SCRAMBLED SPEECH IS POLICE RADIO NECESSITY

Radio Questions Answered

Set Is Not Harmed by Operation Without Ground—Howling in Receiver Explained.

Grounds, Lightning Arresters

Radio Editor, Buffalo Evening News:

I have a Zenette model, 25 cycle, receiver. When my aerial and ground wires are attached I get only locals. When the ground wire is disconnected distant stations come in very clearly. If the ground is disconnected will it harm the set in any way?

Buffalo. S. K.

A radio receiver is usually more stable when the ground connection is on, but a little loss in stability usually gives just enough regeneration to make a set more sensitive. Many receivers work as well or better without a ground.

It will do no harm to operate the set in this manner. Underwriters' regulations, however, provide that if an outside antenna is used there should be a lightning arrester on the antenna lead-in and one side of the lightning arrester must, of course, be grounded.

Eliminating the Howl

Radio Editor, Buffalo Evening News:

I have a seven-tube all-electric receiver. I cannot get out-of-town stations loud enough. The wire leading to the set is 55 feet. About 20 feet pass under the house to my radio set from the aerial. When I disconnect my ground wire I get more out-of-town stations but not clear and loud enough. The set starts howling like a motorboat when I turn on the current.

Buffalo. J. M.

Howling when a set is first turned on is usually the result of tubes in the audio end heating faster than the detector tube. It may also be caused by tubes that are too old and do not emit enough electrons. The newer types of 227 and 224 tubes have faster heating filaments than previous models. These tend to minimize or eliminate the starting howl.

It may be advisable for you to have all of your tubes tested, since poor tubes are often the cause of low signal strength. You should have the tubes tested by any reliable dealer. If the volume is still low after your tubes have been tested you may find it necessary to install a longer or higher antenna.

Improving a Super

Radio Editor, Buffalo Evening News:

I have an eight-tube super, the first tube of which is untuned and does not amplify, but merely acts as a collector of energy. I would like to pep this set up a bit. Would a two-tuned circuit pep it up and enable it to tune a bit sharper if placed in the antenna circuit?

We are troubled with repeats on the dial which make some stations come in mushy. W. R.

The use of a tuned circuit such as described by you undoubtedly will give you better selectivity and, if completely substituted for the untuned circuit in your receiver, may give you somewhat greater sensitivity. The danger involved with this arrangement is that the set may not be stable, and you may be troubled with oscillations.

Repeat points and image interference in a superheterodyne must not be confused with ordinary cross talk resulting from partial detection by 224 type tubes which are supposed to act only as amplifiers. I do not think that 235 type tubes in the intermediate frequency amplifier will greatly clear up this trouble. However, true cross talk on the initial tube of the set should be greatly reduced or eliminated if a sufficiently selective input circuit is used.

Mexican Stations

Radio Editor, Buffalo Evening News:

After WBEN signed off Sept. 7 I received reception with considerable volume entirely in Spanish. It came in slightly below your station dial reading. It appeared that this reception came from Mexico City, although I may be in error. Can you identify this station?

Mansfield, O. F. E. H.

It is difficult to identify stations with Spanish programs unless the call letters are heard, since such programs come from Porto Rico, Cuba and Mexico.

There are, however, three stations with a frequency assignment of 890 kilocycles. They are: XES, Tampico, Tams., Mexico; CMX, Havana, Cuba, and WKAQ, San Juan, P. R. The latter two are heard frequently in this locality.

Inversion of Frequencies Would Insure Secrecy in Messages.

By DR. L. GRANT HECTOR

Radio Editor of the Buffalo Evening News.

By its very nature, radio transmission is chiefly adaptable to broadcasting information as compared to sending it from point to point. Yet there are times and purposes for which secrecy are desirable or even necessary.

During periods of war, messages are sent in code so that those who are not meant to hear will at least have difficulty in understanding. Such a scheme in hardly practicable for many commercial purposes, as for instance the trans-Atlantic telephone. Nor would it be entirely suitable for transmissions to roving police cars. Yet it is highly undesirable to have one's private conversations across the ocean picked up by the casual listener, or the police instructions by those whom the police are endeavoring to capture.

Radio engineers have solved this problem for the radio link in the telephone system by devising what is known as scrambled speech. This speech has been demonstrated in public exhibitions, and any one lucky enough to hear a performance is readily convinced as to the success of the engineers in making ordinary speech unintelligible.

Many more or less related schemes for scrambling the sounds that enter a microphone have been devised, but perhaps the simplest is the one that depends on frequency conversion, where the low tones are made high and high tones become low. Music played through such a system retains its rhythm, and can sometimes be recognized by this characteristic, but the element of melody is quite lost.

Inversion of frequencies is a simple process. When voice currents from a microphone are fed into the modulator of a regular broadcasting station, two sets of high frequencies, called side bands, are created. The upper side band contains frequencies in the same order as those in the microphone, although they are displaced from the original values of 100 to 5000 in the microphone to 900,100 to 905,000 (if the station carrier happens to be 900,000.) The lower sideband, however, has the order of these frequencies inverted.

No frequency inversion is left after the signal has passed through an ordinary radio receiver. However, if one group of sideband frequencies were filtered from the carrier and the other sideband, and beat against a new carrier, scrambled speech could be produced.

In the above case we may suppose the upper sideband to be passed through a modulater with a current of frequency 905,100. The note which originally had a frequency of 5000 would come out as a low note with frequency of 100. Similarly the low note of frequency 100 would have the high frequency of 5000.

It is obvious that this process can readily work in either direction so that the scrambling and unscrambling are equally easy. It would be possible for a meddlesome listener to build a receiver with a local oscillator that would enable him to unscramble the garbled signals of the trans-Atlantic telephone, but the trouble involved seems to be a sufficient deterrent so that more complicated schemes for scrambling are unnecessary.

It is probable that some such scheme will eventually have to be employed in police radio systems if they are to reach their maximum of usefulness. In New York city the work of the police has been greatly hampered by thrill hunters. Such persons listen on a short wave receiver for messages to police scout cars, and then hasten to the scene of the accident or crime. The number of people engaging in this pastime has been great enough at times to constitute a serious handicap to the police.

It is also apparent that with highly organized crime, the criminal will listen to police messages which are only intended for those pursuing him. The solution for this difficulty would be to employ a speech scrambler at the transmitter, with special unscrambling receivers in the police cars. It might be necessary to employ a system more complicated than simple inversion of frequencies, but both transmitter and receiver would function automatically.

The addition of this element of secrecy to police radio systems is probably only a matter of time.

Radio Guild Observes 4th Air Anniversary

Rounding into its fourth year of dramatic radio success under the guiding hand of Vernon Radcliffe, NBC production man, the Radio Guild opens the 1931-32 season over a nation-wide NBC-WJZ network on Friday, Oct. 9, with a total of 32 plays scheduled.

This outstanding educational feature of radioland has a history unique in broadcasting. It was introduced in the spring of 1929 by Radcliffe and was known at that time as the Melodrama hour. Initially it attracted little attention, but Radcliffe shaped great plays to the new purpose. He introduced excellent radio dramatic personalities. And success dawned.

City Asks 19,500 Music Study Hour Notebooks

A total of 19,500 NBC Music Appreciation Hour student note books, the largest single city request yet received by NBC, has been filled for every student in the Dallas, Tex., grade and junior high schools, according to Ernest La Prade, assistant to Dr. Walter Damrosch, conductor of the series which begins Friday, Oct. 9.

La Prade declared the request indicative of growth of interest in the Music Appreciation Hour, to be heard each Friday, from 11 A. M. to 12 noon, over combined coast-to-coast NBC networks. Last year, he said, the Dallas public schools asked for 12,000 copies of the student note books.

Seth Parker's Father Plans Lecture Series

Dr. Albert J. Lord, pastor of the First Congregational church of Meriden, Conn., soon will deliver a series of lectures throughout New England dealing with the activities of his son, Phillips H. Lord, known to millions of National Broadcasting company listeners as the creator of "Seth Parker" and the Jonesport neighbors.

News of the DX Club

At the first meeting of the Buffalo Evening News DX club Oct. 7 the following officers were elected: President, Mr. Foster; first vice president, Mr. Lamb; second vice president, Mr. Leopold; secretary-treasurer, Mrs. M. L. Ellis.

Committees are: Verification, Lester Leopold, George Burnette and Robert Miller; entertainment, Miss Deinhart, Mr. Shapleigh, Mrs. Kehr and Mr. Senn; broadcast and program, Mr. Foster, Mr. Brauner, Mr. Schreiber, Mr. Fisher, Mr. Summers, Mr. Lamb and Mrs. Ellis; reception, Robert Miller and Mr. Fisher; executive, Mr. Bame, Mr. Coburn, Mr. Dubke, Mr. Johnston and Mr. Lamb.

From Mr. Brauner, KWEA, Shreveport, La., every Sunday this month between 4 and 6 A. M., E. S. T.

From Mr. DeRosa, WDZ on 1070 kilo, using 100 watts, on Sunday morning, Oct. 18, from 2 and 3 A. M., E. S. T. WDZ is a daytime station and has never been on the air after 6 P. M.

DX hunters may be interested in the following programs:

Saturday, Oct. 10.

WTAW, College Station, Texas, 1120 kilocycles, 500 watts, from 4 to 5 A. M.

Saturday, Oct. 17.

2YA, Wellington, New Zealand, 720 kilocycles, 5000 watts, from 5 to 6:30 A. M.

Sunday, Oct. 18.

KGCZ, Wolf Point, Mont., 1310 kilocycles, 100 watts, from midnight to 3 A. M. Special prizes for the most distant point will be given.

Today's Programs

(Broadcasters frequently change these programs without notice.)

(N.) Nat'l. Broadcasting Co.
(C.) Col. Broadcasting Co.

Figures to the left show kilocycles; to right meters.

900, Buffalo, WBEN, 333

P. M.
12:00—Black-Gold Orch. (N)
12:15—Stocks; Items
12:30—WBEN Farm Service
1:00—Statler Concert Duo
1:30—Palais D'or or. (N)
2:00—Jack and Loretta
2:15—World Series (N)
4:30—Football Final (N)
5:00—Lady Next Door (N)
5:30—Boy Explorer
5:45—Parnassus Trio (N)
5:55—Grape Reports
6:00—Veterans' Service
6:10—News Flashes
6:15—Comedy Team
6:30—Sports Shorts
6:45—Triolettes & Twins
7:00—Lee Morse (N)
7:15—The Moratorium (N)
7:30—Souvenirs (N)
7:45—Goldbergs (N)
8:00—Civic Concerts (N)
8:30—Shea's Buffalo Orc
9:00—General Electric (N)
9:30—Club Valspar (N)
10:00—Lucky Strike (N)
11:00—News; Weather
11:05—Jack and Loretta
11:15—Dance Orchestra
11:30—WJS-WNBC (N)
12:00—Rudy Vallee Or. (N)
12:30—Lopez orch. (N)

536, Buffalo, WGR, 545

P. M.
12:15—Don Bigelow or. (C)
12:30—St. George or. (C)
1:30—Atlantic City (C)
1:50—Studio
1:55—Atlantic City (C)
2:00—Football Songs (C)
2:15—World Series (N)
4:30—No Dame-N. West (C)
5:30—Casino Orch. (C)
5:55—Reports
6:20—Religious calendar
6:23—Anthony Trini or. (C)
6:30—Happy Home Village
6:45—Sport
7:00—Bing Crosby (C)
7:15—Frederic Wile (C)
7:30—With Uncle Sam
7:45—Camel (C)
8:00—Pryor's band (C)
8:15—Sterling (C)
8:30—Kate Smith (C)
8:45—Gloom Chasers (C)
9:00—Chronicles
9:30—Forum (C)
10:01—Family Across Street
10:15—Hawaiian Trio
10:30—Chatterbox
10:45—Garden of Melody
10:57—Religious calendar
11:00—Dance Orchestra
11:31—Dance Orchestra

1310, Buffalo, WEBR, 229

P. M.
12:00—Over the Waves
12:15—Rose Petals
12:30—Health Talk
12:45—Man About Town
1:30—The Hostess
2:00—Between the Acts
2:30—Philosophy of Life
3:00—Studio Program
3:15—Over the Waves
3:30—L'Apres Midi
4:00—Olive and Art
4:30—Polish Program
4:45—Studio
5:00—Studio
5:30—Fortunes
6:00—Over the Waves
6:15—Hungary Hillies
6:30—Orchestra
7:00—Pianist
7:15—Zomar
7:30—Items of Interest
8:00—Eventide Thoughts
8:30—Sod Busters
9:00—Ruth and Hazel
9:15—Birmingham Songs
9:30—Amateur Night
10:30—WEBR Birthday
11:00—Dance orchestra

1480, Buffalo, WKBW, 202

P. M.
12:00—Don Bigelow or. (C)
5:45—Tropic-Aires (C)
6:00—Happiness
6:30—Religious calendar
6:30—Jack Smith (C)
6:45—Bird & Vash (C)
7:00—Beau: Art Trio
7:15—Let's Dance
7:30—Hungry Five
7:40—Hollywood Shots
7:45—Success Interview
7:50—Pianist
8:00—Organ hour
8:30—Chiropractic conv.
10:00—Showboat (C)
11:00—Jack Miller (C)
11:20—Religious calendar
11:23—Dance orchestra
11:45—Huston Ray or. (C)
12:00—Lombardo or. (C)
12:30—Ann Leaf (C)

1040, Buffalo, WMAK, 288

P. M.
12:00—Dance program
1:00—Studio
2:00—Light Opera Gems
2:30—Song and Dance
3:00—Saturday matinee
3:30—With the Classics
4:00—World Bookman
4:30—Tea Time Tunes
5:00—Birthday club
5:30—Dancing Melodies
5:45—Grape reports
6:00—Anthony Trini or. (C)
6:30—Cedarville Center

1370, Buffalo, WSVS, 219

P. M.
Football.
12:00—Bennett-Riverside
1:30—East-Technical
3:00—South Park-Hutch

690, Toronto, CKGW, 435

P. M.
12:35—Farm Products
1:15—Henry Tobias or. (N)
2:00—Afternoon Ensemble
2:15—Program
5:00—Colorado Cowb'ys (N)
6:00—Waldorf orch. (N)
8:31—Dinner Music
7:00—Amos 'n' Andy (N)
7:15—Dinner Music
8:00—"Ten, Twenty" (N)
8:30—D'Orsay (N)
9:00—Mattio Grosso (N)
9:15—Careless Love (N)
9:30—Club Valspar (N)
10:00—Cuckoo (N)

1150, Rochester, WHAM, 260

P. M.
12:10—Agricultural Forum
12:15—Pat Barnes (N)
12:30—Farm and Home (N)
1:30—Reports
1:45—Midday Musicale (N)
2:00—Recital (N)
2:15—World Series
4:30—Princeton-Brown. (N)
5:00—Colorado Cowboys (N)
5:15—Singers
5:30—Police News; Items
5:45—Orphan Annie (N)
6:00—Raising Junior (N)
6:15—Circus Parade (N)
6:30—Orchestra
6:45—Lowell Thomas (N)
7:00—Amos 'n' Andy (N)
7:15—Jesters (N)
7:30—Orchestra
7:45—Lover (N)
8:00—Ten, Twenty (N)
8:30—D'Orsay (N)
9:00—Careless Love (N)
9:30—First Nighter (N)
10:00—Cuckoo (N)
10:30—Clara, Lu & Em (N)
10:45—Program
11:00—Cavaliers

1070, Cleveland, WTAM, 280.

P. M.
12:00—Black & Gold Or. (N)
12:30—Dance Orchestra
1:10—Organ Melodies
1:30—Henry Tobias or. (N)
2:00—WTAM Players
2:15—World Series
4:30—N. West-N. Dame (N)
5:30—Organ Processional
6:05—Meditation
6:15—Concerto
6:30—Mexican Orch. (N)
7:00—Lee Morse (N)
7:15—Viennese Ensemble
7:30—Souvenirs (N)
7:45—Goldbergs (N)
8:00—Civic Concerts (N)
8:30—Musical program
9:00—General Electric (N)
9:30—Club Valspar (N)
10:00—Lucky Strike (N)
11:00—Guest Hour
12:00—Musical Bulletin
12:15—Midnight Melodies
12:30—Dance orchestra

KDKA, Pitts.—Messages; Jay Boys.
WGY, Schen.—WIS-WNBC Dedication (N).

11 P. M.
WGN, Chi.—Dance orchestras.
WLW, Cin.—Dance orchestras.
WEAF, N. Y.—Vallee or.; Lopez orch.
WABC, N. Y.—Lombardo orch.; organ.
WJZ, N. Y.—Quarter; Whiteman orchestra.
WCAU, Phil.—Lombardo orch.; organ (N).
WGY, Schen.—Vallee or. (N); Dance orch.

1 A. M.
WGN, Chi.—Dance music.
WABC, N. Y.—Nichols or.; Abrams' or.

Programs are listed on the hour. When there is a division by means of a seicolon it designates a change in the quarter or half hour.

6 P. M.
WGN, Chi.—Studio; Orphan Annie.
WLW, Cin.—Children's prog.; Digest (N).
WOR, Newark—Uncle Don; Ensemole.
WEAF, N. Y.—Waldorf or.; Mexican or. (N).
WABC, N. Y.—Trini orch.; Bird & Vash.
WJZ, N. Y.—Raising Junior; Digest.
WCAU, Phil.—Studio; Penn trio.
KDKA, Pitts.—Band; Literary Digest (N).
WGY, Schen.—Waldorf orch. (N); Drama.

7 P. M.
WGN, Chi.—Singing Lady; The Gumps.
WLW, Cin.—Amos-Andy (N); Theater.
WOR, Newark—Reminiscences; organ.
WEAF, N. Y.—Lee Morse; Goldbergs.
WJZ, N. Y.—Amos-Andy; Great Lover.
WABC, N. Y.—Bing Crosby; Camel (C).
WCAU, Phil.—Bing Crosby; Camel (C).
KDKA, Pitts.—Amos-Andy; Lover (N).
WGY, Schen.—Pianist; Goldbergs (N).

8 P. M.
WPG, Atl. City—Pryor band (C); Studio.
WGN, Chi.—Hungry Five; Symphony.
WLW, Cin.—Sat. Knights; O'Orsay (N).
WOR, Newark—Little Symphony orchestra.
WEAF, N. Y.—Civic concert; Cilver Flute.
WJZ, N. Y.—Ten, Twent'; D'Orsay.
WABC, N. Y.—Pryor band; Gloom Chasers
KDKA, Pitts.—Ten.Twent'; D'Orsay (N).
WCAU, Phil.—Pryor band; Gloom (C).
WGY, Schen.—Civ. concert; Silver Flute (N)

9 P. M.
WPG., Atl. City—Boswell Sisters; Forum (C)
WGN, Chi.—Drama; March Interlude.
WLW, Cin.—Band; First Nighter (N).
WOR, Newark—Allan Broms; Dance orch.
WEAF, N. Y.—G. E.; Club Valspar (N).
WJZ, N. Y.—Careless Love; First Nighter, (N)
WABC, N. Y.—Boswell Sisters; Forum.
KDKA, Pitts.—Chronicles; First Nighter (N)
WGY, Schen.—G. E.; Club Valspar (N).

10 P. M.
WPG, Atl City—Simmons' Showboat (C).
WGN, Chi.—Dance orch.; Dream Ship.
WLW, Cin.—Jim & Walt; Sports.
WOR, Newark—Show; Globe Trotter.
WEAF—Lucky Strike orchestra.
WJZ, N. Y.—Cuckoo; Benrus.
WABC, N. Y.—Simmons' Showboat.
KDKA, Pitts.—KDKAvaliers; program.
WGY, Schen.—Lucky Strike orchestra (N).

11 P. M.
WPG, Atl. City—Jack Miller; St. Moritz (C)
WGN, Chi.—Tribune; dance rchestra.
WLW, Cin.—Los Amigos; Doodlesockers.
WOR, Newark—Dance orchestras.
WJZ, N. Y.—Slumber music; Lew White.
WEAF, N. Y.—WIS-WNIC Dedication.
WABC, N. Y.—Jack Miller; St. Moritz or.
WCAU, Phil.—Jack Miller; St. Moritz (C).

Belle Baker Pays Fine Tribute to Late Husband

When Belle Baker, stage star, sang "Now That You Are Gone," in memory of her late husband, Morris Abrams, composer-musician, during a recent Nestle's program, even control engineers commented on her performance. When Miss Baker finished she stepped outside the studio, wept for a few moments, braced up, returned for her next selection, and "the show went on."

ON THE AIR AT A GLANCE

SATURDAY

◆Denotes station on the air at or within the hour indicated tonight.

Stations	Kilocycles	6	7	8	9	10	11	12	1
		P.M.						A.M.	
WSB	Atlanta 740	◆	◆	◆	◆	◆	◆	◆	
WPG	At'atic City 1100				◆	◆	◆	◆	
WBAL	Baltimore 1160	◆	◆	◆	◆	◆	◆		
WBT	Charlotte 1080	◆	◆	◆	◆	◆	◆		
WGN	Chicago 1080	◆	◆	◆	◆	◆	◆	◆	◆
WLW	Cincinnati 700	◆	◆	◆	◆	◆	◆	◆	
WTAM	Cleveland 1080	◆	◆	◆	◆	◆	◆	◆	
WJR	Detroit 750	◆	◆	◆	◆	◆	◆	◆	◆
WTIC	Hartford 560	◆	◆	◆	◆	◆	◆	◆	
KFI	Los Angeles 640					◆	◆	◆	◆
WHAS	Louisville 820	◆	◆	◆	◆	◆	◆	◆	
WCCO	Min'apolis 810	◆	◆	◆	◆	◆	◆	◆	◆
WSM	Nashville 650	◆	◆	◆	◆	◆	◆	◆	
WOR	Newark 710	◆	◆	◆	◆	◆	◆		
WEAF	New York 660	◆	◆	◆	◆	◆	◆	◆	
WABC	New York 850	◆	◆	◆	◆	◆	◆	◆	◆
WJZ	New York 760	◆	◆	◆	◆	◆	◆	◆	
WCAU	Ph'd'lphia 1170	◆	◆	◆	◆	◆	◆	◆	
KDKA	Pitts'b'rgh 980	◆	◆	◆	◆	◆	◆	◆	
WRVA	Richmond 1110	◆	◆	◆	◆	◆	◆	◆	
WHAM	Roch'ter 1150	◆	◆	◆	◆	◆	◆	◆	
WGY	Sch'nect'dy 790	◆	◆	◆	◆	◆	◆	◆	
WBZ	Springfield 990	◆	◆	◆	◆	◆	◆	◆	
CFCA	Toronto 840	◆		◆	◆				
CFRB	Toronto 960	◆	◆	◆	◆	◆	◆		

WBEN

900 Kilocycles

333.1 Meters

SATURDAY

Ex-Secretary of State Speaks

Bainbridge Colby, cabinet member under Woodrow Wilson, will discuss the "War Debt Moratorium" at 7:15 P. M. Entering the cabinet in 1920, Mr. Colby was closely associated with international war debt problems following the World War.

WBEN Program

Saturday

2:15—World Series Game. (NBC)
4:30—Final minutes of Northwestern-Notre Dame football game, from Soldiers Field, Chicago. (NBC)
5:00—Lady Next Door (NBC)
5:30—Boy Explorer.
5:45—Parnassus Trio. (NBC)
6:00—Bulova time; Veterans' Service—"Veterans Mountain Camp"—Deputy Attorney General James P. Cotter, past county commander, American Legion.
6:10—News flashes.
6:15—Bundy and Conlisk, comedy team.
6:30—Sports Shorts.
6:45—Triolettes and Banjo Twins.
7:00—Lee Morse, crooner. (NBC)
7:15—"The Moratorium" —Bainbridge Colby. (NBC)
7:30—Souvenirs (NBC)
7:45—Trials of the Goldbergs. (NBC)
8:00—Civic Concerts. (NBC)
8:30—Shea's Buffalo Orchestra.
9:00—General Electric Hour.
9:30—Club Valspar. (NBC)
10:00—B. A. Rolfe and his Lucky Strike Dance Orchestra. (NBC)
11:00 — Bulova time: News flashes: Iroquois Gas weather report.
11:05—Jack and Loretta.
11:15—Club Mirna.
11:30—Dedication Program, Stations WIS and WWNC. (NBC)
12:00—Rudy Vallee and his Connecticut Yankees. (NBC).
12:30—Vincent Lopez and his orchestra (NBC)
1:00—Bulova time.

Sunday

9:00—Balladeers. (NBC)
9:30—Mary Eaton, violinist. (NBC)
9:45—Walter Mills, baritone. (NBC)
10:00—Southland Sketches. (NBC)
10:30—Troika Bells. (NBC)
10:45—Symphonic Concert, by M. Cantor.
11:00—Bulova time; Trinity Episcopal Church Service.
12:00—Bulova time; Iroquois Gas weather report; Donna Clark Hughey at Shea's Organ.
12:15—Jan Wolanek, violinist and Beth Bowman, pianist at Shea's Buffalo.
12:30—Biblical Drama. (NBC)
1:00—NBC Artists Service.
1:15—"Memories" — with Edmund Breese—presented by Meng and Shafer, Inc.
1:30—Carveth Wells, explorer. (NBC)
1:45—American Singers. (NBC)
2:15—Sunday Bright Spot. (NBC)
2:30—Black Diamonds, presented by Kaiser-Barnett Coal and Coke Corp.
3:00—Wyne King's Orchestra. (NBC)
3:30—Wonder Program. (NBC)
4:00—National Sunday Forum. (NBC)
5:00—Western New York Finals in Atwater Kent audition.
6:00—Catholic Hour. (NBC)
7:00—A Night in Paris, presented by Louis Philippe.
7:15—Bond Beau Brummels, presented by Bond Clothing Company.
7:30—Iodent Club of the Air. (NBC)
8:00—Chase and Sanborn Orchestra. (NBC)
9:00—Bulova time; David Lawrence—Our Government. (NBC)
9:15—American Album of Familiar Music. (NBC).
9:45—Through an Opera Glass. (NBC)
10:15—Ted Weems' Best Sellers. (NBC)
10:45—Sunday at Seth Parker's. (NBC)
11:15—News Flashes; Iroquois Gas report; Heart of Home Hour.
12:00—Bulova time.

SUNDAY

First of Early Sunday Concerts

Coincident with the inauguration of early Sunday broadcasting over WBEN is the first in a new series of orchestra programs auspicated by M. Cantor, to be heard weekly from 10:45 to 11:00 A. M.

Young Singers Will Compete

in the next step toward national recognition in the Atwater Kent audition, at 5:00 P. M. Buffalo's representatives will contend with winners from other cities and towns in the western New York district.

Gus Haenschen Featured

The popular NBC maestro and his orchestra will present "The American Album of Familiar Music," which opens before the mic for the first time at 9:15 P. M. Bayer company, Inc., sponsors the series.

SATURDAY'S FEATURES

WBEN (WEAF chain), 2:15 P. M.—World Series.

WBEN (WEAF chain), 4:30 P. M.—Notre Dame game.

WBEN (local), 6 P. M.—Veterans' service program.

WBEN (local), 6:30 P. M.—Sport Shorts; news, comments.

WBEN (WEAF chain), 7 P. M.—Lee Morse; blues crooner.

CKGW (WJZ chain), 7 P. M.—Amos 'n' Andy; humorous sketch.

WBEN (WEAF chain), 7:45 P. M.—The Goldbergs; comedy sketch.

WGR (WABC chain), 8 P. M.—Concert by Pryor's band.

WBEN (local), 8:30 P. M.—Shea's Buffalo theater program.

WBEN (WEAF chain), 9 P. M.—General Electric band; instrumental.

WKBW (WABC chain), 10 P. M.—Show Boat; drama.

WBEN (WEAF chain), 10 P. M.—Rolfe's orchestra; Weber and Fields.

WKBW (WABC chain), 11 P. M.—Jack Miller, singer.

WBEN (WEAF chain), 12 midnight—Rudy Vallee's orchestra.

Sunday's Programs

(Broadcasters frequently change these programs without notice.)

(N.) Nat'l. Broadcasting Co.
(C.) Col. Broadcasting Co.

Figures to the left show kilocycles; to right meters.

900, Buffalo, WBEN, 333

A. M.
9:00—Balladeers (N)
9:30—Mary Eaton (N)
9:45—Walter Mills (N)
10:00—South Sketch (N)
10:30—Troika Bells (N)
10:45—Symphonic concert
11:00—Trinity Epis. Ch'rch

P. M.
12:00—Shea's organ
12:15—Violinist; pianist
12:30—Biblical drama (N)
1:00—Artist Recital (N)
1:15—"Memories"
1:30—Carveth Wells (N)
1:45—Amer. Singers (N)
2:15—Bright Spot (N)
2:30—Black Diamonds
3:00—Wayne King or. (N)
3:30—Wonder prog. (N)
4:00—Sunday Forum (N)
5:00—At. Kent Audition
6:00—Catholic hour (N)
7:00—A Night in Paris
7:15—Beau Brummels
7:30—Iodent club (N)
8:00—Chase & S'born (N)
9:00—Our Gov'nment (N)
9:15—Amer. Music (N)
9:45—Opera Glass (N)
10:15—Best Sellers (N)
10:45—Seth Parker (N)
11:15—Items; Heart of Home

550, Buffalo, WGR, 545.

A. M.
9:00—Morning tunes
9:45—Watch Tower
10:00—Rev. H. J. Hahn
10:15—Boy Choristers
10:45—Westminster church

P. M.
12:00—St. Louis Voice (C)
12:30—Int. broadcast (C)
1:00—Cathedral hour (C)
2:00—Sons of Eli (C)
2:30—Violinist; pianist
2:45—Garden of Melody
3:30—Old Lace & Lavender
3:45—Lady Fingers
4:00—Rev. Chas. Coughlin
5:00—Dr. Barnhouse (C)
5:30—Blue Coal Revue (C)
6:30—Orchestra
7:00—Dr. Julius Klein (C)
7:15—Charlie & Oscar (C)
7:30—Fray & Braggiotti (C)
7:45—Theo Karle (C)
8:00—Dr. Haggard (C)
8:15—Music Along Wires (C)
8:45—Angelo Patri (C)
9:00—Dutch Masters (C)
9:30—Sen Romances (C)
10:00—White Crescent
10:30—String Quartet

1310, Buffalo, WEBR, 229

A. M.
10:30—First Baptist church

P. M.
12:00—International hour
1:00—Studio
1:30—Stompers
2:00—History Flashlights
2:30—Studio
3:00—Bandollers
4:00—Accordionist
4:30—Polish programs
6:30—Studio
7:00—Farm department
7:15—Studio
7:30—Artists' Bureau
8:00—The New Yorkers
8:30—Hungary Highlights
9:00—Am. Legion talk
9:15—Organist
9:45—Chamber music
10:30—Aloha Land
11:00—Old Timers
11:30—Serenaders
12:00—Dance orchestra

1480, Buffalo, WKBW, 202.

A. M.
9:30—Good Shepherd rb.
10:45—Churchill tabernacle

P. M.
12:30—Organ recital
1:30—Studio
2:00—Trio; baritone
2:30—Church of Air (C)
3:00—N. Y. Symphony (C)
5:00—Musical Pot Pourri
5:45—Banjo Ramblers
6:30—Biblical Highlights
6:45—Pianist
6:55—Success Interview
7:00—Churchill tabernacle
10:00—Ernest Hutcheson (C)
10:30—Gauchos (C)
11:00—String quartet (C)
11:30—Red Nichols' or. (C)
12:00—Eddie Duchin or. (C)
12:30—Ann Leaf (C)

1040, Buffalo, WMAK, 288.

P. M.
12:30—Polish program.

690, Toronto, CKGW, 435

A. M.
11:00—St. Michael's Mass

P. M.
12:30—Recessional
1:00—Great Composers
1:45—Amer. Singers (N)
2:00—Bright Spots (N)
2:30—Program
3:00—Bible Class
4:00—Sunday Forum (N)
4:30—Showmen (N)
5:00—Cheerio Club
7:00—Anglican Church
8:00—Enna Jettick (N)
8:15—Chase & Sanborn (N)
9:00—Contralto
9:15—Trio
10:15—St. Mary's Choir
10:45—Seth Parker (N)

1150, Rochester, WHAM, 260

A. M.
9:30—Daddy Puck
10:00—Mexican orch. (N)
10:30—Baptist church

P. M.
12:00—Musicale (N)
12:30—Organ (N)
1:00—Cathedral hour
2:00—Down Melody Lane
2:30—Yeast Foamers (N)
3:00—Musicians' Union
3:30—Rochester orch.
4:00—Travel Talk
4:30—Showmen (N)
5:00—National Vespers
6:00—Raising Junior (N)
6:15—Veronica Wiggins (N)
6:30—Forum
6:45—Piano Reverie
7:00—Studio Recital
7:15—Jolly Time (N)
7:30—Three Bakers (N)
8:00—Enna Jettick (N)
8:15—Colliers (N)
9:15—Balladeers
9:30—Medical Talk
9:45—Kellogg (N)
10:15—Land of Fear (N)
10:30—Harbor Lights (N)

1070, Cleveland, WTAM, 280

A. M.
7:00—Morning Processional
8:00—Melody Hour (N)
9:00—Balladeers (N)
9:30—Mary Eaton (N)
9:45—Walter Mills (N)
10:00—South Sketch (N)
10:30—Harpist
10:45—Reveries
11:00—Neapolitan Days (N)
11:30—Emerald Isle (N)

P. M.
12:00—Sparklets (N)
12:15—Orient Echoes (N)
12:30—Organ; contralto
1:00—Artist Service (N)
1:15—Pop Concert (N)
2:15—Bright Spot (N)
2:30—Honeysuckle (N)
3:00—Wayne King Or. (N)
3:30—Wonder Prog. (N)
4:00—Ensemble; tenor
4:30—Choir Invisible
5:00—Int. broadcast (N)
6:00—Musical Comedy
6:30—Furriers
7:01—Gene and Glenn
7:30—Iodent Club (N)
8:00—Chase & Sanborn (N)
9:00—Tavern Tales
9:15—Amer. Music (N)
9:45—Opera Glass (N)
10:15—Best Sellers (N)
10:45—Seth Parker (N)
11:15—Musical Bulletin
11:30—Dance Orchestra
12:00—Midnight Melodies
12:30—Henry Tobias or. (N)

Programs are listed on the hour. When there is a division by means of a semicolon it designates a change at the quarter or half hour.

9 A. M.
WLW, Cin.—Forum; Children's hour (N).
WABC, N. Y.—Children's playlet.
WJZ, N. Y.—Children's hour.
WABC, N. Y.—Children's playet.
WGY, Schen.—Balladeers; baritone (N).

10 A. M.
WLW, Cin.—Organ; Today's Song (N).
WEAF, N. Y.—South sketch; Troika Bells.
WJZ, N. Y.—Mexican or.; Song for Today.
WABC, N.Y.—Church of the Air; Harmonies.
WGY, Schen.—South sketch; Troika (N)

11 A. M.
WLW, Cin.—String quartet; musitale (N).
WEAF, N. Y.—Neo. Days; Emerald Isle.
WJZ, N. Y.—Russian Singers; musicale.
WABC, N.Y.—Children's hour.
KDKA, Pitts.—Church service.
WGY, Schen.—Church service.

12 M.
WLW, Cin.—Musicale; Organ (N)
WEAF, N. Y.—Sparklets; Biblical drama.
WJZ, N. Y.—Musicale; organ
WABC, N. Y.—St. Louis Voice; Pommer.
KDKA, Pitts.—Jewish Art; organ.
WGY, Schen.—Sparklets; Biblical (N).

1 P. M.
WLW, Cin.—Dance or. Matinee Jewels.
WEAF, N. Y.—Artistic Am. Singers.
WJZ, N. Y.—Over Jordan; Interlude.
WABC, N. Y.—Cathedral hour.
KDKA, Pitts.—Over Jordan (N); Allegheny
WGY, Schen.—Artistic; singers (N).

2 P. M.
WLW, Cin.—Theater; Foamers (N).
WEAF, N. Y.—Am. Singers; Honeysuckle.
WABC, N. Y.—Sons of Eli; Church of Air.
WJZ, N. Y.—Interlude; Foamers.
KDKA, Pitts.—Interlude; Foamers (N).
WGY, Schen.—Am. Singers (N); recital.

3 P. M.
WLW, Cin.—Serenaders; Vox Celeste.
WEAF, N. Y.—King orch.; Wonder program.
WJZ, N. Y.—Friendly hour
WABC, N. Y.—N. Y. Symphony orchestra.
KDKA, Pitts.—Friendly hour (N).
WGY, Schen.—King orch.; Wonder (N).

4 P. M.
WLW, Cin.—League of Little Flower.
WEAF, N. Y.—Sunday Forum.
WJZ, N. Y.—Melodies de France; Showmen.
WABC, N. Y.—N. Y. Symphony orchestra.
KDKA, Pitts.—de France; Showmen (N).
WGY, Schen.—Sunday Forum (N).

5 P. M.
WLW, Cin.—Studio; Roamios.
WEAF, N. Y.—Int. Broadcast.
WJZ, N. Y.—Sabbath Reveries.
WABC, N. Y.—Dr. Barnhouse; Blue Coal.
KDKA, Pitts.—