-9:00	Silent	8:00-9:00	Silent	8:00-9:00	KIAF	
KJRF	Silent	6:00-10:00	6:00-10:00	Silent	10:20-12:00	12:30-2:00	10:30-12:00	KJRF	Seattle, Wash.	384.4	Silent	10:00-11:00	9:00-1:00	Silent	11:30-1:00	1:30-3:00	1:30-3:00	KJRF	
KJS	Silent	0:15-11:30	Silent	10:00-11:00	Silent	Silent	Silent	KJS	Los Angeles, Calif.	293.9	Silent	10:15-12:30	Silent	11:30-12:00	Silent	11:00-12:00	Silent	KJS	
KLX	Silent	8:00-1:00	8:00-1:00	Silent	8:00-1:00	8:00-2:00	8:00-2:00	KLX	Oakland, Calif.	508.2	Silent	Silent	9:00-2:00	9:00-2:30	10:00-3:00	9:30-3:00	9:30-3:00	KLX	
KNX	8:30-4:00	7:00-1:00	8:30-2:00	8:30-2:00	9:00-2:00	8:30-4:00	8:30-4:00	KNX	Hollywood, Calif.	338.9	9:30-5:00	8:00-2:00	9:30-3:00	9:30-3:00	10:00-3:00	9:30-3:00	9:30-5:00	KNX	
KOA	10:00-1:00	5:30-9:30	10:00-1:00	Silent	10:00-1:00	Silent	Silent	KOA	Conor, Colo.	322.4	11:00-2:00	6:30-10:30	10:00-11:00	Silent	10:00-2:00	Silent	10:00-11:00	KOA	
KOB	Silent	Silent	8:30-9:30	Silent	Silent	Silent	Silent	KOB	St. Louis, Mo.	345.6	Silent	Silent	9:30-10:30	Silent	Silent	Silent	9:30-10:30	KOB	
KPO	8:25-2:00	8:30-12:00	8:30-1:00	8:30-1:00	8:30-1:00	8:30-1:00	8:30-1:00	KPO	San Francisco, Calif.	428.3	9:25-3:00	9:30-1:00	9:30-2:00	9:30-2:00	9:30-2:00	9:30-2:00	10:00-2:00	KPO	
KSO	7:00-9:30	10:00-12:00	9:00-11:00	6:30-8:30	7:00-9:00	7:30-10:00	7:30-10:00	KSO	St. Louis, Mo.	545.1	8:00-10:30	Silent	10:00-12:00	7:30-9:30	8:00-9:00	Silent	8:30-11:00	KSO	
KSL	9:00-13:00	10:00-12:00	9:00-12:00	10:00-12:00	9:00-12:00	9:00-12:00	9:00-12:00	KSL	Salt Lake City, Utah	261	10:00-1:00	11:00-1:00	10:00-1:00	10:00-1:00	10:00-1:00	10:00-1:00	11:00-1:00	11:00-1:00	KSL
KTIS	8:30-10:00	8:30-11:30	8:30-10:00	8:30-10:00	8:30-10:00	8:30-10:00	8:30-10:15	KTIS	Hot Springs, Ark.	374.8	9:30-11:00	9:30-12:30	9:30-11:00	9:30-11:00	9:30-11:00	9:30-11:00	9:30-11:15	9:30-11:15	KTIS
KTW	Silent	0:00-11:30	Silent	Silent	0:00-12:30	6:00-10:30	6:00-12:30	KTW	Seattle, Wash.	435	Silent	10:00-12:30	Silent	Silent	Silent	Silent	Silent	KTW	
KYW	6:00-12:30	3:00-7:00	Silent	6:00-10:30	0:00-12:30	6:00-10:30	6:00-12:30	KYW	Chicago, Ill.	635.4	7:00-1:30	4:00-8:00	Silent	7:00-11:30	7:00-1:30	7:00-1:30	7:00-1:30	7:00-1:30	KYW
NAA	Silent	Silent	8:45-7:00	0:45-7:00	6:25-7:40	6:45-7:00	6:45-7:00	NAA	Radio, Va.	434.5	Silent	Silent	7:45-8:00	7:45-8:00	7:25-8:40	7:45-8:00	7:45-8:00	NAA	
PWX	7:30-10:00	Silent	Silent	7:30-10:00	Silent	Silent	Silent	PWX	Havana, Cuba	400	8:30-11:00	Silent	Silent	Silent	8:30-11:00	Silent	Silent	PWX	
WABL	Silent	Silent	0:00-8:00	Silent	6:00-8:00	6:00-8:00	6:00-8:00	WABL	Starrs, Conn.	275	Silent	Silent	7:00-9:00	Silent	7:00-9:00	Silent	7:00-9:00	WABL	
WABG	11:00-1:00	Silent	0:00-12:00	Silent	5:30-10:00	6:00-9:30	6:00-9:30	WABG	Richmond, N. Y.	315.6	12:00-2:00	Silent	7:00-1:00	Silent	6:30-11:00	Silent	7:00-10:30	7:00-10:30	WABG
WAMO	10:00-11:00	2:00-10:00	10:00-11:00	10:00-11:00	10:00-11:30	10:00-11:30	10:00-11:30	WAMO	Minneapolis, Minn.	243.8	11:00-12:00	8:00-11:00	Silent	11:00-12:00	11:00-12:00	11:00-12:00	11:00-12:00	11:00-12:00	WAMO
WBP	7:00-8:00	11:00-12:00	7:30-12:00	7:30-10:45	7:30-10:45	7:30-10:45	7:30-10:45	WBP	Fair Worth, Tex.	475.9	8:00-9:00	12:00-1:00	8:30-2:00	8:30-2:00	8:30-11:45	8:30-11:45	8:30-11:45	8:30-11:45	WBP
WBAR	Silent	10:00-11:00	10:00-10:00	Silent	8:00-9:00	7:30-8:30	Silent	WBAR	Siloh, W. Va.	406	Silent	11:00-12:00	10:00-11:00	Silent	9:00-10:00	8:30-9:30	Silent	8:30-9:30	WBAR
WBAV	Silent	Silent	7:00-9:00	Silent	Silent	Silent	Silent	WBAV	Columbus, O.	293.9	Silent	Silent	Silent	Silent	Silent	Silent	Silent	WBAV	
WBBM	7:00-11:00	8:00-9:00	Silent	7:00-11:00	7:00-9:00	7:00-11:00	7:00-9:00	WBBM	Chicago, Ill.	226	8:00-12:00	4:00-10:00	Silent	8:00-12:00	8:00-10:00	8:00-12:0			

Radio Digest

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"Clearing Up the Air"

EDITORIAL writers of the daily newspapers are usually considered to be mirrors of public opinion. As such it gives this publication great pleasure to know that the editorial columns of many dailies are now aiding the Radio Digest fight for less broadcast congestion and a logical plan for the regulation of the field.

Comes a clipping from the Beaumont (Texas) Enterprise of a recent editorial under the heading, "Clearing up the Air." The writer has made a careful analysis of the situation, so careful in fact that we are glad to reprint the editorial in full. It follows:

"Radio Digest, one of the leading papers devoted to Radio interests, is endeavoring to secure a consensus that will enable Secretary Hoover and congress to formulate a plan whereby the fullest use of the air can be obtained by Radio broadcasters. The air is now so congested with broadcasting that it is well nigh impossible to get any program with any satisfaction. And the rapid increase in broadcasting stations holds out a threat of even worse conditions unless something is done.

"S. M. Kintner, a research engineer, has proposed a plan which has the approval of the Radio Digest and deserves the careful consideration of all who are interested in Radio. Basically, Mr. Kintner proposes that stations shall be divided into four classes. Class I will be the superstations; class II is for 500-watt stations; class III is for 100-watt stations. New stations would start in class IV and be promoted to the higher classes as they prove their worth and as vacancies occur.

"This plan commends itself in that it goes to the fundamentals of broadcasting. Promotions should be based upon merit and by a similar process of reason demotions should be brought about on the same basis. It is ridiculous for a station with an inferior program to hold the air against a station with a fine and interesting program. Under our present system or the lack of a system anyone with the money to provide a station could go on the air every night and beat a tin pan for a couple of hours to the exclusion of another station with a program of fine artists. There are stations in the air every night for two and three hours that should be restricted to two or three nights a week and then restricted further to half the time each evening.

"Radio traffic in the air is not unlike vehicular traffic on the highways. We would not long permit an oxcart to drag its way through a heavily congested street. We would not permit rowdies to break up an operatic performance. Why should we tolerate a broadcasting station that night after night monopolizes a valuable wave band to broadcast a wholly inferior program to the exclusion of a fine orchestra or a group of fine artists whom everybody wants to hear?

"We fancy that the ultimate regulation of the air will be to require the utmost economy in broadcasting useless noises, to require announcers to consume as little time as possible and program managers to offer something of real worth or else take a place where they cannot interfere with another station that can and will do all those things. Of course, that will call for a wide margin of discretion because people's tastes vary and we by no means intend to say that there should be discrimination as to degrees of excellence, but there is a line where all will agree entertainment ends and annoyance begins. There are many announcers in the United States who consume fully fifty per cent of the time with words that mean nothing and who by reason of ignorance and lack of culture do not know how to say a thing in the fewest words. We may not restrict them as to what they say, but we certainly could require them to exercise economy in words and say what they mean as quickly as possible."

In the last analysis the man is the one who must be taken into consideration. Without him the broadcast station is useless. He makes Radio. For this reason we must listen and try to do the things he says. The station men must keep in the background and try only to please the Radio customer just as any other sound business must.

RADIO INDI-GEST

THE SHOOTING OF SINGLE TUBE McGREW

IT SEEMS that a bunch of drug store cowboys were whooping it up in the Marnaduke Soft Drink Parlors when in walks a guy pretty well snozzled and orders a round of Eskimo Pies. Seeing as that was free, even One Tube McGrew took one. Then the guy sees the barkeep's Radio set on the piano and up he goes and clutches the dials with talon hands like as if a few more installments was due and the sheriff at the door. My Gawd, how that man could tune in! Ya see it was an awful clear night and fifty



"Gawd, how that man could tune in!"

below outside and atmospheric conditions just right for reception. Well, sir, he tuned in about everything—lecture on how to succeed in bookkeeping, zither duets, musical selections, it ain't goin' to rain no more, bedtime stories, out where the vest begins, Mrs. Schlagenhauer tunes out (we hope), beautiful isle of somewhere, has anybody here seen Kelly, after the storm, how d'ye do WLS how are you, At-lan-ta Gaw-gah, and now it's time for the World Crier, the Baldwin Grand, Rainbo Baking Powder station, time signals from the Naval Conservatory, it is now five thirty-nine, good night kiddies and don't let the little bugs bite, he is wanted for bootlegging and drives a Ford, this is our regular Lord's Day service, costs better worth less, Duncan Sisters and a song of a woman's love and true as the heaven is true (that one faded out, he couldn't keep it tuned in). Next he got some rough jazz and it got louder and louder and everybody was feeling pretty gay when he pulled the plug and the music stopped with a crash. Well, sir, old Dan couldn't just hold it any longer so he pipes up, "Shucks, tain't nothin', I can tune in Delhi, India, on the loud speaker with my little old single circuit, one tube set." Naturally this called for blood and the bird says, "one of you lies like H-e-ll and that one is Single Tube McGrew." Out goes the light—two shots—lights—two guys dead and the Lady known as Gloo all over them.



"Who pinched the 8 tubes—"

They called her Gloo because she always stuck around.

Well, sir, Officer Widlock claims the guy was lickered up with aldehyde and was no good anyhow he coming from Chicago, but the barkeep is wondering to this day who pinched the eight tubes out of his set when the lights were out.

Convulsing, isn't it?

Hoping you are the same,
THE THIRD TROMBONE PLAYER.

We were informed by the TROMBONE PLAYER this week in a letter that the Milwaukee Daily Beverage had installed a new plant and new bulletins would be forthcoming next week. The bulletins give a startling insight into the private life of the Milwaukee brewery worker and his relation to Radio.

The Error

St. Peter sat at the Gate on day,
Directing world folk their proper way.
His Angel's book, with its perfect tale
Of winners' deeds, and of those who fail,
Lay open before him. With down-bent gaze
He studied the list of men's strange ways.

Suddenly, then, unannounced, is seen,
A stranger's form—handsome; of manly mien.
St. Peter, scanning his new guest's page,
Found him enrolled as good, kind and sage.
His deeds of mercy and charity, too,
Were "writ large." Demerits were few.

St. Peter's face wreathed in a kindly smile,
And he seemed about to turn the stile.
He said: "You've always been a brother
To those in need. I find no other
Whose record is nobler as to deeds
Of worthy type. Well your story reads.

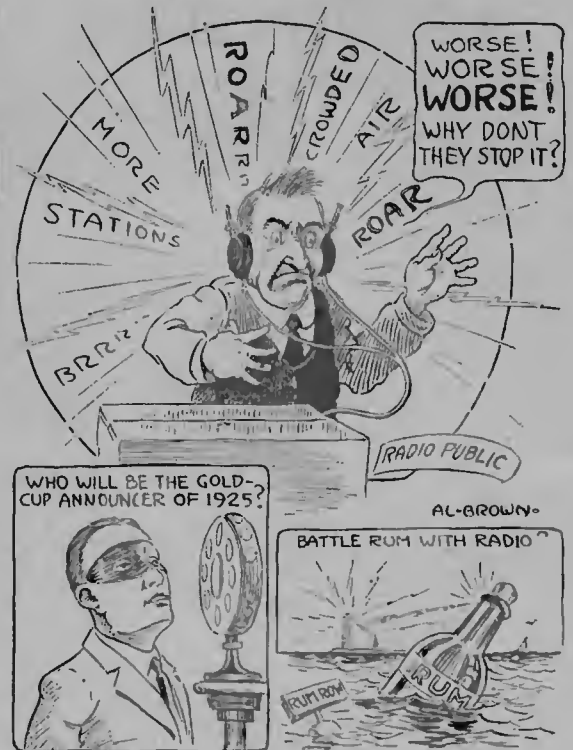
"But pause! Not yet for you the streets of gold—
Alas! A deadly stain I here behold.
You announced, I find, in QXZ,
A station, well known and of high degree.
Yet how often have you called its name
In a program, and enhanced its fame?"

Shame-stricken, the stranger hung his head.
Then: "Just once a night," he humbly said.
Dark frowns o'erspread good St. Peter's face;
Banished the smiles—left not e'en a trace.
"Your sin," quoth he, "is too great to tell;
Turn to the left—that's the road to Hell!"

J. E. R.

Be that as it may, the habit of not calling station letters frequently enough is not a common sin. Not at all. We wot of several stations where they do little else than that.

News of the Week



Condensed

By DIELECTRIC

On a jaunt down to the old city of New Orleans, the other evening, our tuning was just in time to hear the beginning of a concert from the Liberty theater, through Station WSMB. This is destined to become one of the popular stations of the country. I say "to become" for the reason that parts of the United States cannot easily hear its programs during the summer months, but just wait until next fall and see how many fans include it in their search for entertainment.

WEAR, at Cleveland, included a feature on one of their programs which is seldom heard these days. Of all instruments the zither has fallen farthest behind in popular appeal of late. That this is so should cause regret, for there is in its musical quality a distinct attraction. From WEAR we who listened heard a zither quartet play with musical feeling and an understanding of the limitations of the instrument.

Have you heard the Newcastle orchestra from the studio of KDKA? There are differences among good orchestras of precision, attack, tonal beauty, which add interest to listening to more than one. This organization is not to be classed as unusual though it deserves a hearing. In addition, I wish to call attention to the splendid playing of an old folk song rendered by Mr. Paten, as a cello number.

We are not, for some reason, having so many first-class stringed quartets broadcasting as would be acceptable. There is a large majority of listeners who would appreciate such music and expect it of their favorite stations. WSAI, Cincinnati, presented a good stringed quartet in a program of attractive selections. Urge them to repeat.

And still we have the advertising stations multiplying, as witness WEEI, the "friendly voice of Boston." Now, music with your meals has a popular appeal; jokes and joyful candies remind one of April 1; delightful motoring through Florida (accompanied with music) directs a kindly thought to your Ford; but why should an orchestra paint the picture of a Gillette Safety First, when the crash of the kettle drum would misdirect your aim around the fruit belt! We thank WEEI for the operatic selections the Gillette Safety Razor musicians gave us.

Another visit was made to the city of brotherly love to see what inspiration the statue of William Penn had aroused. WOO, the Wanamaker station, was very active in broadcasting a concert of mixed appeal, at the particular time presenting a chorus singing "Deep River." They are to be complimented on their choral work and especially the singing of this effective number composed by Burlleigh.

Station WTAM, the Willard battery station at Cleveland, generally has programs of merit, at least some of their features are above the average. This was so on the evening that the Odeon quartet entertained, a quartet I take pleasure in recommending to all listeners.

WHO, at Des Moines, presented an excellent concert not long ago in which an orchestra played the leading role, with music not too heavy for easy assimilation nor yet too light to be unsatisfying. It is difficult to strike a happy medium in choosing program numbers where one's audience is so cosmopolitan as that of the air.

Recent Advances in Tuned R.F. Amplification

Part III—Antenna Compensation and the Magic Angle

By Milo Gurney

IN AN earlier article mention was made of the fact that the major portion of sustained oscillation troubles in circuits of the tuned radio frequency type occurred, and was primarily pertinent to, the input or antenna circuit. It is because of this fact and probably without a practical method of controlling the antenna, that many manufacturers have within their receivers the notation that their particular make will work best upon an aerial comprising a single wire approximately 100 feet long. Which, if we are to adhere strictly to the suggestion, means that at just the square of the length over or under 100 feet will the square ratio of our effective reception or selectivity be curtailed.

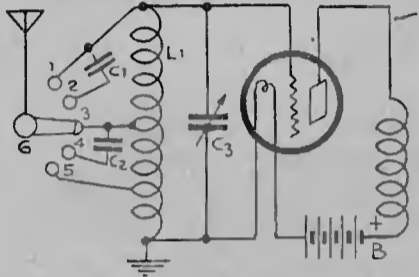


Figure 11

Such admonition should not prevail; surely he who cannot seek favor among his neighbors or liveth under the old regime of the antenna-less landlord and thus is confined to a mere 40 feet of antenna, should not be penalized, neither should he who commanded a straightaway of 250 feet and used it, be compelled to throw three-fifths of it away.

Antenna compensation is comparatively easy and entails such a small additional expense in receiver construction that its use by both manufacturers and experimenters should be universal.

One Solution of Problem

One manufacturer is to be credited with having solved the problem in a manner

wholly commendable for not only its efficiency, but also its remarkable simplicity as the means provided in order that receivers may be used upon a multiplicity of types of antennas is but the use of two fixed condensers in combination with an auto-transformer, which also acts as the primary and secondary of the antenna input stage.

Figure 11 is a schematic picturization of the method used, showing an auto-transformer with three taps, two of which are bridged through series connected fixed condensers of small and equal value. While a detailed variable construction information might be desired in the belief that special taps in addition to those shown would serve best with your particular antenna installation, yet as it is designed for use with a .0005 mfd. variable condenser, and as most antenna input stages use this value of condenser, therefore you may adapt it to your present antenna input secondary if it is tuned with a condenser of this capacitance and doubtless feel well repaid for the effort.

While the schematic coil shown indicates it as having 54 turns, the tap points will not change up to coils of 60 turns. Should they, however, exceed this value (and they shouldn't), then the one change necessary would be to take tap number two off at about the 25th turn or between the 25th and 30th turn.

Referring again to the diagram figure 11—1, 2, 3, 4 and 5 are contact points which may be mounted upon your panel, while number 6 is a switch—C1 and C2 are fixed condensers of .0025 cap., while L1 is an inductance of number 22 dec. wire comprising 54 turns, and C3 a .0005 variable condenser.

The antenna is connected to number 6 with the ground connected to number 7. Taps 5, 3 and 1 go to the third, twenty-first and fifty-fourth or last turn respectively, counting from the ground end of the inductance.

Condenser C1 is placed in series with the fifty-fourth turn and switch point number 2, while condenser C2 is connected in series with switch point number

3, or the twenty-first turn, and switch point number 4, the first and last turn of the inductance L1 being connected to the filament and grid as shown.

A study of the diagram will indicate that as an antenna compensating medium we are thus provided with three values of inductance in series with the ground and antenna, together with two of these inductance values in series with their

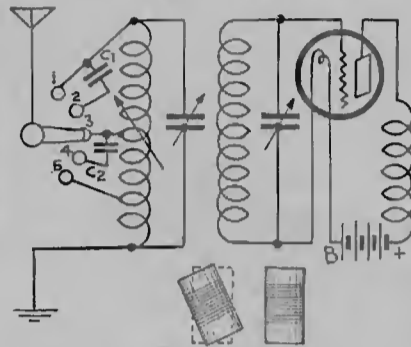


Figure 12

capacities, also the ground and antenna in case our antenna value does not fit the three inductance values shown, or a total of five compensations. These are sufficient for a good 80 per cent of all types or varying lengths of antennas. By placing the switch upon each of the points indicated one will soon determine which of the settings is best suited to

his receiver for all around reception, also the one wherein the greatest selectivity may be had.

Use of Auto-Transformer

The use of the secondary as both primary and secondary, or as it is commonly known as an auto-transformer, is interesting in its method of functioning. In this form the primary is conductively in place of inductively coupled to the secondary and only variable as the switch is moved in its relation to the secondary in other words, while the total of the inductance is used as the secondary only the portion between ground and the point with which switch is in contact is used as the primary. Even of more interest, however, is its transformer analysis, to-wit, with the switch on point five or the third turn the ratio of primary to secondary is as 3 is to 54, or 1 to 18, which will incur extreme selectivity with minimum inductance transfer or voltage impress, inversely the opportunity for the circuit to drive the antenna is as 54 to 3, or step down 18 to 1, while the same method of determining step up and down ratios holds at other settings of the switch.

Of the several schemes offered for antenna compensation, the one outlined is without question the most to be desired and is advised except in cities like Chicago and New York where one is never more than almost too close to a host of stations. In such extreme cases wherein the utmost in selectivity is demanded, the plan shown in figure 12 may be very successfully used, it being identical with (Continued on page 18)

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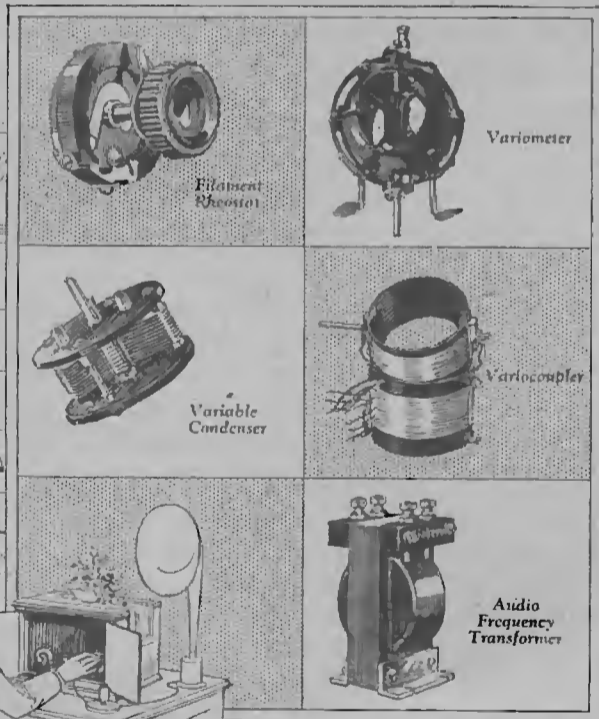
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TUNED R.F. ADVANCES

(Continued from page 17)

figure 11 except that figure 11 then becomes the primary only and its inductance made variable with relation to the secondary in order to secure zero coupling and the addition of another variable condenser. Figure 12 is pictured in detail in order to clarify this point of construction and mounting.

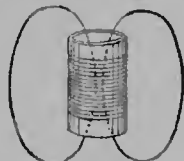


Figure 13

The author quite appreciates that many, particularly the beginner in Radio, will stumble in attempting to build and install this super-selector, but in articles of this character specific building instructions must be omitted of necessity. However, every city, every town, has an honest to goodness Radio bug in it, just as they all have a main street, so why not let them help you with any little difficulty you may have?

The Magic (?) Angle

Further, and while on the subject of coils and coil mounting wherein are desired to eliminate so far as possible interstage electromagnetic coupling, the determination of the proper angle relation to the axis of the coil seems to be a source of great worry to the experimenter. Or possibly it would be more truthful in saying they don't worry but use without

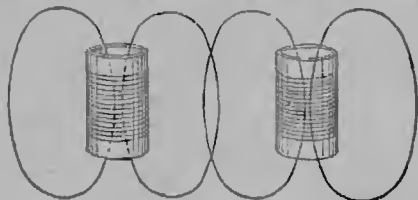


Figure 14

question a 54.7 degree angle as the one, and only one which is correct just because many of the neutrodyne set manufacturers use that angle, therefore it appears as opportune that I take advantage of this opportunity to in a measure clear up the evident misunderstandings so many have upon this phase of Radio construction.

The purpose of mounting radio fre-

quency transformers at angles other than those in which their axis are in parallel is to nullify or destroy the electromagnetic coupling effect, or as one may term it, the inductive action of one transformer to the other. When the magnetic or inductive effect of one coil upon another is negative, the coupling is said to be zero—zero coupling being the most commonly used term. Such coupling, however, cannot physically be secured in a receiver owing to space limitations, although it can be very materially reduced through the proper angle placing or mounting of the tuned transformer coils and further eliminated or controlled until it becomes a negligible factor by interstage shielding. Both methods, or the one and addition of the other, to it are to be explained.

Right Angles for Zero Coupling

Figure 13 pictures a solenoid coil with its radiating electromagnetic field. This electrical though invisible radiating field is the big factor which causes our trouble of interstage coupling. Figure 14 shows two such coils with their magnetic fields in sympathy or parallel to their axis.

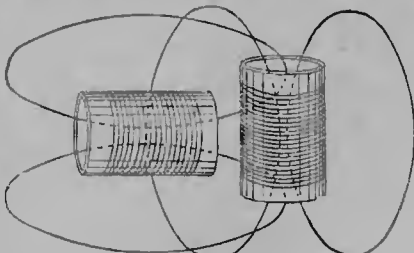


Figure 15

This is known as maximum or close coupling. In order to reverse this effect and secure zero coupling each coil must be so mounted and at such an angle as will cause these fields to be opposed. To accomplish this result their separate fields should cross each other at a right angle to their axis. See figure 15.

The early and easiest method of accomplishing this result is as shown in figure 16 in which three coils are so mounted as to avoid magnetic coupling; viz., one horizontal to the perpendicular of the plane, the next at right angles to the first and also horizontal to the plane, while the third is horizontal to both the first and second and perpendicular to the plane resulting in their several fields being at right angles to the horizontal of the others.

(Continued on page 20)

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A. B. C. Course in Radio Fundamentals

Chapter XII—Primary Batteries

By David Penn Moreton

IF TWO unlike metals are immersed in a solution, which is capable of acting upon one of the metal pieces more than it does on the other, there will be an electrical pressure produced between the pieces of metal and this electrical pressure will produce a current if the pieces of metal are joined by a wire. Such a combination of metals and solution constitutes what is called a voltaic cell, as it was first discovered by an Italian physicist Volta. A simple voltaic cell is

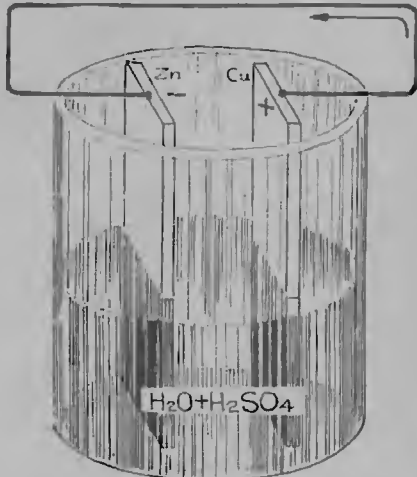


Figure 58

shown in figure 58, composed of a strip of zinc and a strip of copper immersed in a solution containing a little sulphuric acid. With this combination of metals, the copper strip will be positive and the zinc strip negative, that is, there will be a current produced in a wire connecting the two strips which will pass from the copper to the zinc in the wire and from the zinc to the copper within the cell. The plate from which the electric current flows in the outside circuit is called the positive plate or positive terminal, while

the plate toward which the current flows in the external circuit is called the negative plate or negative terminal. The liquid in which the plates are immersed is called the electrolyte.

The electrical pressure between the two plates depends entirely upon what the electrolyte is, and upon the kind of materials composing the two plates. The size of the plates and their distance apart, have nothing to do with the electrical pressure produced in the cell. For example, where one plate is zinc and the other is copper and the electrolyte is dilute sulphuric acid there will be an electrical pressure of about 1 volt, while plates of zinc and carbon and an electrolyte of chromic acid, the electrical pressure will be about 2 volts. The important thing to remember is, that in order to have an electrical pressure set up, the plates of the cell must be of different materials and one of these plates must be acted upon chemically by the electrolyte to a greater extent than the other one.

When a cell is producing a current in a circuit one or both of the plates will be wasted away, and the chemical action may be explained as follows: Water is composed of two parts of hydrogen and one part of oxygen, and is represented chemically by the symbol H_2O . Sulphuric acid is composed of two parts of hydrogen, one part of sulphur and four parts of oxygen and is represented by the symbol H_2SO_4 . The chemical symbols for copper and zinc are Cu and Zn respectively. When the sulphuric acid acts upon the zinc, Zn, the acid is broken up into two parts, H_2 and SO_4 . Now as a result of this chemical action there will be a certain amount of electrical activity. In this case, the two parts of the acid are charged with opposite kinds of electricity and being separated. The SO_4 will have a negative charge and clings to the zinc plate giving up the negative charge to that plate and some of the zinc combines with it. This small amount of zinc takes the place of the two parts of hydrogen, H_2 , and makes a new compound called zinc sulphate whose chemical symbol is

$ZnSO_4$. The zinc sulphate dissolves in the water just as ordinary table salt is dissolved in water. As this process con-

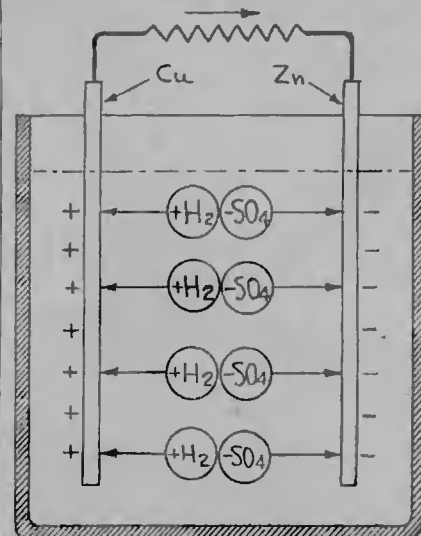


Figure 59

tinues the zinc plate becomes negatively charged.

The other part of the acid, H_2 , is charged positively and instead of clinging

to the zinc plate, it travels to the copper plate, where it gives up its positive charge, and, since it is a gas, bubbles will appear on the surface of the copper plate. As this process continues the copper plate becomes positively charged.

This chemical action is shown in Fig. 59. It is interesting to note that the part of the electrolyte which has the positive charge goes with the current through the electrolyte, while the part which has the negative charge goes against the current. As a result of the charges on the plates being of opposite sign there will be an electrical pressure, of approximately one volt in this case, between the plates. If the plates are joined by a wire, the chemical action will continue to go on and the energy of the chemical action is transformed into the electrical energy. When the plates are composed of pure metals and they are not joined by an elec-circuit outside the cell, there will be no chemical action within the cell.

The action of all cells is similar to the one just described. The rate at which electrical energy is delivered by the cell determines the rate at which the plate or plates is being consumed by the action of the electricity; just as the rate at which steam energy is delivered by a boiler determines the rate at which coal must be supplied to the fire in the furnaces under the boilers. Zinc, may therefore, be looked upon as a fuel which is consumed in the cell and its chemical energy is turned into

(Continued on page 20)



"A" is a stray field or wave, traveling toward the coil. Due to the winding all induced currents oppose each other so no current can flow. Hence no pick-up.

The wave front here moves at right angles to the coil plane. Again opposing currents are set up in opposite sides of the coil, preventing interference.

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TUNED R.F. ADVANCES

(Continued from page 18)

Such a method is and would be quite satisfactory in addition to its effectiveness were it not for the fact that a method such as this requires an unusual amount of space and for the more pertinent reason that one of their fields would

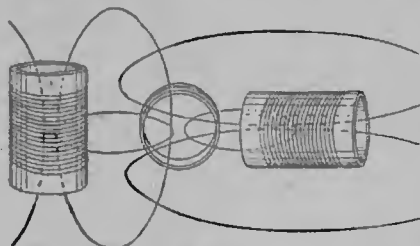


Figure 16

also be at right angles to its condenser control, a bad practice.

Thus in order to keep all fields in parallel with their separate condenser plates and to conserve space, the angle mounting scheme has come to the fore as being more expedient.

Correct Parallel Angles

Do not confuse these critical degrees as other than divisions of a circle comprising 360 degrees in place of assuming

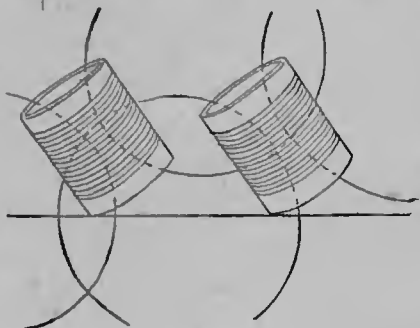


Figure 17

them as degrees or divisions upon your tuning dials. Most of the errors occur because the shape, diameter and length of the winding is not considered, or the coil spacing is not taken into account. The experimental builder usually considers the total length of the coil support rather than the winding on and its diameter. Figures 17 and 18 picture two examples

of unlike angles, upon the same center to center spacing, one being of the standard 3 1/2-inch coil mounting, 3 inches in diameter with a winding 3 inches long, while the other is of exactly the same length of winding, but has a diameter of 2 1/4 inches and a total coil mounting length of 4 1/2 inches. Each respective pair are mounted at the correct angle in order to secure zero magnetic coupling while the fields cross at right angles yet the angle of mounting is different in each case. Now check back on your tuned frequency receiver and be certain your angles are correct.

My fourth article appearing next week will visualize the wheatstone bridge theory and its application to Radio cir-

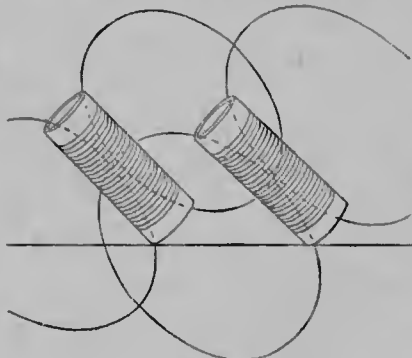


Figure 18

cuits in order that you may not only be conversant with this principle which will make history in radio this fall, but also have an understanding of the fundamental governing their design and a working knowledge for your own experimentation as this principle and its application to Radio offers easily literally hundreds of opportunities for invention in its manifold ramifications.

(TO BE CONTINUED)

A. B. C. RADIO COURSE

(Continued from page 19)

electrical energy, just as coal is a fuel, the chemical energy of which is converted into heat by means of oxygen, a furnace, water and a boiler.

When the hydrogen, H₂, gives up its positive charge to the positive plate, it is very likely to cling to the plate and form a layer of hydrogen around it. This accumulation of hydrogen gas on the posi-

tive plate is called polarization. Since hydrogen gas is a very poor conductor of electricity, the presence of the hydrogen causes a marked increase in the internal resistance of the cell. As a result of this increase in internal resistance a larger part of the electrical pressure produced by the chemical action must be used in the cell itself in overcoming the internal resistance, which results in a smaller part of the electrical pressure being available at the terminals of the cell to act upon the external circuit. The electrical pressure due to the chemical action is also reduced because there is an electrical pressure set up between the hydrogen and the positive plate, which acts in the opposite direction to the electrical pressure set up between the zinc and the sulphuric acid. Hence, the electrical pressure between the terminals of a cell decreases in value, for the two reasons given above, as the cell becomes polarized.

In order to overcome the polarization of the cell, some means must be provided to clear the positive plate of the hydrogen bubbles. The most common method is to introduce into the electrolyte some chemical called a depolarizer, which has a surplus of oxygen in it. This oxygen then, very easily unites with the hydrogen and forms water, H₂O.

If the depolarizer is one which acts quickly and gets rid of the hydrogen bubbles as fast as they are formed on the positive plate, the cell may be run continuously without polarizing, and as a result without much decrease in the electrical pressure between the terminals of the cell. A cell of this kind is called a closed circuit cell.

If the depolarizer acts more slowly and the hydrogen gradually gathers on the positive plate when the cell is delivering a current the cell can be used only intermittently, in order to allow the depolarizer to combine with the hydrogen and clear the positive plate. A cell of this kind is called an open circuit cell. The ordinary dry cell is an open circuit cell, and if run continuously the effects of

polarization are very noticeable. On the other hand if a closed circuit cell is allowed to stand on open circuit, the depolarizer usually ruins the cell by causing certain chemical changes in the electrolyte. For these reasons, it is essential that you use the different types of cells in the circuits for which they are intended.

It is not always possible to have the plates composed of pure metals and when there are impurities present, especially in the negative plate, there will be a chemical action which is spoken of as local action, take place which will result in a wasting away of the negative plate and no electrical pressure will be produced between the terminals of the cell as a result of the action.

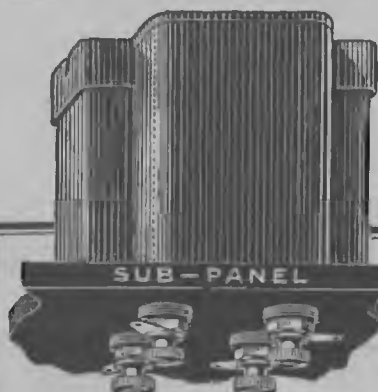
If a cell is capable of producing a current directly from the consumption of some metal such as zinc, it is called a primary cell. If, however, an electric current must be first sent through the cell to bring it to such a condition chemically that it is capable of producing a current, it is called a secondary, or storage cell. The fundamental distinction between a primary and a secondary, or storage cell is that, with the latter type the chemical changes are reversible, while with the former type this is not practical even when possible. There are numerous forms of primary batteries, but the one that is used at the present time more than any other is the dry cell. Certain cells are spoken of as dry cells because the electrolyte is held in an absorbent material which will allow the cell to be used in any position. The cell is, however, not dry. Ordinarily the container for the cell is made from a thin sheet of zinc which serves as one plate of the cell. The electrolyte consists of a solution of ammonium chloride, commonly called sal ammoniac, and zinc chloride. The electrolyte is held partly by an absorbent material that lines the zinc container and partly by a mixture composed principally of ground carbon and manganese dioxide

(Continued on page 22)

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They permit a neater assembly, shortening of leads and concealing of wiring—as in factory built sets. Same ratios—same prices—as standard type Thordarson. Order direct if dealer cannot supply.



TYPES and PRICES

Thordarson "Super" Audio Frequency Transformers are to be had in three ratios: 2-1, \$3; 3-1, \$4; 6-1, \$4.50. Thordarson Power Amplifying Transformers are 11:1 the pair. Thordarson Interstate Power Amplifying Transformer, \$8.

THORDARSON Super AMPLIFYING TRANSFORMERS
Standard on the majority of quality sets

Write for free hook-up bulletins.

THORDARSON ELECTRIC MANUFACTURING CO.
Transformer specialists since 1895
WORLD'S OLDEST AND LARGEST EXCLUSIVE TRANSFORMER MAKERS
Chicago, U.S.A.

Makers of sets costing up to hundreds of dollars each are mighty particular to use only the best transformers. Follow the lead of the leaders—build or replace with Thordarson. For the "Heat" \$5,000 Cycle Super-Heterodyne, "RADIO" and other leading publications recommend in highest terms the Thordarson 2-1 ratio transformers. Take no others!

CROSLLEY
1 TUBE-50

\$14.50

The Little Giant of Radio
and its Great Frequency
with phones frequently
improved.

Distance
on the phones—with certainty and regularity—on the Crosley one-tube 50. The radio which told the world that the MacMillan North Pole expedition was safe and sound. The radio that kept communication open to Leonard Weeks at Minot, N. D., when all other receivers failed.

There is nothing better than the Crosley 50 for the radio beginner.

There is nothing to excel it in value; unless it be the larger Crosley sets.

Stations always come in at the same place.

For sale by good dealers everywhere. Other models priced from the two tube 51, at \$18.50, to the Tridyn Special with sloping panel, at \$65. All Crosley Radios are licensed under Armstrong Regenerative U. S. Patent No. 1,113,119. Prices quoted are without accessories.

Prices West of Rockies—Add 10%
Write for Complete Catalog

The Crosley Radio Corporation
Powel Crosley, Jr., President
6412 Sassafras St. Cincinnati, Ohio
Crosley owns and operates Broadcasting Station WFLV

The "Goode" Two-o-One

A
Le Ton d'argent

Guaranteed

BY MAIL ONLY

\$1.89

Postpaid

QUARTER AMPERE AMPLIFIER-DETECTOR

RADIO TUBE

GUARANTEED SATISFACTORY

All "GOODE" Tubes Sold Direct to the Consumer—No Dealer Profits

ONE—"Goode" Detector-Amplifier.....\$1.89

THREE—"Goode" Detector-Amplifiers..... 5.00
(All postage prepaid)

The "Goode" Two-o-One A Tube amplifies or detects. It is a quarter ampere, 8vo volts, standard base silvered tube.

Send express or postal money order—New York draft—or personal check to—

The Goode Tube Corporation
Incorporated
Owensboro (Dept. A) Kentucky

THE THREE BLESSINGS OF RADIO
Can Only Be Obtained WITH A KANE ANTENNAE

BLESSING No. 1 The Kane Antennae absolutely eliminates all power noise.
BLESSING No. 2 The Kane Antennae cuts re-radiating signals at least 50 per cent.
BLESSING No. 3 The Kane Antennae will reduce static at least 50 per cent.

Now that Old Man Static is beginning to get in his usual summer work of ruining radio reception with his discordant crackling noise, wouldn't you like to tap his fingers and make him let up a whole lot? Static and Re-radiating signals both cut 50 per cent—Power interference absolutely cut out—Figure it out for yourself! Can you afford to be without a Kane Antennae? Then why not order one today?

"I had no idea that an aerial could make so much difference in a set," writes Mr. George C. Pratt, Secretary of the Beaver Cove Lumber and Pulp Co., Ltd., Vancouver, B. C. "I will be glad to recommend this aerial to anyone in this vicinity as the best on the market, and I have tried every kind I have heard of." Mr. Pratt also states:

AND WHAT ABOUT OLD MAN STATIC?
Vancouver, B. C., May 16, 1925.
Gentlemen:
I have received the Kane Antennae shipped a couple of weeks ago, and have installed same as per your instructions.
I had no idea that an aerial could make so much difference in a set, as I thought I was getting excellent reception with the old single aerial, but there is no comparison in the present reception of the set with the new aerial, as with the old one.
I have been intruded by several radio friends of mine that the static has been so bad for the past ten days that they were unable to tune in any except local stations, but outside of a very few instances I have not heard static since your Antennae was installed.
The antennae is about 15 feet from the ground with the lead-in facing southeast. The counter-poise is about 25 feet beneath the antenna. I have had no difficulty in tuning in KDKA, WCCO, WOC, WEBB, in fact I am getting all the distance I want with very little interference.
I will be glad to recommend this aerial to anyone in this vicinity as the best on the market, and I have tried every kind I have ever heard of. Yours very truly, Geo. C. Pratt.

ARE YOU GETTING ALL THE DISTANCE YOU WANT?
We will sell you working drawing with instructions for erecting this wonderful Antennae for a dollar bill. If after looking over the drawing you decide you would rather have a factory-built Antennae than build one yourself, we will take back the drawing and allow you full purchase price on an order for an Antennae.

The Special Kane Antennae for Radiola Super-Hets.....\$ 6.50
The Regular Kane Antennae for all other sets that use a ground connection 13.00
Working Drawings with Instructions for Erecting, \$1.00
(STAMPS NOT ACCEPTED)

Postpaid to any part of the United States, or sent C. O. D. when 25% of purchase price accompanies order. Canadian Orders filled by The Kane Antennae Company of Canada, 1220 Seymour Street, Vancouver, B. C.

"HEAR AS YOU HAVE NEVER HEARD BEFORE"
THE KANE ANTENNAE COMPANY, (Dept. C), Hoquiam, Washington
The enormous volume of business we are now doing has compelled us to purchase our own factory with over half an acre of floor space in Hoquiam (Indian name, meaning "Hungry for Wood") the most Westerly City in the United States.

Simple Shockproof Socket Mounting

Vibrations Stopped by Mounting on Inner Tube

The accompanying illustration shows a two gang shock proof socket made of four parts generally found in any amateur Radiophon's shop. This works out and looks very neat if properly made. The

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 envelopes, so rejected copy may be returned. The work must be entirely original, not copied.

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

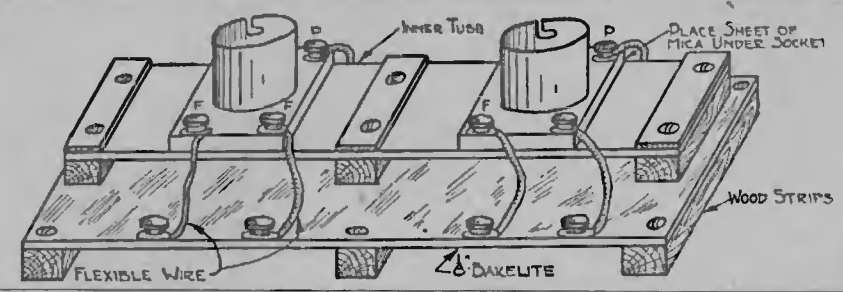
drawing shows sockets for floor mounting but the sockets can be supported on brackets as well. Just the thing for WD-11, 12 and 199 tubes. Make sure to place mica under the socket bases. This support stops the humming sound when using small tubes, especially amplifiers.—F. W. Steffen, Hartley, Iowa.

Expense in Excessive Voltage

The use of excessive B battery voltage in the effort to squeeze the utmost volume from a Radio set is a very expensive pleasure. It is the habit of many to employ 90 volts of plate battery and then to detune local stations in order to avoid overloading the loud speaker.

This is equivalent to slowing down a motor car by applying the brakes without shutting off the gas. Since most Radio reception is done when tuned to local station, it is frequently possible not only to operate at the lowest filament voltage but at plate voltages of 45 and 67½ instead of 90. A typical case is that of a well-known make of four tube receiver, equipped with a C battery having one stage of tuned Radio frequency. Its current drain with 90 volts was 7 milliamperes,

PLAN OF TUBE SHOCK ABSORBER



but by reduction of plate voltage from 90 to 67 volts the plate current fell to 3 milliamperes, a saving of 57 per cent in plate battery drain.

Increasing Tube Life

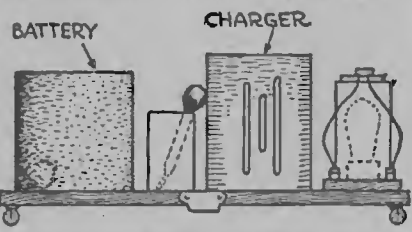
Reduction of filament voltage not only reduces B battery drain but effects a substantial increase in the life of tubes and in A batteries. An overload of 5 per cent above rated voltage cuts in half the life of a tube, while continued operation at 5 per cent below rated voltage may often double the life of a tube.

Since A and B batteries and tubes represent most of the upkeep cost of a Radio set it is thoroughly worth while to affect such substantial savings as 50 per cent, readily possible through economical use of plate and filament voltages.

Those listeners who find it necessary to get the utmost out of their sets for long distance reception should do so by using high plate voltage, but when listening to local program take advantage of the saving resulting from the use of reduced voltages.

Home Battery Truck

To prevent the Radio batteries, chargers and testers from having things stacked on

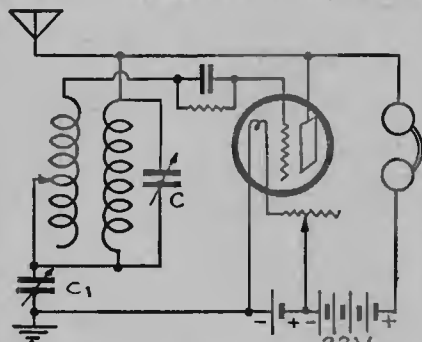


top of them the safest place to keep them is under a shelf. A board fitted with

rollers will be a wonderful help in handling these somewhat awkward Radio necessities. Finish the board with acid resisting paint.—Bertha Morey, Ottumwa, Iowa.

Single Tube Circuit

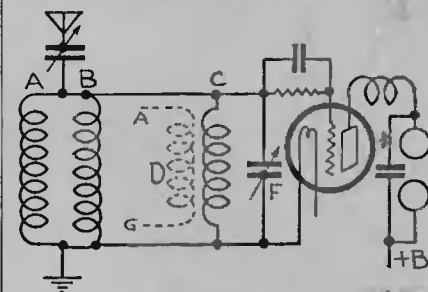
The illustration herewith shows a hook-up with which I have had very good results. My varlocoupler is an old style one and it was necessary to place variable condenser C across the secondary in order



to reach the higher wave lengths, but it does not prevent me from getting the lower meters also. If your coupler is wound according to present requirements you can dispense with this condenser. The condenser C1 is a plain 23 plate.—Arthur Reglein, Chicago, Ill.

Adding Selectivity to Set

In the construction of the additional coils use one spider web form and wind on two wires, one ten turns more than the other. For instance, if your original tuner coil C has 45 turns, make the coil A 40 turns and coil B 50 turns. Disconnect the input of the set from the usual coil D and make connections as shown. Place an 11-plate or 23-plate variable condenser in the antenna circuit.



The coils A and B are tuned simultaneously by the 24-plate condenser F. This automatically tunes out stations having a slightly different wave length on each side of the station wanted and narrows down the static band. If this is properly assembled it will make a very sharp tuner for the regenerative set.—W. Harvey Merwin, Jensen, Fla.

Voltage Regulation

A potentiometer is a device which permits a lower voltage to be obtained than that of the source of the current. Its use in Radio receivers is principally in connection with the grid return voltage regulation. It is connected across the A battery and its movable arm goes to the grid connection.

Crystal Used as Grid Leak

Grid leaks play an important part in the construction and operation of most regenerative sets. An ordinary crystal detector of either the double mineral or the catwhisker type may be used in place of the usual grid leak. A good mineral, when properly adjusted, will work wonders on DX.

From the log of A.R. McCoubrey, Mt. Tolmie P.O., Victoria, B.C. Canada: LOS ANGELES, DENVER, CHICAGO, OMAHA, PITTSBURG, LOS ANGELES, DENVER, CHICAGO, OMAHA, PITTSBURG.

From the log of A.B. Miller, 17901 Detroit Ave., Lakewood, Ohio: OAKLAND, LOS ANGELES, DALLAS, LAKEWOOD, FT. WORTH, MIAMI, MEXICO CITY.

From the log of Marshal Johnson, 1608 E. Seep St., Duluth, Minn.: DULUTH, PITTSBURG, LOS ANGELES, DALLAS, LOUISVILLE.

From the log of Wm. J. Lambert, 508 Ligonier St., Latrobe, Pa.: LOS ANGELES, DALLAS, FT. WORTH, LATROBE, HAVANA, TUINACU.

Through the Locals — ALL-AMAX Reaches Out

Every ALL-AMAX Set, wherever it may be, brings to its owner his choice of all the beauties in the air. Every day come more and more letters to our office, telling of the long distance reception, almost unbelievable on a three-tube set, which has rewarded the owners of ALL-AMAX.

Remember, too, that ALL-AMAX is completely mounted on panel and baseboard. You can wire it in one delightful evening, following simple photographic instructions.

- ALL-AMAX SENIOR, three tubes and detector . . . Price, \$42.00
- ALL-AMAX JUNIOR, one tube and detector Price, \$22.00

ALL-AMERICAN RADIO CORPORATION
E. N. RAULAND, President
2640 Coyne Street Chicago

ALL-AMERICAN

"pep up" your radio for good summer reception

JEFFERSON TUBE REJUVENATOR

keeps tubes like NEW!

YOU can't get good summer reception with weak tubes. All radio tubes weaken with use—especially in summer when burned at higher voltage. Keep your radio tubes efficient this summer with the Jefferson Tube Rejuvenator. Just attach to a convenient electric light socket—"bring back" each tube in 10 minutes!

Repeat once a month—note how it improves reception; **DOUBLES** and **TREBLES** tube life, and saves batteries. It's wasteful to be without one; it's economy to own one. Takes large or small tubes—201-A, 301-A, UV-199, C-299. Fully guaranteed. Get yours now. At leading stores selling radio. If your dealer can't supply you, send \$7.50 to

JEFFERSON ELECTRIC MFG. CO.
501 So. Green St., Chicago, Ill.

Makers of Jefferson Radio, Bell Ringing and Toy Transformers; Jefferson Spark Coils for Automobile, Stationary and Marine Engines; Jefferson Oil Burner Ignition Coils and Transformers.

For Home Use

\$7.50
\$10 in Canada

Questions and Answers

Walters' Tuned R. F. Set

(13787) RCP, Rich Hill, Mo.
I desire to build the low loss tuned radio frequency receiver described in your magazine by Mr. George Walters. To quote exactly in part one he said, "It would be possible by the use of switches, to increase the efficiency at the higher wave lengths so that, when one wished to receive stations above 425 meters, he might throw in more primary turns in the second and third R. F. transformers which would bring the regeneration almost up to oscillation and the high efficiency of the lower wave lengths would also then be found at higher wave lengths." I would desire to know how many turns to add, how many and how often to take off taps, also what make of A. F. transformers and condensers Mr. Walters used.

A.—We have your letter of May 15th. To obtain the effect which you mention in your letter of May 18th of getting regeneration on all wave lengths in the tuned R. F. set we would suggest that you add 10 more turns to each primary of the second and third transformers and tap these additional 10 turns every two turns which will put a five-point switch on your second and third primaries. When you tune for wave lengths above 400 meters you will find that you can cut in four to six more turns and that when you are tuning to wave lengths above 500 meters you can probably cut in 8 or 10 turns without the tendency to oscillate getting beyond control.

Underground Antenna

(13760) WFM, Mt. Clare, W. Va.
I would like very much to have some information on Mr. E. T. Jones' underground antenna. I am using a Radiola VII B and would like to know what size cell would be the best to use. Also what he means when he says to use lead covered wire for the lead in. I am unable to locate such wire here.

I would also like to know how much number 14 rubber covered wire should be used and what space should be left between the wires. I am a constant reader of the Radio Digest and will thank you very much for this information.

A.—Practically all of the information available at this time is contained in the two articles by Mr. E. T. Jones which appeared in our March 28th and May 16th issues. Lead covered wire is frequently used in automobile ignition systems and also in the wiring of houses. The wire is enclosed in a tube of lead and you should be able to obtain it from any distributor of automotive or electrical supplies. If you cannot get information on it locally, we would suggest that you write to the Helden Mfg. company, 23rd and Western avenue, Chicago.

The two articles mentioned clearly state how much wire is to be used and you can use any length between 125 and 200 feet of heavily insulated rubber and braid covered wire. The spacing between turns of the flat spiral can be anywhere from 1/4 to 3/8 inch with an outside diameter of two to three feet. This matter of spacing and outside diameter is not particularly important providing the diameter is not less than two feet. A good dependable ground should be used in conjunction with this device and we are quite sure that 90% of your static interference will be eliminated.

NEW IDEAS WANTED

Well-known Radio Manufacturer, whose products are nationally advertised and sold everywhere, wants new Radio device to sell. Will pay outright or royalty for idea or invention which is really new and saleable. Address Mr. R. F. Devine, Room 1101, 116 West 32nd St., New York, N. Y.

NO STATIC NO DANGER OF LIGHTNING

THE Antennaphone

IMPROVES RECEPTION

Gives wonderful results with any radio set. Not attached to, but merely placed under the telephone. Price One Dollar. Complete with insulated wire and simple instructions. At Your Dealer or Mailed C.O.D. on 3 days approval. Antennaphone Co., 90 West St., N. Y. C.

SEND IN YOUR

Paralyzed Tubes

to be Restored to Health in Our Laboratory

98% of your worn-out tubes can be put in first class condition.

We can REACTIVATE UV-201A, C-301A, UV-199, C-299 and any other thoriated filament such as Atlas, Magnatron, De Forest, etc.

We cannot reactivate UV-200, C-300, WD-11 or WD-12 tubes, nor can we reactivate burned out tubes.

It Costs You Only \$1.00

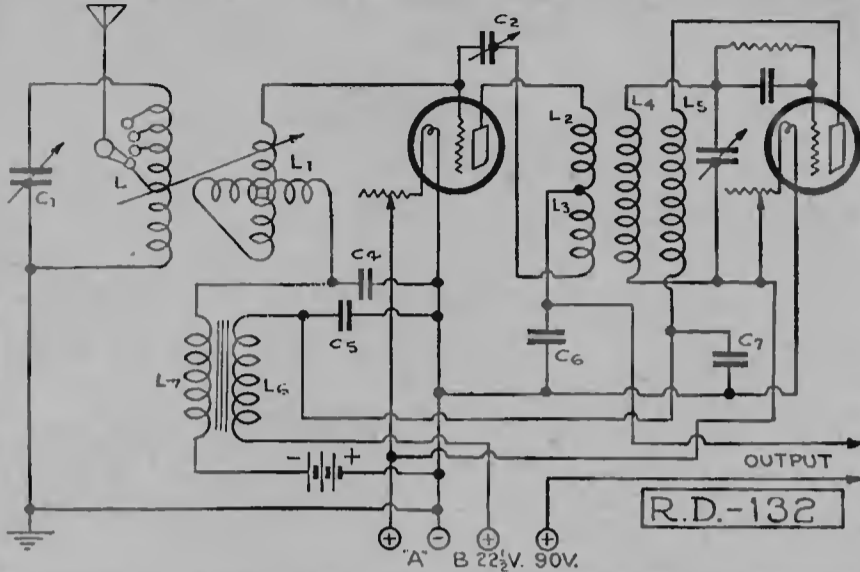
If we can restore your tube so that it operates satisfactorily, if we are not successful, our charge is only 25c.

Why pay the price for new tubes when we can make yours as good as new for only \$1.00.

MAIL IN YOUR TUBES TO US FOR PROMPT RETURN. Parcel Post, C. O. D.

A. O'CONNOR & COMPANY
9708 Euclid Ave. Cleveland, Ohio

REGENOFLEX CIRCUIT COMBINATION



LIST OF PARTS

2 Variable condensers, .0005 mfd.	\$11.00
1 Variometer	5.00
Materials for inductance L	1.25
3 Tube sockets @ 1.00	2.00
2 Rheostats @ 1.00	2.00
1 Midget variable condenser	1.75
1 Audio frequency transformer	4.50
1 Grid leak and mounting	1.50
Materials for unit L2, L3, L4, L5	7.00
2 Fixed mica condensers .00025 mfd.	.50
1 Fixed mica condenser, .0025 mfd.	.50
1 Fixed mica condenser, .001 mfd.	.40
1 Fixed mica condenser, .002 mfd.	.40
1 Panel 7x18	2.25
1 Cabinet	3.00
Miscellaneous small parts	1.00
Total cost	\$44.35

THE regenoflex circuit is a unique combination of tuned Radio frequency, reflexing, neutralization and regeneration. That it is perfectly practical has been shown by the many sets utilizing it now in use. While the antenna circuit as a whole is tuned by the condenser C1, the turns in the antenna inductance (L1) may be varied to vary the ratio of turns between this coil and the variometer (L-1) the first grid circuit. The turn-ratio may thus be 1 to 2, 1 to 3, 1 to 3/2, 1 to 4 without throwing the antenna circuit out of resonance. The grid circuit is tuned to the frequency of the incoming program by the variometer. Neutralization of the capacity feed-back

of the first tube is accomplished by inductance L3 and capacity C2. It is inductance L2 which, coupled to L4 passes energy to the detector tube connected to L4 and variable condenser C3. Regeneration is accomplished in the detector tube by coupling L5 of its plate circuit to inductance L4. The plate circuit is continued through L6, which is the primary of an audio frequency transformer and the audio frequency component of the energy in this circuit induces energy in L7, the secondary, at audible frequencies.

This secondary, L7, being in the grid circuit of the first tube, this tube again handles the signals, but now at voice frequencies, and passes them into L2 again. These frequencies have no effect on L2, but pass through to the leads labeled "Output," which may go to the phones another audio frequency stage or a push-pull amplifier. While the exact constants of the commercial form of this circuit are not available, they may be approximated. L1 to be wound with 40 turns on a 2 1/2-inch tube tapped every 5 turns; C1 to be a .0005 maximum variable condenser; L1 to be a standard variometer with its stator at one end of L, the turns running in the same direction; let C2 be a midget variable; L2 to contain 15 turns and L3 15 turns on the same tube; L4 to have 50 turns and L5 40 turns on a rotor within L4; C3 to be .0005 variable

ELCITE SUPER RADIO RECEIVER.
No Tubes, A or B Batteries. Operates Speaker, Clarity, Distance. Write Elicite Radio Co., Box 193, Buffalo, New York.

A RECHARGEABLE "B" WITH A STRONG GUARANTEE

The SEE-JAY BATTERY has met all tests and is endorsed and recommended by the Washington Information Service Bureau and thousands of satisfied users. Genuine Alkaline connected elements, strictest Government test passed. No drilling or wiring. Connectors crimped under 1,000-pound pressure. Save time, temper and money. Essential parts for 100-volt unit, \$7; 140-volt, \$10. Why pay more? Complete assembled batteries, solution separate, shipped dry, 100-volt, \$12; 140, \$16. See-Jay unit sold on money-back guarantee. Write for literature and send 20c for improved sample cell. SEE-JAY Battery Co., Dept. D, 615 Brook Ave., New York. Mail order service.

WHOLESALE AND RETAIL

Men to build radio sets in spare time.
Leon Lambert, 501-H Kaufman Bldg., Wichita, Kansas.



Static

HOW TO KEEP STATIC OUT OF YOUR RADIO

New Copyrighted Plans, \$1.00

LEON LAMBERT

WICHITA, KANSAS

pep up your set with good tubes

SOME radio fans don't expect much "pep" from their portable sets. "Oh well, only using the small tubes," they explain. But they have quickly revised their ideas when they switched to MAGNATRON DC-199 tubes.

You'll never realize how important tubes really are until you adopt MAGNATRONS. Your dealer has them!

CONNEWEY ELECTRIC LABORATORIES
Magnatron Building Hoboken, N. J.

MAGNATRONS

and vernier; C4 to be .0025 mfd., C5 to be .001 mfd., C6 to be .002 and C7 to be .00025.

The true experimenter will enjoy this circuit. He has the assurance that it will work when correctly assembled, the values are nearly right as listed, but considerable experimenting with the reversing of leads to L3 and L5 and the turns on L3 will be necessary.

A. B. C. RADIO COURSE

(Continued from page 20)

which constitutes the other plate of the cell. The electrical connection from the mixture of carbon and manganese dioxide to the positive terminal of the cell is made by means of a carbon rod imbedded in the center. The manganese dioxide is the depolarizer and during the use of the cell this oxide is reduced to a lower state of oxidation.

Dry cells as manufactured by different companies differ somewhat, particularly in the construction of the positive plate and the combination of chemicals and materials used in forming the positive plate, but in principle they all are the same.

Dry cells are made in a wide range of sizes and shapes to meet certain requirements as to space limitations and the current they will be expected to supply. The larger the area of the plates the greater the current and ampere-hour capacity of the cell. That is, a cell with large plates is capable of supplying a larger current without serious effects due to polarization, than a small cell can supply, and it can supply this current for a longer time. The product of the current times the time in hours that this current is supplied, is called the ampere-hour capacity of the cell.

(Having shown primary cells as producers of electrical energy from chemical action, Professor Moreton next week considers storage batteries as containers of that energy.—Editor's Note.)

If you want a C battery in the audio outfit, connect the P posts on the transformers, run the negative C to this wire and hook the positive side of the C to the negative A battery line.

Learn Electricity

by practical, personal training in the great shops of **COYNE**

You don't need education or experience. COYNE-trained men earn \$60 to \$200 a Week

Free Railroad Fare Get my special offer of free fare to Chicago, also FREE courses in Radio and Auto Truck and Tractor Electricity. Ask for Big, Handsome FREE BOOK containing 151 actual photos of electrical methods and operations in Big Shops.

COYNE ELECTRICAL SCHOOL
Dept. A-647 1300 West Harrison Street, CHICAGO, ILLINOIS

OLD MAN STATIC "KILLED" AT LAST

Statchoke Has Startled the Radio World—Insures Clear, Long Distance, Summer Reception.

Kansas City, Mo., June 5 (Special)—The long promised invention which insures clear, long distance, "summer radio" without the agony of static, has just been announced here. Radio experts and fans who have tested this new imported invention, pronounce it marvelous. Awarded Certificate of Merit by Radio News of Canada.

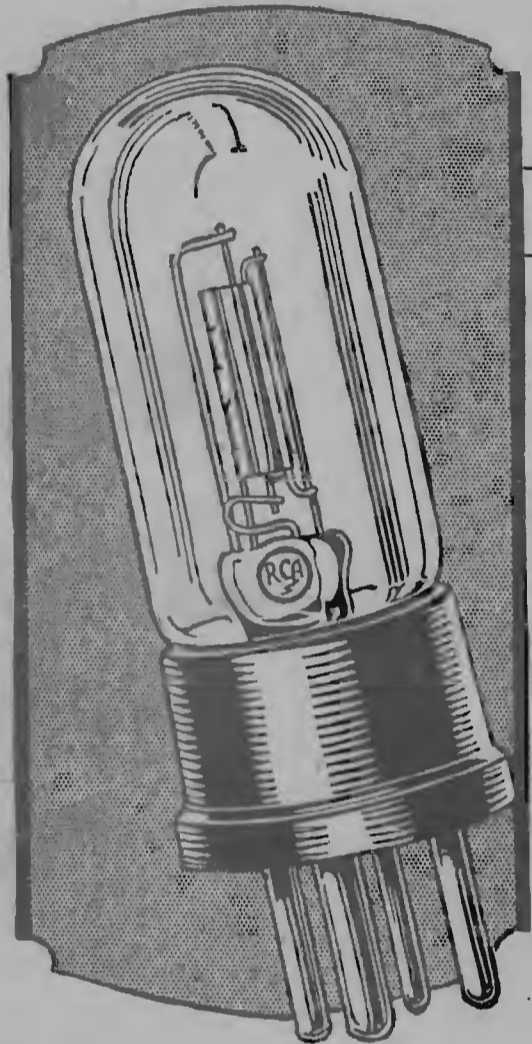
In addition to reducing static to a minimum, the Statchoke increases the volume as well as clarity of distant reception, sharpens the selectivity of tuning in, eliminates that harshness of the tubes so noticeable on local loud speaker reception and acts as a safety lightning arrester.

The Statchoke somewhat resembles a small transformer, and by a system of coils it allows only the correct current value to enter the set, choking out other high current variation from the aerial, which is passed off through a secondary ground connection.

So confident are the American distributors that Statchoke will give you clear, long distance, summer reception that they have set aside 25,000 units for initial distribution direct to the radio fans, at a special price of only \$2.50 each.

If interested write today to Radio Dept., Imperial Laboratories, 9587 Coca Cola Bldg., Kansas City, Mo., and the Statchoke will be sent you by insured mail. Write today as this is a special offer and may not appear again.

Genuine
Radiotrons
Sold Here



WD-11
WD-12
UV-199
UV-200
UV-201-a

Radiotrons with these model numbers are only genuine when they bear the name Radiotron and the RCA mark.

Do you believe? in Names?

Do you buy things by name because the name tells the quality? Do you always ask for a RADIOTRON, instead of just a "vacuum tube"—demand the standard by the name that marks it as genuine?

The most important part of a radio set is the tube, and you can't get the best out of any set without putting the best tubes into it. There's a Radiotron for every use—for every kind of set. Look for the name—and the RCA mark. And be sure it is *genuine*.

Radio Corporation of America

Sales Offices: Suite 316

233 Broadway, New York

10 So. La Salle St., Chicago, Ill.

28 Geary St., San Francisco, Cal.

Radiotron

REG. U.S. PAT. OFF.

PRODUCED ONLY BY RCA

