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Radio Digest

EVERY WEEK

Illustrated PROGRAMS

TEN CENTS

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

Vol. XIV

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SATURDAY, JULY 25, 1925

No. 3

FIND GIRL LOST 20 YEARS

SUGGESTS SETTING ALL CLOCKS VIA AIR

REGULAR TIME SIGNALS IS LONDON PLAN

Great Britain Radio Group Has Scheme for New International Synchronization

LONDON, Eng.—The Radio Association of Great Britain, at a meeting just held at the house of commons, agreed to make representations to the postmaster-general and certain international authorities recommending the adoption of constant time signals.

Dr. Fournier d'Albe, vice-president of



BROADCASTS SUCCEED AS HOPE IS LOST

Unite Mother-Daughter

WBAP Appeal Enables Mother to Find Child Separated from Her When Only Three

FORT WORTH, Texas.—Radio, bridging a gap of twenty years after the telephone, telegraph, postal service and several detective agencies had failed, was successful here in reuniting a mother and a long lost daughter. Station WBAP was the medium through which the reunion was brought about.

Not long ago a letter was received from Mrs. C. E. Bastian, Fields Station, Pa., asking WBAP to help her locate her daughter for whom she had been separated for twenty years. The message was broadcast during a period devoted exclusively to this kind of work and the little gray mother far away in the Pennsylvania hills listened in and wondered if by any chance her little Jessie would be hearing the appeal at the same time in some distant state. So many

(Continued on page 2)



the society, who had previously outlined a scheme for the international synchronization of clocks, urged the need for some system of constant time signals, and suggested that Greenwich or the Eiffel tower should allocate a certain frequency and send out time signals every minute during the twenty-four hours. These signals would actuate a trip gear on the instruments distributed around the world. The trip gear would then bring into action the mechanism rotating numbers showing the international method of recording the exact time.

Italy Plans Fight to Stop 'Black Listeners' Radio Use

ROME.—The Italian government has declared war to the death on the "Black Listeners" or users of unlicensed sets. It is estimated that there are about 12,000 of these "Radio-amatori di frodo."

Stewart-Warner Will Go on Air Via WBBM

Builds Own Studio—Plans 12-Hour Weekly Schedule

CHICAGO.—The Stewart-Warner Speedometer corporation, now manufacturing Radio receivers, is soon to broadcast through WBBM here twelve hours each week. The Stewart-Warner studio will be on the air from one to three hours each evening with a special program adapted for the company.

The studio is being constructed in their executive offices at 1826 Diversey boulevard. It will be second to none for beauty and equipment.

These three smiling young ladies are great favorites with the invisible audiences of the stations they grace with their presence. Marion Partridge, left, gives the crisp and entertaining pianologues at WWJ, Detroit. The little lady in the center with the beautiful feathers in her hat is winning more feathers by her excellent accompanying of vocal artists over WGN, Chicago. She is Edythe Sackett. And to the right is Enid Watkins whose clear, pleasing soprano voice is oftentimes heard from WOR, Newark, N. J.

No. 18 OFFICIAL BALLOT

Announcers' Contest

RADIO DIGEST SECOND ANNUAL GOLD CUP AWARD

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

Please credit this ballot as one vote for:

.....of Station.....
(Announcer's name) (Call letters)
Signed.....
Address.....
City.....State.....

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

7-25-25

'MAC' STILL STANDS AS CUP LIST LEADER

SOLEMN OLD JUDGE IS 9,004 VOTES IN REAR

Four Leaders Fail to Increase Number of Votes—Only One Change Occurs During Week

Summer static does not seem to effect the way Graham McNamee's voice gets out over the air from Station WEAF judging from the number of votes that are pouring into the Radio Digest office to keep him in first place in the annual Gold Cup World's Best Announcer contest. For the fourth consecutive week the "Eastern Sage" has held top position, with the "Solemn Old Judge," George D. Hay of WLS, just below him.

Both leaders gained considerably during the past week, but McNamee's backers succeeded in putting 2,489 more votes between him and his nearest rival than he had before. At present he leads by a 9,004 margin.

Station Campaign for Leaders

Indications are that stations whose announcers do not seem to have a chance to beat out any of the leaders are throwing their support to favorites who are up near the top of the list as it now stands. However, the support of one station for another is not being given for sectional reasons. The individual merit of the announcer they are backing seems paramount as evidenced by a station in the same city urging their listeners to vote for man a thousand miles away.

Emery and Becker Trade

The only change in position among the first sixteen occurred when Robert Emery of WEEI went into fourteenth and O. E. Becker of WGR dropped to fifteenth. It will be noted in the table below that four of the leaders remained stationary during the week. These were Bill Hay, George Fitzpatrick, O. E. Becker and Jerry Sullivan. It may be that these announcers have asked their backers to support others higher on the list. The standing at the close of the week follows:

Position	Name and Station	Votes
1	Graham McNamee, WEAF.....	32,142
2	Geo. D. Hay, WLS.....	23,138
3	Gene Rouse, WOAW.....	15,653
4	Henry Field, KFNF.....	13,091
5	Hired Hand, WBAP.....	11,613
6	H. W. Arlin, KDKA.....	8,846
7	Frank S. Lane, KRFL.....	5,598
8	W. G. (Bill) Hay, KFKX.....	5,074
9	Lambdin Kay, WSL.....	4,875
10	Geo. Fitzpatrick, WDAF.....	4,595
11	N. Dean Cole, WHO.....	4,242
12	Stanley Barnett, WOC.....	4,014
13	Charles Erbsteln, WTAS.....	4,006
14	Robert Emery, WEEI.....	3,517
15	O. E. Becker, WGR.....	3,116
16	Jerry Sullivan, WQJ.....	3,061

How to Vote and Get Bonus

Don't miss a single ballot, for when these are turned into 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 ballots 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 consecu-

tively 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.

British Favor Silent Night

LONDON.—A recent proposal that all broadcasting stations should close down for one day each month, on a different day of the week, has received strong support here. Thousands of listeners are interested in hearing distant stations, but this is practically impossible at present, especially now that the B. B. C. programs extend until after most continental stations have closed down.

SOLID GOLD CUP FOR WINNING ANNOUNCER



Here is the solid, 14-karat gold cup which will be awarded at the Radio World's Fair to the world's most popular announcer for 1925. The first cup was awarded last year to George D. Hay, "The Solemn Old Judge" of WLS, Chicago.

"Radio Best Public Catch" Says N. Y. Orchestra Chief

NEW YORK.—Hugo Riesenfeld, who broadcasts with his orchestra from Station WNYC each week, is completely "sold" on Radio. Nothing will ever replace it as a medium for catching and holding the attention of the public, is the opinion of Mr. Riesenfeld.

When not broadcasting, Mr. Riesenfeld conducts his orchestra at the Rivoli theater in this city. During the showing of a picture recently, two loud speakers were installed above the box office connected to microphones in the audience. Laughter from the interior of the theater was picked up and broadcast to the crowds on Broadway.

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Radio Digest, Illustrated, Volume XIV, Number 3, published Chicago, Illinois, July 25, 1925. Published weekly by Radio Digest Publishing Company, 510 N. Dearborn Street, Chicago, Illinois. Subscription rates, yearly, Five Dollars; Foreign Postage One Dollar additional; single copies Ten Cents. Entered as second class matter at the post office at Chicago, Illinois, under the Act of March 3, 1879.

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Looking Ahead

Construction of the Set That Won Our \$1,000 Contest will be presented by C. C. Sheldon of La Verne, Calif., the designer and winner. Six tubes are used, with double Weagant regeneration and resistance coupled amplification. This outfit is a beauty and, beside being selective, is easy to operate.

FOUR MORE BALLOTS and the 1925 Gold Cup Award Will Be Over. Will Graham McNamee keep the lead he has so valiantly won, or can it be that the bonus votes, last to be returned, will put some dark horse announcer on the throne of king? The solid gold cup is wondering where it will go.

Interference from Chargers, Motors, Power Lines and Signs has been carefully investigated by the Radio branch of the Department of Marine and Fisheries and the results of this study will be presented in a short series of articles beginning next week. The cause is explained and—better yet—the remedy is given.

WTAM, "The Voice from the Storage Battery," at Cleveland, will be with us next week when that station is illustrated and described in another of Radio Digest's popular photo layout pages. WEAH, New York, with its full corps of announcers, and WHAS, at "My Old Kentucky Home," will follow WEAH in succession.

The Mysteries Within a Vacuum Tube will be explained by Professor Moreton in the next chapter of his splendid A B C series. Why there must be a filament, grid and plate, makes interesting reading.

Newsstands Don't Always Have One Left

WHEN YOU WANT

Radio Digest

YOU WANT IT!

BE SURE OF YOUR WEEKLY COPY BY SUBSCRIBING NOW

SEND IN THE BLANK TODAY

Publisher Radio Digest,
510 N. Dearborn St.,
Chicago, Illinois.
Please find enclosed check M. O. for Five Dollars (Six, Foreign) for One Year's Subscription to Radio Digest, Illustrated.
Name.....
Address.....
City.....State.....

GIRD BRITISH EMPIRE WITH BEAM RADIOS

ALLOCATE STATION SITES TO MARCONI COMPANY

Expect Service to India and Australia by Spring—Canada and Africa Later

LONDON, Eng.—The post office has decided to have the Marconi company erect its beam Radio stations for communication with Australia and India at Winthorpe near Skegness, Eng. By the terms of the contract this work must be completed within nine months of the handing over of the site, and it is likely that this section of the great Radio scheme for encircling the British Empire will be ready for service next spring.

The two other stations for communication with South Africa and Canada will be at Bodmin and Bridgwater respectively.

The two Winthorpe stations will be for transmission. The masts, of which there will be five in a row at each station, will be 300 feet high, but the number will depend on the wave length that it is proposed to use. They will be arranged in lines oriented on India and Australia respectively, that is, broadside to the objective. From the top of each mast, and on the side facing towards the objective, the aerial wires will be hung; while a second series of wires, also hung from the heads of the masts, will form the reflector. The reflector will direct all radiation towards the objective.

Having regard for what they will accomplish, the area required for these stations is not great. The masts will be 650 feet apart. The aerial system will be designed so as to direct the flow of waves within an angle of 30 degrees.

FIND GIRL LOST YEARS

(Continued from page 1)

times had clues of the daughter's whereabouts been uncovered only to fade out and leave the same old pang gnawing at the aging heart.

Broadcast Bring Results

Mrs. Bastian switched the Radio off after hearing the appeal, from WBAP. She could not bear to hear other girls singing "Mother O' Mine," dedicated to happy mothers all over the continent. That night she prayed that this newest form of communication would succeed where so many others had failed.

Next morning, when the first employe of WBAP arrived for work, he found a young lady waiting in the reception room. She told him that her mother-in-law had heard the appeal of Mrs. Bastian and that she thought perhaps it might be the final step in a long drawn out search.

Reunion Follows

A telegram to the little mountain side village in the East brought an immediate reply confirming her belief and the reunion followed shortly afterwards. Radio had accomplished another good and two hearts were again happy.

In speaking of the service rendered by WBAP, Mrs. Bastian said, "The most important public convenience for rich and poor alike is the wonderful Radio. The detective agencies have their place as have also the telegraph and telephone stations, but when we consider the rapidity of Radio we will have to give it first place."

The "Radio Girl," as her new found friends choose to call her, is Jessie Lee Etter Kirven. Mrs. Kirven was born in Fountain Head, Tenn., where Mrs. Bastian, with her former husband, kept a railroad boarding house. When Jessie was a little girl about three years old, the mother was forced, by stress of circumstances, to give the child to relatives. Jessie lived with this family until relations became so unpleasant that she left and went to work for \$2.50 a week and board.

Married Son of Hostess

This meager salary furnished the source of the savings which brought her to Texas. It was July 25, 1921, that she arrived in Fort Worth and in September of that year she married the son of Mrs. R. B. Kirven with whom she had lived while in this city. It was Mrs. Kirven who intercepted the message broadcast by WBAP and delivered it.

Just after her marriage, Jessie began to think of her mother and wrote her several letters, none of which reached their destination. Her mother, too, had tried every means of locating her. The telegraph, telephone and detective agencies had been called on but without results. Radio was finally suggested by a friend with the wonderful result just told.

Mrs. Bastian says that there is no doubt of the identity of the daughter who left home a child and returned home a grown woman of 23.

That truth is stranger than fiction and that the wonders of Radio will never cease has again been exemplified.

NEWS BRIEFS FROM THE BROADCASTERS

SIAMESE COP SPEAKS ON STATION WOR PROGRAM

Races Feature of WGN—Lopez Back on Afternoon Programs—Other Items

Jiem Limpy, a subject of good King Rama VI of far off Siam, recently broadcast to listeners of WOR his experience as a student at the newly instituted Cops' college which is conducted by officers selected from among "New York's finest."

In the same manner that was so popular in putting the Kentucky derby and the Indianapolis auto race on the air, WGN, the Chicago Tribune station on the Drake hotel, is to broadcast the important race events of the summer season from the Hawthorne Jockey club, west of Chicago.

Harold Gieser and the Vincent Lopez Hotel Statler orchestra are back on WGR's afternoon transmission, after an absence to the afternoon audience of about six months during which time the Lopez orchestra broadcasting at Buffalo was confined to the supper dance period.

From Denver's far-famed Brown Palace hotel—where sturdy men of the western outdoors rub shoulders daily with dinner-coated society leaders—dinner concerts are now being broadcast regularly by KOA, Rocky Mountain station of the General Electric broadcasting chain.

WGY's travelogue lecturer, Dr. Sigel Roush, is traveling across the Atlantic on his eighteenth trip and on August 10 will give a travelogue on "The Eastern Mountains of the United States," from the London station of the British Broadcasting company.

Dr. Roush is a dentist by profession.

The inspiring services of the Greater New York Federation of Churches continue to be the feature on the Sunday afternoon program of WEAF for those who find their own churches closed for the summer or who leave town on their vacations.

A New Year's card has just been received by WEAF from a Radio listener in Jersey City. Although the officials of the station are trying to figure out whether the well-wishing fan is early or late—it's six months of one or half a dozen of the other—they deeply appreciate the spirit in which the card was sent. Evidently the arctic explorers aren't the only ones who lose track of the time!

Nine of the KGO staff of dramatic players will appear before the studio microphones of the General Electric station, Thursday evening, July 30, and recreate for Radio listeners the comedy, "Billeted," written by F. T. Jesse and H. M. Harwood. "Billeted," with Margaret Anglin in the cast, enjoyed a tremendous success on the stage. Over Radio it is expected to be equally as good, according to Wilda Wilson Church, director of KGO players.

One of the outstanding features on the KYW weekly programs is the Conn Hour of Music, which goes on the air every Thursday evening from the Hearst Square studio of the Evening American. Each Thursday features something different. There is band music, vocal and instrumental of all types. The broadcast is made on the program starting at 10 p. m.

Concerts by the New York Philharmonic orchestra, to be broadcast by WGY of Schenectady during the months of July and August, will originate at the Lewisohn stadium, College of the City of New York. The series are heard Friday and Saturday nights of each week.

WGY Signal Strength Is Study of Experts

WASHINGTON, D. C.—Radio experts of the bureau of standards have just conducted some special tests in cooperation with laboratories in several cities, during which records were made of the variation in intensity of signals received from Station WGY at Schenectady, during the sunset period.

The observing periods were approximately three hours long, centering at the time of sunset at the receiving station. The records of these observations are being studied as well as records of other tests made on Station KDKA at East Pittsburgh, and a report on the characteristic effects will be issued by the bureau in a short time.

Future cooperative observations will be conducted on fading, field intensity, frequency, direction and atmospheric disturbances.

BOTTLED RADIO IS RATED OLD STUFF

LONDON.—Nearly 50 years ago the coming of "bottled" or "canned" Radio was foretold in a cartoon in London "Punch." On December 14, 1877, Punch had a page of four cartoons dealing with Radio possibilities. The last shows a man and his wife selecting bottles of music from a cellar. The bottles are labeled Patti, Nilsson, Redeker, Friedlander, Henschel, Gounod, etc.

COW SALE MAY PAY TO TUNE IN ON KDKA

HUDSON, N. Y.—Unless KDKA returns to its former wave length, the C. C. Parker family here are going to be forced to sell their brindle cow and get a more selective set. At least that's what Mr. Parker said when he recently wrote the Pittsburgh station complaining of interference on 309.1 meters. Mr. Parker failed to mention if the cow was pining itself away for lack of KDKA.

RUBY ONE IS CHINESE SONGSTRESS



This pretty oriental beauty is Ruby One, the Chinese prima donna whose singing on the occasion of her debut from WOR, Newark, was acclaimed by many fans. She is a graduate of the University of California.

FISHING AND WILDS GIVE 'ROXY' REST

Toronto Proves Royal Host to Popular WEAF Announcer and "Gang" on Vacation

TORONTO.—"Roxy" (S. L.) Rothafel and his gang of the Capitol theater, New York, idols of many millions of listeners in the eastern half of the country, are just finishing an extended vacation in Ontario where they traveled about in a private car, visiting all the scenes of interest and sampled the fishing and other good things for which Ontario is famous.

On Roxy's arrival in Toronto he was tendered a luncheon by the Canadian Radio Trades association. Following the luncheon they went to the Military hospital where they entertained the wounded soldiers.

In the evening Roxy and his gang broadcast from the Sunnyside Pavilion through Stations CHNC and CFCA at Toronto and gave Canadians a closeup of the man and his gang whom they had heard so often during his famous Sunday night concerts. Roxy and his gang then disappeared into the Canadian wilds from which they emerged once a week to give their weekly broadcast through WEAF by special wire direct from the Parliament buildings at Toronto.

New Stations

South San Francisco, Calif. is on the air with a new 500-watt station. This is owned by the Radio Entertainments, Inc., and operates on 220 meters. Chicago, Ill. also has two new stations, WSBC, World Battery company, 200 watts, 209.7 meters, and WLTS, Lane Technical high school, 100 watts, 253 meters. WJBS is the call of the new broadcaster in Elizabeth, New Jersey, which the New Jersey National Guard is operating on 202.6 meters with 20 watts.

Twenty-three commercial class A stations are signing off. These are: KFBU, Laramie, Wyo.; KFCC, Helena, Mont.; KFKH, Milford, Kan.; KFLB, Menominee, Mich.; KFNI, Warrensburg, Mo.; KFNL, Paso Robles, Calif.; KFNY, Helena, Mont.; KFRQ, Portland, Ore.; KFWC, Upland, Calif.; KFWP, St. Louis, Mo.; WBBZ, Indianapolis, Ind.; WCBT, Bemis, Tenn.; WCBJ, Jennings, La.; WDBP, Superior, Wis.; WDBW, Columbia, Tenn.; WFBF, Eureka, Ill.; WHBI, Chesapeake, Mich.; WHBT, Downers Grove, Ill.; WNU, Washington, D. C.; WSAB, Cape Girardeau, Mo.; WSAD, Providence, R. I.; WSAX, Chicago, Ill.; WTAU, Tecumseh, Nebraska.

COASTAL STATIONS TELL 'QUAKE NEWS

KFWB BEATS NEWSPAPERS WITH 1ST TRUE STORY

Radio Manager Uses Plane to Obtain News About Santa Barbara Disaster

LOS ANGELES.—Radio again proved its efficiency in a crisis when an earthquake practically wrecked the business section of beautiful, old Santa Barbara.

Los Angeles suffered a very mild shock at the same time, but many did not know that the main force of the quake had centered around Santa Barbara until the Los Angeles broadcasters came on the air during the morning with the news.

KFWB, Hollywood, beat all newspapers and other stations with the first authentic account of the quake, given over that station's microphone the evening of the day on which the shock occurred.

Flies to Scene for News

Norman Manning, manager of the station, left Los Angeles early in the morning by plane and in company with police officials visited all the ruins. He was able to give a complete account of the havoc and desolation wrought by the tremor before any other agency was able to publish a true account.

He found a temporary transmitter had been erected in the streets of Santa Barbara to broadcast news of the disaster but due to the fact that Santa Barbara is in a Radio "pocket" no success had attended this effort.

Other Los Angeles stations, notably KNX and KHJ, were on the air practically all the day giving bulletins as fast as news was received.

EVEREADY PLANS ON UNIQUE MUSIC

Radioites to be "First Nighters" For New Symphonic Compositions

NEW YORK.—In securing Max Jacobs as conductor of the Eveready Chamber Symphony orchestra during the Eveready Hour programs on alternate Tuesdays of July and August—of which the next will be on July 28 at 9 p. m., Eastern daylight saving time—the sponsors of this feature have taken advantage of the peculiar position held by Mr. Jacobs among musical groups in this city.

Mr. Jacobs' special forte is that of securing for his repertoire the little novelties that find their way most grudgingly into the programs of the larger symphonic organizations. He has built for himself and his orchestra an enviable reputation as an exponent of the unheard and unappreciated gems of melody and harmony.

For the most part, his program this summer will consist of these bits written by the world's greatest composers in leisure moments or as a relief from the more arduous labors of larger symphonic composition, and by living composers whose works the Radio audience will act as the "first night audience." Those who will enjoy these unusual concerts will be the listeners of WEAF, WEEI, WFI, WCAE, WGR, WWJ, WJAR, WCCO and WSAI.

WBZ to Help KDKA Talk to S. S. Arctic

Stations Will Employ 49, 63 and 24½ Meters

SPRINGFIELD, Mass. — Cooperating with her sister station, KDKA at Pittsburgh, in continuing the short wave experiments in the far north which were started last year, WBZ will also carry on a series of short wave tests with the Canadian government ship "Arctic."

A new high power short wave transmitter working on 49 meters has recently been installed at the Springfield works of the Westinghouse company where the main transmitter of WBZ is located.

These special short wave messages will be sent out from the Springfield transmitter every Wednesday evening from 10:30 until 11:00 o'clock, eastern time. The messages will go out on 49 meters.

Station KDKA will transmit during the vessel's stay in the Arctic regions every Monday and Friday night from 10:30 to 11:00 o'clock, eastern time, on a wave length of 63 meters. It is also anticipated that KDKA will make special test transmissions to the boat on 49 and 24½ meters.

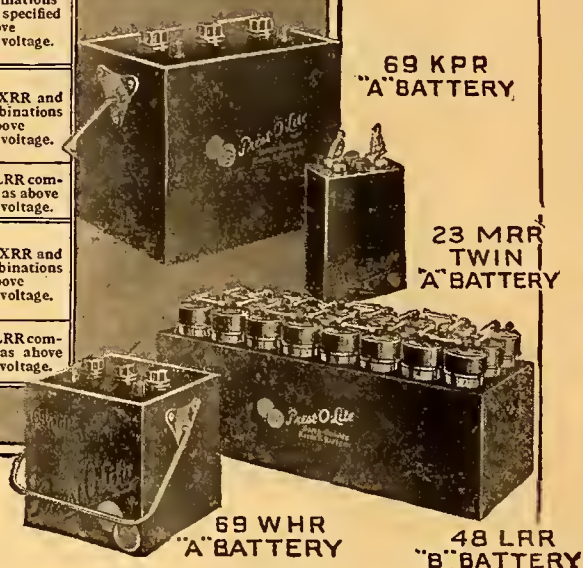
Belfast station is to transmit an underwater broadcast. A diver's helmet will be equipped with a microphone and the diver will talk to listeners from the sea bed.

Prest-O-Lite

RADIO CHART

Voltage of Tubes	No. of Tubes	Type of Tubes (see foot-note)	Total Rated Ampere Drain	Recommended Prest-O-Lite "A" Batteries		Recommended Prest-O-Lite "B" Batteries		
				Order by following Type	Days between Charge	Set Manufacturer's Specified Voltage	Order by following Type	
5-Volt Tubes <small>C-300 and UV-200 are interchangeable C-301A, DV-2 and UV-201A are interchangeable</small>	1	UV-200	1	69 WHR OR 67 WHR	22 16	22½-24	One 24 XRR	
	2	UV-201A	½	67 WHR	33			
	2	1 UV-200 1 UV-201A	1½	611 WHR OR 69 WHR	22 17	45-48	One 48 XRR	
	3	UV-201A	¾	69 WHR OR 67 WHR	29 22			
	3	1 UV-200 2 UV-201A	1½	611 RHR OR 69 WHR	21 14	45-48	One 48 XRR	
	4	UV-201A	1	69 WHR OR 67 WHR	22 16			
	4	1 UV-200 3 UV-201A	1¾	613 RHR OR 611 WHR	22 15	90-96	Two 48 LRR	
	5	UV-201A	1¼	611 WHR OR 69 WHR	22 17			
	5	1 UV-200 4 UV-201A	2	613 RHR OR 611 WHR	19 13	45-48	One 48 LRR	
	6	UV-201A	1½	611 RHR OR 69 WHR	21 14			
	8	UV-201A	2	69 KPR OR 67 KPR	21 15	90-96	Two 48 LRR	
	For sets using current at a rate higher than 2 amperes.			2¼	69 KRL OR 67 KPR			22 13	45-48	Use combinations of LRR as specified above for same voltage.
			2½	69 KRL OR 69 KPR	19 16	67-72	90-96	
3-Volt Tubes	1	UV-199 C-299 DV-1 DV-3	.06	One 43 MRR	100			22½-24	Use same XRR and LRR combinations as above for same voltage.
	2		.12		50	45-48		
	3		.18	Two 43 MRR in Parallel	33		45-48	67-72	90-96
	4		.24		25			
	5		.30	40	45-48	67-72	90-96	Use same LRR combinations as above for same voltage.
	6		.36	33				
1.1-Volt Tubes	1	WD-11 WD-12 C-11 C-12 215A 215N	¼	One 23 MRR Twin	48	22½-24	Use same XRR and LRR combinations as above for same voltage.	
	2		½		23			45-48
	3		¾	Two 23 MRR Twins in Parallel	32	45-48	67-72	
	4		1		23			
	5		1¼	Three 23 MRR Twins in Parallel	29	45-48	67-72	90-96
	6		1½		23			

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Write today for this free booklet

Whether you have a one-tube set or most advanced multi-tube outfit, you'll find a fund of interesting information in our booklet, "How to fit a storage battery to your set—and how to charge it."

This booklet gives you the complete Prest-O-Lite Radio Chart—technically accurate recommendations covering both "A" and "B" storage batteries for every type of set.

In addition, there is much vitally important data on battery care and upkeep—information that any radio fan will find of real value in keeping his set at its maximum efficiency. Write us at Indianapolis, Ind., for your copy right now.

How to fit storage batteries to your set

IT PAYS to buy wisely—to select batteries that bring out the best in your set and are of the right capacity to give fine reception at recharging intervals best suited to your convenience.

The new Prest-O-Lite Radio Chart shown here tells you how to select such batteries. Use either of the two sizes of "A" Batteries recommended for your set, depending on the days of service you wish between chargings (based on the average use of your set of three hours a day). You will find the larger capacity battery more desirable unless facilities are provided for frequent and easy recharging. Use the "B" Battery combinations that give the plate voltage recommended by

the manufacturer of your set. Prest-O-Lite "B" Batteries serve from two to four months without recharging.

Special structure plates, high porosity separators and scientific internal construction make Prest-O-Lite Batteries dependable sources of the even, unvarying current absolutely necessary for volume, clarity and distance.

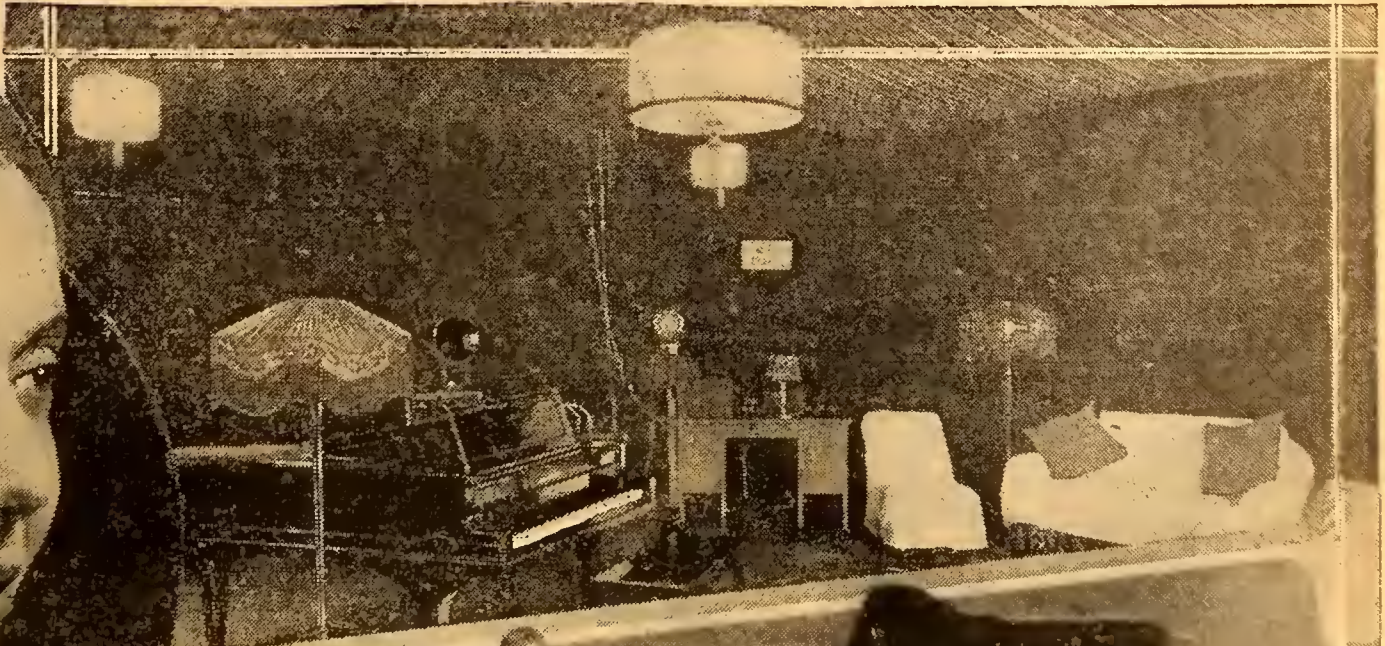
Prest-O-Lite Batteries are made to give long, faithful service. They're easy to recharge—and offer you truly remarkable savings. Though standard in every respect, they are priced as low as \$4.75 and up. See them at your dealer's—or write for "How to fit a storage battery to your set—and how to charge it."

THE PREST-O-LITE CO., INC., INDIANAPOLIS, IND.
New York San Francisco
In Canada: Prest-O-Lite Company of Canada, Ltd., Toronto, Ont.

Prest-O-Lite



WKRC, "The Station on the Hill"



Upper, Lella LeMarr's orchestra and the studio they play from at WKRC. Right, Gene "Mitty" Mittendorf, director, former WSAI announcer.



The smiling lady above is Lella LeMarr, WKRC musical director. The other lady is Norrine Gibbons who puts the "blue" into the popular numbers she sings. Left, John Church, chief engineer, signing off.



SERMONS and detective stories, jazz and beauty hints, reading courses and symphony concerts, safety talks and "blues" singers, medleys and comedy, prize fights and orchestras, military bands and camp meetings, travelogues and home economics, soloists and monologists, spring songs and—well, Station WKRC, the new 1,000 watt station of the Kodel Radio corporation in the new \$5,000,000 Hotel Alms at Cincinnati certainly offers everything from beginning to end for Radio fans. WKRC is on every night

excepting Friday, which is silent night in Cincinnati. Cincinnati is well known as a musical center and to be musical director of a station in that city one must know music. The orchestra bearing her name is one of the station's big features along with "Doc Howard's Broadcasters," an organization that is a full vaudeville show in itself. There is Norrine Gibbons, contralto, who is another midnight feature at WKRC, and she sings popular "blues" songs and ballads.

Gene Mittendorf, studio director, was formerly captain of the University of Cincinnati track team and holds a mile championship and is fast on his feet. He must be, to handle Doc Howard's WKRC Broadcasters that appear every Monday midnight in the Kodel Midnight Frolic, with an orchestra, quartet, comedians, character singers and whistlers. Mr. Mittendorf, known as "Mitty" to his Radio friends, was assistant announcer at Station WSAI for two years before coming to the Kodel station. He is one of the youngest studio directors in the country.

Jim Mischler and Bob Groenke, the Harmony Coaxers are regular Wednesday evening visitors, writing and presenting their own numbers. They write a piece as they go. Book reviews and reading courses are offered under the auspices of the Cincinnati public library and Paul Ryan, nationally known sleuth, delivers the hair raising detective stories.

Monday night is "popular night" at WKRC, with two hours before and two hours after midnight putting on orchestras, singers, soloists, comedy, and even "Mitty" himself who tears into action by removing his immaculate "Tux" and puts pep into things by chords, tunes and jingles from his very collegiate banjo.

WKRC, in the short time it has been on the air, has earned itself an enviable reputation. Clarence E. Ogden, president of the Kodel Radio corporation purchased the new station "because it is a duty of every Radio manufacturer to provide entertainment and good entertainment for the public."

Miss Lella LeMarr, musical director of WKRC, was formerly director of the Rainbow Broadcasters and plays a mean piano. Her specialty is to defy anyone to name a popular piece of

music that she can't play without music—and she hasn't lost yet.

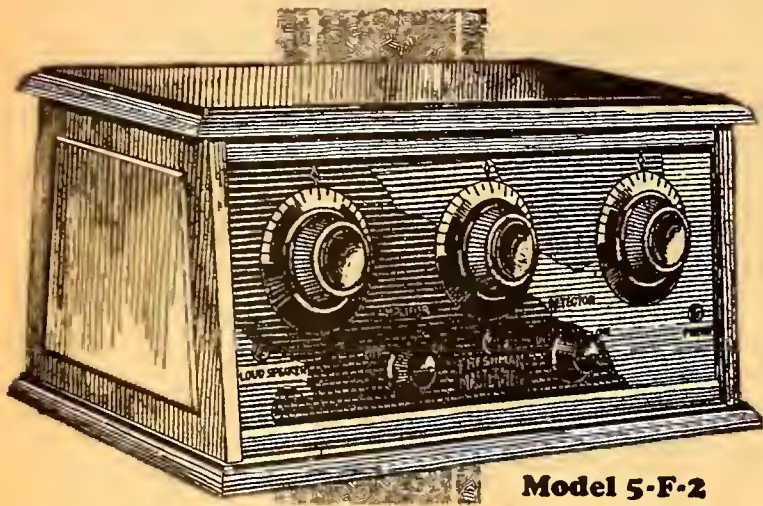
John Church, chief Radio engineer for the Kodel Radio corporation and WKRC, invented a new set of chimes, which are used in signing off and as no one else can play them Church plays "taps" as Mittendorf says, "goodnight."

It is seldom that a pair of operators break into the limelight for Radio fans, but Gene Wesselman and Vic Chamber, operators at WKRC, add their fun to the program appearing together before the "mike" while Church is in the operating room.



Every Monday at midnight the Kodel Midnight Frolic from Station WKRC, features Doc Howard's WKRC Broadcasters, which includes a jazz orchestra, male quartet, a whistler, character monologists and for two hours the air is merry with fun and frolic with all formality taboo!

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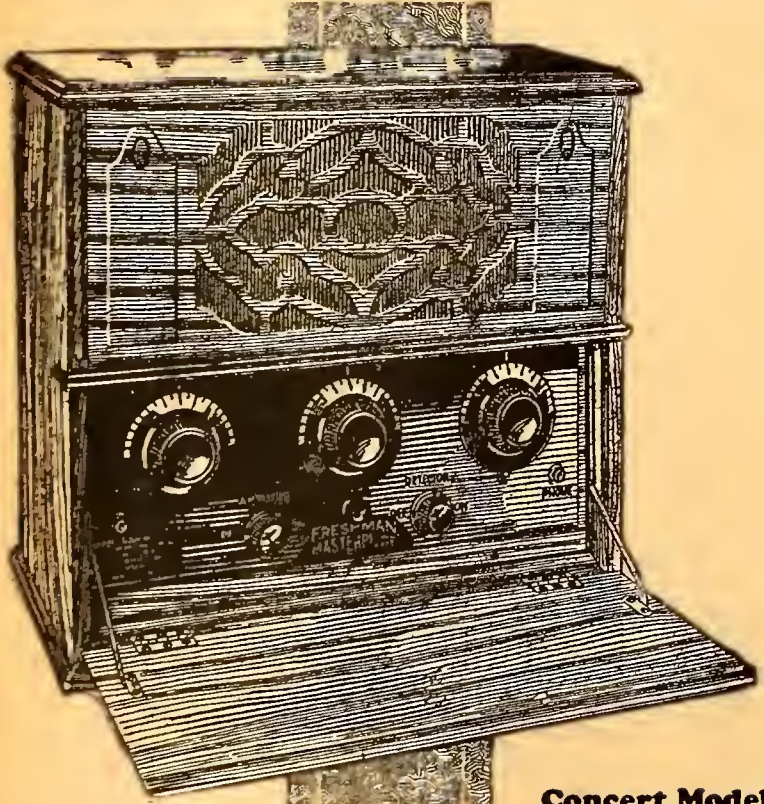
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WLW IN GOOD HANDS WHILE SMITHS TOUR

CROSELY STATION IS UNDER LEAD OF WM. STOESS

Robert Stayman and Alvin Plough Are Other Pleasing Cincinnati Announcers

CINCINNATI—Who is at the helm of Crosley WLW since Fred Smith, director-announcer, left these shores to go to Europe as America's first Radio ambassador? They are doing very well, whoever has assumed charge.



Alvin R. Plough

However, there is no secret. William Stoess, assistant studio director, is acting director of WLW. Alvin R. Plough assists Mr. Stoess, and in addition does considerable announcing. Mr. Plough is heard both from the main studios at the Crosley Radio corporation plant and from the Hotel Gibson, where Robert Visconti's orchestra broadcasts dinner hour concerts on Mondays, Wednesdays and Thursdays.

Robert Stayman, though not heard quite so much as Mr. Plough, always handles the announcing of the concerts from the Cincinnati Zoo, one of the best summer attractions in the city. Incidentally, Mr. Stoess is a post-graduate of the Cincinnati College of Music and an excellent violinist. Through the Springer endowment fund he was awarded with a gold medal of merit. He is not only a soloist but conducts several orchestras heard from time to time by regular WLW listeners. True to his charge he has been giving a series of very good programs during Mr. Smith's absence.



Robert Stayman

At the time this goes to press Mr. Smith and his charming wife, Marjorie Garrigus Smith, pianist of note, will be in Paris. He is visiting all the principal European stations in the old world, and if your receiver is excellent enough you may hear him perform from one or more. Paris, Brussels, Amsterdam, Berlin, Munich, Rome and Geneva lay behind him. He has yet to visit Barcelona and to revisit London and Paris. He will sail from Sherbourg, France, early in August for America to resume his duties as director of Superstation WLW.

BRINGING SONGS TO SING SING



Radio is playing an important part in the lives of the inmates of Sing Sing prison, (Ossining, N. Y.). Besides a set maintained by the authorities for the entertainment of all prisoners many of the inmates have their own sets in their cells.

Broadcasts Singing to Accompany Movie Film

Harry Geise, WIBO Director, Pulls Novel Stunt

CHICAGO.—Synchronizing the Radio voice over a loud speaker with a motion picture being shown in a local theater was the interesting experiment made recently here by the Howard theater in conjunction with Station WIBO.

A motion picture of Harry Geise, the "How-Do-You-Do" man, singing and playing this popular composition of his was turned on the screen. At the same time the theater's large set was tuned to WIBO, the Nelson Brothers Bond and Mortgage company, of which Mr. Geise is now director and announcer. Mr. Geise broadcast the song simultaneously with the motion picture. The effect was striking and gave the audience an intimate glimpse of the studio.

This is one of the first attempts toward making "talking movies" by means of Radio and is also prophetic of the future broadcasts of motion pictures.

Memorial Organ at KFNF Installed and On the Air

SHENANDOAH, Iowa.—The Memorial pipe organ at the Shenandoah station, KFNF, is now installed and ready for use as a lasting memorial to the late Mrs. Henry Field. It was paid for by the voluntary contributions of literally thousands of listeners, over 2,000 having contributed to the fund, mostly in comparatively small amounts.

VIOLINIST-PUGILIST IS RARITY AT WAHG

NEW YORK.—To be a pugilist or a Paganini—odd as it may seem these two vocations have caused Paul Rusinzsky much mental anguish. The he-man side of the youth said, "be another Benny Leonard for it is easy and sure money." But the artistic side of the young Hebrew rebelled.

And yet the boy had to eat and he had to have violin lessons. So he took time by the forelock and fought many-a-battle in the prize ring. And the money went for food and music lessons. The prize ring still claims the stern attention of battling Rusinzsky, but he is also making good headway in the world of music, for only several weeks ago the New York Philharmonic orchestra added him to its list of musicians in the first violin section. And now the great orchestra can claim the distinction of being the only symphonic body in the whole world having a successful prize fighter as a member.

Just when Rusinzsky is to fight again is not known but if one wants to hear him play his violin he is scheduled at WAHG Friday night, July 24.

PEDIGREED VIOLIN IS HEARD OVER RADIO

GODFREY LUDLOW HAS FAMOUS OLD "STRAD"

Once Heard in 19th Century by French Emperor—Also Played in Berlin

NEW YORK.—The famous De Rougemont Stradivarius, which Godfrey Ludlow plays in all of his Sunday evening recitals through Stations WJZ and WGY, has become quite the center of interest for the Radio public.

The instrument was made by Antonius Stradivarius, in the famous violin town of Cremona, Italy, in the year 1703. The manner through which Godfrey Ludlow came to possess it is most interesting. He had attained great fame as a violinist in Europe, and in the summer of 1914 gave several concerts in Russia. While passing through Germany on his way back to England, war was declared, and being an English subject Ludlow was seized by the German authorities and interned in the prison camp at Ruhleben.

Played for French Emperor

After the armistice, he was released and made his way back to London, where he began his search for a violin which was worthy of his ability. A London dealer knew of the whereabouts of the De Rougemont "Strad," and made a special trip to Brighton where the instrument was obtained from a vault of the family whose name the violin bears, and sold it to Ludlow.

Little is known of the travels of this violin from its date of manufacture to the time it came into the possession of the De Rougemont family in the early part of the nineteenth century. History claims that late in the eighteenth century the violin was known to have been played in Berlin and again in the early part of the nineteenth century was played before the French emperor at Versailles.

Tone Chamber Remains Intact

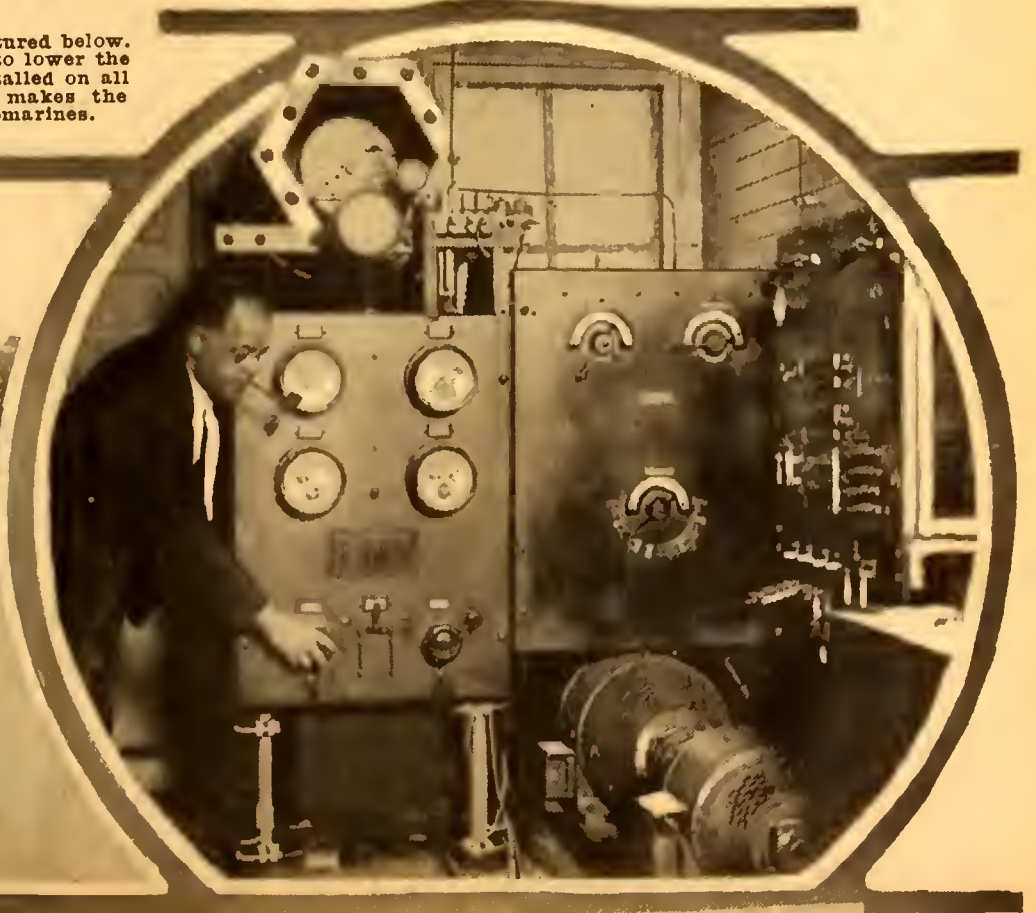
An interesting fact which pleased Mr. Ludlow and also the leading connoisseurs of old Italian violins here in New York was that when they had occasion to open the instrument they found that the four interior supporting blocks remained and are just as Antonius Stradivarius left them, when he glued the violin together 222 years ago.

Of course, the neck, fingerboard and tail piece are all modern to fit the requirements of the present day hand. As in the days of Stradivarius, the manual measurements were much smaller. The head, which is most important, and all other tone-producing parts remain intact, even to the rich colorful varnish for which the master was so famous.

Pernambuco Builds Station

WASHINGTON, D. C.—The department of commerce advises that the A. E. F. G. Consortium has obtained the approval of the federal authorities to proceed with the construction of a large broadcasting station at Pernambuco. The project has been approved. It will take from 18 months to two years to complete the station.

Submarines may now hold conversations far under the water with the outfits pictured below. Left, Senior Radio Expert O. E. Dudley, U. S. N., near waterline of barge about to lower the new directional loop used in underwater reception. This type of loop will be installed on all submarines. Right, Dr. Harry C. Hayes is adjusting the transmitter which makes the communication possible. These outfits will be part of all first line naval submarines.



PRIZE WINNING BAND PLAYS AT KOIL

Saturday, July 25

Saturday, silent night for: CNRT, KFAE, KFDM, KFUD, KFVA, KLDX, KLX, KDA, WBAP, WBAV, WZ, WCAU, WCB, WCX, WDW, WEAD, WEB, WEEL, WFL, WHAD, WHAZ, WHN, WHD, WJY, WKAQ, WLIT, WMAK, WDAN, WDD, WSUI, WTIC, WWJ.

Atlantic or Eastern Daylight Saving Time Stations

CNRD, Ottawa, Can. (435), 8 p. m., Chateau Laurier concert orchestra; 9, address; Gladys Ewart, pianist;



Blanche Burnett is the talented pianist appearing with Grace Dennis on Schaffer. During July Miss Burnett took charge of Mrs. Schaffer's radio program. She will play during the 9 o'clock program Thursday at Station WOAW.

Florence Hood, violinist; Clara Baxter, soprano; Leo Smith, cellist; Chateau Laurier dance orchestra. WBBR, New York, N. Y. (272.6), 8 p. m., Fred Ehrenberg, musical saw soloist; 8:10, L. Marion Brown, soprano; 8:20, Bible questions and answers, Judge Rutherford; 8:30, L. Marion Brown, soprano; 8:55, Fred Ehrenberg.

WCAE, Pittsburgh, Pa. (461.3), 6:30 p. m., dinner concert, William Penn hotel; 8:30, studio concert. WEAJ, New York, N. Y. (491.5), 4-5 p. m., E. J. Dantzig and his Brooklyn Elks club orchestra; 6-7, dinner music, Waldorf-Astoria; 7-7:15, Warren Scofield, baritone; 7:15-7:30, Walter Haefliger, pianist; 7:30-7:45, WEAJ Light opera quartet; 7:45-8, Walter Haefliger; 8-8:15, WEAJ Light opera quartet; 8:15-8:45, Huyler's Foremost Four; 8:45-10:15, concert, United States Army band, direction of Captain William J. Stannard; 10:15-10:30, Theo. Alban, tenor; 10:30-11, Variety half hour; 11-12, Vincent Lopez Hotel Pennsylvania orchestra.

WGBS, New York, N. Y. (315.6), 3-5 p. m., Y. M. C. A. program; 6-6:30, Uncle Geebie; 6:30-7, Bensons dance orchestra; 7-7:30, marimba and Spanish guitar, Don Q. Foyer; 7:30-7:40, Anna Russo, soprano; 7:40-7:50, Ruth Bowman, soprano; 7:50-8, Anna Russo; 8-8:10, Ruth Bowman; 8:10-8:20, Della Riordan, lady baritone; 8:20-8:30, Joe Ross, baritone; 8:30-8:50, Harry Dodd, baritone; 8:50-9, Della Riordan; 9-9:10, Ethel Fox, soprano; 9:10-9:20, Juan Polido, baritone; 9:20-9:30, Ethel Fox; 9:30-9:50, Juan Polido; 9:50-10, Cremonesi Trio.

WGR, Buffalo, N. Y. (319), 2:30-4:30 p. m., WGR's afternoon program; 8:45-10:15, jointly with WEAJ, United States Army band, Washington, D. C.

WHAR, Atlantic City, N. J. (275), 7:30 p. m., lecture period; 8, Seaside hotel trio; 9:30, Vincent Lopez, Jr.'s dance orchestra.

WIP, Philadelphia, Pa. (508.2), 6:05 p. m., Benjamin Franklin concert orchestra; 7, bedtime stories; 8, Comford's Philharmonic orchestra; 8:45, songs of the surf; 8:50, Veselli's band; 10:05, California Night Hawks dance orchestra.

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

WJZ, New York, N. Y. (454.3), 7-8 p. m., Nathan Abas' Hotel Pennsylvania dinner concert; 8:25-10:30, concert, Lewisohn Stadium; Willem Von Hoogstraten, conductor; 10:30-11:30, Joseph Knecht's Waldorf-Astoria Roof orchestra.

WNYC, New York, N. Y. (526), 7-7:30 p. m., dance program; 8-8:02, baseball results; 8:15-10:15, band concert, Central Park; 10:15-10:30, popular songs.

WDR, Newark, N. J. (405.2), 7:15-7:30 p. m., sports talk, Bill Wathey; 7:30-8, the Commanders.

Eastern Standard or Central Daylight Saving Time Stations

KDKA, Pittsburgh, Pa. (309.1), 2:30 p. m., baseball; 7, baseball; 8:45, concert, soprano; 9:55, baseball. KYW, Chicago, Ill. (535.4), 7-7:30 p. m., dinner concert, Congress hotel; 8-9, Marie Walker, soprano; Marie Wright, soprano; duos, Stephenson & Heather.

PWX, Havana, Cuba (400), 8:30 p. m., Maria Perovani, soprano; artists.

WBBM, Chicago, Ill. (226), 8-1 a. m., Sunset male quartet; Sandy Meek, Harry Sosnik, Dave Nudelman, Jerry Cromack, Charlie Garland, Marie Winters.

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

WCX, Detroit, Mich. (516.9), 2:30 p. m., band concert, Bell Isle; 4:15, concert; 6, dinner concert, Book-Cadillac hotel.

WEAR, Cleveland, Ohio (389.4), 7-8 p. m., novelty dinner concert.

WEBH, Chicago, Ill. (370.2), 7:30-8:30 p. m., Oriole orchestra; baseball; Riviera theater; 9:30-10:30, Oriole orchestra; Marie Kelly, reader; Kay Royayne; Langdon Brothers; South American Troubadours; 11:30-1 a. m., Oriole orchestra; Gelse Brothers; Wayne Myers; Kay Royayne, Marie Kelly.

WGES, Oak Park, Ill. (250), 5-7 p. m., Frank Greif, tenor; John A. MacFarlane, bass; Elsie Barre, pianist; Christina Nisted, violinist; Annie Leeds, reader; 10:30-2 a. m., Phil Wilcox, syncopator; Gail Randell, Sunshine Radio girl; Parrish & Ward; Roland D. Hinkle; Sandy MacLavin, Scotch comedian.

WGN, Chicago, Ill. (370.2), 2 p. m., races, Hawthorne Jockey club; 6:30-7:30, Drake concert ensemble, Blackstone string quintet; 8:30, studio program; 10:30, Drake Hotel Terrace Garden program.

WGY, Schenectady, N. Y. (379.5), 7:25 p. m., New York Philharmonic orchestra; 9:30, Hotel Ten Eyck orchestra.

WHT, Chicago, Ill. (399.8), 7 p. m., Wilkens and Martens; Eleanor Kaplin, violinist; Borden's varieties; Frank A. Humatz, baritone; 8, Jelle musical moments; Grayling's string trio; Little Friedman, soprano; Al Carney, organist; 8:45, (238), Riverview Park ballroom orchestra; instrumental numbers; 10:30, (238.8), Chicago Boosters; Langdon Brothers; Hawaiian guitarists; Fred Agard, tenor; Marie Kelly, reader; Marie Wright, soprano; Joan Zafara, soprano; Maurine Marshall, contralto; Pat Barnes, tenor; Al Carney's organ recital; Al Carney singing off.

WIBD, Chicago, Ill. (226), 6-8 p. m., Jack Sprat concert trio; 12-minute playlet; Cunl Corwin, soprano; Dorothy Davle Dillow, soprano; Fred Gluckman, violinist; Carl Linnar, pianist.

WIJD, Mooseheart, Ill. (302.8), 4:30-5:30 p. m., music. Mooseheart children; Mooseheart assembly; 6:45-7:15, Belmont hotel trio; 7:15-8, Carol studio, Charley Straight's orchestra; Alfred F. Brown, organist.

WKRC, Cincinnati, Ohio (326), 10 p. m., popular songs, Bert Linday, Norrine Gibbons, Abe Farb, Lella LeMarr, pianist; 11, Marion McKay's Bond Hill house orchestra.

WLS, Chicago, Ill. (344.8), 7:45 p. m., Lullaby time; 8, Tony O'Connor, Irish baritone; Walter Peterson, Kentucky Wonderban; Perry Lee Huffaker, tenor; WLS Harmony trio; Grace Wilson, contralto; Rex's Cornhuskers; Simmons and Gillford; Ralph Emerson, organist; Eddie and Fannie Cavanaugh; Chubby Parker.

Headliners of the Week

THE PRIZE winning high school band in the recent national contest at Gary, Indiana, was the Council Bluffs band. This organization directed by the very efficient leader Lee Lockhart will broadcast Saturday at the new Council Bluffs station KOIL.

A miniature philharmonic orchestra is something new but well adapted to radio. Fifteen members of the L. A. Philharmonic have been chosen to form this small orchestra. They have been selected both with regard to their skill and the kind of instrument they play, and may be heard this Sunday at KHJ, Los Angeles.

"Songs of the Road" is the attractive title of the summer vacation program Monday at KDKA. Pastoral music and readings will be given by Chauncey Parsons, tenor; and Frederick W. Rodgers, bass. The Symphony players will also present the spirit of wanderlust.

A young Spanish-American composer, Bodamon del Noidel Forn, is the first to produce a piece of work designed for radio transmission. Certain instruments such as the cello, oboe and French horn are adapted for broadcasting. Instruments with too low notes or too high notes are not so good. Mr. Forn having studied these peculiarities has produced "A Spanish Impression." Tune in Tuesday for WEAJ during the Ever-

eady hour. This composition played by the Eveready orchestra may be heard from New York or the link stations.

Eva Darlon, a young singer of French songs, will make her radio debut at WBZ, Wednesday. Miss Darlon is an exponent of the French style of singing which lays stress upon beauty and quality of tone. As she is experienced in operatic, concert, and revue work, she will present a varied program. A talk entitled "Music Inspired by Birds," given by Charles P. Shoffner and illustrated by Marcella North, pianist, is the seasonal feature Wednesday at WLIT, Philadelphia.

A musical operetta, "The Snow Queen," sung by the Junior Girls chorus of the Church of Peace, will make WLS, Chicago, a popular station Thursday night. Not only is the music of this operetta inspiring but the ensemble work of this chorus is very fine. If you wish for a lighter program, one all snap and froth, tune for WLW this same evening and listen to the Doherty Melody Boys.

Three entertaining one act plays are scheduled for WGY, Friday. "The Bishop's Candelsticks," "Lonesome Like," and "Danger," are the titles as the WGY players have long since reached Broadway via WJZ and Washington, D. C., via WRC, these plays will be given with professional skill.

Albert Gillette, baritone; Wilda Wilson Church, reader; Teresa Monotti, soprano; one-act play, "When We Forget"; 10-1 a. m., Clarke Wilson's Hotel St. Francis dance orchestra.

KGW, Portland, Ore. (491.5), 6-8 p. m., Jackie Souder's orchestra; 10-12, Jackie Souder's orchestra.

KHJ, Los Angeles, Calif. (405.2), 5:30-6 p. m., Leighon's Ardele caletia orchestra, Jack Crossbar, leader; 6-6:30, Art Hickman's Biltmore hotel concert orchestra, Edward Fitzpatrick, director; 6:30-7:30, Radio kiddies' hour, Helene Pirie, screen juvenile, guest of honor, Uncle John; 8-10, program, Junior Chamber of Commerce of Santa Ana, Calif.; 10-11:30, Art Hickman's Biltmore hotel dance orchestra, Earl Burnett, leader; 11:30-2 a. m., Lost Angels of KHJ, Freeman Lang, chief; Dot Street, soprano; Bill Hatch and Kay Kellogg; Lost Angels orchestra.

KNX, Hollywood, Calif. (336.9), 5:30-6:15 p. m., Wuriltzer pipe organ studio; 6:15, W. F. Alder, travel talk; 6:30-7, Atwater Kent Radio orchestra, Paul Finstein, leader; 7-7:30, dinner hour music; 7:30-8, Wuriltzer pipe organ studio; 8-9, program, John A. Yaugh corporation; 9-10, KNX studio feature program; 10-11, Abe Lyman's Cocoanut Grove dance orchestra from Ambassador hotel; 11-2 a. m., Hollywood night, the "233" club and movie celebrities.

KPD, San Francisco, Calif. (428.3), 6:30-7:30 p. m., Waldemar Lind and the States restaurant orchestra; 8-12, Johnny Buick's Cabirians.

KTCL, Seattle, Wash. (305.9), 6:30-7:15 p. m., Hermie King and his orchestra; 9:10-9:30, Hermie King and his orchestra; 9:30-12, Radio night.

Sunday, July 26

Sunday, silent night for: CKAC, CNRT, KFAB, KFAE, KFDA, KSD, KYW, PWX, WAHG, WBAV, WCAE, WCAU, WCEE, WCX, WDAF, WDFW, WEAD, WEEL, WFL, WGBS, WGR, WHAD, WHAS, WHAZ, WIP, WLIT, WMAK, WMAQ, WMC, WDD, WDR, WRC, WRED, WSAI, WSMB, WTAM.

Atlantic or Eastern Daylight Saving Time Stations

CHYC, Montreal, Can. (411), 8:45 p. m., Traymore quartet.

WBBR, New York, N. Y. (272.6), 9 p. m., choral singers; 9:10, instrumental selections; 9:20, choral singers; 9:30, bible lecture, Judge Rutherford; 10:10, choral singers; 10:20, instrumental selections; 10:25, choral singers.

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

WDFW, Providence, R. I. (440.9), 10 a. m., chimes; 5 p. m., Venetian serenaders; pipe organ recital.

WEAF, New York, N. Y. (491.5), 3-5 p. m., "Sunday Hymn Sing," Federation of Churches; 7:20-9:15, Roky and his gang, Capitol theater; 9:15-10:15, Goldman band concert.

WEEI, Boston, Mass. (476), 7:30 p. m., Roky and his gang; 8:30, Goldman band concert.

WFI, Philadelphia, Pa. (394.5), 10-20 a. m., services, Arch Street Methodist Episcopal church.

WGBS, New York, N. Y. (315.6), 3:30-4:30 p. m., Piccadilly theater program.

WGR, Buffalo, N. Y. (319), 10:30 a. m., Central Presbyterian church service; 3-4 p. m., vesper service, Rev. Edwin Bahlgren, Maple Street Baptist church.

WHAR, Atlantic City, N. J. (275), 2:30 p. m., sacred recital, Seaside hotel trio; 2:45, sermon, Rev. George H. Neal, First M. E. church; 9, concert, Seaside hotel trio, soloists; 11, Strand theater organ recital.

WHN, New York, N. Y. (361.2), 5-5:30 p. m., Rosalind dance orchestra; 10:45-11:15, Janssen's Hofbrau orchestra.

WIP, Philadelphia, Pa. (508.2), 4:15 p. m., services, St. James Episcopal church, Atlantic City; 7:15, services, Holy Trinity church; 10, lecture concert.

WJAR, Providence, R. I. (305.9), 7:20-9:15 p. m., Roky and his gang; 9:15-10:15, piano recital.

WJY, New York, N. Y. (405.2), 8:30-9 p. m., Olcott Vall trio.

WJZ, New York, N. Y. (454.3), 4-5 p. m., vesper services, St. George's church; 7-8, Nathan Abas' Hotel Pennsylvania orchestra; 8:05-9, Constance Towne program; James Murray, soloist.

WMAK, New York, N. Y. (340.7), 11-12:15 p. m., services, First Church of Christ, Scientist; 7-7:33, Ernle Golden and his Hotel McAlpin orchestra.

WNYC, New York, N. Y. (526), 9-11 p. m., Brooklynn Mark Strand theater program, direction of Edward L. Hyman.

WDD, Philadelphia, Pa. (508.2), 10:30 a. m., services, Bethany temple; 2:30 p. m., opening exercises, Bethany Sunday school; 6, organ recital, Clarence Jawden.

WDR, Newark, N. J. (405.2), 6:15-7:15 p. m., Ernle Krickett's Underella orchestra; 7:15-7:30, sports talk, Bill Wathey; 8-9, Newark Philharmonic band; 9-10, Al Beld's hour; 10:45-11:30, the Commanders.

Breeze Presbyterian church; 5:30 p. m., baseball; 7, municipal band.

KYW, Chicago, Ill. (535.4), 11 a. m., Second Presbyterian church; 4-5 p. m., program.

WBBM, Chicago, Ill. (226), 4-6 p. m., tea dance program; Bill Nolan's WBBM orchestra, Tiny Dave Nudeloan, Charlie Garland, Harold Anderson; 8-10, Samovar orchestra; Shepherd Levine, William Molnair, Charlie Garland; 12-2 a. m., Sunday midnight nut club feature; Samovar orchestra; Charlie and Dave; Ralph Atlas.

WBZ, Springfield, Mass. (333.1), 8 p. m., program, Estey organ studio; "Starlore and Religion," George Leo Patterson; organ music, Hilton Howell Ralley; 8:45, Idylic quartet.

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

WCX, Detroit, Mich. (516.9), 10:30 a. m., services, Central Methodist Episcopal church; 3:30 p. m., band concert, Belle Isle; 8, dinner concert, Book-Cadillac hotel; 7:30, band concert, Belle Isle.

WEAR, Cleveland, Ohio (389.4), 7-8 p. m., Stillman concert orchestra.

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

WGES, Oak Park, Ill. (250), 5-7 p. m., O. E. Gobhaut, baritone; Agnes East Snyder, contralto; Francis Barge, violinist; Elsie Barge, pianist; John Stamford, tenor; Hazel Grey, reader; 10:30-12, Clarence Parrish, pianist; Pat Ward, baritone; Ducky Wilson, jazz pianist; Coyne Electrical school serenaders.

WGN, Chicago, Ill. (370.2), 3 p. m., Lincoln Park band concert; 9-10, Drake concert ensemble.

WGY, Schenectady, N. Y. (379.5), 9:30 a. m., services, First Reformed church; Rev. Robert Wyckoff Searle, pastor; 7 p. m., musical program, WJZ; 7:45, WJZ Lakewood farm ensemble; 9, Godfrey Ludlow, violinist.

WHT, Deerfield, Ill. (399.8), 12 m.-10:30 p. m., Paul Rader.

WIJD, Mooseheart, Ill. (302.8), 8:45-9:45 a. m., Catholic services; 10:45-11:30, Protestant services; 12, concert, Charley Straight's orchestra.

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

WKRC, Cincinnati, Ohio (326), 6:45 p. m., Rev. J. J. Castleberry; 10, classical program.

WLS, Chicago, Ill. (344.6), 7:30 p. m., Ralph Emerson, organist; 8, Little Brown church in the vale; Little Brown Church choir.

WLW, Cincinnati, Ohio (422.3), 9:30 a. m., school, conducted by editorial staff of Sunday School Publications, Methodist Book concern; 11, services, Church of the Convent; Dr. Frank Stevenson, minister; 8 p. m., H. & S. Pogue program; violin soloist, Arthur Dondoro.

WMBB, Chicago, Ill. (250), 3-5 p. m., popular concert; Trianon orchestra; Dell Lampe, conductor; Geraldine Doyle, soprano; Cecil and Esther Ward, guitarists; Woodlawn theater orchestra; Armin F. Hand, conductor; John Everett, baritone; 7-8:30, semi-classical program; Trianon ensemble; J. B. Lampe, director; Phyllis Harries, mezzo-soprano; Lindsay McPhall, pianist; Charles Agne, trumpet soloist; John Everett, baritone; Woodlawn theater orchestra; 8:30-10:30, popular program; Trianon orchestra; Harold Stokes, accordionist; Fisher and Wayne, harmony duo; Morey Alswang, banjoist; Woodlawn theater orchestra.

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

WORD, Batavia, Ill. (275), 10 a. m., sacred hymns and songs; 10:15, Bible lecture, W. E. Page; I. B. S. A. trio; 6:45, I. B. S. A. choral singers; instrumental trio; Sarah Windust, pianist; Edna Von Osten, violinist; Florence Danglemond, cellist; 7:30, Bible lecture; W. H. Woodley.

WQJ, Chicago, Ill. (447.5), 8-10 p. m., Rainbo Gardens orchestra; Kenneth Sterling, tenor; Dr. C. B. Poe, baritone; Jeannette Van Lennep, soprano; Mary Van Lennep, pianist; Wilson School of Music.

WRED, Lansing, Mich. (285.5), 10 a. m., chimes, Bellry Plymouth Congregational church; 10:30, First Presbyterian church, Rev. Guy W. Simon.

WSAI, Cincinnati, Ohio (326), 3 p. m., Radio Bible Service, Inc.; 8:10, WSAI Radio chime concert, Robert Badgley.

WTAS, Elgin, Ill. (302.8), 2-5 p. m., Sunday afternoon popular concert; 8-12, Joe Rudolph and the Boss' Own orchestra; Herbie Mintz, Ned Baker, Gail Bandell.

WWJ, Detroit, Mich. (352.7), 11 a. m., St. Paul's Episcopal cathedral; 6:20, Roky and his gang; 8:15, Goldman band concert.

Central Standard Time Stations

KFAB, Lincoln, Neb. (340.8), 4-5 p. m., Congregational church, Rev. Ross A. Robb.

KFDM, Beaumont, Texas (315.6), 8-9 p. m., sacred program.

KFNF, Shenandoah, Iowa (266), 2:30 p. m., Rev. and Mrs. Hanley, Radio chaplains; 3, religious services; 6:30, Golden Rule circle; 8, Christian church.

KFRU, Bristow, Okla. (394.5), 9:30 a. m., Sunday school; 11, sermon; 5, vesper.

KFUD, St. Louis, Mo. (545.1), 8:15 p. m., "Who Was Conceived—Rose Again from the Dead?"

KFVE, University City, Mo. (240), 10 p. m., sacred concert, Wilbur E. Moerer, organist.

KLDS, Independence, Mo. (441), 11 a. m., Stone church services; Robert Miller, organist; Walnut Park choir; 6:30, KLDX ladies' quartet; Clara Curtis, pianist; Mrs. Frank Good, contralto; Mary Fields, soprano; Gladys Good, contralto; 9:15, Hazel Cook, organist; Thelma Ohman, soprano; Lillian Greene, violinist; 9:45, sermon, Ralph W. Farrell.

KDIL, Council Bluffs, Iowa (278), 11 a. m., "The Marking of Men," Rev. J. R. Perkins; 7:30 p. m., Blue Hawks orchestra.

KTHS, Hot Springs National Park, Ark. (374.8), 11-12:30 p. m., Central Methodist church; 9:25-10, New Arlington-Meyer Davis ensemble.

WBAP, Fort Worth, Texas (475.9), 11 p. m., midnight broadcast.

WCBH, Zion, Ill. (344.6), 8 p. m., Zion band; Mr. and Mrs. G. R. Sparrow, tenor, contralto; E. B. Paxton, baritone; Mrs. G. R. Sparrow, contralto; Mrs. H. E. Mayfield, soprano; Marjorie Shaw, reader.

WCCD, Minneapolis-St. Paul, Minn. (416.4), 11 a. m., Westminster Presbyterian church, Rev. John E. Bushnell; 4:10 p. m., House of Hope Presbyterian church; 7:45, Central Lutheran church; 9, baseball; 9:15, classical program.

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

WFAA, Dallas, Texas (475.9), 6:30-7:30 p. m., Radio Bible class, Dr. William M. Anderson; 8-9, First Baptist church; 9:30-11, Grace Methodist Episcopal church.

(Continued on page 9)

Eastern Standard or Central Daylight Saving Time Stations

KFOA, Seattle, Wash. (454.3), 6-6:45 p. m., baseball results; Olympic hotel concert orchestra; 8:45-8:15, Rhodes Department store program; 8:30-10, Times dance music; 10:05-11, Olympic hotel dance music.

KFWB, Hollywood, Calif. (522), 8-9 p. m., late news program, Monte Mar Vista Subdividers, Warner Bros. syncopators, Ron Wilson, leader; Miller's International Hawaiian trio; Great Western male quartet; Frances St. George, the jazzmanila girl; 9-10, Silver Moon dance orchestra; 10-11, Warner Bros. rollic, direction Charlie Wellman.

Central Standard Time Stations

KFNF, Shenandoah, Iowa (266), 7:30 p. m., Harmony sextet, Mrs. A. D. Hewitt, director.

KFRU, Bristow, Okla. (394.5), 7:30-8 p. m., Sunday school lesson; 9-12, music.

KFVE, University City, Mo. (240), 7-8 p. m., Radiocast review, Romalce Fielding; 10, jazz and comedy.

KOIL, Council Bluffs, Iowa (278), 7:30 p. m., Council Bluffs high school band concert, Lee Lockhart, director.

KSD, St. Louis, Mo. (545.1), 7 p. m., program and stage specialities, Grand Central theater.

KTHS, Hot Springs National Park, Ark. (374.8), 9:25 p. m., dance program, New Arlington hotel orchestra.

WCCD, Minneapolis-St. Paul, Minn. (416.4), 6:15 p. m., George Ostrom, Nicollet hotel orchestra, 8, musicale; 10, Wally Erickson's Coliseum orchestra.

WDAF, Kansas City, Mo. (365.6), 6-7 p. m., children's information period, Earl Coleman's orchestra; 11:45-11:55, Merry Old Chiel; Plantation players; Johnnie Campbell's Kansas City club orchestra; Charles Dornberger's Kansas City Athletic club orchestra; Earl Coleman's orchestra.

WFAA, Dallas, Texas (475.9), 6:30-7:30 p. m., the Satisfied Five orchestra; 8:30-9:30, Tancred male quartet; 11:12, Adolphus hotel orchestra.

WHADE, Milwaukee, Wis. (275), 8-7 p. m., Arthur Richter, organist.

WHAS, Louisville, Ky. (399.8), 7:30-9 p. m., Shepherdsville high school orchestra; Bryan Holloway, baritone.

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

WDAI, San Antonio, Texas (394.5), 8:30 p. m., Menger hotel trio.

WDAW, Omaha, Neb. (526), 8:20 p. m., George Haupt, organist; 6:20, baseball; Rialto orchestra; 7, Gilbert Jaffy and his orchestra; 7:30, speaker's hour; 9, program, auspices Omaha Printing company; 11, Arthur Hays, organist.

WDC, Davenport, Iowa (484), 9-10 p. m., Arthur Willars, Bill Pash, guitarists; John McGreety, baritone, Amanda Schmill LeCot, soprano; 11-12, LeClair hotel orchestra.

WSMB, New Orleans, La. (319), 8:30-7:30 p. m., dinner musical; 8:30-10:30, Saturday night frolic.

Pacific Standard Time Stations

MINIATURE PHILHARMONIC AT KHJ

Sunday, July 26

(Continued from page 8)

WHAS, Louisville, Ky. (399.8), 9:57 a. m., organ music; 10, Methodist temple, choir.
WHO, Oes Moines, Iowa (526), 7:30-8:30 p. m., Bankers Life trio, Helen Birmingham, pianist; Kathryn Fletcher, cellist; Arthur Cohen, violinist.
WOAI, San Antonio, Texas (394.5), 11 a. m., First Presbyterian church services, Rev. Hugh McLeellan, pastor; 8, Central Christian church, Rev. P. B. Hill, pastor; 9:30-10:30, musical program, Penelope Borden.
WOAW, Omaha, Nebr. (526), 9 a. m., chapel service, Rev. R. R. Brown; 9 p. m., chapel service.
WOC, Oavenport, Iowa (483.6), 8-8:30 p. m., Zion Evangelical Lutheran church, Rev. J. F. Schnack; 9:30-11:30, Palmer Little symphony.
WOS, Jefferson City, Mo. (440.9), 8 p. m., Union religious services.
Mountain Standard Time Stations
KFWA, Oeden, Utah (261), 8-11 p. m., musical program, Chamber of Commerce.
Pacific Standard Time Stations
KFWB, Hollywood, Calif. (252), 9-11 p. m., late news, Warner Bros. movie frolic with stars of stage and screen.

studio, direction of Joseph Plunkett; 8:30-8:45, health talk, Metropolitan Life Insurance company; 8:45-10:15, Goldman band concert; 10:15-10:30, Giuseppe de Benedetto, tenor; 10:30-11:30, Hotel Bossert Marine Roof orchestra.
WEEL, Boston, Mass. (476), 7:30 p. m., musicale; 8, Virginia Denny Birgfeld, soprano; 8:30, Tower health talk; 9, Ed Andrews and his Nautical Garden orchestra; 10, Thermo Appliance company.
WFI, Philadelphia, Pa. (394.5), 3 p. m., Daisy Burnham, trumpeter; playlet, "The Woman Hater"; 6:45, Gletterue Stratford Roof Garden orchestra.
WGBS, New York, N. Y. (315.6), 3:50-4 p. m., "The Placing of a Manuscript," Hugh F. Herbert; 6-6:30, Uncle Geeloe; 6:30-7, popular songs, Bob Schaefer and Fred Fisher; Antonio's Circle orchestra.
WGR, Buffalo, N. Y. (319), 2:30-4:30 p. m., WGR's afternoon program; 6:30-7:30, Olympic dance orchestra; 9-10:30, program, P. Arlow Mathews and associate artists; 11-1 a. m., supper dance music, Vincent Lopez' Hotel Stadler dance orchestra, Harold Gieser, director.
WHAR, Atlantic City, N. J. (275), 7:30 p. m., lecture period; 8, Seaside hotel trio; 7:30, book review, Mrs. James Lord; 8, Seaside hotel trio; 11, Strand theater organ recital; 12, Vincent Lopez, Jr.'s dance orchestra.
WHN, New York, N. Y. (361.2), 5-5:30 p. m., dance music; 7-7:15, "Terry" McGovern's presentation of boxing celebrities; 8-8:30, Roseland dance orchestra; 11-11:30, organ recital, Loew's Lexington theater; 12-12:30 a. m., Harry Richman and his Club Richman entertainers.
WIP, Philadelphia, Pa. (508.2), 3:30 p. m., Comfort's



Mario Alvarez is the handsome tenor who sings regularly at WMCA Monday evenings. His selections are usually taken from well-known Spanish operas.



Rita McFawn, soprano, will sing again this Friday, at 9:30 p. m., at WEBB, Chicago. Louise Howatt, right, is the plump little comedian from Chicago who came to Hollywood looking for a job in the movies and found fame, if not fortune, by singing popular songs via KNX. She is a regular feature of this station.



KGO, Oakland, Calif. (361.2), 11 a. m., First Congregational church; 3:30 p. m., Cliff hotel concert orchestra; KGO Little symphony orchestra; 7:45, First Congregational church.
KOW, Portland, Ore. (491.5), 10:30-12 noon, services, Church of Our Father (First Unitarian), Rev. W. G. Elliot, pastor; 7:45-9, services, First Presbyterian church, Dr. Harold Leonard Bowman, pastor.
KHI, Los Angeles, Calif. (405.2), 6-6:30 p. m., Leighton's Arcade cafeteria orchestra, Jack Cronshaw, leader; 6:30-7, Ari Hickman's Hillmore hotel concert orchestra, Edward Fitzpatrick, director; 7-7:30, Arthur Blakely, organist; 8-10, da lux program, Los Angeles Soap company, arranged by J. Howard Johnson, presenting the Miniature Philharmonic Symphony orchestra.
KNX, Hollywood, Calif. (336.9), 7-8 p. m., First Presbyterian church of Hollywood, Rev. Stewart P. MacLennan, pastor; 8-9, Ambassador hotel concert orchestra, Josef Rosenfeld, director; 9-10:30, classical program, Beverly Hills Nurseries, Lubovicki trio.
KOA, Denver, Colo. (322.4), 11 a. m., St. John's Episcopal cathedral; 4 p. m., St. John's Episcopal cathedral; 7:30, First Church of Christ Scientist.
KPO, San Francisco, Calif. (428.3), 6:35-7:30 p. m., Palace hotel concert orchestra; 8-8:30, Palace hotel concert orchestra; 8:30-10, Rudy Selger's Fairmont hotel orchestra.
KTCL, Seattle, Wash. (305.9), 7:50-9:15 p. m., First Church of Christ Scientist; 9:10-10:10, International Bible students.

Philharmonic orchestra; 8:05, Benjamin Franklin concert orchestra; 7, Uncle Wip's bedtime stories.
WJAR, Providence, R. I. (305.9), 8 p. m., Berry Spring dance team; 9, A. & P. Gypsy string ensemble.
WIZ, New York, N. Y. (454.3), 7-8 p. m., Hornhard Levittow's Hotel Commodore dinner concert; 8-8:10, Wall Street Journal review; 8:10-8:30, NYU Air college; 8:30-9:30, program, Landay Hall; 10:15-11:45, Jacques Green and his Club Beauville orchestra.
WLIT, Philadelphia, Pa. (394.5), 4:30 p. m., Marcella North, pianist; 7:30, Dream Daddy's bedtime stories; 9, Stanley Hour of Music; 10, Arcadia cafe dance orchestra.
WMCA, New York, N. Y. (340.7), 6:30-7:30 p. m., Ernie Golden and his Hotel McAlpin orchestra; 8-9, lecture, First Church of Christ Scientist; 9:15-9:30, Daisy Brown Turchin, soprano; 9:45-10, Daisy Brown Turchin; 10:30-11:30, B. S. Moss Colony theater program; 11:30-12, Manhattan screeners.
WNYC, New York, N. Y. (520), 7:10-7:30 p. m., song recital; 7:35-8, dance program; 8-8:15, "Knotty Baseball Problems," John B. Foster; 8:15-10:15, band concert, Central Park; 10:15-10:30, "Trend of the Times," Dr. Sydney N. Usher.
WOO, Philadelphia, Pa. (508.2), 4:45 p. m., organ recital, Mary E. Vogt; 7:30, A. Tandler's Hotel Adelphi Roof Garden orchestra; 8, Mark Strand theater concert; 8:30, Goldman band concert; 10:15, Giuseppe de Benedetto, tenor; 10:30, Hotel Bossert Marine Roof orchestra; 11, Hotel Adelphi Roof Garden orchestra.

nard; Tom Brown Saxophone band; Sandy Meek, tenor; Harry Sosnick, pianist; Harold Merrill, musical saw soloist; Pat Barnes; 12:30, Al Curney, organist.
WJJO, Mooseheart, Ill. (302.8), 9:15-7:15 p. m., dinner concert; 7:15-8, Mooseheart Novelty orchestra; Belmont hotel trio; 10:30-1 a. m., Chorley Straight and his orchestra; Albert F. Brown, organist.
WKRC, Cincinnati, Ohio (326), 8 p. m., Robert E. Hentley Post American Legion; 9, Caldwell and Taylor, Original Hentzel boys.
WLW, Cincinnati, Ohio (422.3), 7 p. m., Hotel Gibson orchestra, Robert Visconti, director; 8, program, auspices of the Liggett Bros. Coal company; piano solos, Liggett's red hot piano players; 9, organ recital of classics, Cyril Buschke; Mary Barbara, the Sweetheart of Radio; 9:30, the Fannus Lyric male quartet.
WMAK, Lockport, N. Y. (265.5), 8:30-10:15 p. m., musicale, Max Freedman.
WMBF, Miami Beach, Fla. (384.4), 9:30-7 p. m., Fleetwood Radio orchestra; 7-7:30, Fleetwood Radio orchestra; 10-12, dance music, Fleetwood Radio orchestra, specialties.
WOAI, San Antonio, Texas (394.5), 8:30 p. m., Menger hotel trio.
WORD, Oatvia, Ill. (275), 8:30 p. m., Bible questions and answers, B. M. Illec; 8:15, musical program; Prof. H. B. Bartholomew, director; male quartet.
WRC, Washington, D. C. (408.5), 5 p. m., U. S. Navy band; 6:25, baseball.
WSAI, Cincinnati, Ohio (320), 10 p. m., Emil Stemler, violinist; Pauline Stemler, pianist; 10:30, Hawaiian guitar artists; Virginia Hush, cornetist; Evelyn Head, accompanist; Tom Elbert, popular singer.
WTAM, Cleveland, Ohio (360.4), 6-7 p. m., Golden Pheasant orchestra; 8-9, Willard symphony; 9-10, artists; 10-11, symphony orchestra; 11-12, Euclid Beach dance orchestra.
WTAS, Elgin, Ill. (302.8), 8 10:30 p. m., Joe Rudolph and the Boss' Own orchestra; Herbie Mintz; Itee Lehman; Phil Wilcox.
WTIC, Hartford, Conn. (348.0), 9 p. m., Emil Helmberger's Hotel Bond trio; Elizabeth M. Italden, contralto; 9:50, baseball; 6:15, dinner music.
WVI, Detroit, Mich. (352.7), 9 p. m., dinner concert; 7:20, Goldman band concert.

WOF, Kansas City, Mo. (365.6), 3:30-4:30 p. m., Novian and Royal theaters; 6-7, piano tuning-in number on the Duo-Art; Cecile Hurton, reader; children's information period; Plantation players; 11:45-1 a. m., Merry Old Chief and Plantation players; Charles Durnberger's Kansas City Athletic club orchestra.
WHA, Madison, Wis. (535.4), 7:45 p. m., "The Rural Summer School," Prof. J. H. Kolb; Theodore Winkler orchestra.
WHAO, Milwaukee, Wis. (275), 6-7 p. m., Arthur Hichter, organist; 8-10, Marquette university studio program.
WHO, Des Moines, Iowa (526), 7:30-9 p. m., Stewart Watson, baritone; Myrtle Williams, soprano; artists, Dean Holmes Cowper, director; 11-12, Cnnr Sugar orchestra.
WOAW, Omaha, Nebr. (520), 4 p. m., Phyllis Griswold, organist; 6:30, baseball; McCarty's popular period; 8:15, orchestra; 9, Skeen trio; Thelma Sheen Swauger, harpist; Lorenda and Allan Skeen, violinists; 10, Gilbert Jaffy, violinist; Herman Hilley, saxophonist; Jess Sutton, pianist.
WOS, Jefferson City, Mo. (440.0), 8 p. m., Blue Bird orchestra.
WSMB, New Orleans, La. (310), 6:30-7:30 p. m., dinner program; 8:30-10:30, Leslie George's Pallo Royal orchestra; Fuzzy Wuzzy Twins.

Mountain Standard Time Stations

KFWA, Oeden, Utah (261), 9-11 p. m., studio program
KOA, Denver, Colo. (322.4), 9:30 p. m., Herbert White and his Silver State orchestra; 7:30, Sandman's hour; 8, Tuesday Musical club; KOA orchestra.

Pacific Standard Time Stations

KFOA, Seattle, Wash. (454.3), 6-9:15 p. m., Olympic hotel concert orchestra; 9:15-8:15, Sherman, Clay and company program; 8:30-10, Times dance music.
KFWB, Hollywood, Calif. (252), 6-7 p. m., children's hour, Big Brother of KFWB; 8-9 late news program, Check-Nut Coffee company, Maxwell House coffee string quartet, Harry Jackson, leader, Don McNamee and George Green, accordion and banjo soloists; Frank Niver, tenor; Marguerite Lo Grand, concert pianist; 9-10, program, E. P. Jones, builder of Alhambra, Sol Hoopii's Hawaiian trio, Bill Hatch and Ray Kellogg, the Jazz Twins, Charles Beachamp, tenor; 10-11, Warner Brothers' Frolic, Al Meyer's Acollans dance orchestra, Charlie Wellman, master of ceremonies.
KOO, Oakland, Calif. (301.2), 6-7 p. m., dinner concert, Sherman, Clay & company studio; 8, "Winning War Against Disease," Hugh Garretts Dodge; national farm Radio Council agricultural talks, "Symposium on New Education," William Institute; "From a Composer's Workshop—Teaching the Emotions," Arthur S. Garbett; "Collection Letters," W. J. Barra; "Inside Topa on Curling Automobiles III," Edwin P. Sizer.
KNX, Hollywood, Calif. (336.9), 5:30-6:15 p. m., Wurflitz pipe organ studio; 6:15, W. F. Alder, travel talk; 6:30-7, Atwater Kent Radio orchestra, Paul Finstein, director; 7-7:30, dinner hour music, 7:30-8, program, Columbia Outfitting company; 8-9, program, L. W. Stockwell company; 9-10, program, Listenwaller and Gough; 10-11, Goodrich Silverton Cord dance orchestra, Lilyan May Challenger, contralto; 11-12, Abe Lyman's Coconut Grove dance orchestra from Ambassador hotel.
KPO, San Francisco, Calif. (428.3), 6:40-7 p. m., Waldemar Lind and the States restaurant orchestra; 7-7:30, Rudy Selger's Fairmont hotel orchestra; 8-10, studio program; 10-11, Waldemar Lind and the States restaurant orchestra.
KTCL, Seattle, Wash. (305.9), 8-9 p. m., Washington Co-op association studio program; 9-10, National Machine company.

(Continued on page 10)

Monday, July 27

Monday, all-night for: **CKAC, CNRT, KFAE, KFOR, KOW, KHJ, KLOS, KYW, PWX, WBAV, WBBM, WBCN, WCAU, WOWF, WEAQ, WEBB, WEBC, WFI, WGN, WOBS, WGES, WHAS, WIBD, WIP, WIY, WKAQ, WLS, WMAQ, WMBB, WOC, WOAI, WQJ, WRC, WREO.**

Atlantic or Eastern Daylight Saving Time Stations

CHIC, Toronto, Can. (357), 8 p. m., CHIC trio, quartet; W. H. Archer, tenor; Wm. McDonald, bass; duet, W. Archer, Leslie Plested.
CHNC, Toronto, Can. (356.7), 10 p. m., CHNC string quartet; Charles E. Hodley, pianist; Elsa Addison, contralto.
WAHO, Richmond Hill, N. Y. (315.6), 7:30-7:45 p. m., Itanjo Eddie, 7:15-8, sports talk, Thornton Fisher; 8-8:15, Frank Oaks, tenor; 8:15-8:30, "Fifteen Minutes with Edgar A. Guest," Horace J. Taylor; 8:30-8:45, Banjo Eddie; 8:45-9:15, Synchronphase string trio; 9:15-9:30, Frank Oaks, tenor; 9:30-10:15, Synchronphase string trio; 10:15-10:55, Beaumontians dance orchestra; 10:55-11:05, time signals and weather report; 11:05-11:30, Beaumontians dance orchestra.
WBBR, New York, N. Y. (272.6), 8 p. m., Barbara Jonach, soprano; 8:10, World News digest; 8:25, Barbara and Rudolph Jonach; 8:35, "The Harp of God"; 8:50, vocal selections, R. Jonach.
WCAE, Pittsburgh, Pa. (461.3), 6:30 p. m., dinner concert, William Penn hotel; 8:30, concert; 11, dance music, Sanders Inn.
WEAF, New York, N. Y. (491.5), 6:15-7:45 a. m., Metropolitan lower health drill; 4-4:15 p. m., Mishka Ivany, baritone; 4:15-4:30, Lulu Rodgers, pianist; 4:30-4:45, Emanuel Moses, violinist; 4:45-5, "The Human Side of Music," Margaret Zerbe Fowl; 6-7, dinner music, Waldorf-Astoria; 7-7:15, Vera Curtis, soprano; 7:15-8:30, program, Mark Strand theater and

Eastern Standard or Central Daylight Saving Time Stations

KOKA, Pittsburgh, Pa. (309.1), 8:45 p. m., concert.
WBBM, Chicago, Ill. (226), 6-7 p. m., vesper hour; Samovar orchestra; Charlie and Dave.
WDB, Springfield, Mass. (333.1), 9 p. m., Capitol theater orchestra, Frederick Pullen, director; Margaret Tiche, organist; 6:30, baseball scores; 6:32, Capitol theater program; 8, Aleppo drum corps or Mr. Miller's band concert; 8:30, Anna McIligan, dramatic soprano; 9, Arthur S. Cann, tenor; 9:15, Gladys Noble, soprano; Freda Jacobus, accompanist; 9:10, book review, Bennett B. Schneider; 9:50, baseball scores.
WCEE, Elgin, Ill. (275), 10:30-12 midnight, Charlene Star midnight dance program, Joe Rudolph and the Boss' Own orchestra.
WCX, Detroit, Mich. (510.9), 4:15 p. m., concert; 6, dinner concert, Book Cadillac hotel; 7:30, band concert, Belle Isle; 8:30, musical program.
WEAR, Cleveland, Ohio (389.4), 7-8 p. m., Loew's State theater.
WFAX, Dallas, Texas (475.9), 6:30-7:30 p. m., vesper recital, Artie Collins and his Jolly Pirates; 8:30-9:30, Tancred quartet vocal recital.
WGES, Oak Park, Ill. (2501), 5-7 p. m., Gladys Peterson, soprano; Emma Hartman, contralto; James J. Westbrooke, tenor; Mrs. Bernard McDevitt, musical lecturer.
WOY, Schenectady, N. Y. (379.5), 5:30 p. m., dinner music, Hotel Ten Eyck orchestra; 6:15, "Why He a Farmer," Enos Lee; 6:30, baseball scores; 6:35, Jack Denny's Hotbock Laka orchestra; Orla Schreiner, pianist.
WHAZ, Troy, N. Y. (380), 8-15 p. m., Mary Ryan, soprano; 8:30, concert, Ivan Tlyou, director.
WHT, Oerfeld, Ill. (309.8), 7-12:30 p. m., Al Curney, organist; Grayling's string trio, Kitchen Kleener Klaxons; John Clark, baritone, Leola Alkman, soprano; Lotia Thirty Minutes of Melody; Geisio Brothers; Bayda Boyd, whistler; Fred Wittmer, pianist; MUI S. Grossman, saxophonist; Fla. Henry and Lillian Ber-

KDKA GIVES PASTORAL PROGRAM

Tuesday, July 28

Tuesday, silent night for: CNRT, KFAE, KFNF, KFUD, KFWA, KOA, PWX, WAHG, WBAV, WBBR, WCCB, WEAD, WHAD, WHAZ, WKAQ, WLIT, WMAK, WTAM.

Atlantic or Eastern Daylight Saving Time Stations

CNRA, Moncton, Can. (313), 9 p. m., Miss E. MacKenzie, pianist; Roy Metzler, tenor; Doris Morton, soprano; T. W. Stenhouse, bass; Edgar O'Brien, reader; CNRA dance orchestra; Walter Neal, artist. WCAE, Pittsburgh, Pa. (461.3), 6:30 p. m., dinner concert, William Penn hotel; S. program from New York; 8:30, Gold Dust Twins; 9, Eveready hour; 10, grand opera. WCAU, Philadelphia, Pa. (278), 7:30 p. m., concert, N. Snellenburg and company; 8:30, recital; 10:30, Billy Hayes and his Cathay Tea Garden dance orchestra. WDFW, Providence, R. I. (440.9), 8:30 p. m., Arcadia orchestra. WEAF, New York, N. Y. (491.5), 4:15-4:30 p. m., Lillian Starr, pianist; 4:30-5, women's program; 6-7, dinner music, Waldorf-Astoria; 7-7:10, Marie Opfinger, soprano; 7:10-7:30, lecture, Columbia university; 7:30-7:45, Walter Chapman, pianist; 7:45-8, Walter Leary, baritone; 8-8:30, New York Lyric trio; 8:30-9, Gold Dust Twins; 9-10, Eveready hour; 10-11, grand opera, "La Gioconda," WEAF Grand Opera company; 11-12, Vincent Lopez' Hotel Pennsylvania orchestra. WEBJ, New York, N. Y. (272.6), 7-7:15 p. m., Mary Pasquale, pianist; 7:15-7:30, songs, Eddy Roman and George Abbey; 7:30-8, Czechoslovakian band, Luna Park; 8-8:15, railroad talk, G. T. Geer; 8:15-8:30, Awyon Comedy Four; 8:30-9, Arthur Pryor and his band from Luna Park. WEEL, Boston, Mass. (476), 7:30 p. m., C. B. Collins, tenor; Gladys Grant, accompanist; 7:45, Charlie Donelan; S. musicale from New York; 8:30, Gold Dust Twins; 9, Eveready hour; 10, WEAF grand opera company. WF1, Philadelphia, Pa. (394.5), 3 p. m., concert, Daily Vacation Bible school students, Oxford Presbyterian church; Arthur C. Comby, baritone; Mabel R. Aikens, readings; talk, "Famous Stories of Old Newspaper Reporters," Frank Guard; 6:45, Belleue Stratford Roof Garden orchestra; S. concert from WEAF; 8:30, Gold Dust Twins; 9, Eveready hour. WGBS, New York, N. Y. (315.6), 6-6:30 p. m., Uncle Geebee; 6:30-7:30, Metro dance orchestra; 8-9, Barber Shop ballad night; 9-10:30, grand opera, "Carmen." WGR, Buffalo, N. Y. (319), 2:30-4:30 p. m., WGR's afternoon program; 6:30-7:30, Vincent Lopez' Hotel Statler dance orchestra, Harold Gleser, director; 8-11, jointly with WEAF, including the Gold Dust Twins; Eveready hour and the grand opera, "La Gioconda." WJLN, New York, N. Y. (361.2), 7-7:30 p. m., "Terry" McGovern's presentation of boxing celebrities; 7:30-8, Will Oakland's Chateau Shanley; 8-8:15, Colonial Aces; 8:15-8:30, popular songs, Bob Miller; 9:30-10, Palisades Amusement Park orchestra. WIP, Philadelphia, Pa. (508.2), 3:30 p. m., Comfort's Philharmonic orchestra; 6:05, Benjamin Franklin concert orchestra; 7, Uncle Wip's bedtime stories; 8, Comfort's Philharmonic orchestra; 8:45, song of the surf; 8:50, Veselli's band; 10:05, movie talk, E.H.M. Orowitz; 10:30, Traymore hotel dance orchestra; 11, California Night Hawks dance orchestra. WJAR, Providence, R. I. (305.9), 8:30 p. m., Gold Dust Twins; 9, Eveready hour. WJY, New York, N. Y. (405.2), 8:30-9 p. m., Irish songs, John Cassidy, baritone. WJZ, New York, N. Y. (454.3), 4:30-5:30 p. m., Bernhard Levittow's Hotel Commodore tea orchestra; 5:30-6, daily reports; 7-7:15, Frank Dole's talk on dogs; 7:15-8, Joseph Strissolo's Hotel Vanderbilt orchestra; 8-8:10, Wall Street Journal review; 8:10-8:30, NYU Air college; 11-12, Hotel Mayflower orchestra; W. Spencer Pupman, conductor, from WRC. WMCA, New York, N. Y. (340.7), 6:30-7 p. m., Carlinians' orchestra; 7-8, Jack Wilbur's Personalities; 8-8:30, May Singbl, Eren, banjolele; Peter De Rose, pianist; 9-10, Lev Krueger's Aladdin orchestra; 10-11, Chiropractic hour of music; 11-12, Ernie Golden and his Hotel McAlpin orchestra. WNYC, New York, N. Y. (526), 7:10-7:30 p. m., song recital; 7:35-8, municipal talk; 8-9:30, concert program; 9:30-10:30, Gunther's orchestra. WDO, Philadelphia, Pa. (508.2), 4:45 p. m., organ recital, Mary E. Vogt; 7:30, A. Candelori's Hotel Adelphi Roof Garden orchestra. WOR, Newark, N. J. (405.2), 8:30-7 p. m., Man in Moon; 7:15-7:30, sports talk, Bill Wapley.

Eastern Standard or Central Daylight Saving Time Stations

KDKA, Pittsburgh, Pa. (309.1), 7 p. m., baseball; 8:45, concert; 9:30, concert, Grand theater. KYW, Chicago, Ill. (535.4), 7-7:30 p. m., Congress hotel; 8-8:20, Martha Bardill, soprano; Oscar Heather, tenor; 8:20-8:45, American Farm Bureau Federation; 8:45-9:30, musicale; 10-11:30, evening at home. WBBM, Chicago, Ill. (226), 8-12 midnight, Sambar orchestra, Charlie Garland, Tiny Dave Nudelman, Jerry Cromack, Harold Anderson, Al Furry, Harry Braliford. WBZ, Springfield, Mass. (333.1), 6 p. m., Leo Relsman's Hotel Lenox ensemble; 6:30, baseball scores; 8, Edward Boanier, baritone; Harry Dalmore, tenor; Justin Sandridge, accompanist; 9, Hotel Brunswick orchestra; 9:30, baseball scores. WCX, Detroit, Mich. (516.9), 4:15 p. m., concert; 6, dinner concert, Book-Cadillac hotel; 7:30, band concert, Belle Isle; 8:30 p. m., musical program; 10, Red Apple club. WEAR, Cleveland, Ohio (389.4), 7-8 p. m., Marjorie Moore's Melody Mads; 8-9, Vincent H. Percy, organist; 9-10, musical program; 10-11, Bureau Melody hour. WEBH, Chicago, Ill. (370.2), 7:30-8:30 p. m., Orlole concert orchestra; baschall scores; Dorothy Blumm, soprano; Lydia Lochner, contralto; musical hits, Riviera theater; 8:30-10:30, Orlole dance orchestra; Frank Borden, baritone; Jack Penewell, twin guitarist; Lydia Lochner, contralto; Fowler and Tamara's South American Troubadours; 11:30-1 a. m., Orlole dance orchestra; Frank Borden, baritone; Sandy Meek, tenor; Jack Penewell, twin guitarist. WGES, Oak Park, Ill. (250), 5-7 p. m., Mrs. Pedl, pianist; Minaperl Maxwell, soprano; John Stamford, tenor; Elsie Barge, pianist; Hazel Grey, reader; 10:30-1, Novelty Broadcasters' orchestra; Erwin Pletchy, tenor; Phil Wilcox, syncopator; Sandy MacLavin, Scotch comedian; Coyne Electrical school serenaders. WGN, Chicago, Ill. (370.2), 6:30-7:30 p. m., Drake concert ensemble, Blackstone string quintet; 8:30, studio program; 10:30, Drake Hotel Terrace Garden program. WGY, Schenectady, N. Y. (379.5), 5:30 p. m., dinner program, Hotel Van Curler orchestra; 6:30, baseball scores; 6:35, "The Glow Worm," L. A. Huguenot; 6:55, "Over the Seven Seas," travel talk; 7:25, New York Philharmonic orchestra; Nikolai Sokoloff, conductor; 10, Hotel Mayflower orchestra. WHT, Deerfield, Ill. (399.8), 7 p. m., Al Carney, organist; Grayling's string trio; Wilkens and Martins, harmony singers; Uncle Bill's Borden birthday party; Aetha Karlen, reader; Jelle musical moments; August Friedemeler, tenor; 8:45, (228), Elmer Kalsner's River view ballroom orchestra; 10-10:30 (399.8), Walter Ford's dance orchestra; Diale Fields, soprano; 12:30 a. m., Al Carney's midnight organ recital. WIJD, Mooseheart, Ill. (302.8), 6:45-7:15 p. m., Belmont hotel trio; 7:15-8, Mooseheart concert band; "Child Care," M. P. Adams; 10:30-1, Charley Stralght and his orchestra; Albert F. Brown, organist. WKRC, Cincinnati, Ohio (326), 10 p. m., Marlon McKay's Rond Hill House orchestra; 10:50, safety talk, Cincinnati Automobile club, J. J. Arnold; 11, classical program. WLS, Chicago, Ill. (344.6), 6:30 p. m., Ralph Emerson, organist; Martha Miller, contralto; 7:15, Rex's Cornhuskers; 7:45, lullaby time; 8, musicale, direction F. Warren K. Howe; Margaritha Norris, pianist; Orville Jennings Borchers, bass; 8:45, Rex's Cornhuskers;

9, Chubby Parker, song; Rex's Cornhuskers; 10, Walter Peterson; Graca Wilson, contralto; WLS harmony trio; Nubs Allan, contralto; Rex's Cornhuskers; 11:20, Solemn Old Judge's program; 12-1, midnight revue, Ralph Emerson, organist. WLW, Cincinnati, Ohio (422.3), 4 p. m., student recital, pupils of Leo Stoffregen and William Kyle; 6:30, organ concert, Gena Johnson; 7, WLW Story Lady, Mrs. Bertha Edmonds; 8, WLW orchestra; 8:15, program of solos and ensemble, Mrs. O. B. Kalsner; Warren Foster, boy soprano; 9, concert program, Fomica concert orchestra; William Stoess, director; soloist, Helen Fhill, guest conductor, Burnet C. Tutthill. WMAQ, Chicago, Ill. (447.5), 2:45 p. m., Cubs-Giants baseball; 6, Chicago theater organ recital; 6:30, Jack

director; 9:30, George Konchar's Roof Garden orchestra. WQJ, Chicago, Ill. (447.5), 7-8 p. m., Rainbo Gardens orchestra; Frederick Mueller, German tenor; Catherine Diepenbroek, pianist; Eubeen Marcus, violinist; Clarence Kelly, futeist; 10-11 a. m., Rainbo Garden Sky-larks; Jerry Sullivan; Rosa Vanderbosch, pianist; Frank Blasco, boy tenor; Will Rossiter; Ila Shanabrook, soprano; Mack Sisters; Mary Jane; Irene Finucan, soprano; 1-2, Ginger hour. WRC, Washington, D. C. (468.5), 6:50 p. m., baseball; 6:55, "Over the Seven Seas," Benares, Delhi; 7:30, Philharmonic concert; 10, W. Spencer Tupman's Hotel Mayflower. WSAI, Cincinnati, Ohio (326), 10 p. m., golf talk; 10:10, program, WSAI studio; 11, Congress playing card string quartet.

KFDM, Beaumont, Texas (315.6), 8-10:30 p. m., musical program. KFMQ, Fayetteville, Ark. (299.8), 9 p. m., musical program, H. E. Shultz, prof. of voice. KFNF, Shenandoah, Iowa (266), 7:30 p. m., pipe organ concert. KFRU, Bristow, Okla. (394.5), 10:30-12 midnight, fishing trip. KFVE, University City, Mo. (240), 10 p. m., song recital, KFVE studio entertainers. KLDs, Independence, Mo. (441), 8 p. m., alumni and students, William Chrisman high school. KOL, Council Bluffs, Iowa (278), 7:30 p. m., program, Mrs. Robert Mullis, director; quartet selections; Mrs. Mullis, Mrs. Beardsley; 8, Leslie Hayes, tenor; 8-10, Florence Senior Duerr; Marguerite Morehouse, pianists; 8:50, J. W. Beardsley, baritone; 11, Ralph Mason Hix, organist. KSD, St. Louis, Mo. (545.1), 8 p. m., program. KTHS, Hot Springs National Park, Ark. (374.8), 9:25 p. m., Mullis and his Whittington Park orchestra. WCCO, Minneapolis-St. Paul, Minn. (416.4), 6 p. m., baseball; 6:05, Biley's St. Paul hotel orchestra; 7-9, program from New York; 9, baseball. WDAF, Kansas City, Mo. (365.6), 6-7 p. m., piano tuning-in number on the Duo-Art; Plantation players; 11:45-1 a. m., Merry Old Chief; Carl Nordberg's Plantation players; Charles Dornberger's Kansas City Athletic club orchestra. WFAA, Dallas, Texas (475.9), 6:30-7:30 p. m., vesper recital, Haualea School of Hawaiian music; 8:30-9:30, Daley Hembree, baritone; artists; 11-12, Walter Romberg, futeist; musician. WHAD, Milwaukee, Wis. (275), 6-7 p. m., Arthur Richter, organist. WHAS, Louisville, Ky. (399.8), 7:30-9 p. m., concert, auspices Ben Snyder, Incorporated; Thrift talk, Liberty Insurance band. WHO, Des Moines, Iowa (526), 7:30-9 p. m., musical program. WDAI, San Antonio, Texas (394.5), 8:30-9:30, musical program; 9:30-10:30, Jimmy Joy's orchestra. WDC, Davenport, Iowa (483.6), 6:30-7 p. m., Gold Dust Twins; 7-9, Eveready hour, WEAF; 8-9, Grace Huber-Lohmiller, soprano; Emil Hass, reader; Walter K. Voss, bass. WDAW, Omaha, Nebr. (526), 6:25 p. m., May Seed & Nursery company; 9, orchestra; 10, Carl Sibbert, tenor; Will Hetherington, violinist; Harry Bravloff, pianist; 10:30, Francis Potter's banjo orchestra; 12, Rialto midnight alarm. WWSM, New Orleans, La. (319), 6:30-7:30 p. m., dinner musicale.

Mountain Standard Time Stations

CNRR, Regina, Can. (356), 8 p. m., Ronnia Bell concert party. KDA, Denver, Colo. (322.4), 6:30 p. m., Herbert White and his Silver State orchestra; 7:30, News-Times concert.

Pacific Standard Time Stations

KFOA, Seattle, Wash. (454.3), 6-6:45 p. m., Olymptic hotel concert orchestra; 6:45-8:15, Rhodes Department store program; 8:30-10, Times studio program. KFWB, Hollywood, Calif. (252), 6-7 p. m., children's hour, Big Brother of KFWB; 8-9, late news, program, Western Super-service garage; 9-9:30, program for the motorist; 9-10, program, Union Oil company of California, Union Oil's non-detonating dance orchestra, Ina Mitchell Butler, soprano; Charles Beauchamp, tenor; 10-11, Warner Brothers frolic, direction Charlie Wellman. KGD, Oakland, Calif. (361.2), 6-7 p. m., dinner concert, Sherman, Clay & Company; 8, Down Town association, Japanese opera, "The Pictura Bride"; Carolyn Crew Hill, soprano; Merlyn Morse, baritone; Scotch songs, Marion Cummings; address, E. W. Milburn, Carl Kalash, violinist; Frana Simon Sousa, soprano; Ina Gerrish Schoof, whistler; vocal duets, Florence, Agnes McEachran; cornet solos, Ellsworth Green; harmonica solos, John T. Brown; Yosemite Park and Curry company; Grace Becker, cellist; Jeanette Grossman, soprano; Marian Prevost, pianist; Mildred Wright, violinist; "Early History of the Yosemite," Don Tresidder; Glenn Hood, tenor; 10-11 a. m., Clarka Wilson's Hotel St. Francis dance orchestra. KGW, Portland, Ore. (491.5), 7:30 p. m., baseball scores; 8-9, Rainier hotel concert; R. Z. Duke, soprano; Gordon Onstad, tenor; Julius Walter, pianist; Charles Wilgus, violinist; 9-10, General Cord orchestra; 10-11, Herman Kenin's Multnomah hotel dance orchestra. KHJ, Los Angeles, Calif. (405.2), 5:30-6 p. m., Leighton's Arcade cafeteria orchestra, Jack Cronshaw, leader; 6-6:30, Art Hickman's Biltmore hotel concert orchestra, Edward Fitzpatrick, director; 6:30-7:30, Radio Kiddle's hour, weekly visit of Queen Titania and Sandman from Fairyland; Charles Leslie Hill, reader; Louis F. Klein, auto-harp and harmonica soloist; Claire Mellonino, pianist; 7:30, talk on dogs, H. M. Robertson; 8-10, program, Mount Wilson hotel; Mrs. Grace Sayre, concert soprano; Naomi Sweeney Brown, California Mocking Bird, Wendell B. Hodga and Maj. Edwin P. Hubbell of Mt. Wilson observatory; 10-11, Art Hickman's Biltmore hotel dance orchestra, Earl Burnett, leader. KNX, Hollywood, Calif. (336.9), 5:30-6:15 p. m., Wur-titzer pipe organ studio, Sid Ziff's sports talk; 6:15, travel talk, W. E. Alder; 6:30-7, Atwater Kent Radio orchestra, Paul Einstein, leader; 7-7:30, dinner hour music; 7:30, style talk, Myer Siegel, Jr.; 8-10, KNX studio feature program; 10-12, movie night at the Ambassador, Abe Lyman's Coconut Grove dance orchestra. KPD, San Francisco, Calif. (428.3), 6:40-7 p. m., Waldemar Lind and the States restaurant orchestra; 7-7:30, Rudy Seiger's Fairmont hotel orchestra; 8-10, studio program, golf instructions, Harold Samson; 10-11, Johnny Buick's Cabriars. KTCL, Seattle, Wash. (305.9), 7-8 p. m., Simond Saw and Steel company; 8-9, Northwest Products night.

Wednesday, July 29

Wednesday, silent night for: CKAC, CNRT, KFDM, KGO, KLDs, WBAV, WBBR, WCCB, WDFW, WFAA, WFI, WGBS, WGY, WHAR, WHAZ, WIP, WMAK, WMC, WDAW, WDRD, WPG, WRBC, WRC, WRED, WTIC.

Atlantic or Eastern Daylight Saving Time Stations

CHYC, Montreal, Can. (411), 9 p. m., studio concert. CNRD, Ottawa, Can. (435), 8 p. m., Chateau Laurier concert orchestra; Emile Boucher, tenor; Mivilla Bel-leau, pianist; Madame Emile Boucher, soprano; Romeo Query, violinist; Chateau Laurier dance orchestra. WAHG, Richmond Hill, N. Y. (315.6), 7:30-7:45 p. m., Joe Zimmerman, pianist; 7:45-8, sports talk, Thornton Fisher; 8-8:15, Harry Caffry, tenor; 8:15-8:30, songs and monologues, Arthur Feldman and Fay Meisel; 8:30-8:45, Joe Zimmerman; 8:45-9, St. Nicholas male quartet; 9-9:15, Arthur Feldman and Fay Meisel; 9:15-9:45, Harry Caffry; 9:45-10, St. Nicholas male quartet; 10-10:15, "Hamlet," Herman Fisher; 10:15-10:55, dance music; 11:05-11:30, dance music. WCAE, Pittsburgh, Pa. (461.3), 6:30 p. m., dinner concert, William Penn hotel; 8, recital, Prof. Kaitels; 8:30, studio concert; 11, Loew's Aldine theater. WCAU, Philadelphia, Pa. (278), 6:30 p. m., Billy Hayes and his Cathay Tea Garden dance orchestra; 8, talk, Clara Zillissen; 10:30, Jack Myers Musical Architects dance orchestra. WEAF, New York, N. Y. (491.5), 4:15-4:30 p. m., "Swimming and Life-Saving," Captain Charles B. Scully; 6-7, dinner music, Waldorf-Astoria; 7-7:30, services, United Synagogue of America; 7:30-9, concert, United States army band; 9-10, Ipana Trouhadours; 10-10:30, Apollo Instrumental ensemble; 10:30-11, Adam Carroll, pianist and David Berend, banjolete; 11-12, Hotel Bossert Marine Roof orchestra. WEBJ, New York, N. Y. (272.6), 8-8:30 p. m., Bonne's Recreation orchestra; 9-9:15, Sam Y. Tur, soprano; 9:30-9:45, Tency Valentine, soprano, accompanied by Professor Camillo Bonsignore.

(Continued on page 11)

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, July 25: 4:30, WJZ; 5:30, WJZ; 6:40, WPG; 7:15, WOR; 7:25, WNYC; 8, WJZ. Monday, July 27: 4, WJZ; 4:30, WJZ, WCAE; 5, 5:30, 6, WJZ; 7:15, WEEL, WOR; 7:25, WNYC; 8, WJZ. Tuesday, July 28: 4, 4:30, 5, 5:30, 6, WJZ; 7:15, WOR; 7:25, WNYC; 7:45, WEEL; 8, WJZ. Wednesday, July 29: 4, 4:30, 5, 5:30, 6, WJZ; 7:15, WOR; 7:25, WNYC; 7:45, WEEL; 8, WJZ. Thursday, July 30: 4, 4:30, 5, 5:30, 6, WJZ; 7:15, WOR; 7:25, WNYC; 7:45, WEEL; 8, WJZ. Friday, July 31: 4, 4:30, 5, 5:30, 6, WJZ; 7:15, WOR, WEEL; 7:25, WNYC; 8, WJZ.

KYW; 3:45, WEAR; 3:55, WWJ; 4, KYW, WMAQ; 4:30, KYW; 5, KDKA, KYW; 6, WGN WLS; 6:30, WBZ; 6:50, WTIC; 7:30, WEBH, WLW; 9:50, WBZ; 9:55, KDKA; 10, WREO.

Central Standard Time Stations Saturday, July 25: 3:15, WHAS; 3:30, WDAF; 4:30, WDAF, WFAA; 5, WDAF; 6, WCCO, WDAF, WOC; 6:20, WOAW; 6:30, WSMB; 9, WCCO; 9:15, KTHS.

Sunday, July 26: 3:30, 4, WDAF; 4:30, WFAA; 5, WDAF; 5:05, WOS; 6:45, WOC; 9, WCCO; 9:15, KTHS.

Monday, July 27: 3:15, WHAS; 3:30, WDAF; 4, WCCO, WDAF; 4:30, WFAA; 5, WDAF; 5:05, WOS; 6, WCCO, WDAF, WOC; 6:30, WOAW, WSMB; 7, WHAD; 9, WCCO.

Tuesday, July 28: 3:15, WHAS; 3:30, WDAF; 4, WCCO, WDAF; 4:30, WFAA; 5, WDAF; 6, WCCO, WOC; 6:20, WOAW; 6:30, WSMB; 7, WHAD; 9, KTHS; 9, WCCO.

Wednesday, July 29: 3:15, WHAS; 3:30, WDAF; 4, WCCO; 4:30, WDAF, WFAA; 5, WDAF; 5:05, WOS; 6, WCCO, WDAF, WOC; 6:20, WOAW; 6:30, WSMB; 9, KTHS; 9, WCCO.

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

Friday, July 31: 3, WDAF; 3:15, WHAS; 4, WCCO, WDAF; 4:30, WFAA; 5, WCCO, WDAF, WOC; 6:20, WOAW; 6:30, WSMB; 9:15, KTHS; 9, WCCO.

Mountain Standard Time Stations Monday, July 27: 6, KOA. Tuesday, July 28: 6:30, KOA. Wednesday, July 29: 6, KOA. Thursday, July 30: 6:30, KOA. Friday, July 31: 6, KOA.

Pacific Standard Time Stations Saturday, July 25: 2-5, KNX; 6, KFOA; 6:15, KPO; 8, KFVB, KHJ. Sunday, July 26: 6:30, KPO; 8, KHJ; 9, KFVB. Monday, July 27: 6, KFOA; 6:15, KPO; 6:45, KGO; 7:30, KGW; 8, KFVB. Tuesday, July 28: 6, KFOA; 6:15, KPO; 6:45, KGO; 7:30, KGW; 8, KFVB, KHJ. Wednesday, July 29: 2, 3, 4, KNX; 6, KFOA; 6:15, KPO; 6:45, KGO; 7:30, KGW; 8, KFVB, KHJ. Thursday, July 30: 5:30, KFOA; 6:45, KGO; 7:30, KGW; 8, KFVB, KHJ. Friday, July 31: 2, 3, 4, KNX; 6, KFOA, KPO; 6:45, KGO; 7:30, KGW; 8, KFVB, KHJ.

Chapman's orchestra; 8, Jack Chapman's orchestra; 8:10, circuitgram; 8:30, Mrs. Amanda Burhop and trio; 9:30, Jack Chapman's orchestra. WMBB, Chicago, Ill. (250), 7-8:30 p. m., semi-classical program; Trianon ensemble; J. E. Lampe, director; Marle Caruso, soprano; Carlos Martini, baritone; Hazel O'Neil, soprano; Wayne Kling, saxophonist; 8:30-10:30, popular program; Trianon orchestra; artists' chorus; Hawaiian guitarists. WMBF, Miami Beach, Fla. (384.4), 6:30-7 p. m., Fleetwood Radio orchestra; 7-7:30, Fleetwood Radio orchestra; 10-12, dance music, Fleetwood Radio orchestra. WDRD, Batavia, Ill. (275), 8:30 p. m., World News Digest; 8:45, musical program, Dr. Karl G. Knocke,

WTAM, Cleveland, Ohio (389.4), 6-7 p. m., Hotel Statler concert orchestra. WTAS, Elgin, Ill. (302.8), 8-10:30 p. m., WTAS orchestra; Brock Sisters; Herbie Mintz; Violet Eaton. WTIC, Hartford, Conn. (348.6), 6 p. m., Travelers Jongleurs; 6:50, baseball; 7:10, Mrs. H. R. Armstrong, opera star; 7:30, Austin organ company; 8:10, Wilfred Theaker, violinist; 8:20, "A Trip Through the Adirondacks," Lucius Barber; 8:45, Colt Park Municipal orchestra. WWJ, Detroit, Mich. (352.7), 6 p. m., dinner concert; 7, concert from New York.

Central Standard Time Stations KFAB, Lincoln, Nebr. (340.8), 5-6 p. m., Schmolter & Mueller musical.



Arthur Richter and Edmund Fitch are the two organists who play every week from WHAD, Milwaukee. Both are accomplished musicians and have become famous through their appearances at this station.

FRENCH SOPRANO WEDNESDAY AT WBZ

Wednesday, July 29

(Continued from page 10)

WEEL, Boston, Mass. (476), 7:45 p. m., Charlie Donegan in Florida; 8, musicale from New York; 9, Atwater Kent Radio artists; 10, Goodrich Silvertown Cord orchestra.

WFI, Philadelphia, Pa. (394.5), 3 p. m., talk, auspices Society of Prevention of Cruelty to Animals; 6:45, Bellevue Stratford Roof Garden orchestra.

WGSS, New York, N. Y. (315.6), 6-6:30 p. m., Uncle Gebebe; 6:30-7:30, Palisadians orchestra; 8:50-9, sports talk, Paul Gallico; 9-9:30, playlet, "Eyes That Cannot See."

WGR, Buffalo, N. Y. (319), 8:30-9:30, Knell's Tokio dance orchestra; 9:30-10:30, Gospel Melodists; 11-11 a. m., supper dance music, Vincent Lopez' Hotel Statler dance orchestra, Harold Gleser, director.

WHN, New York, N. Y. (361.2), 7-7:30 p. m., Harry Hichman and his Club Richman entertainers; 7:30-7:50, "Terry" McGovern's presentation of boxing celebrities; 9:30-10, Palisades Amusement Park orchestra; 10-10:30, Roseland dance orchestra.

WIP, Philadelphia, Pa. (508.2), 3:30 p. m., Comfort's Philharmonic orchestra; 6:05, Benjamin Franklin concert orchestra; 7, Uncle Wip's bedtime stories.

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

WJZ, New York, N. Y. (454.3), 4:30-5:30 p. m., Hotel Belmont tea music; 7-7:30, Cafe Boulevard orchestra;



Fannie Elizabeth Stoll, left, is the violinist with the Courier-Journal vocal quartet of WHAS, Louisville. Eva Darlon is the young French singer who will broadcast a novel group of songs Wednesday from WBZ, Springfield. Bud Meeker is the synoposing pianist who plays two or three times a week at WSB, Atlanta.

hour; S. Denver Real Estate exchange, El Jebel Shrine trio; Joseph A. Butterworth, L. C. Thomson, tenor soloists; David T. Chase, baritone; "The Nation at Play," L. C. Fullenwider; "Rebuilding of the Nation," George H. Gallup; musical program, Mr. and Mrs. Robert D. Kenworthy.

Pacific Standard Time Stations

KFOA, Seattle, Wash. (454.3), 6-6:45 p. m., Olympic hotel concert orchestra; 6:45-8:15, Hopper-Kelly company studio program; 8:30-10, Times studio program.

KFWB, Hollywood, Calif. (252), 6-7, children's hour, Big Brother of KFWB; 7-8, program, Beverlidge company, the Beverlidge Collegians' dance orchestra; 8-9, Screenland dance orchestra, Joe Martin, leader; 9-10, program, Independent Furniture Manufacturing company; 10-11, Warner Brothers' mid-week movie frolic, Charlie Wellman, master of ceremonies.

KGW, Portland, Ore. (491.5), 6-7 p. m., Jackie Souder's dance orchestra; 7:30, baseball scores; 8-10, Walker Brothers old time dance orchestra; 10-11, Sherman, Clay and company concert.

KHJ, Los Angeles, Calif. (405.2), 5:30-6 p. m., Leighton's Arcade cafeteria orchestra, Jack Cronshaw, leader; 6-6:30, Art Hickman's Biltmore hotel concert orchestra, Edward Fitzpatrick, director; 6:30-7:30, Radio kiddies' hour, Dick Winslow, juvenile reporter, Mickey McBon and Baby Murlie MacCormac, screen starlets, Uncle John; 8, scientific lecture, Dr. Mars. Bumgardt; 8:30-9:30, program, Alva Radio company; 9:30, Piggly Wiggly girls stringed trio; 10-11, Art Hickman's Biltmore hotel dance orchestra, Earl Burnett, leader.

KNX, Hollywood, Calif. (336.9), 5:30-6:15 p. m., Wur-litzer pipe organ studio, Sid Ziff's sports talk; 6:15, travel talk, W. F. Alder; 6:30-7, Atwater-Kent Radio orchestra, Paul Finstein, leader; 7-8, Ambassador hotel concert orchestra, Josef Rosenfeld, director; 8-9, program, Security Trust and Savings bank; 9-10, program with a kick, Hercules Gasoline company; 10-11, KNN studio program of popular songs.

KPO, San Francisco, Calif. (488.3), 6:40-7 p. m., Waldemar Lind and the States restaurant orchestra; 7-7:30, Rudy Selger's Fairmont hotel orchestra; 8:30-10, Mrs. A. Dalley, contralto; Cromono trio; 10-11, Waldemar Lind and the States restaurant orchestra.

KTCL, Seattle, Wash. (305.9), 7-8 p. m., Transportation club; 10-11, Alaska weekly studio program.



7:30-8, Olecott Vail trio; 8-8:10, Wall Street Journal review; 8:10-8:30, NYU Air college; 8:30-9:30, Edison hour; 10:30-11:30, Billy Wynne's Greenwich Village Inn orchestra.

WLTJ, Philadelphia, Pa. (394.5), 4:30 p. m., talk, auspices Philadelphia Home and School League; Morris Lipschutz, violinist; Sarah Fliegerman, pianist; 7:30, Dream Daddy's bedtime stories; 8, sports talk; talk, "Music Inspired by Birds," Charles P. Shoffner; Morcella North, pianist; 10, Arcadia cafe dance orchestra.

WMCA, New York, N. Y. (340.7), 6:30-7:30 p. m., Ernie Golden and his Hotel McAlpin orchestra; 8-8:30, Trouvorian quartet; 11:30-12, Jack Smith, baritone; 12-1 a. m., Broadway Bright Lights.

WNYC, New York, N. Y. (528), 5-5:30 p. m., Spanish lessons, V. Harrison Berlitz; 7-10-7:30, dance program; 7:35-8, dance program; 8-8:02, baseball results; 8:15-10:15, concert, Central Park; 10:15-10:30, song recital.

WOO, Philadelphia, Pa. (508.2), 4:45 p. m., organ recital, Mary E. Vogt; 7:30, United States army band; 9, Inana Troubadours; 10, Apollo Instrumental ensemble; 10:30, Hotel Adelphia Roof Garden orchestra.

WDR, Newark, N. J. (405.2), 9:15-7:15 p. m., Tivoli theater orchestra; 7:15-7:30, sports talk, Bill Washoy; 7:30-8, Vincent Lopez orchestra; 8-8:10, "Topics of the Day," Spenser Armstrong; 8:30-9:40, talk, Dr. Frank H. Vizeletly; 10:15-10:45, Jascho Gurevitch Saxophone ensemble.

Eastern Standard or Central Daylight Saving Time Stations

KOKA, Pittsburgh, Pa. (300.1), 8:45 p. m., Dry Slitz hour of music.

KYW, Chicago, Ill. (535.4), 7-7:30 p. m., dinner concert, Congress hotel; 7:33, "Entertaining Plans," Vivalto Gorman; 8-9, Lucy Doherty Long, contralto, William Mitchell, tenor; Ned Santry; 10-12:30, midnight revue; Paul Whiteman's Collegians.

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

WBBM, Chicago, Ill. (228), 8-10 p. m., Samovar orchestra, Jerry Grunack, Maurice Silverman, Davo and Charlie, Harold Anderson, Kelly Smith, Sunset male quartet; 12-2 a. m., Samovar orchestra, Chorlio and Dave.

WBZ, Springfield, Mass. (333.1), 6 p. m., Hotel Kimball trio, Jan Geertz, director; 6:30, baseball scores; 8, Capitol theater orchestra, Frederick Pullen, director; Margaret Tighe, organist; 8:30, Eve Darlon, French soprano; Robert Leland, guitarist; Gertrude Gilson, accompanist; 8:50, Louis Harlow, Aleppo Drum Corps artist; 9:50, baseball scores.

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

WCX, Detroit, Mich. (516.0), 2:30 p. m., band concert, Belle Isle; 4:15, concert; 6, dinner concert, Itok-Cadillac hotel; 7:30, bond concert, Belle Isle; 8:30, musical program.

WEAR, Cleveland, Ohio (389.4), 7-8 p. m., Hotel Cleveland orchestra.

WEBH, Chicago, Ill. (370.2), 7:30-8:30 p. m., Oriole dinner concert; book rhat, Lewellyn Jones; Florence Bohrend, soprano; baseball scores; Oriole dance orchestra; 9:30-10:30, Robert York, tenor; songs, Correll and Gosden; Fowler and Tamara's South American Troubadours; 11:30-1 a. m., Oriole dance orchestra; Robert York, tenor; Correll and Gosden, songsters; Oriole orchestra revue.

WGES, Oak Park, Ill. (250), 5-7 p. m., Little Marie Wright, Richard Dalo, baritone; Louise Wyse, soprano; Freda Stoll, soprano; Charlotte Edwards, contralto; Anna Wallace, pianist; 10:30-11, Moonlight serenaders' orchestra; Erwin Schmidt and Phil Fleming; Cuyuno Electrical school serenaders; Gall Bandell; Sunshine Radio trio.

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., children's program; 5:45, Albany Strand theater orchestra; Julius Boxhorn, conductor; Floyd H. Walter, organist; 6:35, "Book of Knowledge," program.

WHT, Oerfeld, Ill. (399.8), 7 p. m., Al Carney, organist; Grayling's string trio; Oscar Heather, tenor, Edith Hort, soprano; Herman Ding, baritone; Kitchen Klenzer Klaxika; Jelko musical moments; 8:45, (2384, Elmer Kaiser's Riverview hall room orchestra; 10:30, (399.8), program a la carte, William Hoke, tenor; Fred Anand, tenor; Walter Ford's donco orchestra; Pat Barnes; 12:30 a. m., Al Carney's midnight organ recital.

WJJO, Mooseheart, Ill. (302.8), 8:45-7:15 p. m., dinner hour concert, Belmont hotel trio; 7:15-8, Mooseheart Philharmonic orchestra; Mooseheart Junior band; "Child Care," M. P. Adams; 10:30-1 a. m., Chorley Straight and his orchestra; Albert F. Brown, organist.

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

WKRC, Cincinnati, Ohio (328), 8 p. m., book review, Alice B. Coy; 8:15, Lella Le Marr, pianist; 8:15, popular entertainment; 9, Marlon McKay's Bond Hill House orchestra.

WLS, Chicago, Ill. (344.8), 8:30 p. m., Ralph Emerson, organist; Martha Meier, contralto; 7:15, Itca's Cornhuskers; 7:15, Lullaby time; 8, Rex's Cornhuskers; 8:15, WLS Tribe of Lono Scouts; 8:15, Perry Lee Huffaker, tenor; 9, R. F. D. program; Cornhuskers' brass quartet; 10, Czobho-Blovakian artists; 11-11:30, Rex's Cornhuskers.

WLW, Cincinnati, Ohio (422.3), 4 p. m., "Shul In" program, directed by Mr. and Mrs. William Dunling; 7, Hotel Gibson orchestra, Robert Visconti, director; 7:20, talk, F. J. St. John of Deleo Light company; 10, combined concert of classics, College of Music of Cincinnati and Dayton Conservatory of Music; lecture soloist, Erich Sorantin Viennese violin virtuoso, and Ralph Thomas, celebrated tenor; program arranged by Mr. William Dunling; 10:15, "Pino male quartet; the Orpheus Instrumental trio; 11:15, organ concert, Johanna Grosso.

WMAQ, Chicago, Ill. (447.5), 2:15 p. m., Cuba-Glants baseball; 9, Chicago theater organ recital; 6:30, Jack Chapman's orchestra; 8, Jack Chapman's orchestra; 8:30, lecture, Northwestern university; 9, WMAQ players.

WMOB, Chicago, Ill. (250), 7-8:30 p. m., Operatic semi-classical program; Carlos Martini, baritone; Trianon ensemble; Charles Agno, trumpet soloist; Phyllis Harries, mezzo soprano; Albert Caestecker, cellist; Rebecca Agulnick, concert pianist; 8:30-10:30, popular program; Harold Stokes, accompanist; Geraldino Doyle, soprano; Lindsay McPhail, pianist; Trianon ballroom orchestra; Florence Tenny, Woodlawn theater orchestra.

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

WORD, Balavia, Ill. (275), 8:30 p. m., service, sacred hymns and songs, I. H. A. trio; 8:45, Bible lecture, L. M. Smith; 9, solos and duets.

WQJ, Chicago, Ill. (447.5), 7-8 p. m., Ralph Williams and his Rainbo Gardens orchestra, Otto A. Moore, baritone; La Verne Hanson, accompanist; Izora Logan Herolds, musical readings; Gertrude Wolf Quentin, soprano; 10-11, Rainbo Gardens Sky-larks; Molodians; Paul Small, tenor; Gall Bandell, contralto; Joe Termini and Williamson Brothers; Fred A. Jacobsen, reader; Clarence Theiders, tenor; Rick Snyder, Gardner; Esther Trostrud, soprano;

Alice Hesner, pianist; Anita Chollis, contralto; Fentella trio; 1-2, Gincer hour.

WRC, Washington, D. C. (468.5), 5 p. m., U. S. Marine band; 6:20, baseball.

WTAS, Elgin, Ill. (302.8), 8-10:30 p. m., Joe Rudolph and the Boss' Own orchestra; Herbio Mintz; Gall Bandell; Phil Wilcox.

WTAM, Cleveland, Ohio (389.4), 6-7 p. m., dinner-dance music, Music Box orchestra; 8-10, organ recital; 10-11, Hollenden hour, Carl Hupp and his Hotel Hollenden orchestra; 11-1, Euclid Hoch dance orchestra.

WTIC, Hartford, Conn. (348.6), 9:50 p. m., baseball.

WWJ, Detroit, Mich. (352.7), 6 p. m., dinner concert.

Central Standard Time Stations

KFAB, Lincoln, Nebr. (340.8), 7:30-9:30 p. m., artists, luncheon.

KFMQ, Fayetteville, Ark. (299.8), 7:30 p. m., "Farm Fibrology," Cy Adams; "Harvesting and Packing Grapes," Prof. J. R. Cooper; "Canning Fruits," Harriet B. King; farmers' week, J. P. Bell.

KNF, Shenandoah, Va. (266), 7:30 p. m., concert, Henry Field Seed company.

KFRU, Bristol, Okla. (304.5), 8-10:30 p. m., music.

KFUO, St. Louis, Mo. (545.1), 9-15 p. m., "The Influence of the Bible."

KFVE, University City, Mo. (240), 10 p. m., orchestra Romano; Pathé News review.

KOLL, Council Bluffs, Iowa (278), 7:30 p. m., Hofmann-Buckingham orchestra; 8, Ina Platt, soprano; 8:10, Marie Morrill, pianist; 8:20, Hofmann-Buckingham orchestra.

KSO, St. Louis, Mo. (545.1), 7 p. m., Silverman's orchestra.

KTAS, Hot Springs National Park, Ark. (374.8), 6:25 p. m., Hot Arlington-Meyer Davis Instrumental quartet.

WCCO, Minneapolis-St. Paul, Minn. (418.4), 9 p. m., baseball; 7, midweek ritual service; 8, musicale; 10, Willie Erickson's Coliseum orchestra; 11:30, Eddie Dunstetter, organist.

WOAF, Kansas City, Mo. (305.0), 6-7 p. m., address, speaker, auspices Health Conservation association; address, speaker, Meat Council of Greater Kansas City; children's information period; Plantation players; 8-9:15, Star's Radio orchestra; 11:15-1 a. m., Merry Old Cholo; Carl Nordberg's Plantation players; Charles Bernberger's Kansas City Athletic club orchestra.

WHA, Madison, Wis. (535.4), 8 p. m., "Cheese Making in Wisconsin," Prof. J. L. Semmler; musical program, School of Music, University of Wisconsin.

WHAO, Milwaukee, Wis. (275), 8-7 p. m., Arthur Richter, organist; 8-10, Wisconsin roof garden; 11:30-12:30 a. m., Edmund Fitch, organist.

WHAS, Louisville, Ky. (399.8), 7:30-9 p. m., Keith Kennard and his Kentucky Hamblers.

WHO, Des Moines, Iowa (526), 6:30-7:30 p. m., Bankers' Life trio; 7:30-9, Alex Lindholm, violinist; Mrs. Marshall Bouyers, soprano; Mrs. Kate Miller, whistler; Mrs. Maude Hughes, accompanist; 9-10, Corn Sugar orchestra; 10-11:30, Barrett Philbrick orchestra.

WDAI, San Antonio, Texas (394.5), 8:30-9:30 p. m., army night, musical program.

WDC, Davenport, Iowa (483.6), 9-10 p. m., Mrs. R. J. Hurlch, organist; Mrs. Harry E. Vudler, soprano.

WDS, Jefferson City, Mo. (440.9), 8 p. m., address, George A. Hickens.

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

Mountain Standard Time Stations

KFWA, Ogden, Utah (261), 9-11 p. m., old time music, KFWA trio; 11-12, Whoopis club.

KOA, Denver, Colo. (322.4), 6:30 p. m., Herhart White and his Silver State orchestra; 7:30, Sandman's

Thursday, July 30

Thursday, silent night for: CKAC, CNRT, KFAB, KFAE, KFOM, KFDA, KFUC, KFVE, KFWA, KOA, KSD, PAX, WAHG, WBAV, WCEE, WEAD, WEBJ, WHAO, WHAZ, WJJO, WKRC, WLTJ, WOR, WRDC, WTAM.

Atlantic or Eastern Daylight Saving Time Stations

CHNC, Toronto, Can. (350.7), 9 p. m., Charles E. Hodley and his orchestra; Lawrence Defoe, tenor; Ed Whitte, soprano.

WBRR, New York, N. Y. (272.0), 8 p. m., Watch tower instrumental trio, 8:10, Fred Franz, tenor; 8:20, Sunday school lesson; 8:40, Fred Franz, tenor; 8:50, Watchtower instrumental trio.

WCAE, Pittsburgh, Pa. (461.3), 6:30 p. m., dinner concert, William Penn hotel; 8, studio concert; 9, Atwater Kent Radio artists from WEAJ; 10, Goodrich Silvertown Cord orchestra.

WCAU, Philadelphia, Pa. (270), 6:30 p. m., Billy Hayes and his Palmyra Tea Garden dance orchestra; 7-7:30, recital, N. Snellenburg and company; 10:30, Billy Hayes and his Palmyra Tea Garden dance orchestra.

WEAF, New York, N. Y. (491.5), 4:45 p. m., talk, Cameron Huges; 6-7, dinner music, Waldorf-Astoria; 7:30, services, New York Federation of churches; 7:30-8, Udman's serenaders; 8-9, Nadino mixed quartet; 9-10, Atwater Kent Radio artists; 10-11, Silvertown Cord orchestra; 11-12, Vincent Lopez' Hotel Pennsylvania orchestra.

WFI, Philadelphia, Pa. (394.5), 3 p. m., talk, Philadelphia Child Health society; Loretta Kenk, pianist; 6:45, Bellevue Stratford Roof Garden orchestra; 8, concert from WEAF; 9, Atwater Kent Radio artists; 10, Goodrich Silvertown Cord orchestra.

WGOS, New York, N. Y. (315.0), 4-6:30 p. m., Uncle Gebebe, 6:30-7, Tom Barry and his Hawaiians; 7-7:10, talk, Independent Magazine; 7:10-7:30, Tom Barry and his Hawaiians; 8:30-8:40, talk, Oliver Naylor; 10-11 a. m., 81 stations on Radio movie festival, WJL, WMAJ and WGH.

WOR, Buffalo, N. Y. (319), 6:30-7:30 p. m., Vincent Lopez' Hotel Statler dance orchestra; Harold Gleser, director; 8-11, jointly with WEAF, including Atwater Kent program, and the Goodrich Silvertown Cord orchestra.

WHAR, Atlantic City, N. J. (275), 7:30 p. m., Scarside hotel trio; 8-10, vocal and instrumental concert; 9-10, Vincent Lopez, Jr.'s dance orchestra.

WHN, New York, N. Y. (361.2), 8-8:30 p. m., Will Oakland's Pathéau Shanley; 9:30-10, Palisades Amusement Park orchestra; 10-11, boxing bout from Dexter Park.

(Continued on page 12)

AT WLS; ONE-ACT PLAYS AT WGY

the French music program Tuesday member of the Bicycle Playing Card lar feature of WGCF. Although a work is good. Stephen E. Boisclair ctady. Mr. Boisclair is also a com- note.



WBZ, Springfield, Mass. (333.1), 6 p. m., Hotel Kimball trio; Jan Geerts, director; 6:30, baseball results, S. Charles Joyce, whistler; 8:15, piano recital; Juliette Houle; 8:30, Esther Metevier, violinist; Beatrice Rivard, accompanist; 8:45, concert, J. Marshall Clark, lyric tenor; 9, Bill Boyle's entertainers; 9:50, baseball scores.

WCX, Detroit, Mich. (516.9), 4:15 p. m., concert; 6, dinner concert, Book-Cadillac hotel; 7:30, band concert, Belle Isle; 8:30, musical program.

WEAR, Cleveland, Ohio (389.4), 7-8 p. m., children's hour; 8-8:30, talks, Clevelanders; 8:30-11, dance music.

WEBB, Chicago, Ill. (370.2), 7:30-8:30 p. m., Orleone concert orchestra; WEBB, light opera company; Howard Neumiller, pianist; 9:30-10:30, Orleone dance orchestra; Jack Penwell, twin guitarist; Howard Neumiller, pianist; Fowler and Tanager's South American Troubadours; 11:30-1 a. m., Orleone dance orchestra; songs, Three Musketeers; Jack Penwell, twin guitarist.

WGES, Oak Park, Ill. (250), 5-7 p. m., John Rankol, baritone; Madeline Reed, contralto; Irma Jaubert, soprano; Hazel Grey, reader; John Stanford, tenor; Elsie Barge, pianist; Lucille Matthews, violinist; Gertrude Matthews, accompanist; 10:30-1 a. m., Novelty Broadcasters orchestra; Jack Tracy and Angie Schald; Gull Handell, Sunshine Radio girl; Coyne Electrical 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 concert.

WGY, Schenectady, N. Y. (379.5), 5:30 p. m., International Sunday school lesson; 6, Strand theater orchestra; Julius Boxhorn, conductor; Floyd H. Walters, organist; 6:30, baseball scores; health talk; 9:40, WGY orchestra; Mrs. J. Welsely, soprano; Mary and Alice Wisely, pianists; 8:15, Philharmonic orchestra symphony program; Nikolai Sokoloff, conductor; 9:30, three one-act plays: "The Klopsh's Candlesticks," "Lonesome Like," and "Danger." WGY players: Ten Eyck Clay, director.

WHT, Deerfield, Ill. (399.8), 7 p. m., Deen Remick, pianist; Bryce Talbot, baritone; Al Carney, organist; Genevieve Barry Burnham, soprano; Jekko Musical moments; Grayling's string trio; Kitchen Kleizer Klaxons; 8:45 (238), Riverview Park ballroom orchestra; 10:30 (309.8), Lotlie's thirty minutes of melody; Charley Burke's Syncopation review; Billy Carpenter, ukulele soloist; University Hawaiian trio; Art Stiller, baritone; Marie Wright, soprano; Wanda Galt; 12:30, Al Carney, organist.

WJJD, Mooseheart, Ill. (302.8), 6:15-7:15 p. m., Belmont hotel trio; 7:15-8, music, Mooseheart children; 10:30, Charley Straight and his orchestra; Albert E. Brown, organist.

WLS, Chicago, Ill. (344.6), 6:30 p. m., Ralph Emerson, organist; 7:15, Rex's Cornhuskers; 7:45, lullaby time; 8, Mercantile Trust and Savings bank; 9, Kenneth Clark, Hawaiian guitarist; Rex's Cornhuskers; 10, Dorothy Fredericks, pianist; Frances Fitzgerald O'Connor, soprano; 11-11:30, Rex's Cornhuskers.

WMAQ, Chicago, Ill. (447.5), 2-12 p. m., Cubs-Giants baseball; 6, organ recital, Chicago theater; 8:25, Family Altar league; 9:35, Jack Chapman's orchestra; 8, Jack Chapman's orchestra; 8:30, program; 9:30, Jack Chapman's orchestra.

WMBB, Chicago, Ill. (250), 7-8:30 p. m., homo songs, semi-classical program; Trianon ensemble; Hazel O'Neil, soprano; Albert Caestecker, cellist; Ueolo Tom's Cabini, musical fantasy, vocal quartet; Phyllis Harries, mezzo-soprano; John R. Everett, baritone; Charles Agno, trumpet soloist; Carlos Martini, baritone; 8:30-10:30, popular program; Trianon orchestra; Iell Lango, conductor; Jack Muzanne, baritone; Elsher and Wayne, harmony team; Woodlawn theater orchestra, Armin Hand, director; WMBB song, Clyde Haeber; Morye Atwans, banjoist.

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

WORD, Botviva, Ill. (275), 8:30 p. m., Uncle Dan's half hour with W(HT) Radio study club; 9, Jennie F. W. Johnson, contralto; Edna Hayden, soprano.

WQJ, Chicago, Ill. (447.5), 7-8 p. m., Rainbo Gardens orchestra; Fayette Miller, baritone; Clement Laszkowski, tenor; Maude Shapton Gouse, lyric soprano; 10-1, Rainbo Gardens Skylarks; West Brothers; William Richardson, baritone; Paul Small, tenor; Jack Lavin, tenor; Irene Fineman, soprano; Anita Chellis, contralto; Ince Quinn, contralto; Eleanor Terry, Marie Pullette; 1-2, Ginger hour.

WRC, Washington, D. C. (468.5), 6:30 p. m., Arlington Beach orchestra; 6-7, baseball.

WTAM, Cleveland, Ohio (394.4), 6-7 p. m., Golden Pheasant orchestra.

WTAS, Elgin, Ill. (302.8), 8-10:30 p. m., Joe Rudolph and the Boss' Own orchestra; Herbie Mintz; Hrook Sisters.

WTCI, Hartford, Conn. (348.6), 6 p. m., Travelers Jongleurs; 6:50, baseball; 7, Travelers Jongleurs; 7:55, Lillian Morrison, pianist; 8:05, talk; 8:30, Emil Heimbergers' Hotel Bond orchestra.

WVJ, Detroit, Mich. (352.7), 6 p. m., dinner concert; 8, Goldman band concert; 9, Orange Blossom's orchestra.

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, July 25: 6, WEAF; 6:05, WIP; 6:30, WCAE; 7, WEAF; 7:30, WEAF, WGBS; 7:45, WGR; 8, WEAF, WHAR, WIP; 8:10, WGBS; 8:25, WJZ; 8:30, WCAE, WGBS, WGR; 8:45, WBBR, WEAF; 8:50, WIP; 9, WGBS; 9:50, WGBS; 10:15, WEAF; 10:30, WEAF.

Sunday, July 26: 6, WOO; 6:30, WCAE; 7, WJZ; 8:05, WJZ; 8:30, WEEL, WJY; 9, WBBR, WHAR; 9:15, WEAF; 11, WHAR, WHN.

Monday, July 27: 6, WEAF, WGR; 6:05, WIP; 6:30, WCAE; 7:15, WEAF; 7:30, WEEL; 8, WAHG, WBBR, WEEL, WGR, WHAR, WOO, WOR; 8:15, WNYC; 8:30, WBBR, WCAE, WJZ, WMAK, WOO; 8:45, WEAF; 8:50, WBBR; 9:15, WAHG, WMCA; 9:45, WMCA; 10, CHNC; 10:15, WEAF, WOO.

Tuesday, July 28: 6, WGR; 6:05, WIP; 6:30, WCAE; 7, WEAF, WEBJ, WGR; 7:10, WNYC; 7:15, WJZ; 7:30, WCAU, WEAF, WEBJ, WEEL; 8, WCAE, WCAU, WEAF, WEEL, WPI, WGBS, WGR, WNYC, WIP; 8:30, WEBJ, WJY; 8:50, WIP; 9, WCAE, WEEL, WPI, WGBS; 9:30, WGR; 10, WCAE, WEAF, WEEL, WMCA; 11, WHAR.

Wednesday, July 29: 6, WEAF; 6:05, WIP; 6:30, WCAE; 7:30, WEAF, WJZ, WOO; 8, WCAE, WEEL, WMCA; 8:15, WNYC; 8:30, WCAE, WEEL, WGR, WJZ; 8:45, WAHG; 9, WEAF, WEBJ, WEEL, WGBS, WOO; 9:30, WEBJ, WGR; 10, WEAF, WOO; 10:15, WOR; 11:30, WMCA.

Thursday, July 30: 6, WEAF, WGR; 6:05, WIP; 6:30, WCAE, WDFW; 7:10, WNYC; 7:30, WCAU, WDFW, WHAR; 8, WBBR, WCAE, WEAF, WEEL, WPI, WIP; 8:15, WNYC; 8:30, WHAR; 8:40, WBBR; 8:50, WIP; 9, WCAE, WEAF, WEEL, WPI, WMCA; 9:30, WMCA; 10, WCAE, WEEL, WJZ.

Friday, July 31: 6, WEAF, WGR; 6:05, WIP; 6:30, WCAE; 7, WEAF, WEBJ; 7:30, WEEL, WEEL; 7:45, WEAF; 8, WHG, WEEL, WEEL, WGR, WHAR; 8:15, WNYC; 8:25, WJZ; 8:30, WCAE, WEBJ, WEAF; 9, WEAF, WGR, WMCA; 10, WEAF, WOO; 10:45, WHAR.

Eastern Standard or Central Daylight Saving Time Stations

Saturday, July 25: 6, KYW, WCX, WBO, WGES, WMAQ, WTAM; 6:30, WGN; 6:45, WJJD; 7, KYW, WHT, WBO, WMBB, WQJ; 7:15, WJJD; 7:25, WGY; 7:30, WRC; 7:35, KYW; 7:45, WLS; 8, WORD, WSAI, WTAM; 8:15, WSAI, WWJ; 8:30, KYW, PWX, WGN; 8:45, KDKA; 9, WMAQ; 9:15, WSAI.

Sunday, July 26: 6, WCX, WGES; 6:30, WHT; 6:45, WORD; 7, KDKA, WEAR, WERH, WMBB; 7:30, WCX; 8, WBZ, WLS, WQJ; 8:30, WEBB; 8:45, WBZ; 9, WGN, WQJ; 10, WKRC.

Monday, July 27: 6, WBZ, WCX, WGES, WMAQ, WTAM, WWJ; 6:30, WGN; 6:55, WTIC; 7, WEAR, WHT; 7:15, WJJD; 7:20, WWJ; 7:30, WCX, WHT; 8, WBZ, WKRC, WTAM; 8:15, WHAZ; 8:30, WBZ, WCX, WHAZ; 8:45, KDKA; 9, WBZ, WORD, WTAM; 9:15, WBZ; 10, WSAI, WTAM; 12:30, WHT.

Tuesday, July 28: 6, WBZ, WCX, WGES, WBO, WMAQ, WTAM; 6:30, WGN; 6:45, WJJD; 7, KYW, WHT, WBO, WMBB, WQJ, WWJ; 7:10, WTIC; 7:15, WJJD; 7:30, WCX, WEBB, WRC, WRC; 7:45, WSAI; 8, KYW, WBZ, WEAR, WSAI; 8:10, WTIC; 8:30, WBZ, WCX, WGN; 9, WMAQ; 8:45, KDKA, KYW; 9, WEAR, WORD, WSAI; 10, KYW; 10:30, KDKA; 11, WKRC; 12:30, WHT.

Wednesday, July 29: 6, WBZ, WCX, WGES, WBO, WMAQ, WTAM, WWJ; 6:15, WJJD; 6:30, WGN; 7, KYW, WEAR, WHT, WBO, WMBB, WQJ; 7:15, WJJD; 7:30, WCX, WHT.

Thursday, July 30: 6, WBZ, WCX, WGES, WBO, WMAQ, WTAM, WWJ; 6:30, WGN; 6:45, WJJD; 6:55, WTIC; 7, WEAR, WHT, WBO, WMBB, WQJ, WWJ; 7:10, WTIC; 7:15, WJJD; 7:30, WCX, WEBB, WRC, WRC; 7:45, WSAI; 8, KYW, WBZ, WEAR, WSAI; 8:10, WTIC; 8:30, WBZ, WCX, WGN; 9, WMAQ; 8:45, KDKA, KYW; 9, WEAR, WORD, WSAI; 10, KYW; 10:30, KDKA; 11, WKRC; 12:30, WHT.

Friday, July 31: 6, KFOA, KGO, KHL; 6:30, KNN; 6:45, KFOA; 7, KNN; 7:30, KNN; 8:10, KGO; 8:15, KHL; 8:30, KNN; 8:45, KFOA, KGO; 9, KNN; 10, KNN.

Saturday, July 25: 6, KFOA, KHL; 6:30, KNN; 6:45, KFOA; 7, KNN; 7:30, KNN; 8:10, KGO; 8:15, KHL; 8:30, KNN; 8:45, KFOA, KGO; 9, KNN; 10, KNN.

Sunday, July 26: 6, KFOA, KGO, KHL; 6:30, KNN; 6:45, KFOA; 7, KNN; 7:30, KNN; 8:10, KGO; 8:15, KHL; 8:30, KNN; 8:45, KFOA, KGO; 9, KNN; 10, KNN.

Monday, July 27: 6, KFOA, KGO; 6:30, KNN; 6:45, KFOA; 7:30, KNN; 8, KFOA, KGO; 8:15, KHL; 8:30, KNN; 8:45, KFOA, KGO; 9, KNN; 10, KNN.

Tuesday, July 28: 6, KFOA, KGO, KHL; 6:30, KNN; 6:45, KFOA; 7, KNN; 7:30, KNN; 8:10, KGO; 8:15, KHL; 8:30, KNN; 8:45, KFOA, KGO; 9, KNN; 10, KNN.

Wednesday, July 29: 6, KFOA, KGO, KHL; 6:30, KNN; 6:45, KFOA; 7, KNN; 7:30, KNN; 8:10, KGO; 8:15, KHL; 8:30, KNN; 8:45, KFOA, KGO; 9, KNN; 10, KNN.

Thursday, July 30: 6, KFOA, KHL; 6:30, KNN; 6:45, KFOA; 7, KNN; 7:30, KNN; 8:10, KGO; 8:15, KHL; 8:30, KNN; 8:45, KFOA, KGO; 9, KNN; 10, KNN.

Friday, July 31: 6, KFOA, KGO, KHL; 6:30, KNN; 6:45, KFOA; 7, KNN; 7:30, KNN; 8:10, KGO; 8:15, KHL; 8:30, KNN; 8:45, KFOA, KGO; 9, KNN; 10, KNN.

Mountain Standard Time Stations

Monday, July 27: 8, KOA; 9-11, KFWA.

Tuesday, July 28: 6:30, KOA; 7:30, KOA.

Wednesday, July 29: 6:30, KOA; 8, KOA; 9-11, KFWA.

Thursday, July 30: 6:30, KOA.

Friday, July 31: 6:30, KOA; 8, KOA.

Pacific Standard Time Stations

Saturday, July 25: 6, KFOA, KHL; 6:30, KNN; 6:45, KFOA; 7, KNN; 7:30, KNN; 8:10, KGO; 8:15, KHL; 8:30, KNN; 8:45, KFOA, KGO; 9, KNN; 10, KNN.

Sunday, July 26: 6, KFOA, KGO, KHL; 6:30, KNN; 6:45, KFOA; 7, KNN; 7:30, KNN; 8:10, KGO; 8:15, KHL; 8:30, KNN; 8:45, KFOA, KGO; 9, KNN; 10, KNN.

Monday, July 27: 6, KFOA, KGO; 6:30, KNN; 6:45, KFOA; 7:30, KNN; 8, KFOA, KGO; 8:15, KHL; 8:30, KNN; 8:45, KFOA, KGO; 9, KNN; 10, KNN.

Tuesday, July 28: 6, KFOA, KGO, KHL; 6:30, KNN; 6:45, KFOA; 7, KNN; 7:30, KNN; 8:10, KGO; 8:15, KHL; 8:30, KNN; 8:45, KFOA, KGO; 9, KNN; 10, KNN.

Wednesday, July 29: 6, KFOA, KGO, KHL; 6:30, KNN; 6:45, KFOA; 7, KNN; 7:30, KNN; 8:10, KGO; 8:15, KHL; 8:30, KNN; 8:45, KFOA, KGO; 9, KNN; 10, KNN.

Thursday, July 30: 6, KFOA, KHL; 6:30, KNN; 6:45, KFOA; 7, KNN; 7:30, KNN; 8:10, KGO; 8:15, KHL; 8:30, KNN; 8:45, KFOA, KGO; 9, KNN; 10, KNN.

Friday, July 31: 6, KFOA, KGO, KHL; 6:30, KNN; 6:45, KFOA; 7, KNN; 7:30, KNN; 8:10, KGO; 8:15, KHL; 8:30, KNN; 8:45, KFOA, KGO; 9, KNN; 10, KNN.

WEEL, Boston, Mass. (476), 7:15 p. m., baseball; 7:30, Whittling's Milk company; 8, Newportian Ice Cream company; 9, Ed. Andrews and his Nautical Garden orchestra.

WFL, Philadelphia, Pa. (394.5), 7 p. m., Caroline Hoffmann, pianist; Housewives' Radio Exchange, Mabel Saint Ewert; 6:15, Bellevue Stratford Roof Garden orchestra.

WGBS, New York, N. Y. (315.6), 6-6:30 p. m., Ueolo Geheer; 6:30-7:30, Wlu Unger and his Lynbrook entertainers.

WGR, Buffalo, N. Y. (319), 2:30-1:30 p. m., WGR's afternoon program; 6:30-7, Cliff trio, Margaret Blakeslee, and Marlon Lewis, violinists; Gertrude Hotel-on, pianist; 7-7:30, Wincor's Present Park entertainers in "The Village Blacksmith Shop"; 9-9:30, two piano recital, Ethel Johnson and Bernice Barthelmus; 9:30-11, program by Bradley Yaw, baritone, and associated artists; 11-1 a. m., supper dance music, Vincent Lopez Hotel Statler dance orchestra, Harold Gleaser, director.

WHAR, Allentown City, N. J. (275), 7:30 p. m., fashion review, Gladys Stoudte; 8, Seaside hotel trio; 11, Strand theater orchestra; 12, Vincent Lopez, Jr.'s dance orchestra.

WHN, New York, N. Y. (361.2), 7-7:30 p. m., Harry Hefman and his Club Hefman entertainers; 10-10:30, Billy Butler's orchestra; 10:30-11, Rosemond dance orchestra.

WIP, Philadelphia, Pa. (508.2), 3:30 p. m., Comfort's Philharmonic orchestra; 9:35, Benjamin Franklin concert orchestra; 7, Ueolo Wip's bedtime.

WJAR, Providence, R. I. (305.9), 8 p. m., musicale; 9, Marie Treanors hour; 11, Providence Baltimore hotel orchestra.

WJZ, New York, N. Y. (454.3), 5:30-6 p. m., daily reports; 7-8, Savarin ensemble; 8-8:10, Wall Street Journal review; 8-8:25, N. Y. I. Air college; 8:25-10:30, concert, Lewisohn Stadium; Nikolai Sokoloff, conductor; 10:30-11:30, Duke Yellinson's orchestra.

WLIT, Philadelphia, Pa. (394.5), 4:30 p. m., Marcella North, pianist; 7:30, Dream Daddy's bedtime stories; 8, Conn-Sander Nightbirds and Charles Freya's Million Dollar Pier dance orchestra; 8:15, Emmett Welsh's Minstrels; 10, Morning Glory club concert; songs by Rufus and Bastus; Areadia cafe dance orchestra.

WMCA, New York, N. Y. (340.7), 6:30-7:30 p. m., Ernie Golden and his Hotel McAlpin orchestra; 7-7:45, 8, talk, Jack Smiles; 9-10, Hardman hour of music.

WNYC, New York, N. Y. (526), 5-5:30 p. m., French lessons, V. Harrison Hurlitz; 7-10-7:30, dance program; 7:35-8:15, dance program; 8:15-10:15, bond concert, Central Park; 10:15-10:30, popular songs.

WDD, Philadelphia, Pa. (508.2), 4:15 p. m., organ recital, Mary E. Vogt; 7:30, Wandor's Hotel Adelpia Roof Garden orchestra; 9, WOO orchestra; 10, organ recital, Mary E. Vogt; 10:30, Hotel Adelpia Roof Garden orchestra.

WOR, Newark, N. J. (405.2), 6:15-9:30 p. m., sports talk, Bill Watthey; 6:30-7, man in moon.

Eastern Standard or Central Daylight Saving Time Stations

CNRT, Toronto, Can. (357), 5:30 p. m., Luigi Romanelli and his Klax Edward hotel concert orchestra; 8:30, famous opera, artists, studio of F. A. Carlini, Gladys Jones Younk, soprano; Sydney Walsh, tenor, Daniel F. Dineen, flutist; Irving Levine, bass; Oswald Roberts, cellist; Claytone Stewart, baritone; sextet; 10:30, Luigi Romanelli and his Klax Edward hotel dance orchestra.

KOKA, Pittsburgh, Pa. (309.1), 7 p. m., basoboli; 8:15, concert.

KYW, Chicago, Ill. (535.4), 7-7:30 p. m., dinner concert, Congress hotel; 7:30-8:30, program; 10-11:30, midnight revue.

WBAV, Columbus, Ohio (298.9), 8 p. m., Vernon Society orchestra, male quartet.

WBBM, Chicago, Ill. (226), 8-10 p. m., Samovar or electrica; Shepherd Levine, Charlie and Dan Barry, Sostik and Sandy Meek, William McMillan, A. Furry.

An Evening at Home with the Listener In

STATIONS IN ORDER OF WAVE LENGTHS USED

Meters	Call	Meters	Call	Meters	Call	Meters	Call	Meters	Call	Meters	Call
226	WBBM	278	KWVG	315.6	WAHG	365.6	WDAF	405.2	WOR	468.5	WCAP
226	WIBO	278	WCAU	315.6	WGBS	365.6	WHB	406	WBAR	468.5	WRC
240	KFVE	278	WLBL	319	WGR	370	CYB	410.7	CKAC	475.9	WBAP
243.8	WAMD	278	WRNC	319	WSMB	370.2	WEBH	416.4	WCCO	475.9	WEEI
250	WGES	280.2	WBAC	322.4	KOA	370.2	WGN	421	KIAF	475.9	WFAA
250	WMBB	282.8	WOAN	325.9	WSAI	374.8	KTHS	422.3	WLW	480	CYL
252	KFWB	285.5	WKR	326	WKRC	379.5	WGY	428.3	WSB	483.6	WOC
252	WGCP	285.5	WREO	330	CYN	379.5	WHAZ	428.3	KPO	483.6	WSUI
261	KFWA	293.9	KJS	333.1	WBZ	384.4	KJR	434.5	CNRO	491.5	KGW
265.5	WMAK	293.9	WBAV	336.9	KNX	384.4	WMBF	434.5	NAA	491.5	WEAF
266	KFNF	293.9	WFAO	340.7	WKAQ	384.4	WEAR	435	AT9	499.7	WMC
266	WBCN	296.9	KPRC	340.7	WMCA	389.4	WTAM	434.5	CFCN	508.2	KLX
272.6	WBBR	299.8	KFMQ	340.8	KFAB	389.4	KFRU	440.9	KLDS	508.2	WIP
272.6	WEBJ	299.8	KSL	344.6	WCBD	394.5	WFI	440.9	WDWF	508.2	WOO
272.6	WFB	299.8	WPG	344.6	WLS	394.5	WLT	440.9	WOS	516.9	CJCA
273	KFAI	302.8	WJD	348.6	KFAE	394.5	WTOI	447.5	WQJ	526	WCX
275	WCAC	305.9	KTCL	352.7	WWJ	399.8	WHAS	454.3	KFOA	526	WNYC
275	WHAD	305.9	WJAR	356.9	CFCA	399.8	WHT	454.3	WJZ	526	WOAW
275	WHAR	309.1	KDKA	356.9	CHNC	400	PWX	455	KTW	535.4	KYW
275	WORD	313	CNRA	361.2	KGO	405.2	KHJ	461.3	WCAE	545.1	KFUO
275.3	WJAS	315.6	KFDM	361.2	WHN	405.2	WJY	467	KFI	545.1	KSD

(FOR PACIFIC TIME)

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	Silent	5:15-6:15	5:15-6:15	Silent	356.9	CFCA
CFCN	434.5	9:00-11:00	Silent	Silent	Silent	Silent	7:00-8:00	Silent	434.5	CFCN
CHNC	356.9	Silent	Silent	4:30-5:30	Silent	Silent	Silent	Silent	356.9	CHNC
CJCA	516.9	8:00-10:00	6:30-7:30	6:30-8:30	6:30-7:00	5:00-7:00	8:00-10:00	7:00-11:00	516.9	CJCA
CKAC	410.7	4:30-9:30	1:30-2:30	Silent	4:30-9:30	Silent	4:30-9:30	Silent	410.7	CKAC
CKY	384.4	Silent	5:00-7:45	Silent	6:30-8:45	Silent	6:00-7:00	6:30-7:45	384.4	CKY
CNRA	313	Silent	Silent	Silent	4:30-5:30	Silent	Silent	4:30-5:30	313	CNRA
CNRO	434.5	4:30-9:30	Silent	Silent	Silent	4:30-9:30	Silent	Silent	434.5	CNRO
CYB	370	8:15-9:45	Silent	Silent	7:15-8:15	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
KDKA	309.1	5:45-6:55	12:00-4:30	5:45-6:55	5:45-8:30	5:45-6:55	5:00-8:30	5:45-6:55	309.1	KDKA
KFAB	340.8	Silent	2:00-3:00	5:30-7:30	Silent	5:30-7:30	Silent	5:30-8:00	340.8	KFAB
KFAE	348.6	Silent	Silent	Silent	Silent	7:30-9:00	Silent	Silent	348.6	KFAE
KFAU	275	Silent	Silent	7:00-8:00	Silent	Silent	Silent	7:00-8:00	275	KFAU
KFDM	315.6	Silent	6:00-7:00	Silent	6:00-8:30	Silent	Silent	6:00-8:30	315.6	KFDM
KFI	467	6:45-12:00	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
KFMQ	299.8	Silent	Silent	Silent	7:00-8:00	5:30-6:30	Silent	Silent	299.8	KFMQ
KFNF	266	5:30-7:30	4:30-7:15	5:30-7:30	5:30-7:30	5:30-7:30	5:30-7:30	5:30-7:30	266	KFNF
KFDA	454.3	6:00-11:30	Silent	8:00-10:00	8:00-11:30	6:00-10:00	Silent	8:00-11:30	454.3	KFDA
KFRU	394.5	5:30-10:00	3:00-5:00	5:00-8:30	8:30-10:00	6:00-8:30	8:30-9:30	9:00-11:00	394.5	KFRU
KFUO	545.1	Silent	6:15-7:15	6:00-7:00	Silent	7:15-8:15	Silent	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	7:00-10:00	8:00-10:00	8:00-9:00	8:00-11:00	Silent	8:00-10:00	261	KFWA
KFWB	252	7:00-11:00	9:00-11:00	6:30-11:00	7:45-11:00	7:45-11:00	7:00-11:00	7:00-11:00	252	KFWB
KGO	361.2	8:00-1:00	3:30-9:00	8:00-1:00	8:00-1:00	Silent	Silent	Silent	361.2	KGO
KGW	491.5	6:00-12:00	7:45-9:00	6:00-11:00	8:00-12:00	8:00-12:00	9:00-12:00	9:00-12:00	491.5	KGW
KHJ	405.2	5:30-11:00	6:00-11:00	7:00-1:30	5:30-11:00	5:30-11:00	5:30-11:00	5:30-11:00	405.2	KHJ
KIAF	421	Silent	2:00-3:00	7:00-8:00	Silent	7:00-8:00	Silent	7:00-8:00	421	KIAF
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
KLDS	440.9	Silent	4:30-8:00	Silent	6:00-7:00	Silent	6:00-7:00	Silent	440.9	KLDS
KLX	508.2	Silent	Silent	6:00-11:30	Silent	6:00-11:30	Silent	6:00-10:30	508.2	KLX
KNX	336.9	8:00-2:00	5:00-11:00	6:30-12:00	6:30-12:00	7:00-10:00	6:30-12:00	6:30-12:00	336.9	KNX
KOA	322.4	Silent	3:00-8:00	5:30-8:00	Silent	5:30-8:00	Silent	5:30-8:00	322.4	KOA
KPD	428.3	6:25-12:00	6:30-10:00	6:30-11:00	6:30-11:00	6:30-11:00	6:30-11:00	7:00-11:00	428.3	KPD
KPRC	269.9	6:30-7:30	5:45-7:00	6:30-7:30	6:30-7:30	6:30-7:30	6:30-7:30	Silent	269.9	KPRC
KSD	545.1	5:00-7:30	Silent	7:00-9:00	6:00-8:00	5:00-6:00	Silent	5:00-6:00	545.1	KSD
KSL	299.8	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	299.8	KSL
KTCL	305.9	Silent	7:50-9:15	8:50-10:00	7:00-8:00	7:00-10:00	6:30-7:30	7:00-12:00	305.9	KTCL
KTHS	374.8	7:25-8:25	7:25-8:25	7:25-8:25	7:25-8:25	7:25-8:25	7:25-8:25	7:25-8:25	374.8	KTHS
KTW	455	Silent	7:00-9:30	Silent	Silent	Silent	Silent	Silent	455	KTW
KWWG	278	6:30-7:30	Silent	Silent	6:30-7:30	Silent	6:30-7:30	6:30-7:30	278	KWWG
KYW	535.4	4:00-10:30	1:00-5:00	Silent	4:00-8:30	4:00-10:30	4:00-8:30	4:00-10:30	535.4	KYW
NAA	434.5	Silent	Silent	4:45-5:00	4:45-5:00	4:25-5:40	4:45-5:00	4:45-5:00	434.5	NAA
PWX	400	5:30-8:00	Silent	Silent	Silent	5:30-8:00	Silent	Silent	400	PWX
WAHG	315.6	9:00-11:00	Silent	4:00-10:00	Silent	3:30-8:00	Silent	4:00-7:00	315.6	WAHG
WAMD	243.8	8:00-9:00	12:00-8:00	Silent	8:00-9:00	8:00-9:30	8:00-9:30	8:00-9:00	243.8	WAMD
WBAP	475.9	5:00-6:00	9:00-10:00	5:30-10:00	5:30-8:45	5:30-8:45	5:30-8:45	5:30-8:45	475.9	WBAP
WBAR	406	Silent	8:00-9:00	8:00-9:00	Silent	6:00-7:00	5:30-6:30	Silent	406	WBAR
WBAV	293.9	Silent	Silent	5:00-7:00	Silent	Silent	Silent	5:00-6:00	293.9	WBAV
WBBM	226	5:00-9:00	1:00-11:00	Silent	5:00-9:00	5:00-7:00	5:00-9:00	5:00-7:00	226	WBBM
WBBR	272.6	4:00-5:00	4:00-5:30	4:00-5:00	Silent	Silent	4:00-5:00	Silent	272.6	WBBR
WBCN	266	6:00-10:00	2:00-9:00	Silent	6:00-12:00	5:00-9:00	6:00-11:00	6:00-10:00	266	WBCN
WBZ	333.1	Silent	4:00-5:30	4:00-5:55	5:15-5:55	4:00-5:55	3:30-5:55	3:45-5:55	333.1	WBZ
WCAC	275	Silent	Silent	4:00-6:00	Silent	4:00-6:00	Silent	4:00-6:00	275	WCAC
WCAE	461.3	4:00-5:30	2:30-5:30	4:00-8:00	4:00-7:00	4:30-7:00	4:00-7:00	4:30-5:30	461.3	WCAE
WCAP	468.5	Silent	1:00-6:15	4:20-7:00	Silent	3:45-7:00	Silent	4:20-5:20	468.5	WCAP
WCAU	278	Silent	1:00-4:00	Silent	2:30-8:00	2:30-7:45	2:30-7:30	2:30-7:30	278	WCAU
WCBD	344.6	Silent	6:00-7:00	5:00-7:30	Silent	Silent	5:00-7:30	5:00-7:30	344.6	WCBD
WCCO	416.4	4:05-9:00	5:20-8:15	4:00-7:00	4:00-7:00	4:00-10:30	4:00-7:00	4:00-11:00	416.4	WCCO
WCX	516.9	3:00-4:00	3:00-4:00	3:00-6:30	3:00-8:00	3:00-6:30	3:00-6:30	3:00-6:30	516.9	WCX
WDAF	365.6	4:00-11:00	2:00-3:30	4:00-11:00	4:00-11:00	4:00-11:00	4:00-11:00	4:00-11:00	365.6	WDAF
WDWF	440.9	Silent	1:00-2:45	Silent	4:30-5:30	Silent	Silent	2:00-8:30	440.9	WDWF
WEAF	491.5	2:00-8:00	3:20-6:15	2:00-7:30	2:00-8:00	2:00-8:00	2:00-8:00	2:00-8:00	491.5	WEAF
WEAO	293.9	Silent	Silent	Silent	Silent	5:00-6:00	5:00-6:00	Silent	293.9	WEAO
WEAR	389.4	4:00-12:00	12:30-7:00	4:00-5:00	4:00-8:00	4:00-8:00	4:00-8:00	4:00-8:00	389.4	WEAR
WEBH	370.2	4:30-9:30	4:00-6:00	Silent	4:30-9:30	4:30-9:30	4:30-9:30	4:30-9:30	370.2	WEBH
WEBJ	272.6	Silent	Silent	Silent	4:00-5:00	3:00-5:00	Silent	4:00-5:00	272.6	WEBJ
WEEI	475.9	Silent	3:20-6:20	4:00-7:00	4:00-7:00	4:00-7:00	4:00-7:00	4:00-7:00	475.9	WEEI
WFAA	475.9	6:30-10:00	4:30-9:00	4:30-7:30	4:30-10:00	Silent	4:30-10:00	4:30-7:30	475.9	WFAA
WFBH	272.6	7:30-10:00	1:00-4:00	7:30-10:00	7:30-10:00	7:30-10:00	7:30-10:00	7:30-10:00	272.6	WFBH
WFI	394.5	2:00-3:45	12:30-4:30	Silent	4:00-6:00	2:45-3:45	3:45-7:00	2:45-3:45	394.5	WFI
WGCP	252	Silent	3:30-8:00	3:30-8:00	Silent	3:30-8:00	Silent	3:30-8:00	252	WGCP
WGBS	315.6	2:00-8:00	5:30-6:30	Silent	2:00-8:00	Silent	2:00-9:00	Silent	315.6	WGBS
WGES	250	7:30-11:00	7:30-11:00	Silent	7:30-11:00	7:30-11:00	7:30-11:00	7:30-11:00	250	WGES
WGN	370.2	3:30-8:30	6:00-7:00	Silent	3:30-8:30	3:30-8:30	3:30-8:30	3:30-8:30	370.2	WGN
WGR	319	4:45-6:15	11:00-12:00	4:00-9:00	4:00-7:00	4:00-9:00	4:00-7:00	3:00-9:00	319	WGR
WGY	379.5	6:00-9:00	3:30-8:00	3:30-5:30	4:10-8:00	Silent	3:45-8:30	4:15-7:30	379.5	WGY
WHAD	275	4:00-5:00	Silent	4:00-8:00	4:00-5:00	4:00-10:30	4:00-5:00	4:00-6:30	275	WHAD
WHAR	275	3:30-6:00	5:00-8:00							

An Evening at Home with the Listener In

(FOR CENTRAL TIME)

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

Call	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Call	Location	Mel.	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Call	
AT9	Silent	5:00-6:00	Silent	Silent	Silent	7:00-8:55	Silent	AT9	Fort Bragg, N. C.	435	Silent	6:00-7:00	Silent	Silent	Silent	8:00-9:55	Silent	AT9	
CFCA	Silent	8:00-7:00	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	8:15-9:15	Silent	CFCA	
CFCN	11:00-1:00	Silent	Silent	Silent	Silent	9:00-10:00	Silent	CFCN	Calgary, Alta.	434.5	12:00-2:00	Silent	Silent	Silent	Silent	10:00-11:00	Silent	CFCN	
CHNC	Silent	Silent	8:30-9:30	Silent	Silent	Silent	Silent	CHNC	Toronto, Ont.	356.9	Silent	Silent	7:30-8:30	Silent	Silent	Silent	Silent	CHNC	
CJCA	10:00-12:00	8:30-9:30	8:30-10:30	8:30-9:30	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	9:30-11:30	9:30-10:00	8:00-10:00	11:00-1:00	10:30-1:00	CJCA	
CKAC	5:30-9:30	Silent	Silent	5:30-9:30	Silent	6:30-7:30	8:30-9:45	CKAC	Montreal, Que.	410.7	6:30-10:30	Silent	Silent	6:30-10:30	Silent	7:30-8:30	Silent	CKAC	
CKY	Silent	7:00-9:45	Silent	8:30-10:45	Silent	8:00-9:00	8:30-9:45	CKY	Winnipeg, Man.	384.4	Silent	8:00-10:45	Silent	9:30-11:45	Silent	9:00-10:00	9:30-10:45	CKY	
CNRA	Silent	Silent	Silent	8:30-7:30	Silent	Silent	8:30-7:30	CNRA	Winnipeg, Can.	313	Silent	Silent	Silent	7:30-8:30	Silent	7:30-8:30	Silent	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	7:30-12:30	Silent	Silent	CNRO	
CYB	10:30-11:45	Silent	Silent	9:15-10:15	Silent	Silent	Silent	CYB	Mexico City, Mex.	370	11:30-12:45	Silent	Silent	Silent	10:15-11:15	Silent	Silent	CYB	
CYL	Silent	Silent	Silent	10:00-11:30	Silent	Silent	10:00-11:30	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	9:15-10:45	CYX	Pittsburgh, Pa.	330	Silent	Silent	10:15-11:30	Silent	Silent	10:15-11:45	Silent	CYX	
KDKA	7:45-8:55	2:00-6:30	7:45-8:55	7:45-8:55	7:45-8:55	7:00-10:30	7:45-8:55	KDKA	Lincoln, Neb.	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	KDKA	
KFAB	Silent	4:00-5:00	Silent	Silent	Silent	9:30-11:00	7:30-9:30	KFAB	Pullman, Wash.	340.8	Silent	5:00-6:00	8:30-10:30	Silent	8:30-10:30	Silent	8:30-10:30	KFAB	
KFAE	Silent	Silent	Silent	Silent	Silent	Silent	Silent	KFAE	Boise, Idaho	348.6	Silent	Silent	Silent	Silent	10:30-12:00	Silent	Silent	KFAE	
KFAU	Silent	Silent	9:00-10:00	Silent	Silent	Silent	9:00-10:00	KFAU	Beaumont, Texas	275	Silent	10:00-11:00	Silent	Silent	Silent	Silent	10:00-11:00	KFAU	
KFDM	Silent	8:00-9:00	Silent	8:00-10:00	Silent	Silent	8:00-10:30	KFDM	Los Angeles, Calif.	315.6	Silent	9:00-10:00	Silent	9:00-11:30	Silent	Silent	9:00-11:30	KFDM	
KFI	6:45-2:00	6:00-1:00	8:45-1:00	8:45-1:00	8:45-1:00	8:45-1:00	8:45-1:00	KFI	Fayetteville, Ark.	467	9:45-3:00	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	
KFMQ	Silent	Silent	Silent	9:00-10:00	7:30-8:30	Silent	Silent	KFMQ	Shenandoah, Ia.	299.8	Silent	Silent	Silent	10:00-11:00	8:30-9:30	Silent	Silent	KFMQ	
KFNF	7:30-9:30	8:30-9:15	7:30-9:30	7:30-9:30	7:30-9:30	7:30-9:30	7:30-9:30	KFNF	Seattle, Wash.	266	8:30-10:30	7:30-10:15	6:30-10:30	6:30-10:30	8:30-10:30	8:30-10:30	8:30-10:30	KFNF	
KFOA	6:00-1:30	Silent	6:00-12:00	6:00-1:30	6:00-12:00	Silent	6:30-1:30	KFOA	Bristow, Okla.	454.3	9:00-2:30	Silent	9:00-2:30	9:00-2:30	9:00-2:30	9:00-2:30	9:00-2:30	KFOA	
KFRU	7:30-12:00	5:00-7:00	7:00-10:30	10:30-12:00	8:00-10:30	10:30-11:30	11:00-1:00	KFRU	St. Louis, Mo.	394.5	8:30-1:00	6:00-8:00	8:00-11:30	11:30-1:00	9:00-11:30	11:30-12:30	12:00-2:00	KFRU	
KFUO	Silent	8:15-9:15	8:00-9:00	Silent	9:15-10:15	Silent	Silent	KFUO	University City, Mo.	545.1	Silent	9:15-10:15	9:00-10:00	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	10:00-12:00	KFVE	Ogden, Utah	240	11:00-1:00	Silent	11:00-1:00	11:00-1:00	11:00-1:00	11:00-1:00	11:00-1:00	KFVE	
KFWA	Silent	9:00-12:00	10:00-12:00	10:00-12:00	10:00-12:00	Silent	10:00-12:00	KFWA	Hollywood, Calif.	261	Silent	10:00-1:00	11:00-1:00	11:00-1:00	11:00-2:00	Silent	11:00-1:00	KFWA	
KFWB	9:00-1:00	11:00-1:00	8:30-1:00	9:45-1:00	9:00-1:00	9:00-1:00	9:00-1:00	KFWB	Oakland, Calif.	252	10:00-2:00	12:00-2:00	9:30-2:00	10:45-2:00	10:00-2:00	10:00-2:00	10:00-2:00	10:00-2:00	KFWB
KGO	10:00-3:00	5:30-11:00	10:00-3:00	10:00-3:00	Silent	10:00-3:00	11:00-2:00	KGO	Portland, Ore.	361.2	11:00-4:00	6:30-12:00	11:00-4:00	11:00-4:00	11:00-4:00	11:00-4:00	12:00-3:00	KGO	
KCW	8:00-2:00	9:45-11:00	10:00-1:00	10:00-1:00	10:00-1:00	10:00-1:00	11:00-2:00	KCW	Los Angeles, Calif.	491.5	9:00-3:00	10:45-12:00	9:00-2:00	11:00-3:00	11:00-3:00	11:00-3:00	12:00-3:00	KCW	
KHJ	7:30-1:00	6:00-1:00	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	10:00-4:30	8:30-2:00	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	9:00-10:00	KIAF	Sihptok, Minn.	421	Silent	3:00-4:00	8:00-9:00	Silent	8:00-9:00	Silent	8:00-9:00	KIAF	
KJR	Silent	9:00-10:00	8:00-12:00	Silent	10:30-12:00	12:30-2:00	10:30-12:00	KJR	Seattle, Wash.	384.4	Silent	10:00-11:00	9:00-1:00	Silent	11:30-1:00	1:30-3:00	11:30-1:00	KJR	
KJS	Silent	9:15-11:30	Silent	10:00-11:00	Silent	10:00-11:00	Silent	KJS	Los Angeles, Calif.	293.9	Silent	10:15-12:30	Silent	11:00-12:00	Silent	11:00-12:00	Silent	KJS	
KLOS	Silent	6:30-10:00	Silent	8:00-9:00	Silent	8:00-9:00	Silent	KLOS	Independence, Mo.	440.9	Silent	7:30-11:00	Silent	Silent	9:00-10:00	Silent	Silent	KLOS	
KLX	Silent	Silent	8:00-1:00	Silent	8:00-1:30	Silent	8:00-1:30	KLX	Oakland, Calif.	508.2	Silent	Silent	9:00-2:00	Silent	9:00-2:30	Silent	9:00-1:30	KLX	
KNX	10:00-4:00	7:00-1:00	8:30-2:00	8:30-2:00	9:00-12:00	8:30-2:00	8:30-2:00	KNX	Hollywood, Calif.	336.9	11:00-5:00	8:00-2:00	9:30-3:00	9:30-3:00	9:30-3:00	9:30-3:00	9:30-3:00	KNX	
KOA	Silent	5:00-10:00	7:30-10:00	Silent	7:30-10:00	Silent	7:30-10:00	KOA	Denver, Colo.	322.4	Silent	6:00-11:00	6:30-11:00	Silent	8:30-11:00	Silent	8:30-11:00	KOA	
KPO	6:25-2:00	8:30-12:00	8:30-1:00	8:30-1:00	8:30-1:00	8:30-1:00	9:00-1:00	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	
KPRC	8:30-9:30	7:15-9:00	8:30-9:30	8:30-9:30	8:30-9:30	8:30-9:30	8:30-9:30	KPRC	Houston, Texas	296.9	9:30-10:30	8:45-9:00	9:30-10:30	9:30-10:30	9:30-10:30	9:30-10:30	Silent	KPRC	
KSO	7:00-9:30	Silent	9:00-11:00	8:00-10:00	7:00-8:00	Silent	7:00-8:00	KSO	St. Louis, Mo.	545.1	8:00-10:30	Silent	10:00-12:00	9:00-11:00	6:00-9:00	Silent	8:00-9:00	KSO	
KSL	9:00-12:00	10:00-12:00	10:00-12:00	10:00-12:00	9:00-12:00	9:00-12:00	9:00-12:00	KSL	Salt Lake City, Utah	299.8	10:00-1:00	11:00-1:00	10:00-1:00	11:00-1:00	10:00-1:00	10:00-1:00	11:00-1:00	KSL	
KTCL	Silent	9:50-11:15	10:00-12:00	0:00-10:00	9:00-12:00	8:30-9:30	9:00-2:00	KTCL	Seattle, Wash.	395.9	Silent	10:50-12:15	11:00-1:00	10:00-1:00	10:00-1:00	9:30-10:30	10:00-3:00	KTCL	
KTHS	9:25-10:25	9:25-10:00	9:25-10:25	9:25-10:25	9:25-10:25	9:25-10:25	9:25-10:25	KTHS	Hot Springs, Ark.	374.8	10:25-11:25	10:25-11:25	10:25-11:25	10:25-11:25	10:25-11:25	10:25-11:25	10:25-11:25	KTHS	
KWWG	8:30-9:30	Silent	Silent	8:30-9:30	Silent	8:30-9:30	Silent	KWWG	Brownsville, Texas	278	9:30-10:30	Silent	Silent	9:30-10:30	Silent	9:30-10:30	Silent	KWWG	
KTW	Silent	9:00-11:30	Silent	Silent	Silent	Silent	Silent	KTW	Seattle, Wash.	455	10:00-12:30	Silent	Silent	Silent	Silent	Silent	Silent	KTW	
KYW	6:00-12:30	3:00-7:00	Silent	6:00-10:30	8:00-12:30	8:00-10:30	6:00-12:30	KYW	Chicago, Ill.	535.4	7:00-1:30	4:00-8:00	7:00-1:30	7:00-1:30	7:00-1:30	7:00-1:30	7:00-1:30	7:00-1:30	KYW
NAA	Silent	Silent	6:45-7:00	6:45-7:00	6:25-7:40	8:45-7:00	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	Silent	7:30-10:00	Silent	Silent	PWX	Havana, Cuba	400	8:30-11:00	Silent	Silent	Silent	8:30-11:00	Silent	Silent	PWX	
WAHG	11:00-1:00	Silent	6:00-12:00	Silent	5:30-10:00	Silent	6:00-9:30	WAHG	Richmond, N. Y.	315.6	12:00-2:00	Silent	7:00-1:00	Silent	6:30-11:00	Silent	7:00-10:30	WAHG	
WAMD	10:00-1:00	2:00-10:00	Silent	10:00-11:00	10:00-11:30	10:00-11:30	10:00-11:00	WAMD	Minneapolis, Minn.	243.8	11:00-12:00	3:00-11:00	Silent	11:00-12:00	11:00-12:30	11:00-12:30	11:00-12:30	11:00-12:30	WAMD
WBAP	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	WBAP	Fort Worth, Tex.	475.9	8:00-9:00	12:00-1:00	8:30-2:00	8:30-11:45	8:30-11:45	8:30-11:45	8:30-11:45	8:30-11:45	WBAP
WBAR	Silent	10:00-11:00	8:00-10:00	Silent	8:00-9:00	7:30-8:30	7:00-8:00	WBAR	Sisht, Wis.	406	Silent	11:00-12:00	10:00-11:00	Silent	9:00-10:00	8:30-9:30	8:00-9:00	WBAR	
WBAV	Silent	Silent	7:00-9:00	Silent	Silent	Silent	Silent	WBAV	Columbus, O.	293.9	Silent	Silent	8:00-10:00	Silent	Silent	Silent	8:00-9:00	WBAV	
WBMM	7:00-11:00	3:00-1:00	Silent	7:00-11:00	7:00-9:00	7:00-11:00	7:00-11:00	WBMM	Chicago, Ill.	226									

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Vol. XIV Saturday, July 25, 1925 No. 3

Supers Broadcast 56,250 Watts

COMPARED to two years ago, when such a thing as a 1,000-watt broadcaster was unheard of, the fact that thirty-nine American stations now on the air are sending a total power of 56,250 watts into the ether should make it easy for us to see why summer Radio reception seems to have improved so remarkably. Of course there have been improvements in receiving sets, but not to these alone can the credit be given. The superstations are helping greatly to made Radio in the summer nearly equal Radio in the winter.

The average transmission power for the thirty-nine superstations is but 1,442 watts. Less than three times the size of the old reliable but limited 50-watt sets, but still able to overcome summer reception obstacles to a marked degree, is this average figure.

Some day superstations of 5,000-watt size will not be thought extraordinary, but rather customary. In fact, it is our belief that stations of many more thousands of watts power will be common all over the country.

Searching the latest data on powers employed by the stations, the following tabulation is the result: WLW and WSAI Cincinnati, 5,000 watts; KFI Los Angeles, KFKX Hastings, KGO Oakland, KOA Denver, WBZ Springfield, Mass., WEAJ New York, WGY Schenectady, WOC Davenport and WORD Batavia, Ill., 2,000 watts; KYW Chicago, WCBZ Zion, Ill., WCCO St. Paul-Minneapolis, WHT Chicago and WTAM Cleveland, 1,500 watts; KDKA Pittsburgh, KJR Seattle, KLDS Independence, Mo., KSL Salt Lake City, KTCL Seattle, WBAP Fort Worth, WBBM Chicago, WEAR Cleveland, WEBH Chicago, WGN Chicago, WJZ New York, WKRC Cincinnati, WNYC New York, WOAI San Antonio, WOAW Omaha, WRC Washington, WSB Atlanta, WTAS Elgin, Ill., and WWJ Detroit, 1,000 watts; KJS Los Angeles, KOB State College, N. M., KTW Seattle, WGR Buffalo and WHA Madison, Wis., 750 watts.

Summarized, this means that in the United States alone, thirty-nine stations are sending more than 500 watts into the air. Of these, two send 5,000, eight send 2,000, five send 1,500, nineteen send 1,000 and five send 750 watts into their antennas.

Across the border in Canada are CFCF and CKAC, Montreal, 1,500 watts; CKCK, Regina, Sask., 1,000 watts; CFCN, CFHC, CHBC and CKCX, all at Calgary, Alta., 750 watts.

Read this editorial to our doubting friends who still remain serene in the thought that Radio is but a passing fancy. True, the number of stations has not changed much in this country during the past three years, but the total power radiated has undoubtedly been increased by tenfold or more. And don't forget to tell them that Radio is almost as good in the summer nowadays as it was last winter.

KOA Becomes Foster Child

FROM Denver comes word that KOA, youngest of the General Electric broadcasting chain, has been adopted as the Radio child of an aged western couple after the same fashion that children are taken into homes which have been robbed by marriage or other circumstances of their children.

"Visualize a man of 73, pipe in mouth, continuously tuning in Denver markets and weather forecasts, and a woman of 67, hurrying with her dishes in order to hear your recitals, and you have an ideal picture," reads a letter from the adopting couple.

"In the lonely absence of our children, who are married or have passed away, we have turned to Radio for companionship. We have adopted the friendly voice of the Rockies—KOA—in much the same manner that elderly couples sometimes adopt a child. I am an ex-traveling salesman and my wife is a former business woman. We live on the prairie fourteen miles from town."

Such is the forceful argument for Radio in the home. Cynics say Radio is a nuisance, but let us put them in the same predicament as this aged couple. We venture to say that the critical minds would then find more true enjoyment in Radio than in books, collections, or more active diversions. Radio, because of its multiple personality and closeness, becomes a member of the family.

RADIO INDI-GEST

sTatic

(The Summer Complaint)

When no ideas come to grace the sheet
And there is nothing in your attic,
Don't long the muses to beat—
Just blame it on the static.

When on your vacation you go
And little chiggers drive you frantic,
Don't curse your luck and sad woe—
Just blame it on the static.

When fish refuse your bait to bite
And the guide says you're a fanatic,
Don't try to start a fist fight—
Just blame it on the static.

And now we are at the last verse
And just on account of the static
We know, that this is the worse—
So blame it on the static.

Well anyway, now that we have static to blame for summer laziness we will not hear so much about the humidity.

Accumulators

Little Helen, entranced by a loud speaker demonstration at the door of a Radio store: "How much shall we have to pay, daddy?"

Father: "This doesn't cost us anything."

Helen: "Well, that's funny. It says in the window, 'Radio accumulators* charged.'"

LONDON BOBBY.

* "Accumulator" is English for storage battery.

Which reminds us of the bird who saw the sign "Tubes Only 69 cents!" in a Radio store window and went in and asked for four to fit flivver size tires.

So That Was Arthur!

I desire to make a nomination in your Annual Tin Cup Award. The honor goes to none other than Arthur Mometer of BUNK. Arthur is the bird who is always pulling off the very latest wise cracks before the Mike. (Maybe they tickled Adam, but they don't get a kick out of me.) Arthur may not win this cup, but he s-re will put up a strong fight. EDDIE'S SON.

P. S.—Enclosed is a photo of Arthur. Some Radio artists have great difficulty in telling the difference between Arthur's face and the Mike.

Don't look for the picture! There is a charming lady in our art department and we think too much of her to scare her by sending such a picture in for retouching.

A Back Yard Romeo

A tom cat sat on a high board fence
His tail was in the air,
And he yowled and yowled to the stars above
As he sang of his lady fair.

"Oh listen!" cried the Radio fan,
"I've Italy sure as hell
No static at all and his voice is clear"—
Just then he let out a yell—

For the tom that sat on the high board fence
Spied his lady fair,
And he parted thence to chat with her,
And "Italy" was off the air. D. A. K.

This quip came from away out in Idaho where the coyotes howl and we are printing it here to convince our eastern readers that they are not the only ones who have back fences close enough to the house to give them full benefit of nocturnal serenades.

Radio Defined at Last

John Lee, controller of the Central Telegraph Office in London, declares the following is the only adequate definition of Radio:

If you had a very long dog, reaching from London to Liverpool, and you trod on its tail in London, it would bark in Liverpool. That telegraphy and Radio is precisely the same—only without the dog. LONG DOG.

Indi-Gest is always timely and to prove this we are heralding the advent of that period of summer, when fans begin to growl at static, known as "Dog Days" with a line or two about dogs.

When the Lopez Orchestra Plays

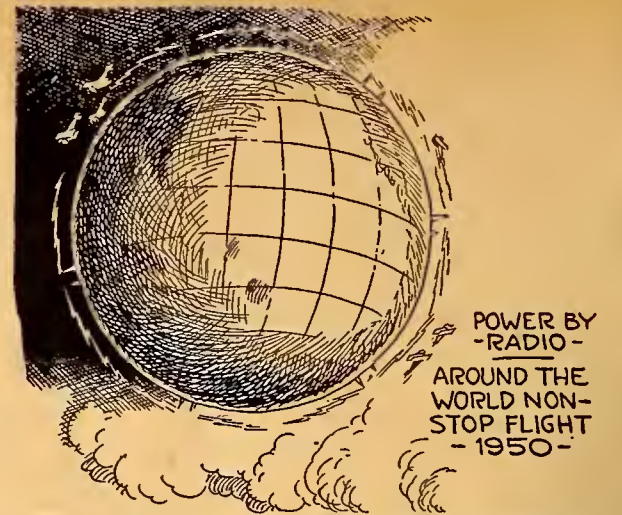
"Continuing his series on the 'Care of the Dog,' Dr. George Watson Little will speak on how to distinguish a dog that has become mad by heat from WOR next Saturday afternoon."—(A note from the inspired publicity man at the Newark station.)

We have found that the only infallible way to tell whether a dog is mad or not is to invite him to a bridge luncheon and then if he refuses and tells others that you are a bum host you may assume him to be quite angry.

Here is a "Kink" that will not cost the magazine the customary dollar—Wear holes in your socks. Give them to the wife to darn and then provide herewith a worn-out tipless Radio tube to use as a darning ball. If you do not wear socks this does not apply to you.

Freddy the Viking has been sent to Florida as the southeastern representative of Indi-Gest in order that we may have a lot of grape fruit, applesauce having become too common.

News of the Week



Condensed

BY DIELECTRIC

Spending part of one evening in the city made famous by beans, those of us who listened to WNAC heard a very entertaining program of old plantation songs, spirituals, with the characteristic southern accent and harmony. The entire concert was well arranged and presented by good voices and musicians.

On a rather warm evening recently my dials were all set for WAHG, Richmond Hill, L. I., where they have the Syncrophase stringed trio. That trio is worth tuning for. You know the strings on a musical instrument feel the heat, too, and slip a little. Well, the music was fine except for the fact that some of the notes needed a little boosting to get them up to pitch. We can't blame the artists much for that, though.

Usually a hotel orchestra is—a hotel orchestra. They perform pretty much the same class of music with more or less uniform rendition no matter how large the hostelry in which they play. There is one orchestra worthy of more than passing notice at this time and it is the Brunswick orchestra. That New England hotel has secured a very good body of musicians, who try to balance their programs between light and heavy musical numbers with considerable success. Tune to WBZ.

KDKA, Pittsburgh, should be credited with a pleasing program when they sent on the air a concert by the employes of the Pennsylvania railroad system. Two outstanding features on that program were a male quartet from Philadelphia and the Hawaiian players from Baltimore, Md. It is quite evident the "Pennsy" has some talent to draw from.

Even when an orchestra is playing, listeners may be able to pick out some one player whose work is noticeable for its tonal beauty and art. This is so in the case of the Formica orchestra, playing through Station WLW, Cincinnati. That organization has among its members a real artist whose flute shows every technical barrier to be surmountable. We should like to hear some more solo work from this player.

Cleveland is rather a good city to head for when in search of Radio entertainment. You need not depend on one station alone in that city. There are opportunities for choice. WEAR put on the Royal Hungarian Gypsy orchestra and when they played old Hungarian folk dances most everybody applauded. These melodies are performed in a manner quite distinct from what is heard from any other national music. There is a plaintive character to the violin which is genuinely idiomatic.

You may always depend upon hearing the call of WEBH so it can be understood and never accompanied by too much comment. One evening I was very much pleased to hear so excellent a soprano singer as Miss Bloom, an artist with a well trained voice and native artistry. On the same program appeared Miss Jones, who sang and accompanied herself acceptably. The Oriole orchestra did its part with the usual result—a desire for more.

In the capital city of our nation are two broadcasting stations, either of which may be depended upon to please you with their programs most any time they are tuned in. WCAP gave considerable time to the Hawaiian Melody Boys, and to anyone incapable of tiring under the monotony of sameness this program offered an abundance of enjoyment. A little will suffice many listeners in.

Low Cost Filament Lighting A. C. Power Unit

For Reflex Sets and Amplifier Tubes

By William D. Cope

ONE of the most unpleasant features about a set installation has always been the storage A battery, which not only had to be filled and cleaned frequently, but must also be charged and tested every few days. Several devices have appeared on the market recently which would take the place of the B batteries, but the writer has seen none designed to light the tube filaments from the house lighting current.

The alternating current electric supply of the home may be advantageously used at very little cost and trouble by following the directions in this article. The only parts necessary are a bell ringing transformer and a potentiometer of 200 to 400 ohms resistance. The unit made up of these parts is very small and may be so placed in the receiver that it will light the tubes without causing the customary alternating current hum. The potentiometer is the only movable part in this unit and once it is properly set it need not be changed.

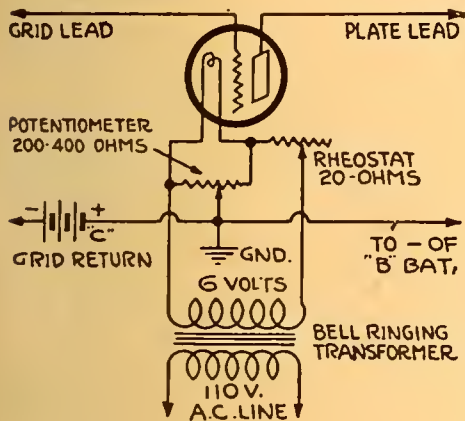


Figure 1

This unit is not going to prove very revolutionary in the Radio field since it has one drawback in that it cannot be used to light the filament of a tube used as a detector. It is, however, perfect for use on reflex sets using a crystal detector or on the amplifier tubes (whether radio or audio frequency) of any other type of set. Its cost is small, not over \$3.00, and it should last two or three years without any attention, once it is installed. The cost of operation is only about 1-10

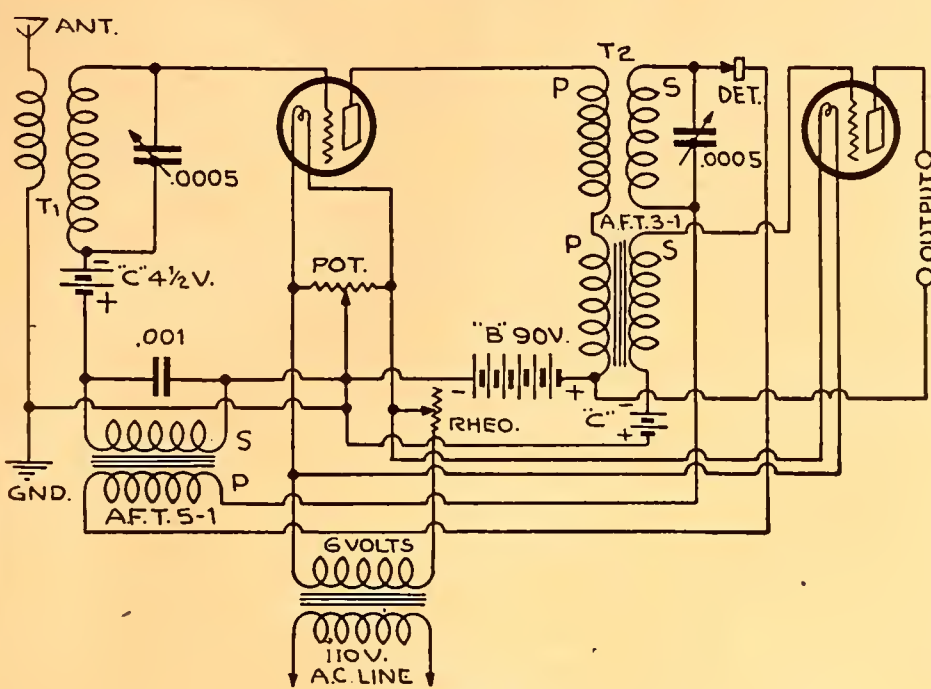


Figure 5

can be any cheap bell ringing transformer with a 6-volt output, the price of which may vary from \$1.65 to \$4.00.

In connecting the transformer, care should be taken in doing it properly so that the two binding posts or wires marked 110 volts connect to the electric light socket and the two posts marked 6 volts connect to the rheostat and filaments. In wiring any circuits to this device grid returns should always be connected to the bridge of the potentiometer. The ends of the potentiometer are connected to the two filament posts on a socket and the rheostat should never be between the potentiometer terminals and the socket. Figure 1 shows the unit wired to operate one tube.

Two Stage A.F. Outfit

A two stage audio amplifier using this A.C. unit is shown in figure 2. The output from the amplifier is most excellent and provides clear, enjoyable loud speaker reproduction when its input terminals are connected to the output connections of a detector. The hum can be completely

eliminated by adjustment of the potentiometer. The panel layout for this amplifier is shown in figure 3. Binding posts for the electric light supply are at the right, below the potentiometer, while the bell ringing transformer is close up behind the panel.

The input binding posts which connect to the primary of the first audio transformer are in the upper left hand corner of the panel while immediately below these are the two B battery binding posts. Ground connection is made to the post in the lower left corner. Peep holes may be put in the panel above the rheostat and potentiometer if desired, but general practice seems to be away from the use of peep holes.

One and Two Tube Reflex Sets

A one tube reflex circuit of the usual type, but adapted for the use of the A.C. unit, is shown in figure 4. It should be noted that the crystal is used as the rectifier in this circuit, which is an excellent one for the beginner. As in all other circuits using this storage battery elimin-

ator, a C battery of 4½ to 6 volts must be used to provide a proper bias on the grid.

A two tube reflex with the A.C. filament power supply, modeled along the lines of the Harkness reflex is shown in figure 5. This set is very popular for home use in localities not too close to a number of powerful stations, as the range is comparatively great considering the low cost, but the selectivity is not quite sufficient for the separation of powerful locals if within 10 miles radius.

If this eliminator has been connected to your circuit by the method shown, and care used in the construction of the receiver, no ripple or hum from the A.C. will be heard and the unit will prove to be worth far more than the time and money invested in it. The owner of a multitube set who has experienced the inconvenience of recharging the storage battery every day or two will find it very much worth while to alter his set so that the R.F. and A.F. tubes are lighted by this device and the detector by storage battery. You still use the battery, but it need only be recharged about once every two weeks.

Battery Connections

Battery connections to the Radio set should have closed end terminals soldered to the ends of the wires particularly where the binding posts are in a group on front or rear of the set. This prevents the wires working out from under one binding post and swinging over onto another shorting the batteries or burning out the tubes.

When building a set flexible leads can be soldered to the sockets, transformers and rheostats or to a group of terminals inside the set. This arrangement prevents shorts and loose connections and also saves the price of binding posts.—Edwin E. Jones, Williamsburg, Iowa.

A loud speaker extension can be made without affecting the operation of the set itself.

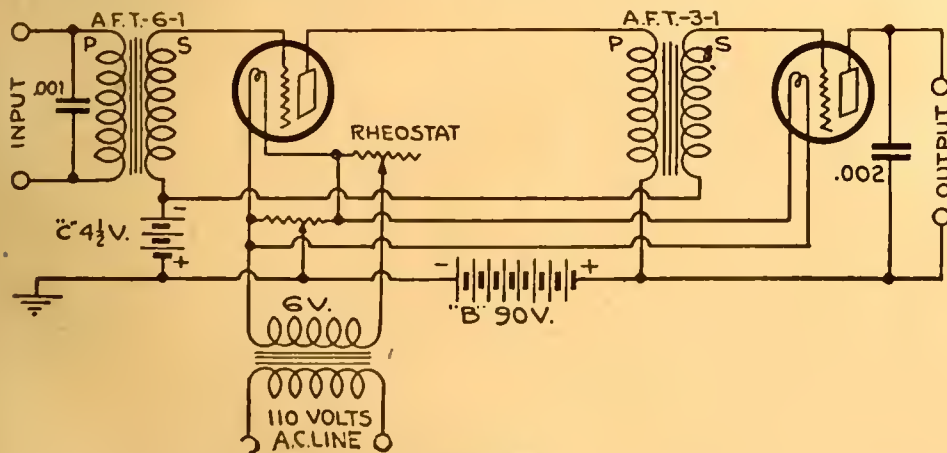


Figure 2

of one per cent per hour and it will operate as many as 10 tubes.

So that none of the readers will make a mistake, the writer wishes to again stress the point that this unit is for filament lighting purposes on amplifying tubes only, because when applied to the detector a 60-cycle hum is much in evidence. A tube detector may be used in the set if the reader so desires but this will necessitate a battery for lighting the filament of that one tube. Perhaps a dry battery tube detector would solve the problem. This unit can be used with audio amplifiers of any type whether cascade transformer coupled, resistance coupled or push pull. The transformer which steps down the current in this unit

eliminated by adjustment of the potentiometer. The panel layout for this amplifier is shown in figure 3. Binding posts for the electric light supply are at the right, below the potentiometer, while the bell ringing transformer is close up behind the panel.

The input binding posts which connect to the primary of the first audio trans-

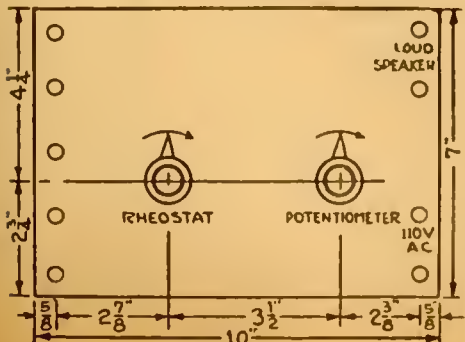


Figure 3

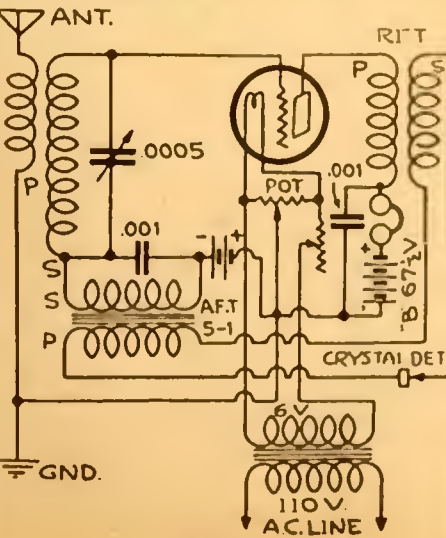


Figure 4

Another Ad That We Did Not Write



Turtle Creek, Pa.,
July 6, 1924.

All-American Radio Corp.,
Chicago, Ill.

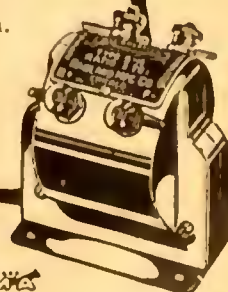
Dear Sirs:—

I take the pleasure of writing you in regards to your audio-frequency transformers which I am using in my 5 tube Neutrodyne. I get most any place I desire since I began using "All-American" transformers and I could not get reception that was any good with several other transformers of standard make, so on seeing your advertisement in the Radio Digest I am enclosing ten cents for your new Radio Key Book. I will recommend "All-Americans" to anybody and stand behind it with a real D. X. record. I remain,

Your friend,

(Signed) F. J. Phillips,

833 Maple Avenue, Turtle Creek, Pa.



To secure better radio reception, send 10 cents for the RADIO KEY BOOK
ALL-AMERICAN RADIO CORP.
E. N. RAULAND, President
4203 BELMONT AVENUE CHICAGO

ALL-AMERICAN

Largest Selling Transformers in the World

A. B. C. Course in Radio Fundamentals

Chapter XVIII—Damped and Undamped Wave Systems

By David Penn Moreton

IN THE "damped" wave system of transmission, the electric current produced in the antenna may be represented by a curve such as the one shown in figure 75. It may have been seen that the waves are sent out in "trains," each train consisting of a number of waves of diminishing amplitude. In a system of this kind the intensity of the electric and magnetic fields at any point in space will not be constant, but will decrease in value from a certain maximum value at more or less regular intervals depending upon the manner in which the current supplied to the antenna is controlled. This decrease in amplitude of the antenna current which depends upon the constants of the electrical circuits involved, accounts for the

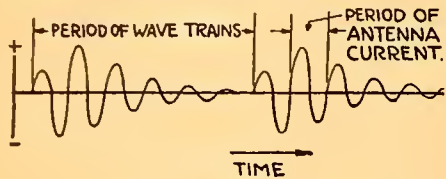


Figure 75

system being called a "damped" wave system.

In the "undamped" wave system of transmission, the electric current produced in the antenna is an alternating current of constant amplitude, in that the waves produced are such that the maximum values of the electric and magnetic fields at any point in space are constant as long as the wave is passing.

Very high frequencies are used in Radio transmission both for the damped and undamped waves as more energy is radiated by an antenna at high than at low frequency. If this current be sent through the coil of a telephone receiver, there would be no audible sound produced, because the diaphragm could not vibrate at such a high frequency and, even if it did vibrate, the human ear would be unable to detect any sound. These frequencies are beyond the limit of audibility and for this reason are called "radio frequencies" while the frequencies which may be heard are known as "audio" frequencies.

The operation of a simple damped wave system of transmission may be explained by reference to figure 76. When the transmitting key is closed by the operator, an alternating current of a definite voltage and frequency will be produced in the primary winding of the "step-up transformer," and a high voltage will be induced in the secondary winding of this transformer. This high secondary voltage, as it builds up in value, will charge the condenser and this charging process will continue until the voltage across the

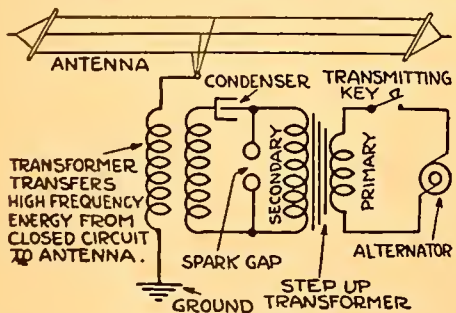


Figure 76

spark gap is sufficient to break down the gap. The breaking down of the spark gap provides a relatively low resistance path in which the charged condenser may discharge. The discharge of the condenser produces very high frequency oscillations in the primary winding of a transformer where secondary winding is connected to the antenna and the ground. The spark gap provides a means of charging the condenser to high potential which means a large amount of energy stored in it, and at the same time provides a low resistance path in which the condenser may discharge after the gap is broken down. The spark gap and spark are essential elements of transmitters generating high frequency oscillations by means of condenser discharges, and for this reason this system is called "spark telegraphy." The radiated energy may be interrupted by operating the transmitting key, and if this is done in accordance with a prearranged code, signals may be transmitted to the receiving stations within the influence of the electromagnetic waves. In low powered stations the alternator and step-up transformer are replaced by a storage battery and an induction coil.

The series of oscillations occurring during each discharge of the condenser constitute what is called a train of waves. Two such trains of waves are shown in figure 75. The time in seconds between

the beginning of two successive trains is called the period of the wave train and the number of such trains produced per second is called the wave train frequency.

The undamped system of transmitting signals possess several advantages and this system is rapidly superseding the spark system for large stations. (a) A given amount of energy in the form of a continuous wave signal will in general give a louder sound in the telephone receiver than the same amount of energy in the form of a spark or damped wave signals will give. (b) Interference between stations is much less with the continuous wave system than it is with the damped wave system, due to the characteristics of the receiving circuits. (c) Energy is being continuously radiated in the undamped system, while in the damped system energy is being radiated for only a part of the time, hence less voltage is required on the antenna in the undamped system than is required in the damped or spark system.

Undamped oscillations are produced by means of very high frequency generators, such as the Alexanderson and Goldsmith types, the Poulsen arc, and the oscillating vacuum tube. In all of these various types, the current supplied to the

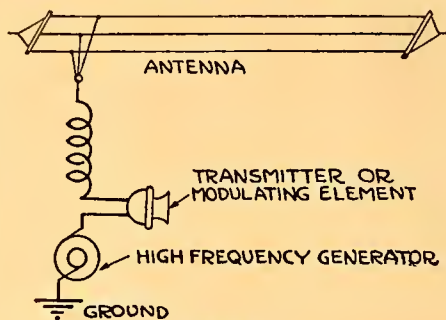


Figure 77

antenna is controlled by means of a transmitting key. Space will not permit a description of these various systems but this information can be found in any good book on Radio telegraphy.

The transmission of Radiophone messages between distant stations requires the same equipment used in continuous or undamped wave telegraphy plus some means of varying the amplitude of the high frequency current in accordance with the sound waves of the voice. The fundamental principle of the Radiophone is clearly shown in figure 77. A high frequency current is supplied to the antenna by means of a high frequency generator. This current is varied in value in accordance with the variation in the resistance of the transmitter which in turn is dependent upon the sound vibrations sent out by the speaker striking against the diaphragm of the transmitter. The device or element in the transmitting equipment by means of which the high frequency current is made to change in value, due to the vibrations of the air near it, is called the "modulating" element, and the process of varying the high frequency current is called modulation. Hence, the problems of Radiotelephony are those encountered in connection with the generation of high frequency alternating currents and the modulation of their amplitude in accordance with sound waves of the human voice, musical instruments, etc.

The problem at the receiving station

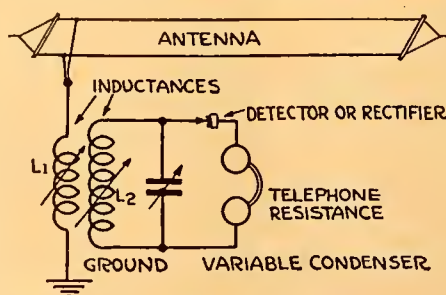


Figure 78

is to provide equipment in addition to the antenna, which may be tuned so as to receive or absorb a maximum amount of energy radiated by the transmitting station in the form of electromagnetic waves. The connections of a simple receiving station are shown in figure 78. The antenna circuit may be tuned by means of the inductance L_1 , and the secondary circuit may be tuned by means of the condenser or inductance L_2 or both as required. When these circuits are properly tuned, that is the natural frequency wave that is to be selected, there will be a maximum amount of energy absorbed by the antenna from the electromagnetic waves and transferred to the receiving circuits.

When these conditions exist, a maximum current will be produced in the secondary circuit and the voltage across the terminals of the inductance L will be a maximum, and hence there will be a maximum current produced in the circuit composed of the detector or rectifier and the telephone receivers. The detector or rectifier offers a great deal more opposition to an electric current when it passes through it in one direction than it offers when the current passes through it in the opposite direction. Hence for each group of waves there will be a pulse of current sent through the telephone receivers. As the wave trains of the electromagnetic waves strike the antenna there will be pulses of current sent through the telephone receivers and the diaphragms will be acted upon by a force whose frequency corresponds to the group frequency of the electromagnetic waves. If the electromagnetic waves are being sent out from a damped wave or spark station the diaphragms will vibrate at the same frequency as the sparks occur at the transmitting station. A note will be produced by the vibration of the diaphragms, the duration of which will depend upon how long the transmitting key is held in the closed position at the sending station.

If an electromagnetic wave of varying amplitude, such as one that had been modulated at the transmitting station, strikes the antenna, the telephone receivers will be acted upon by a varying force not of constant frequency but varying in accordance with the frequency of the sound waves striking the diaphragm of the modulating device at the transmitting station. Hence instead of a sound of constant pitch being produced by the receivers they will produce a sound which is an exact duplicate of that at the transmitting station.

The receiver described above will not receive continuous waves of constant amplitude, as there would be no pulse of

current produced in the receivers and the diaphragms due to their inertia, and even if they were moved the human ear could not detect the sound as it would have a frequency above audibility.

The detector or rectifier is the essential element in the receiving circuit for without it no signals could be received. The detector must possess the characteristic of high conductivity for current in one direction and relatively low conductivity

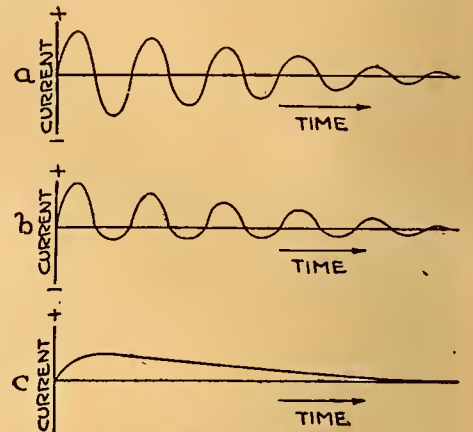


Figure 79

for a current in the opposite direction. Certain crystals such as silicon carbide possess this characteristic. The crystal is connected in circuit by mounting it in a small metal cup which forms one terminal and placing the end of a very small wire in light contact with the surface of the crystal, the wire forming the other terminal of the rectifier. Current will pass through such a rectifier in both directions but more will pass in one direction than the other when the rectifier is subjected

(Continued on page 20)

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Clear sailing with MAGNATRONS! Summer or winter, spring or fall, you can bank on MAGNATRONS. The excellence of these tubes helps in a large measure to overcome the radio disadvantages of summer.

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The France Super-Charger charges up to 120 VOLTS OF "B" BATTERY IN SERIES. It also charges 2, 4, 6 or 8 volt "A" or auto batteries at a 5 to 7 ampere rate, tapering as the battery is charged.

Price of Super-Charger, \$22.00; West of Rockies, \$23.00. Canadian prices furnished upon request. Write for literature.

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10329 Berea Rd. Cleveland, Ohio

Portable and Phonograph Super-Heterodyne

Part III—The Finishing Touches

By John G. Ryan

IN THE first article of this series the writer included the wiring diagram and a rear view of the receiver, and in the second article there was included a panel layout and an end view photograph. From this material the reader should have been able to assemble and wire the super-heterodyne and is, presumably, now ready to connect it up and enclose a loud speaker. Because of the differences in super-heterodyne kits, a few suggestions at this point will be found of value. The C battery which the writer found necessary may not be required with the set which you built using a different kit. It would be well to try out the set first without the C battery in the circuit and the three grid returns of the intermediate amplifiers connected directly to the center terminal of the potentiometer. If you find later that the potentiometer can be turned clear over to the negative end of this unit, with increase in volume, but that it is impossible to make the set oscillate, the C battery should be put in and tried with 1½ volts and then 3 volts and even more

marked terminal on the unit should be connected to the point Y so that the audio amplifying tube will also get 90 volts. The negative side of the B batteries is also to be connected to the point W together with the plus terminal of the A battery. The loop leads should be connected to the two binding posts on the second variable condenser. This is the condenser just below the letter Y in the illustration.

The 6 dry cells which comprise the A battery are to be fastened together with tape or a heavy cord so that there are three in a row at the bottom and three in a row placed directly above the first layer. The three on the bottom are connected in series, that is, plus to minus and plus to minus and then the three in the upper layer should be connected in the same way. This will leave two minus terminals at one end and two plus terminals at the other and the two plus terminals should be connected together, as should the two minus terminals. This arrangement is known as series-parallel and while there is still only 4½ volts



Battery and Speaker Connection Points.

If necessary. A point will be reached at which it is possible to bring the intermediate amplifiers into oscillation by turning the potentiometer and, since maximum sensitivity is just below the oscillating point, a condition has been reached which is therefore desirable.

Battery Connections

The first illustration shown with this article is lettered to indicate the points at which the batteries are to be connected. Point V is one side of the switch and to this point we connect the minus A wire from the batteries. W is the filament lead running along the back edge of the tube shelf and it is to be connected to the plus side of the A battery. While the point X is not clear in the illustration it is the junction of the plate return wires of the first and second detectors and is to be connected to the plus 45 terminal on the B batteries. Point Y is the plate return leads from the intermediate amplifiers and is to be connected to the plus 90 point on the B batteries. The unmarked terminal on the loud speaker unit is to be connected to the point Z and the

across the end terminals, just as there would be if only 3 cells were used, the ampere hour capacity is double that of a single layer of cells and the current draw is equally divided between the two sets of three.

Mounting the Loud Speaker

Methods of mounting a loud speaker in this set, and of mounting the set in a carrying case, are innumerable but several are shown here which may prove helpful to readers. In one of these it will be noted that a cone shaped horn has been mounted across the receiver directly behind the variable condensers and the rheostat. The outside diameter of the large end of this heavy cardboard tube measures 4", and this tapers down to an outside diameter of 1 1/16" at the small end. A piece of brass tubing, suitably threaded at the outer end, is then slipped over the small opening of the horn and a Baldwin Speaker unit is then screwed into the brass nipple. Any type of speaker unit can, of course, be used but it just happened that the writer had a Baldwin unit and nipple handy. The large end of the



This Steel Painter's Case Permits Larger and Better Horn.

horn is held in place by a U-shaped piece of strip brass which is secured to the underside of the tube shelf. The small end of the horn is also held in place by a U-shaped piece, the upper end being held by one of the machine screws that fastens one of the sockets to the shelf.

For the sake of comparison the writer also constructed a speaker after the suggestions given by Mr. Harry A. Nickerson in Radio Digest of July 4. The layout for the sides of the horn is given here

and it will be noticed that the width of the large end is now 4" since the depth of this receiver did not permit of as wide a horn as that used in Nickerson's outfit. Both of these suggestions call for a hole about 4 inches in diameter at the right side of the carrying case, which hole will presumably be covered by a thin piece of silk or a fine screen to keep out dust. This brings us to the matter of a

(Continued on page 20)



Cardboard Cone 17½ Inches Long Gave Excellent Results

Quality Parts Matched for Perfect Teamwork

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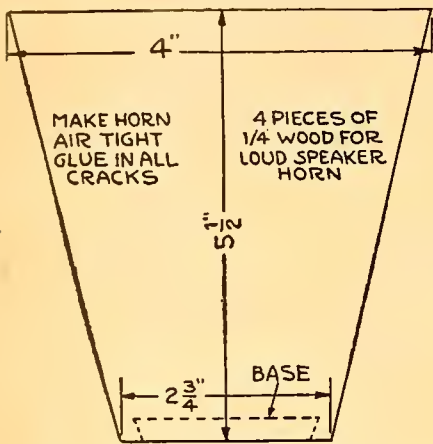
PORTABLE SUPER-HET

(Continued from page 19)

carrying case. The writer had his choice of a leather case or one made of wood or one made of thin steel. The steel case weighed but little more than one made of leather and was also much cheaper, the price being only \$4.50. If you decide to build a wooden case this can measure 18"x14" with an overall thickness of 3/4" from the outer surfaces of both front and back covers. The writer is not very keen about the wooden case, since it is easily chipped and scratched, and has to be made so thick for the sake of strength that it weighs too much. If leather or steel is used the case can be obtained with either a 20" length or a 24" length.

In one of the illustrations reproduced herewith, the receiver has been placed in a steel case 24" long by 8" deep and a baby speaker made by an English corporation has been placed in the 6" space left at the right hand side. If the conical type of speaker is used with this 24" size case it leaves room at the right hand end for a folding loop aerial and a pair of head phones, and other accessories which the user may care to have with him. The steel case has a further advantage in that the air core coils do not pick up static and other undesirable noises on the higher wave lengths, in addition to those which are picked up by the loop aerial on the lower wave lengths with the signals.

Before connecting the minus B terminal to the point W it might be well to place just one tube in the socket, turn the



Side of Reflector Type Speaker

filament switch to the "on" position and then momentarily touch the negative B wire at the point W. If the tube does not flash up when this negative B wire is in contact it will be safe to solder this permanently and insert the rest of the tubes. The rheostat should be turned to practically the full "on" position and then one is ready to try tuning. Turn the potentiometer until it is fully over at the negative end of the winding and then set the loop condenser at about 50 on the dial. Using the course adjustment on the oscillator dial, the dial should be turned over its entire range and, presuming the potentiometer is approximately correct, signals should be heard at some point on the oscillator dial. If nothing is heard, the potentiometer should be turned still further toward the negative end and the same procedure with the condenser dials gone through again. If nothing is heard, set the loop dial at 30 and again revolve the oscillator dial slowly through its entire range. Repeating this with different settings of the loop dial, programs will be heard at some setting of the oscillator dial. If a series of whistles is heard it indicates that the intermediate amplifiers are in an oscillating condition and the potentiometer should be turned back toward the positive side. If no signals are heard at any combination of potentiometer and dial settings, it indicates that there is insufficient grid bias on the intermediate amplifiers and the C battery should be inserted as mentioned earlier in this article.

The above procedure will bring in signals, providing all connections have been correctly made and none of the tubes are defective. Some tubes are better oscillators than others and the user can readily determine whether the oscillator tube in the left hand socket is functioning by wetting his finger and touching the grid binding post on the socket. There should be a click when the socket is touched and another one when the finger is removed. Once a station is brought in, the condenser dials should be adjusted for maximum response and then the minor adjustments which are always necessary can be begun. Either with or without the C battery, as the case may be, the potentiometer should be turned until signals are loudest yet have not begun to be distorted through too much regeneration. Then try various grid leak cartidges in the grid leak clips, or different settings of the grid leak, if a variable type has been used.

The next step is to try different grid biases on the audio amplifier grid return lead, and this will probably be either 3 or 4 1/2 volts. Using the kit shown in the

illustration, the writer found it desirable to try different taps on the pick up coil of the oscillator coupler, and different adjustments of the coupling between the filter coils also was found to have an appreciable effect on the signals. Most of the kits on the market show a .0005 mfd. fixed condenser across the primary of the filter transformer or, as in the case of the kit shown, two .00025 mfd. fixed condensers were used on the windings. The writer found it better with the first type to combine a fixed condenser of .00025 mfd. with one of .0002 mfd. shunted by a small variable unit and thus obtain a variation between .00045 and .0006 mfd. It was thus possible to tune the filter transformer exactly to the peak efficiency of the intermediate transformers. It would also be advisable to try different voltage on the plates of the detector tubes as, while 45 volts is theoretically the best potential for detection, it frequently happens that some tubes will rectify better with 67 volts on the plates. The total weight of the complete receiver and its steel case, as shown in the photographs, is 24 1/2 pounds. This is without batteries and, with batteries, the total weight is 36 pounds.

A. B. C. RADIO COURSE

(Continued from page 18)

to a certain electrical pressure. Thus if a wave train such as the one shown in figure 79a act upon the rectifier a current such as the one shown in figure 79b will be produced. This resultant current will produce an effect upon the diaphragm of the receivers which in effect would be equivalent to a current similar to the one shown in figure 79c.

(The three electrode vacuum tube has practically replaced the crystal detector and in addition it is used in producing high frequency waves in sending and for amplifying both radio and audio frequency waves. The next chapter will discuss the characteristics of the electron or vacuum tube.—Editor's Note.)

The Reader's View

Multiplicity of Broadcasting Stations

This is just to compliment and to support you on the stand you take in your editorial comment on the multiplicity of Radio broadcasting stations in this country and the consequent chaos in program reception inaugurated thereby, in a recent issue of Radio Digest.

If there is to be any pleasure to the American people in the reception of broadcast programs there will have to be something done to nullify the activity of some of the nuisances that continually clutter up the ether, day in and day out, night in and night out.

Think of more than 500 broadcasting stations disturbing the ether 24 hours out of every day! With the limited wave band allotment it is simply impossible to construct a receiver that can maintain a satisfactory separation of the 499 from the one. Nor is it possible for a 1500-watt station to entirely suppress a 50 watt, or even a 20-watt station. The activity of the latter two may not be quite noticeable while the 1500 watt is bellowing but their influence is there just the same with its lessening force against the 1500-watt station.

The most contemptibly consummate nuisances now disturbing the ether are the old government "spark stations." These troglodytes, which should have been relegated long ago to their proper subterranean strata, are still at large with their "rock-crushing" qualities amplified. They grind the ether from 360 meters on up.

All this chaos in the ether has cost the American people millions of dollars for it has furnished the foundation of attempts to construct receivers that will perform the impossible task of separating chaos from chaos; and upon this foundation freak circuit after freak circuit have been built, advertised and foisted upon an anxious and somewhat gullible public at an enormous expense to that same public. These "cheap and nasty" things have been heralded as "selective" saviors from all the woes of chaotic conditions and interferences—"except too much static." Most of the big stations stick to their wave length and power allotment, but there are a number of the lesser lights that do not stick to either. Here the activities of the "Radio police department" ought to manifest if there be any such.

You certainly will have public opinion with you in the stand you are taking on this matter. Keep it up. I am writing merely to let you know that I heartily approve of your stand and have been hoping that some great Radio journal would get into this fight sooner or later. You will have opposition from the commercial grafter who have been making "big" money out of their fake devices; from the tiddle-de-winks who want to clutter up the ether with chatter to exceedingly small audiences; but you can afford to fight them for the great masses will be with you. So, "go it Rube," I say. Get into the fight to stay until you win. —G., Clayton, N. M.

The NEW Radio Book



How to understand radio, assemble circuits, improve reception, operate sets,

EVERY phase of Radio reception gathered into one book at last! Explanation of elementary principles, directions for constructing parts, detailed how-to-build articles for the assembly of sets, operating directions on popular manufactured outfits.

Haven't you often wondered what all the spirals, wriggly lines and zig-zag lines were about on diagrams? A big chart shows you a picture of the part as you see it and, beside the picture, the symbol used in diagrams. Other articles show clearly just what happens within the mysterious little vacuum tubes that glow hour after hour within your set, apparently without change, yet pass every note of a jazz orchestra or soprano.

Antennas, for whose erection there are seemingly no rules, are covered fully; the reason for a long wire in some locations and a short one in others, is readily grasped by anyone. Crystal sets, one tubers, two tube reflexes, three tube regenerative and reflex outfits, four tube R. F. and neutrodynes, five tube assemblies—all types are presented up to the nine tube "super," king of the air.

For the Man That Bought His Set

For the non-technically inclined there is a two-color broadcast map of the country, operating schedules of all the leading stations, call letters and power rating of every station on the air, suggestions for the care of batteries and tubes.

No matter what type of receiver you own, there are dozens of valuable suggestions on tuning, trouble shooting and operating. Your head receivers, loud speaker, antenna and certain parts within the set, require frequent cleaning, adjusting and care. Interference and its remedies are factors you should understand even though you care nothing about "what makes it go."

Compiled by the technical staff of Radio Digest, it represents the high lights of the past twelve months in the Radio field. All this data is indexed for ready reference and logically arranged. Only a few thousand have been printed and this offer will stand for a limited time. The only book of its kind and is FREE with one year's subscription to Radio Digest. This offer good only on subscriptions sent directly to this office, not through agents or agencies.

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Name

Address

(Type or Print Clearly)

Resistance in Plates Controls R.F.

Easy to Make Changes Which End Oscillation

An idea which I think would help fans who build four or five tube tuned radio frequency sets which squeal and howl, is outlined herewith.
Put a 400-ohm potentiometer in series

WORKSHOP KINKS EARN A DOLLAR—

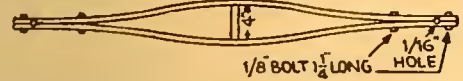
THERE are many little kinks worked out at home that would aid your fellow Radio worker if only he knew about them. There are new hook-ups, new ways of making parts and various unique ways of operating sets that are discovered every day. Radio Digest is very much interested in obtaining such material.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

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

with the primary of each R.F. transformer and the B+ 90. See diagram. This gives control of the plate voltage of both radio frequency tubes thus doing away with the squeal and greatly increasing the volume and signal strength.—Fred Reichard, Balto, Md.

Laminated Antenna Spreader

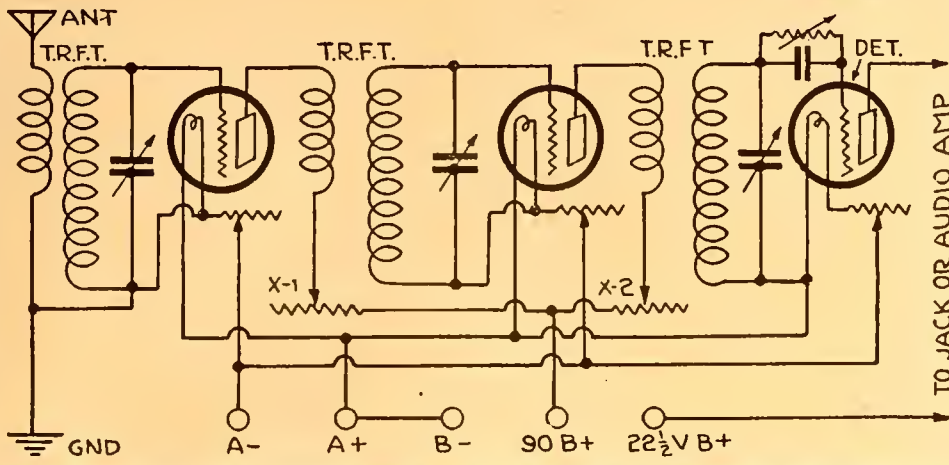
This is to be made of white pine strips $\frac{1}{2}$ " x $\frac{3}{4}$ " x 8', or longer if desired. The bridle rope is to be run through the $\frac{1}{8}$ " hole in end of spreader and knotted on other side to hold the ends in. I use the blue antenna insulators and attach them



to spreader by running wire through a hole in the insulator and twisting it around end of spreader, soldering the twisted joint to make it secure.

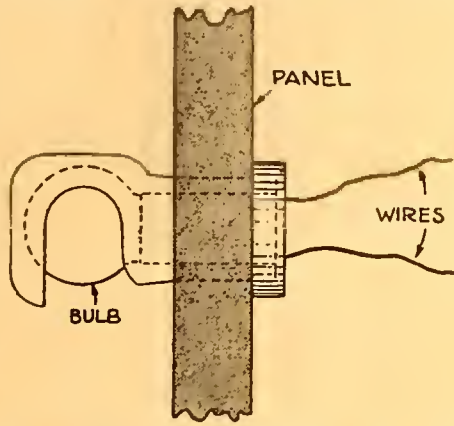
Varnish spreader with some good weatherproof varnish to protect it from the elements. I use Valspar. My antenna is two wires 8 feet apart with 65 foot top. The advantage of this spreader is its strength and lightness.—J. H. King, Alliance, Nebr.

POTENTIOMETERS STOP SQUEALS



A Panel Light

Some time ago I saw how someone wanted to build a panel light for the set. I have what I think is a better idea. Here it is and I believe it makes a neater job. Go to your local garage and procure a

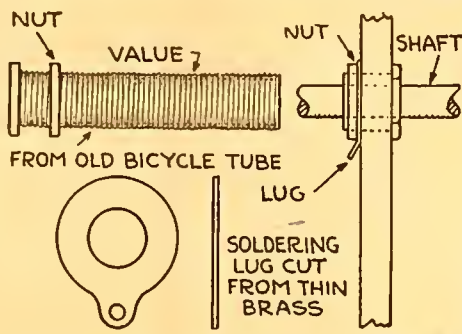


double contact dash light which requires only a $\frac{3}{8}$ " hole for mounting. You can readily see its advantages. It is much easier to mount and the cost is not prohibitive, as these lights only cost from 85c to \$1.00, and it gives you a reflector.—J. Edwyn Hagerty, White Pigeon, Mich.

Don't fail to set your filament current at the point where maximum strength of signal is received—not higher—not lower.

Making Panel Bearings

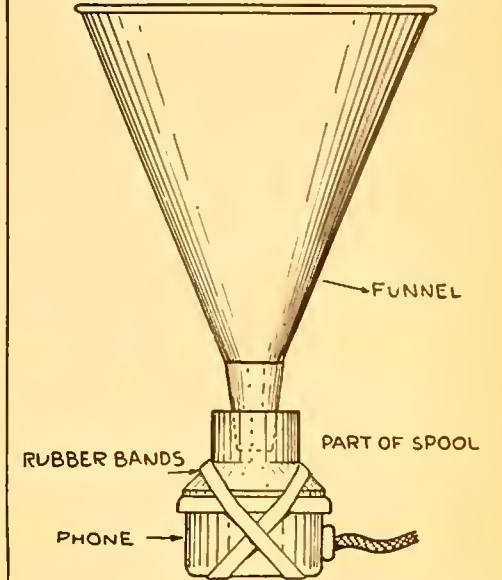
Panel bearings are often useful for mounting switch arms, rheostats, etc. Take out the valves from discarded bike tubes, cut them the desired length, and enlarge the hole to the required size for



the shaft. Then run the nut back as far as it will go before cutting. After cutting, smooth the rough edge and the nut can be removed and replaced without trouble.—Ben Wiseman, Portage la Prairie, Canada.

Head Phone Loud Speaker

With my one tube set I was able to hear WGY and KDKA all over the room by using two funnels on a pair of head phones. To make use of this simple device, get a spool on which wire was wrap-



ped and saw it in half. Secure two large size funnels. Bore a hole in each part of the spools to tightly fit funnels. Fasten the phones to the spool ends by means of a rubber band.—Leonard Fidler, Lansford, Pa.

Cleaning Antenna Insulators

Soot and dust collect on antenna insulators, no matter what they are made of and form the equivalent of a grid leak between antenna wire and ground which will soon noticeably affect the range and volume. At least twice a year and preferably oftener, they should be thoroughly scrubbed and scraped.

Experiments show that flashing electric signs and x-ray apparatus in proximity to a receiving set will often cause interference to broadcast reception.

MAXIMUM PLATE CURRENT DRAIN OF STANDARD RECEIVERS

Circuit	Radio Frequency Amplification		Detector	Audio Frequency Amplification		Plate Current Drain	
	Plate Volts	No. of Tubes		No. of Stages of Reflexed Audio	Plate Volts	No. of Stages Straight Audio	4 1/2 Volts "C"	No. "C" Battery
Regenerative	....	....	1	....	....	....	1
	....	....	1	....	90	3	7
	....	....	1	....	90	5	13
Regenerative (with non-oscillating radio frequency amplification)	45	1	1	....	90	4	8
	45	1	1	....	90	6	14
	90	1	1	....	90	9	13
	90	1	1	....	90	11	19
	90	1	1	1	90	9	13
Radio Frequency Potentiometer control.	45	1	1	....	45	....	5
	45	1	1	....	90	5	9
	45	1	1	....	90	7	15
	90	1	1	....	90	13	21
	90	2	1	....	90	21	29
Neutrodyne	45	1	1	1	45	....	3
	90	1	1	1	90	5	13
	90	2	1	1	90	7	19
	90	1	1	....	90	9	25
	45	2	1	....	45	....	5
	45	2	1	....	67 1/2	....	11
	90	2	1	....	90	7	15
90	2	1	....	90	17	25	
Reflex	90	2	1	2	90	....	17
	90	3	1	3	90	....	25
	90	1	1	1	90	....	7
	90	2	1	1	90	1	19
	90	1	1	1	90	1	11
Super-Heterodyne	45	4*	2	....	90	1	8
	90	4*	2	1	90	1	12
	90	4*	2	....	90	2	14
	45	4*	2	1	90	1	8

This table is based upon current drain of storage battery tubes; dry cell tubes draw about 25% less current. The plate current figures given above are the maximum obtained with new tubes and new batteries. In practice the average current drain is about 25% less than the figures given.
* Including oscillator. © Eveready Laboratories

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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. 1,113,149. Prices quoted are without accessories.

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The "Goode" Two-o-One A Tube amplifies or detects. It is a quarter ampere, 90 volts, standard base silvered tube.
Send express or postal money order—New York draft—or personal check to—

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Questions and Answers

Wave Trap Data

(14084) EJR, Redwood Falls, Minn.
 Q.—I am very much interested in your Q. & A. department. Please answer the following questions. How are the laws of Radio communication answered? How can you shield the parts of a Radio receiver from capacity effect of the hands and body? How can I test antenna or aerial for results? Are electric light insulators which are used in houses all right for Radio aerial supports? What is the best direction for a transmitter's Radio aerial? What does ICW mean? Tell about arc converters. Give me a diagram of a wave trap. What is the principle of the Marconi Beam Radio wave? What are amperes? Does it take amperes to make a volt or reversed?

A.—Your first question as to how the laws of Radio communication are answered is not clear. You can shield a Radio receiver from body capacity by placing an aluminum or copper sheet on the back of the panel with holes cut where shafts go through so that the shield does not touch any of these shafts and ground the shield by connecting it to the negative filament lead. There is no way of testing the antenna circuit other than by building it carefully, with porcelain or glass insulators at each end of the antenna proper, and soldering all antenna connections.

There is no certain direction for a transmitting aerial which will work better than any other, but if you are going to operate around 200 meters we would suggest the flat top T antenna, while if you are going to work on short waves, a vertical brass rod has been found to work best. The phrase I.C.W. stands for Interrupted Continuous Waves, which means that a stream of Radio waves is set up and then interrupted by means of a buzzer so that it is broken up into a series of short wave trains of the proper length to make dots and dashes of the continental code.

The device known as an arc converter is out of the scope of this publication. A wave trap can easily be constructed by winding 56 turns of No. 24 wire on a 2 3/4-inch tube and connecting a .00035 variable condenser across the terminals of this winding. A strip of wax paper is placed over this winding and six to twelve turns of the same size wire are wound on this paper strip and connected in the aerial lead-in between the aerial and the set. In other words, one end of the six-turn winding connects to the aerial and the other connects to the antenna binding post on the receiver. The 56-turn coil and the variable condenser form a circuit which can be tuned to the wave length of an interfering station and they will absorb the program from that station so that the receiver itself can be tuned to the wave length of the desired station and there will be no interference. The Marconi beam wave system consists of working with very short wave lengths with a vertical aerial about 4 feet long and placing a semi-circle screen of verticle rods behind this single vertical aerial. The semi-circular screen acts as a reflector and throws the energy out in the opposite direction, just as a reflector behind an electric light bulb does with light waves.

As to amperes and volts, we wish to advise that an ampere expresses a quantity of electricity while a volt expresses the pressure which is pushing that quantity of electricity through the circuit. Power is measured in terms of watts and the watts are the volts multiplied by the amperes.

About "Simplest Possible Super" and Neutrodyne

(13943) MAC, Youngstown, Ohio
 I have your book describing how to build "The Simplest Possible Super-Het" and am thinking of building it in the near future. I would like to know if UV-199 tubes could be substituted in the radio frequency circuits ahead of the detector without any great loss of efficiency. I have been told that the smaller tubes work about as efficiently as the larger

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 P. O. Box 3193-H St. Paul, Minn.

RULES TO FOLLOW WHEN ASKING QUESTIONS

The Question and Answer department offers service to Radio Digest readers without charge but asks that the following suggestions be read carefully before writing.

- 1—Search carefully the back issues which you have, as the point in question has probably been covered several times before.
- 2—Letters for this department should be kept separate from all correspondence to other departments and on other subjects.
- 3—Questions should be written on one side of paper only and each sheet should bear the sender's name and address. All letters should be accompanied by a self-addressed stamped envelope of standard business size.
- 4—Unsigned (or anonymous) letters cannot be answered, either on this page or by letter, nor can those without address.
- 5—No circuits of any standard manufactured receiver will be published.

6—No comparative statements on advertised apparatus will be given except as to efficiency in some particular circuit.

7—Drawing diagrams on a separate sheet of paper will save time and enable us to give all questions more attention.

8—Write each question as a separate paragraph.

9—Make a copy of your letter and diagrams, to which we can refer without re-drawing.

10—The names and addresses of the writers of letters published will not be released except with the writer's permission.

11—We want to be of assistance to you in your difficulties, but are sometimes limited because of the length and time required for the proper consideration of the questions asked. Therefore, please make your letters brief.

tubes in this part of the circuit. My idea was to conserve battery current.

Also would there be any advantage gained in using the Sodian D-21 detector tube for the second detector? Would a 199 tube work satisfactorily for the second detector? Would it be a good idea to put the first audio amplifying tube and first audio transformer in a separate cabinet? I am thinking of building an audio amplifier in a separate cabinet consisting of one stage of Rauland Lyric transformer and one stage of their power transformer. Would this make a good combination to place after the second detector, in a separate cabinet?

I am also thinking of building a neutrodyne with a variometer in the plate circuit of the detector for regeneration. The two radio frequency tubes and detector together with the three condensers and coils will be placed behind a 30-inch panel so as to give them plenty of room. The audio amplifier will be in a separate cabinet. If a set of this nature was correctly built, would loop reception be possible, and if so, to what extent?

I am going to wind my own coils for this circuit and desire that they be of the most approved, efficient type. Which type would you recommend: straight tube-wound, spider web or the Lorenz basket weave type? Also what coil dimensions would you recommend with .0005 mfd. condensers, the number of turns on the primary and secondaries, and just designate briefly the manner of winding. Would a loading coil tapped, connected in series with the primary of the neutroformer (first one) be advantageous or possibly connect the antenna directly to the secondary of the first neutroformer and with several varied taps thereon? About what dimensions would you recommend for a loop and number of turns of Litz wire to be used with a circuit such as this? Would connecting the loop directly to the grid and filament of the first tube be the best way to connect the loop?

A.—In our "Simplest Possible Super-Het" 199 tubes could be used in the R.F. circuits ahead of the second detector without any appreciable loss in efficiency. There would be a gain in clearness from the use of a Sodian D-21 tube in the second detector although the 199 tube would work practically as well.

There would be no advantage in placing a single stage of audio amplification in a separate cabinet. If you are going to use more than one audio stage they should both be placed in a separate cabinet.

Relative to the neutrodyne hook-up, we would advise against the use of a variometer in the plate circuit of the detector. This idea sounds good theoretically, but it does not work out in practice.

A neutrodyne can be used with a loop if the loop is kept at a distance of at least four feet from the receiver or if the cabinet and back of the panel are carefully metal lined.

Relative to the winding of coils we refer you to our issue of March 21, in which complete data on the winding of coils of any diameter with any size of wire and for any capacity of variable condenser, was covered thoroughly.

We do not believe a loading coil would be of any advantage in the antenna circuit and might cause difficulty by interacting with the neutroformer coils. Connecting a loop antenna to the grid and filament of the first tube is the only way it could be connected.

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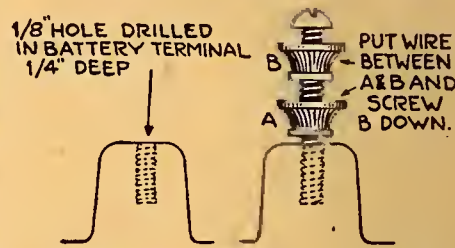
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Lead Covered Wire for Underground Aerial

(13828) CT, Mays Landing, N. J.
 In two of your late issues I noticed directions for installing an underground aerial. Both call for shielded lead-in wire. I have tried in Radio stores around my vicinity and have been unable to get this, neither have I seen it advertised in your magazine. I would like to know where I could secure twenty-five feet of this wire.
 A.—With reference to the lead covered wire, we wish to advise that this can be purchased from large electrical jobbers or automobile supply jobbers. We would suggest that you try Stanley and Patterson at West and Hubert streets, New York city, or the Manhattan Electrical Supply company on Park place, New York city.

Battery Terminals

Most storage batteries bought more than two years ago provide no way of making connection to poles other than by means of clips which soon corrode and wear out. I was experimenting, trying to make a better contact which would last longer, and to my satisfaction, succeeded. It is made of an 8-32 machine screw (brass) 1 inch long, and 2 battery nuts. The two



nuts are screwed on as far as they will go and then a 1/8" hole is drilled in the top of the battery terminal. The 8-32 screw is then screwed into the hole with a screw driver about 1/4", and the battery nut closest to the battery is screwed down tight with the fingers. The other nut then acts as a binding post. I have used two of these for four months with no sign of them wearing out.—Charles E. Echels, Beechview, Pittsburgh, Pa.

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THERMIODYNE
ULTRADYNE
MURDOCK
OZARKA
Pfanstiehl
MICHIGAN
Deresnadyne
MALONE LEMON
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MANY OTHERS

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AQ6, Canton, O. 425 meters. Hdqts. 135th Field Artillery O. N. G.

AT9, Fort Bragg, N. C. 435 meters. 750 watts. U. S. Government. Announcer, Lieut. James Y. LeGette. Slogan, "The Pioneer Broadcasting Station of the Army." Tues, Thurs, Sat, 8:55 pm, dance music, talks, bands, fights. Sun, 8-9:55 pm, service. Eastern.

AV7, St. Paul, Minn. 400 meters. 6th Inf. Minn. Nat'l Guard, St. Paul Armory. Irregular schedule. Central.

AWS, Dayton, O. McCook Field, Eng. Division army service. Exn. work only.

KDKA, E. Pittsburgh, Pa. 309.1 meters. 1,000 watts. Westinghouse Elec. & Mfg. Co. Announcer, H. W. Arlin. Slogan, "The Pioneer Broadcasting Station of the World." Daily ex Sun, 9:15-10 am, 11:55, time, 12, market reports, weather; 2:30-5:30, baseball, music; 7, baseball; 9:55, mme, daily except Sun, Sat; 12:15 pm; 7:15 pm, talks. Daily ex Sat, Sun, 8:30 pm; 8:15, concert; 9:55, time, Sat, 8:45 pm, concert; 9:55, time, Tues, Thurs, 10:30 pm. Sun, 9:45 am, 3 pm, 3:45, 6:45. Eastern.

KDLR, Devilla Lake, N. Dak. 231 meters. 5 watts. Radio Elec. Co. Wilson Ins. Agency. Daily ex Sun, 12:10 pm, weather; 6:15, markets; 10:12, orchestra. Mon, 9:30-11:30 pm, Sun, 4:30-6. Central

KDPM, Cleveland, O. 250-1817 meters. 750 watts. Westinghouse Elec. & Mfg. Co. Announcer, H. W. Irving. Experimental station.

KDVL, Salt Lake City, Utah. 245.8 meters. 50 watts. "Newhouse Hotel. Announcer, Gene Pack. Slogan, "Out on the Great Divide." Daily ex Sun, 3-4 pm, 6:30-8, news, music, entertainment. Sun, 11-1 am. Mountain.

KDZB, Bakersfield, Calif. 299.7 meters. 100 watts. Frank Steiert. Daily ex Sun, 8-9 pm, reports, music. Pacific.

KFAB, Lincoln, Neb. 340.8 meters. 500 watts. Nebraska "Buck Auto Co. Announcer, Gayle Grubb. Mon, Wed, Fri, 7:30-9:30 pm; Thurs, 3 pm; Sun, 4 pm, church services. Central.

KFAD, Phoenix, Ariz. 273 meters. 100 watts. McArthur Brothers Mercantile Co. Announcer, Arthur C. Anderson. Slogan, "Where Summer Winters." Daily ex Sun, 7:30-8:30 pm, news, weather, stock reports, music. Mountain.

KFAE, Pullman, Wash. 318.6 meters. 500 watts. State "College of Washington. Announcer, Ivar Melander. Wed, 7:30-9 pm, talks, music. Pacific.

KFAF, Denver, Colo. 278 meters. 500 watts. Western Radio Corp.

KFAL, Boulder, Colo. 261 meters. 100 watts. Univ. of Colo. Announcer, F. M. Orshorn. Tues, Sat, 9 pm, time, music, addresses by faculty. Thurs, 7:30 pm, Sat, 2:30-5 pm, sports. Mountain.

KFAN, Moscow, Idaho. 231 meters. 50 watts. University of Idaho.

KFAU, Boise, Idaho. 277.6 meters. 500 watts. Bolse H. "8. Announcer, David Taylor. Slogan, "Intermountain Station." Daily ex Sat, Sun, 4:45 pm, markets, weather, news. Mon, Fri, 8-10 pm, concert. Mountain.

KFAW, Santa Anna, Calif. 214.2 meters. 50 watts. Radio "Den. Slogan, "Where There Is Always a Friend from Your Old Home Town." Closed for the summer.

KFBB, Havre, Mont. 275 meters. 50 watts. E. A. Buttery Co. Announcer, C. O. Boettger. Daily ex Sun, 12:45 pm, music, markets, weather, reports. Mountain.

KFBC, San Diego, Calif. 224 meters. 50 watts. W. K. "Abil. Thurs, Sun, 8-9 pm, Bible lesson, sermon. Pacific.

KFBG, Tacoma, Wash. 249 meters. 50 watts. First "Presbyterian church. Announcer, Frank Tovey. Sun, 11-1 pm, 7:30-9:30. Pacific.

KFBL, Everett, Wash. 221 meters. 50 watts. Lesse "Hros.

KFCB, Phoenix, Ariz. 238 meters. 50 watts. Nielson Radio Supply Co. Announcer, E. A. Nielson. Slogan, "When It's Wintertime in Michigan, It's Summer Time Down Here." Daily 7-7:30 pm, bedtime stories. Mountain.

KFCF, Walla Walla, Wash. 250 meters. 100 watts. Frank A. Moore. Slogan, "The Valley They Liked So Well They Named It Twice." Mon, 8-10 pm, Thurs, Fri, 8-12 midnight. Pacific.

KFCY, Le Mars, Ia. 252 meters. 50 watts. Western Union College. Announcer, D. O. Klme. Slogan, "College on the Hill." Fri, 9-11 pm, central.

KFDD, Boise, Idaho. 275 meters. 50 watts. St. Michael's Episcopal Cathedral. Announcer, E. Mark Hanford. Sun, 11:15-12:30 pm, 7:30-9:15. Mountain.

KFDH, Tucson, Ariz. 258 meters. 50 watts. Univ. of Ariz. Announcer, Max Voss Kuehler. Closed for the summer.

KFDI, Corvallis, Ore. 251 meters. 500 watts. Oregon Agricultural College.

KFDM, Beaumont, Tex. 315.6 meters. 500 watts. Magnolia Petroleum Co. Announcer, Magnolene Mike. Slogan, "Call for Dependable Magnolene." Tues, Fri, 12:30-12:55 pm, hand concert; 7-7:30, children's hour; 8-10:30, concerts. Sun, 11-12 m, 8-0 pm. Central.

KFDX, Elmoreport, Ia. 250 meters. 100 watts. First "Baptist church. Announcer, Hugh Maycomb. Closed for the summer.

KFDY, Rockings, S. D. 273 meters. 50 watts. S. "D. State College. Announcer, G. A. Heinz. Daily ex Sun, 12:15 pm, livestock markets. Central.

KFDZ, Minneapolis, Minn. 231 meters. 10 watts. Harry O. Iverann.

KFEC, Portland, Ore. 218 meters. 50 watts. Meler & Frank Co., Inc. Daily ex Sun, 12 in, weather, reports; 1-5 pm, music; 6-10 pm, weather, crop, markets, reports. Sat, 11 am-12 m, children's hour. Pacific.

KFEL, Denver, Colo. 251 meters. 50 watts. The W. L. Winner Radio Shop. Announcer, Eugene P. O. Fallon. Daily ex Sun, 11 am, 2 pm, 1. Tues, Thurs, Sat, 10-12 midnight, dance. "Top of the World" studio. Mountain.

KFEQ, Oak, Nehr. 268 meters. 500 watts. J. L. Scrogglin. Announcer, Clarence Koch. Wed, 9-10 pm, Sun, 4-6 pm. Central.

KFER, Fort Dodge, Iowa. 231 meters. 100 watts. Auto Electric Service Co. Announcer, H. E. Giltner. Tues, Thurs, 9 pm; Sun, 7:30 pm. Central.

KFEY, Kellogg, Ida. 233 meters. 10 watts. Hinkner "Hill & Sullivan Mining & Con. Co. Announcer, Walter C. Mark. Slogan "Voice of the Coeur D'Alene." Closed for the summer.

KFFP, Moline, Mo. 212 meters. 50 watts. First "Baptist Church. Announcer, Grandville Ray. Boots Slogan, "The Gospel Messenger of the Air." Closed during the summer.

KFFV, Lamoni, Ia. 250 meters. 100 watts. Graceland College. Closed for the summer.

KFGC, Baton Rouge, La. 204 meters. 100 watts. "Louisiana State University. Closed during the summer.

KFDD, Chickasha, Okla. 252 meters. 200 watts. Okla. College for Women. Tues, Thurs, 8 pm, music, lectures. Wed, 10 am, chapel service. 11 pm, special jazz program. Central.

KFGH, Stanford Univ., Calif. 270.1 meters. 500 watts. Leland Stanford Junior University. No regular schedule.

KFGQ, Boone, Ia. 220 meters. 10 watts. Crary "Hardware Co. Announcer, Harold E. Wilcox. Slogan: "Daniel Boone Station." Closed for the summer.

KFDX, Orange, Tex. 250 meters. 500 watts. First Presbyterian church.

KFHA, Gunnison, Colo. 252 meters. 50 watts. Western State College of Colorado. Announcer, E. Russell Wightman. "Where the Sun Shines Every Day." Tues, Fri, 6:30 pm, headline story; 8 pm, musicals; 10:30, orchestra. Mountain.

KFHL, Oskatoosa, Iowa. 210 meters. 10 watts. Penn "Hilgro.

KFI, Los Angeles, Calif. 467 meters. 2000 watts. Earle C. Anthony, Inc. Announcer, Glen Rice. Slogan, "The Radio Central Super-Station." Daily ex Sat, Sun, 5:30-6:10 pm, 6:15-11. Sat, 5:30-6:10 pm, 6:15-7 am, Sunday, 10-10:15 am, 4-5 pm, 6:30-11. 11-12 m, first Sun of month; 11-12:30 pm, third Sun of month. Pacific.

KFIF, Portland, Ore. 218 meters. 100 watts. Benson Tech. School.

KFID, Spokane, Wash. 268 meters. 100 watts. Radio Club of North Central H. S. Fri, 8-9:30 pm. Pacific.

KFIQ, Yakima, Wash. 254.3 meters. 100 watts. First Methodist Church. Announcer, Dr. I. M. Miller.

Wed, 7:30 pm, organ. Sat, 7 pm. Sun, 11 am, 7:30 pm. Pacific.

KFIU, Juneau, Alaska. 226 meters. 100 watts. Alaska Elec. Light & Power Co. Announcer, O. E. Shoembell. Mon, Wed, Fri, 6-7 pm. Alaskan.

KFIZ, Fond du Lac, Wis. 273 meters. 100 watts. Daily Commonwealth and Wisconsin Radio Sales, Inc. Announcer, Albert Mayer. Daily ex Sun, 5 pm, music, news, markets, weather. Central.

KFJB, Marshalltown, Iowa. 248 meters. 100 watts. Marshall Elec. Co. Announcer, E. N. Peak. Slogan: "Marshalltown, the Heart of Iowa." Daily ex Sun, 10 am, markets. Tues, Fri, 8:30 pm. Central.

KFJC, Junction City, Kan. 218.8 meters. 10 watts. R. B. Fegan.

KFIF, Oklahoma City, Okla. 261 meters. 225 watts. "National Radio Mfg. Co. Announcer, Tired Hand. Slogan: "Radio Headquarters." Daily ex Sun, 9:40 am, 12:15 pm, markets; 2:15, markets; 3, 4, 5, 6, 7, baseball; 7, weather, news. Mon, Fri, 8:30-10:30 pm, band. Sun, 11 am; 8 pm, church services. Central.

KFJI, Astoria, Ore. 246 meters. 10 watts. E. E. Marsh and Liberty Theater. Announcer, E. E. Marsh. Wed, Fri, 10-11 pm, organ. Sun, 10:30-11 pm. Pacific.

KFJM, Grand Forks, N. D. 278 meters. 100 watts. University of North Dakota. Slogan: "Grand Forks, the Educational Center of the State."

KFJR, Portland, Ore. 263 meters. 50 watts. Ashley C. "Dixon & Son. Mon, 7:30-8:30 pm, Boy Scouts; 8-8:45, business talk. Tues, Wed, Thurs, 8-8:30 pm; 8:30-9:45, Tues, 8:45-9 pm, Thurs, 9-10:30 pm, Sat, 1:30-2:30 pm. Pacific.

KFIX, Cedar Falls, Iowa. 258 meters. 50 watts. Iowa State Teachers' College. Educational programs.

KFJY, Fort Dodge, Iowa. 246 meters. 50 watts. Tun-Wall Radio Co. Announcer, Carl Tunwall. Daily 5:15 pm, markets, news, weather, bulletins. Sun, 11 am. Central.

KFKA, Greeley, Colo. 273 meters. 50 watts. Colorado State Teachers' College. Announcer, Brewer Boardman.

KFKQ, Conway, Ark. 250 meters. 100 watts. Conway Radio Lab.

KFKU, Lawrence, Kan. 275 meters. 500 watts. University of Kansas. Announcer, John F. Pitt. Slogan, "Up at Lawrence on the Kaw."

KFKX, Hastings, Neb. 288.3 meters. 2000 watts. "Westinghouse Elec. & Mfg. Co. Slogans, "The Emphasis of the Air." "The Pioneer Re-Broadcasting Station of the world." Closed down for the summer.

KFKZ, Kirksville, Mo. 226 meters. 5 watts. F. M. "Henry.

KFLP, Cedar Rapids, Ia. 256 meters. 20 watts. Everett M. Foster.

KFDL, Marengo, Ia. 234 meters. 10 watts. Leslie M. Schaefbuch.

KFDN, Long Beach, Calif. 233 meters. 100 watts. "Keophone Radio Shop. Slogan, "Where Your Ship Comes In." Daily ex Sun, 5:30-11 pm, Thurs, 5:30-6:30 pm, Sun, 8-9 pm. Pacific.

KFDD, Salt Lake City, Utah. 236 meters. 250 watts. "Latter Day Saints University. Announcer, Don C. McRae.

KFDR, David City, Neb. 226 meters. 100 watts. David "City Tire & Elec. Co. Slogan, "The Voice of David City." Announcer, Howard A. Shuman. "Temporarily off the air."

KFDT, Wichita, Kansas. 231 meters. 50 watts. College Hill Radio Club. Announcer, Leon Garnett. Slogan, "Radio-casting Church." Sun, 11-12:30 pm; 7:30-9, church services. Mon, 9-10:30 pm, music. Central.

KFDX, Omaha, Neb. 248 meters. 100 watts. Board of Education. Technical High. Announcer, Juno Johnson.

KFDY, St. Paul, Minn. 252 meters. 50 watts. Beacon Radio Service. Thurs, 11-12 m. Sun, 3:30-4:30 pm. Central.

KFEG, Los Angeles, Calif. 238 meters. 100 watts. Garretson and Godaan.

KFEL, Dublin, Tex. 252 meters. 15 watts. C. C. Baxter, announcer.

KFEM, Greenville, Tex. 242 meters. 100 watts. The New Furniture Co. Announcer, Dave Ahloewich, Jr. Slogan: "The New Furniture Co., the Home of Good Furniture." Located at Greenville, Texas, Where You Find "The Blackest Land, the Whitest People." Daily ex Sun, 2 pm, music. Tues, Wed, Thurs, Fri, 8 pm. Sun, 11 am, services; 7:30 pm, irregularly. Central.

KFEP, Los Angeles, Calif. 231 meters. 500 watts. Los Angeles Co. Forestry Dept. Irregular schedule.

KFPV, San Francisco, Calif. 236 meters. 50 watts. Heinz & Kohlmann, Inc. Announcer, Ralph H. Heinz. Slogan: "Ain't We Got Fun." Temporarily off the air.

KFPA, Carterville, Mo. 258 meters. 20 watts. St. "John M. E. Church. S. Slogan, "Keeping Pace with Christ Means Progress." Wed, Fri, 8-10 pm, popular program. Sun, 1-5 pm, chapel service. Central.

KFPY, Spokane, Wash. 266 meters. 100 watts. Symons "Investment Co. Announcer, E. B. Craney. Mon, Tues, Wed, Thurs, Fri, Sat, 7-7:30 pm. Pacific.

KFQA, St. Louis, Mo. 261 meters. 100 watts. The "Principia. Sun, 11 am, church service. Central.

KFQB, Fort Worth, Tex. 263 meters. 200 watts. The "Starlight Pub. Co. Announcer, Horace B. Greene. Sun, 11 am, 7:15 pm, church services. Tues, Wed,

7:30, Thurs, Fri, Sat, 7:30-11 pm. Sun, 10:30-12:30 pm, 2:30-4:30, 7-9:30. Mon silent. Pacific.

KFSY, Helena, Mont. 248 meters. 10 watts. The Van Blaricom company. Announcer, George C. Stocking. Wed, 7:30 pm, music, talks. Mountain.

KFUJ, Breckenridge, Minn. 242 meters. 50 watts. Hoppert Plumbing & Heating Co. and Hoppert Radio Electric Co. Announcer, F. H. Rettig. Slogan, "Where the Red River of the North Finds Its Source." Daily ex Sun, 10:30 am, 5:40 pm, weather. Daily ex Sun, 10:40 am, 1:30 pm, 5:45 pm, markets. Mon, Wed, 8-9 pm. Central.

KFUL, Galveston, Texas. 258 meters. 100 watts. Thomas "Goggan & Bros.

KFUM, Colorado Springs, Colo. 242 meters. 100 watts. W. D. Corley. Slogan, "Known for Unsurpassed Mountain Scenery." Tues, Sat, 8:30-10:30 pm. Sun, 11 am, 7:30 pm. Mountain.

KFUD, St. Louis, Mo. 345.1 meters. 500 watts. Concordia Theological Seminary (Lutheran). Announcer, Prof. Walter A. Maler. Mon, 8 pm. Wed, 9:15 pm. Sun, 8:15 pm. Central.

KFUP, Denver, Colo. 234 meters. 50 watts. Fitzsimons General Hospital.

KFUR, Ogden, Utah. 221 meters. 50 watts. Peery Building Co. Tues, Thurs, Sat, 9:20-11:50 pm, dance music. Mountain.

KFUS, Oakland, Calif. 231 meters. 50 watts. The Sherman School.

KFUT, Salt Lake City, Utah. 261 meters. 100 watts. University of Utah. Tues, Thurs, 12:10 pm. Mountain.

KFVU, San Leandro, Calif. 224 meters. 50 watts. "Calhoun Radio Laboratories. Announcer, W. R. Fisher. Slogan, "Voice of the Cherry City." Mon, Wed, Fri, 8:30-9 pm, Sun, 1:30-3 pm. Pacific.

KFVU, Springfield, Mo. 252 meters. 100 watts. G. Pearson Ward.

KFUY, Butte, Mont. 254 meters. 5 watts. Irlene H. Bouhard.

KFUZ, Virginia, Minn. 248 meters. 100 watts. Burton "Ellers and Albin Lofback. V. M. C. A. Slogans, "The Arrowhead Station," "Virginia, Minn., the Heart of the Arrowhead Country." Closed for the summer.

KFVC, Camden, Ark. 212 meters. 10 watts. Bensberg's "Music Shop. Announcer, Carl Bensberg. Slogan, "Kum Folks, Visit Camden." Closed for the summer.

KFVD, San Pedro, Calif. 205.4 meters. 50 watts. McWilliam Elec. Co.

KFEV, University City, Mo. 240 meters. 500 watts. "Pine Corp. of America. Slogan, "You will Always Know KFVE by the Tick of Her Clock." Daily ex Thurs, 7-8 pm; 10-12. Central.

KFVF, Hollywood, Calif. 208.2 meters. 270 watts. Kierulf & Havenscroft Co. Announcer, "Hastings." Pacific.

KFVG, Independence, Kan. 236 meters. 10 watts. First "Methodist Episcopal church. Sun, services.

KFVH, Manhattan, Kan. 218.8 meters. 10 watts. Whan Radio Shop. Announcer, Herbert Whan. Slogan, "Kansas Fans Very Happy." Daily ex Sun, 12 m, markets. Thurs, 8-12 midnight, dance music. Fri, 7:30-9 pm. Central.

KFVI, Houston, Texas. 248 meters. 10 watts. Headquarters Troop 56th Cavalry Brigade.

KFVJ, San Jose, Calif. 226 meters. 500 watts. First Baptist church.

KFVK, Sacramento, Calif. 248 meters. 500 watts. Sacramento Chamber of Commerce.

KFVL, Vancouver, Wash. 231 meters. 10 watts. Army Radio Station.

KFVN, Welome, Minn. 227 meters. 10 watts. Carl "E. Hagley.

KFVR, Denver, Colo. 240 meters. 50 watts. Moonlight Branch Broadcasting Station.

KFVS, Cape Girardeau, Mo. 221 meters. 50 watts. Cape Girardeau Battery Station.

KFVU, Eureka, Calif. 209.7 meters. 5 watts. The Radio Shop.

KFWW, San Diego, Calif. 216 meters. 500 watts. Arfan Radio Corp.

KFVX, Bentonville, Ark. 236 meters. 10 watts. Radio "Shop. Daily ex Sun, 9-12 midnight. Central.

KFVY, Albuquerque, N. M. 250 meters. 10 watts. Radio "Supply Co.

KFVZ, San Francisco, Calif. 231 meters. 50 watts. "Glad Tidings Tabernacle, Inc.

KFWA, Ogden, Utah. 261 meters. 500 watts. Browning Brothers Co. Announcer, H. C. Mullander. Slogan, "Keeping Friends with All." Daily ex Sun, 4-5 pm, Zenith hour, stocks, markets, time. Mon, Tues, Wed, Fri, 9-11 pm, music. Sun 9-12 midnight, music. Mountain.

KFWB, Hollywood, Calif. 252 meters. 500 watts. Warner Brothers.

KFWD, Arkadelphia, Ark. 266 meters. 500 watts. Arkansas Light & Power company.

KFWH, Chico, Calif. 251 meters. 100 watts. F. Wellington Morse, Jr.

KFWI, South San Francisco, Calif. 220 meters. 500 "Watts. Radio Entertainments, Inc.

KGB, Tacoma, Wash. 219.7 meters. 100 watts. Tacoma "Daily Ledger. Announcer, Alvin Steno. Slogan, "This is KGB in Tacoma, Washington, the Lumber Capital of America and the Gateway to Mount Tacoma." Mon, Wed, Fri, 7-9 pm, Tues, Thurs, Sat, 7-12 midnight. Pacific.

KGD, Oakland, Calif. 301.2 meters. 2,000 watts. Gen. "Elec. Co. Announcer, Howard I. Millholland. Daily ex Sun, 7:15-8:15 am, except Sat, 8:30-9, daily strength. 11:30 am, luncheon concert. Daily ex Sat, Sun, 1:30 pm; Sat, 12:30 pm, markets, weather. Mon, Wed, Fri, 3 pm, music. Mon, 4-5:30 pm, dance orchestra. Daily ex Sun, 4-5:30 pm, concert orchestra. Mon, Tues, Wed, Fri, 6-7 pm, music; Mon, Tues, Thurs, Sat, 8 am, dance, music. Mon, 5:30-6 pm, children's half hour; Mon, Tues, Wed, Thurs, Fri, 7 pm, stocks, markets, weather, baseball. Thurs, 5:30-6:30 pm, boy's hour. Fri, 5:53:30 pm, girl's half hour. Sun, 11-12 m, 8 pm, church services; 3:30-5 pm, Little Symphony orchestra. Pacific.

KGU, Honolulu, Hawaii 270 meters. 500 watts. Marion A. Mulroy. The Honolulu Advertiser. Announcer, W. K. Kawana. Daily, 7-8 pm, Tues, Thurs, Sat, special program. Sun, 11 am; 7:30 pm. 150 weekday. 2 1/2 hours earlier than Pacific.

KDW, Portland, Ore. 191.5 meters. 500 watts. Portland Morning Oregonian. Announcer, Dick Haller. Slogan, "KDW, Keep Growing Wiser." Daily ex Sun, 11:30-11:45 am, weather; 12:30-1:30 pm, music; 7:30-7:15, weather, pulce, market, news, baseball. Mon, 6-7 pm, organ. Tues, Wed, Thurs, Sun, 9-10 pm. Tues, Thurs, Sat, 10-12 midnight. Wed, Thurs, 8-9 pm. Wed, 10-11 pm. Sun, 10:30-12 midnight. Ironic. Sat, 0-8 pm. Sun, 10:30-12 m, 7:15-9 pm, church services. Pacific.

KDY, Lacey, Wash. 210 meters. 5 watts. St. Martin's College. Announcer, Sebastian Ruth. Slogan, "Out Where the Cedars Meet the Sea." Tues, Fri, Sun, 8:30-9:30 pm, news, concert, lecture. Pacific.

KHI, Los Angeles, Calif. 405.2 meters. 500 watts. Los "Angeles Times. Announcer, John B. Dagggett. Slogan, "Kindness, Happiness, Joy." Daily ex Sun, Mon, 7 am, 7:30, 12 m, 1:30 pm, 2:30, 3:30, 5:30, 11 Mon, 7-7:30 am, 12-1:30 pm. Sun, 10-12:30 pm, 9:30, 8-11. Pacific.

KHQ, Seattle, Wash. 273 meters. 100 watts. Louis "Wasmer. Temporarily off the air.

KIAF, Hilltop, Minn. 421 meters. 500 watts. Steele Co. Slogan, "Far from the Madding Crowd." Min, Wed, Fri, 7-8 pm. Sun, 2-3 pm. Central.

KJBS, San Francisco, Calif. 230 meters. 5 watts. Julius Branton & Sons Co. Announcer, A. H. McCartney.

KIR, Seattle, Wash. 381.4 meters. 1000 watts. Northwest Radio Service Co. Announcer, Vincent L. Kraft. Slogan, "Radio Headquarters." Daily ex Sun, 12:30-1 pm, markets; 1-1:30, music; 6-6:30, Mon, Wed, Fri, 8:30-10 pm, Thurs, 10:30-12 midnight, Sat, 1:30-2 pm, sports. Sun, 11 am, 7 pm, services. Pacific.

(Note—The second part of the station data list will appear next week.)

CHALLENGE!

ONE DOLLAR will be paid to the Radiophon submitting the most errors in any one station's listing in this directory. Letters must reach Radio Digest office not later than one week from date of issue corrected. Readers are not limited to correcting one station, but such corrections must be certified by the stations themselves, and NOT by comparison to other so-called accurate Radiocast directories and lists. Station verifications must accompany corrections.

That's just how sure Radio Digest is that this Radiophone station directory is correct! To make the challenge fair for everyone, Radiocast stations and their employes are barred from this offer. Why? Because the Radiocasters are the source of all the data given herein. They are (or should be) interested enough to answer the inquiry sent them every time data on their station appears. This inquiry contains a proof of their last listing and must either be corrected or O'K'd as correct and returned to the Digest. Nevertheless, sometimes the stations are careless

and mistakes are made. But Radio Digest is so sure of the exactness of this directory that this challenge is made unconditionally.

With reference to the directory: It appears in five parts, serially continuously; the first four parts are station data listings, arranged alphabetically; the fifth part is a state, city index of stations. The information contained in each station data listing is given in the following order: Call letters, city, state, wave length used, watts antenna input, owner's name, announcer's name, slogan used if any, name of listener in "club," schedule of operating hours, and kind of time used, as "Central," "Mountain," etc. Asterisks have been placed in front of corrected listings and new stations in order to distinguish these.

Five successive issues of Radio Digest will give one the most complete and accurate list of Radiocast stations obtainable. This service is original with this publication, and has been maintained from the start. Right of reproduction without permission of any or all of the data contained herein is denied.

KFLR, Albuquerque, N. M. 251 meters. 200 watts. "L. & N. M. Announcer, Phillip S. Dunneil. Slogan, "The Sunshine Center of America." Closed for the summer.

KFLU, San Benito, Texas. 236 meters. 10 watts. Benin Radio Club. Announcer, R. W. Thacker. Slogan, "Heart of the Magic Valley." Mon, Thurs, Sat, 8:30-10 pm, concert. Sat, 8:30 pm, Sunday school lesson. Central.

KFLV, Rockford, Ill. 229 meters. 200 watts. Swedish Evangelical Mission Church. Announcer, A. T. Frykman. Fri, 8:30 pm. Sun, 12:30 pm, service for shut-ins (Swedish); 9:30, service (English). Central.

KFLX, Galveston, Texas. 210 meters. 10 watts. George H. Clough.

KFLZ, Anita, Iowa. 271 meters. 100 watts. Atlantic "Automobile Co. operated by Walnut Grove Hog Ranch. Co. Announcer, R. A. Marshall. Daily ex Sun, 11:50-12:15 pm, question box, markets. Tues, Thurs, 5:15-10 pm, music. Central.

KFMB, Little Rock, Ark. 254 meters. Christian churches of Little Rock.

KFMQ, Fayetteville, Ark. 299.8 meters. 500 watts. "of Arkansas. Announcer, C. V. Hullen. Tues, 9 pm. Central.

KFMR, Sioux City, Ia. 201 meters. 100 watts. Morr- "Ingold College. Announcer, Jessa C. Burmann. Daily ex Sat, Sun, 10:30 am. Wed, 7 pm. Central.

KFMT, Minneapolis, Minn. 263 meters. 100 watts. Dr. George W. Young. Announcer, Dr. George W. Young. Slogan: "Always Young." Mon, 6-8 pm; 8:30-9:30; 9:30-10:30; Tues, 7-8 pm; 9-10; Wed, 6-7 pm, 7-8; 8-9. Thurs, 7:30-8 am, 8:30-9, 9-10. Fri, 7-8 pm, 8-9, 9-10. Sat, 9-10 pm. Central.

KFMW, Houghton, Mich. 206 meters. 50 watts. M. G. Sateran. Announcer. Sun, 3-4:30 pm.

KFMX, Northfield, Minn. 338.9 meters. 500 watts. "Carlton College. Announcer, Merrill D. Holen. Off the air until Sept. 15.

KFNF, Shenandoah, Ia. 206 meters. 500 watts. Henry "Field Seed Co. Announcer, Henry Field. Slogan, "Friendly Station in a Friendly Town." Daily ex Sun, 12:15-1:30 pm, 3-1. Daily ex Sun, Tues, 7:30-9:30 pm, concert. Sun, 10:15 am, 2:30 pm, 3-4, services; 5:30-8, Golden Bells; 8-9:15, church service. Central.

KFNV, Santa Rosa, Calif. 237 meters. 5 watts. L. A. Drake. Daily 2-3 pm; 6-9:30, news, music. Pacific.

KFDA, Seattle, Wash. 451.3 meters. 500 watts. Rhoslea "Dept. Store. Slogan, "The Gateway to the Orient." Daily ex Sat, Sun, 12:30-1:30 pm. Daily ex Sun, 1-5:15, Times bulletins, concert. Daily ex Sun, Thurs, 6-6:15 pm, orchestra, baseball; 8:30-10 pm, Times program. Mon, Tues, Wed, Fri, 8:15-8:45 pm, studio music. Tues, Fri, Sat, 10:15-11:30 pm, orchestra. Pacific.

KFDC, Whittier, Calif. 235 meters. 100 watts. First "Christian church.

KFDI, Moberly, Mo. 214 meters. 10 watts. Moberly High school. Announcer, Herbert Settle.

Thurs, Fri, 7 pm, music. Sat, 8 pm, concert, Bible lecture. Central.

KFGC, Taft, Calif. 231 meters. 100 watts. Khd "Bro. Radio Shop.

KFGH, Burlington, Calif. 220 meters. 50 watts. Post Office Radio and Music Co. Wed, Fri, 8-10 pm. Pacific.

KFGP, Iowa City, Iowa. 221 meters. 100 watts. George S. Carson, Jr. Closed for the summer.

KFGR, Oklahoma City, Okla. 209.7 meters. 50 watts. Walter La Fayette Ellis.

KFGT, Denton, Tex. 252 meters. 10 watts. Texas National Guard. Announcer, Robert Cox.

KFQU, Italy City, Calif. 222 meters. 100 watts. W. "Riker. Announcer, Arthur J. Lambstrom. Daily ex Mon, 9-10 pm. Sun, 11-12 pm, 6:10 pm. Pacific.

KFQW, North Bend, Wash. 215.7 meters. 50 watts. "The Photo Radio and Elec. Shop. Announcer, Carl F. Krolerlin. Slogan, "At the Western Entrance of Snohomish Pass." Daily ex Sun, 7:30-8:30 pm. Pacific.

KFOY, Reiden, Neb. 273 meters. 10 watts. Farmers State Bank. Announcer, A. H. Nita. Slogan: "Where Corn is King."

KFQZ, Hollywood, Calif. 220 meters. 250 watts. Taft Radio company.

KFRB, Heaville, Tex. 218 meters. 250 watts. Hall Brothers. Temporarily off the air.

KFRD, San Francisco, Calif. 268 meters. 50 watts. City of Paris Dry Goods Co.

KFRH, Grafton, N. D. 268 meters. 10 watts. "The Radio Shop.

KFRL, Grand Forks, N. Dak. 210 meters. 10 watts. Men's Club, First Presbyterian Church.

KFRM, Fort Hill, Okla. 203 meters. 50 watts. James F. "Bloland.

KFRU, Birdso, Okla. 394.5 meters. 500 watts. Eth- "ereal Radio Co. "The Voice of Oklahoma." Daily ex Sun, 12:30 pm, 2:30, markets, oil news. Mon, 7-8 pm. Mon, Wed, 8-10:30 pm, Tues, 10:30-12 midnight. Thurs, 10:30-11:30 pm, Fri, 11 am. Sat, 7:30-8 pm, 9-12. Sun, 6:30 am, 11, 5 pm. Central.

KFRW, Olympia, Wash. 218.8 meters. 50 watts. United "Churches of Olympia. Slogan, "Make the World a Brotherhood." Thurs, 9-12 midnight, Sun, 11-12 m, 8-9 pm. Pacific.

KFRX, Pullman, Wash. 217 meters. 10 watts. J. Gordon Klemgard. Announcer, Gordon Klemgard. Slogan: "The Only Farmers Radio Station in the World." Closed for the summer.

KFRY, State College, N. M. 260 meters. 50 watts. New Mexico College of Agriculture and Mechanic Arts.

KFRZ, Hartington, Neb. 222 meters. 15 watts. The Electric Shop. Announcer, P. M. Thies. Daily ex Sun, 11:55 am, news, markets; 1:15-5:15 pm, entertainment. Sun, 12-1:30 pm, entertainment. Central.

KFSD, Los Angeles, Calif. 275 meters. 500 watts. Angeles Temple. Tues, Thurs, Fri, Sat, 3:30-4:30 pm. Tues, 6:30-7:30 pm. Wed, 2:30-4:30 pm; 6:30-



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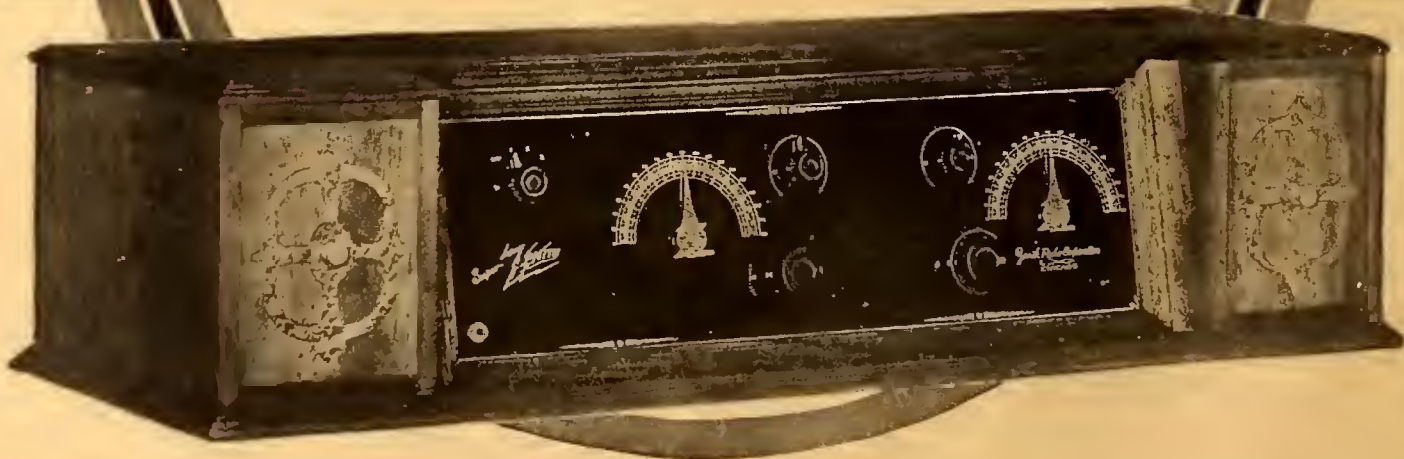
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