

*Hearings Will be Followed by Forming of Policies.
Broadcast Band May be Widened.—Widespread
Exclusion of Stations Not Contemplated*

mission will acquiesce for the time being at least in the present practice of broadcasters censoring their own programs.

A definite policy foreshadowed is that the Commission will require stations to use frequencies more scrupulously than ever. While the Commissioners are said to hesitate in stipulating that any special control device be used in this connection, inasmuch as there are several on the market, it is said to be their intention to accomplish the same end by insisting upon a minimum deviation, which in effect would require use of some automatic control device.

"We are going to insist that stations stay on their wavelengths," one of the Commissioners commented, "and if they do not, that is the only number one for revoking their license."

These, then, are expected to be the basic policies soon to be enacted with, of course, many readjustments as time goes on.

CRYSTAL CONTROL GIVES CONSTANCY

Device Satisfactory

Quartz Plate Keeps Oscillation Frequency from Varying.—Has to Be Ground Carefully.—Amateurs Warned Against Raising of Plate Potential

BY ALPHA LEARNED.
(Chairman Experimentation Committee, Providence Radio Association, and member Experimental Section, American Radio Relay League).

Radio transmission by means of damped waves, a method known as spark transmission because the apparatus utilized a crashing noisy spark, has been displaced by the newer method called continuous wave transmission, or simply CW. CW was made practical by the discovery that a DeForest

CW transmission is in general much more efficient than spark; that is, greater distance may be covered with the same power, and the tuning is extremely sharp, resulting in less interference and permitting the simultaneous operation of a great number of stations on nearly the same wave length.

Probably the worst one is what is termed swinging, which means a slight change in wave length. Since a telegraphic signal is heard as a whistle or musical tone, a beat note, produced by the interference between two very high—10,000,000 cycles per second perhaps—and nearly equal frequencies, if either of these high frequencies varies in the least, the beat note may rise above audibility, and nothing will be heard. That is why the pitch of a

rapidly heard on a radio changes so drastically when the dial is turned ever so slightly.

At a wave length of 40 metres a variation in frequency of only one-fifth of one per cent. may make the signal vanish completely. It is very important then to keep the oscillation of a transmitting station absolutely constant.

To attain this constancy, crystal control is now in use, but before describing this method it will be well to

The so-called Hartley circuit of Figure 1 has proven itself most popular, simple and satisfactory. However, it has the defect of swinging, the swinging being caused by the antenna swaying in the wind, slight differences in filament or plate voltage or expansion of the vacuum tube electrodes due to heat.

Figure 1.—Harmonics

Figure 2.—Tuned Grid

For the convenience of radio fans, the following hourly schedule of broadcasting today is given in brief form, the complete program being given under the regular listing of announcements. Figures following stations denote wave length.

LOCAL STATIONS

6:45—Church, WJAZ, 307.
7:15a—Concert, WGAN, 297.
7:30—Concert, WCOP, 295.
7:35—Church, WKYC, 363.
8:00—Concert, WJAR, 485.
8:50—Concert, WCCF, 203.
9:45—Radio, WFVW, 441.
9:50—Concert, WJAR, 485.
10:30—Organ, WRAN, 317.
 Concert, WLYN, 422.
7:00—Concert, WBAW, 297.
7:20—Concert, WJAR, 485.
9:15—Church, WKYC, 363.

OUT-OF-TOWN STATIONS

9:00—Children's hour, WJZ, 454.
9:30—Children's school, WLYN, 422.
10:00—Special, WOIT, 340.
Chapel, WOV, 529.
10:20—Church, WYF, 349.
10:25—Church, WMAZ, 385.
10:30—Church, WGTV, 379.
 Sunday School, KPR, 428.
Church, WKRI, 372.
Daniel, WVCY, 529.
10:38—Church, WYF, 349.
10:45—Church, WCOG, 416.
Church, WTP, 662.
Church, WVX, 322.
Church, WRIC, 319.
Church, WEAR, 273.
Church, WTAM, 389.
10:50—Church, WICO, 285.
Church, WDCG, 318.
11:00—Concert, WOIC, 340.
Church, WMAQ, 278.
Church, KDIA, 309.
Church, WJZ, 454.
Church, WRNY, 374.
Church, WLYN, 422.
Church, WRG, 406.
Church, WSAI, 320.
Church, WHAS, 309.
11:15—Church, WMAQ, 447.
11:30—Church, WCOG, 416.
Church, WJZ, 454.
12:00—Church, KYW, 536.
Organ, WHAD, 275.
12:05—Soprano, WEMC, 316.
Hymns, WKYC, 422.
12:20—Sermon, WEMC, 316.
12:30—Talk, WGR, 319.
Music, WKYC, 422.
1:00—Orchestra, WJZ, 454.
Church, KOA, 322.
Church, KNS, 337.
Church, KPT, 467.
Orchestra, WBZ, 333.
Comps., WHAD, 275.
1:30—Orchestra, WRBM, 226.
Music, WYF, 349.
2:00—Church, KPI, 467.
Church, WJZ, 454.
News and his song, KDIA, 309.
KYW, 536; WBZ, 333; WJZ, 454; WRD, 409.
Church, KGO, 361.
Church, WFAE, 492.
Music, WYF, 349.
2:15—Trio, WHAD, 275.
2:30—Sunday school, WVO, 508.
Music, WOV, 529.
2:45—Sermon, WHAR, 276.
3:00—Lecture, WCAU, 278.
Renaissance quartet, WMAQ, 447.
Church, WKRW, 262.
Orchestra, WMSC, 383.
Bible study, WCOG, 416.
Music, WMAK, 303.
Organ, WLYN, 422.
Organ, WYF, 379.
Church, WCO, 484.
Church, WTAM, 389.
Address, WPAF, 302.
3:15—Organ, WPG, 290.
Soprano, WMAZ, 385.
3:30—Orchestra, WMY, 352.
Music, WHAD, 275.
3:45—Chimes, WSAI, 324.
Music, WYF, 349.
4:00—West Point choir, WFAE, 492;
WMAQ, 447; WOC, 483; WSAI,
295; WTAF, 455.
Church, WTCO, 469.
Evensong, WGRS, 316.
Dean, HDS, 340.
Forum, WRNY, 374.
Concert, WCD, 416.
4:15—Trio, WYF, 349.
Dr. S. Parker Cadman, address,
WCPA, 402; WTAF, 455.
WSAI, 326.
Music, WYF, 290.
Orchestra, WYF, 375.
Soprano, WRNT, 374.
4:30—Address, KFUD, 543.
Church, WYF, 349.
Music, WVO, 406.
Lecture, WYF, 349.
4:45—Venues, KDIA, 495.
4:50—Organ, WYF, 475.
Venues, WYF, 470.
Quartet, WMAQ, 278.
Music, WCOG, 416.
Orchestra, WRBM, 226.
Lecture, WYF, 349.
Concert, KNS, 337.
Music, WRNY, 374.
Organ, WYF, 379.
5:10—Church, WCOG, 416.
5:15—Church, WCAU, 278.
Dean, HDS, 340.
5:30—Church, WHAS, 309.
Pianist, WFAE, 492.
Lecture, WYF, 349.
Concert, WLYN, 422.
Music, WMAQ, 447.
Music, KYN, 530.
Venues, WJZ, 454.
5:45—Male, WYF, 349.
6:00—Talk, WCAU, 278.

6:00—Pianist, WCAU, 278.
Orchestra, WHAS, 309.
Music, WRNY, 374.
Concert, WVO, 406.
Organ, WOC, 483.
Venues, WYF, 475.
4:15—Orchestra, WCAU, 278.
6:30—Drama, WFAE, 492.
String quartet, WCOG, 416.
Orchestra, KFO, 350.
Music, WYF, 332.
Organ, WYF, 349.
Orchestra, WBAL, 246.
Orchestra, WTAJ, 389.
6:45—Venues, WVO, 406.
7:00—Band, WYF, 349.
Organ, WBZ, 333.
Church, WYF, 379.
Organ, WYF, 349.
Bible class, "WFAA," 492.
Venues, KGO, 361.
Orchestra, WFAE, 475.
Music, WTAM, 389.
Orchestra, WCAU, 278.
Bible study, WOV, 526.
Organ, WVO, 508.
Church, WKRY, 362.
7:15—Music, WHAP, 431.
7:20—Church, WKYC, 363.
Capitol theatre Family, WTAC,
455; WFAE, 492; WVO, 469;
WBR, 428; WYF, 349; WTAF,
352; WHAS, 309.
Hymns, WMAZ, 385.
7:30—Orchestra, WCAU, 278.
Concert, WVO, 406.
Church, WKYC, 363.
Church, WGT, 379.
Church, WLYN, 422.
Quartet, WJZ, 454.
Organ, KOA, 322.
Church, WYF, 349.
Church, WFG, 290.
Church, WRNY, 374.
Talk, WYF, 349.
Church, WHAR, 275.
Concert, WVO, 406.
Church, KNS, 337.
Church, WGR, 319.
7:50—Church, WYF, 349.
Organ, WBAL, 246.
8:00—Music, WCAU, 278.
Cantata, WBAZ, 356.
Orchestra, WJZ, 454.
Soprano, WLYN, 422.
Music, WMAQ, 447.
Church, WFAE, 389.
Soprano, WYF, 349.
8:15—Church, KNS, 337.
8:30—Tenor, WYF, 349.
Music, WBZ, 333.
Quartet, KMTR, 870.
Music, KOA, 322.
Travelogue, WJZ, 454.
Orchestra, WYF, 400.
Church, WYF, 349.
8:35—Music, WLYN, 422.
8:40—Organ, WYF, 349.
8:45—Music, WCOG, 416.
8:50—Organ, WHAP, 431.
Orchestra, WLYN, 422.
9:00—Concert, WHAR, 275.
Music, KPI, 467.
Violinist, WYF, 454.
Music, WCAU, 278.
News, WYF, 349.
Quartet, WMAQ, 447.
Music, WHAD, 275.
Violinist, KDIA, 309.
Violinist, KYS, 236.
9:10—Concert, WYF, 349.
9:15—New bulletins, WTAG, 545.
Orchestra, KMTR, 370.
Choir, DMCA, 492.
Alto solo, Kani hour, WFAE,
492; WOC, 483; WVO, 469;
WYF, 349; WGR, 319; WTAJ,
389; WYF, 428; WHAS, 309;
WTAM, 389; WYF, 349; WYF,
416; WFL, 304; WYJ, 332.
9:30—Travelogue, WRBM, 226.
Music, WYF, 349.
Concert, WYF, 508.
9:45—Pianist, WYF, 349.
Orchestra, WYF, 283.
Orchestra, WGBS, 316.
Church, KNS, 337.
Weekly review, KDIA, 309.
KYW, 536; WBZ, 333; WJZ,
454; WYF, 349.
Orchestra, KGO, 361.
9:55—Tenor, WEMC, 316.
9:55—Sermon, WYF, 349.
Church, KOA, 322.
10:00—Music, WHAD, 275.
Orchestra, WYF, 379.
Musicals, WYF, 290.
Organ, KPI, 467.
Church, KNS, 337.
Orchestra, WYF, 349.
10:15—Church, WRBY, 359.
Theater, WBBL, 226.
Weather report, WGR, 319.
Address, KFUD, 543.
Music, WCOG, 416.
Music, WMAQ, 447.
Music, WGRW, 302.
Talk, WFL, 304.
Talk, WFAE, 492.
Concert, WYF, 349.
10:20—Music, WGRS, 316.
Concert, WYF, 400.
Music, KYN, 530.
10:25—Church, KGO, 361.
10:45—Quartet, WYF, 349.
el:10—Organ, WCOG, 416.
Orchestra, KMTR, 370.
Music, KPI, 467.
Orchestra, KNS, 337.
Music, WOC, 484.
11:15—Weather report, WGR, 319.
12:00—Orchestra, KGO, 361.
Orchestra, WFAA, 476.
Music, KNS, 337.
Orchestra, KPI, 467.
1:00—Orchestra, KPI, 467.
Special, WRBM, 226.

[illegible]

What could have been more appropriate than the fact that C. F. Clark of the Naval Reserve of Jacksonville, Fla., was examined from Station NRRG, on board the U. S. S. Seattle, for promotion to Chief Radio Man, entirely by radio, excepting for some features of American Morse code operation, which were conducted by land wire? Clark passed the test and, so far as is known, is the first volunteer Naval Reservist ever examined by radio.

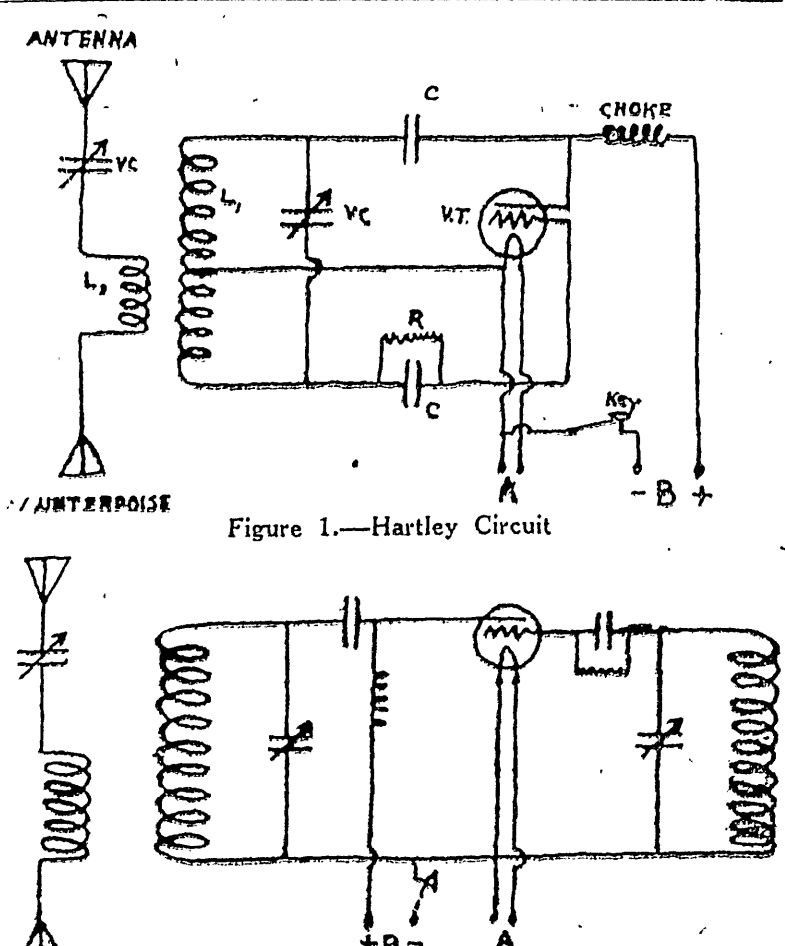


Figure 1.—Hartley Circuit

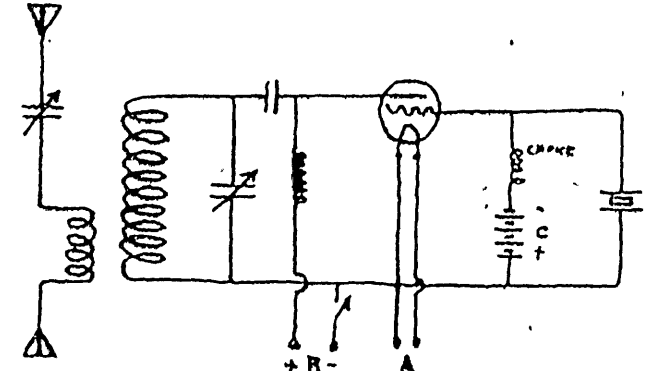


Figure 3. Simple Crystal Control Circuit

To-Day

PWX—HAYANA—400.
8:20 p. m.—Orchestra.
9:30 p. m.—Concert.

RIKIA—PITTSBURGH—309.
11:30 a. m.—Service of the Most End Christ-
ian Church.
2:30 p. m.—Doxo and his gang.
5:00 p. m.—Organ recital by Dr. Charles
Helmuth.
4:15 p. m.—Vesper service of the Shady-
side Protestant Church, Pittsburgh.
6:30 p. m.—Symphony Orchestra.
7:45 p. m.—Service of the Calvary Episco-
pal Church, Pittsburgh.
9:00 p. m.—Godfrey Ladwin, violinist.
9:30 p. m.—Weekly revue.

RPI—LOS ANGELES—167.
8:30 p. m.—Musical program.
9:30 p. m.—Service of Third Church of Christ, Sci-
entist.
2:00 p. m.—Felo.
10:00 p. m.—Organ recital.
11:00 p. m.—Glanze hour.
12:00 p. m.—Dance orchestra.
1:30 a. m.—Orchestra.

RFO—ST. LOUIS—435.
4:30 p. m.—Foreign language half-hour ad-
dress (German), "Christ on the Cross."
10:15 p. m.—Address, "Christ Our Substi-
tute."

RGD—OAKLAND—361.
2:00 p. m.—First Methodist Episcopal
Church service.
7:00 p. m.—Vesper service, Grace Catho-
lic Church.

9:00 p. m.—Violin solos by Godfrey Lad-
win.
9:30 p. m.—Weekly revue.
10:30 p. m.—Classical concert.

WABU—NEW YORK—316.
10:30 a. m.—Services, sermon by Rev. A. B.
Kleigwin.

WRAL—BALTIMORE—216.
9:30 p. m.—Concert orchestra.
5:30 p. m.—Organ recital.
8:30 p. m.—Cantata, "The Crucifixion."

WRHM—CHICAGO—226.
1:30 p. m.—Orchestra.
5:30 p. m.—Orchestra.
7:30 p. m.—Musical hour, "In Norway."
10:15 p. m.—Concert orchestra.
1:00 a. m.—The Sitty Club.

WVZ—SPRINGFIELD—333.
10:30 a. m.—Christian Science Church ser-
vice, Boston.
1:00 p. m.—Studio orchestra.
2:30 p. m.—Doxo and his gang.
5:30 p. m.—Vespera.
7:30 p. m.—Eusembia.
9:30 p. m.—Organ music by Edith Lang.
7:30 p. m.—Concert.
9:30 p. m.—Concert.
10:30 p. m.—Weekly revue.

WYAU—PHILADELPHIA—278.
11:00 a. m.—Services, First Unitarian
Church.
3:00 p. m.—Lecture by Rev. M. L. S. But-
terworth.
7:00 p. m.—Dance quartet.
9:15 p. m.—Church services.
9:35 p. m.—Recital.
10:15 p. m.—Talk by Rev. John W. Stock-
well, "Your Enemy Will Be Your
Friend."
11:00 p. m.—Hope C. Wympoc, concert
pianist.
8:15 p. m.—Orchestra.
10:00 p. m.—Concertina, Rose Elbert.

p. m.—Orchestra.

RADIO PROGRAMS

Continued from Page Seven

7:00 p. m.—Orchestra.
7:30 p. m.—Concert orchestra.
8:00 p. m.—Concert.
8:30 p. m.—Tango and ensemble.
9:00 p. m.—Concert.
9:30 p. m.—Violin ensemble.
10:00 p. m.—Orchestra.

WCCO—MINNEAPOLIS—416.
10:45 a. m.—Trinity Lutheran Church.
11:30 a. m.—Westminster Presbyterian Church.
12:00 p. m.—Bible study.
1:00 p. m.—Concert.
1:30 p. m.—House of Hope Presbyterian Church.
2:00 p. m.—String quartet.
2:30 p. m.—Second Church of Christ, Scientist.
3:00 p. m.—Lecture, "Leaders in Today's World."
3:30 p. m.—Atwater Kent hour.
4:00 p. m.—Musical program.
4:30 p. m.—Male quartet.
5:00 p. m.—Orchestra recital by Hugo, Philharmonic.

WEAF—NEW YORK—492.
2:00 p. m.—Interdenominational church services.
2:30 p. m.—Address by Dr. Daniel A. Poling, subject, "Wounds of a Friend."
3:00 p. m.—West Point choir from Columbia University Chapel.
4:15 p. m.—Address by Dr. S. Parkes Cadman, subject, "The Church and the Community."
5:30 p. m.—Paul Janek, concert pianist.
6:00 p. m.—Concert.
6:30 p. m.—Biblical drama, "David and Bath Sheba."
7:00 p. m.—Musical program from the Capitol Theatre.
7:30 p. m.—Atwater Kent hour, Benjamin Gigli, tenor of the Metropolitan Opera.
10:15 p. m.—Padraic Colum, Irish poet.

WEMC—BERRIEN SPRINGS—316.
12:00 p. m.—Mrs. E. E. Franklin, soprano.
12:20 p. m.—Sermon, "Dodging a Great Banquet."
1:15 p. m.—Choir.
2:00 p. m.—Gordon F. Blair, tenor.
2:45 p. m.—Sermon, "Christ a Stumbling Block."

WFAA—DALLAS—476.
3:30 p. m.—Farmers' hour.
7:00 p. m.—Bible class.
8:30 p. m.—Sermon by Rev. Baptist Church.
9:30 p. m.—Virgil Whitworth, wizard of the wooden piano.
12:00 p. m.—Orchestra.

WFL—PHILADELPHIA—391.
10:20 a. m.—Service from Arch Street Methodist Episcopal Church.
4:30 p. m.—Dr. Edward A. Steiner, "Religion of the Church."
9:15 p. m.—Atwater Kent hour.
10:15 p. m.—Talks by well-known people, Padraic Colum, Irish poet.

WGDS—NEW YORK—416.
4:00 p. m.—Little Church Around the Corner.
9:30 p. m.—Hungarian Court Orchestra.
10:30 p. m.—Recital.

WGHP—DETROIT—670.
8:00 p. m.—Vesper services from St. John's Episcopal Church.

WGR—BUFFALO—310.
10:45 a. m.—Service from the Westminster Presbyterian Church.
12:30 p. m.—The Charity Campaign by Rev. William H. Morgan.
1:45 p. m.—Service from the Central Presbyterian Church.
9:15 p. m.—Atwater Kent hour.

10:15 p. m.—Weather forecast.
10:30 p. m.—WGB—ST. HELENS—259.
10:30 p. m.—Service of First Baptist Church, Syracuse.
3:00 p. m.—Musical program.
4:30 p. m.—Orchestra and violin recital.
7:30 p. m.—Service of First Baptist Church, Syracuse.
9:15 p. m.—Atwater Kent hour.

WHAU—MILWAUKEE—275.
12:00 p. m.—Organ concert.
1:00 p. m.—Comet for the kiddies.
1:30 p. m.—Studio trio.
2:30 p. m.—Classical hour.
3:10 p. m.—Tirumala Symphony concert.
5:00 p. m.—Musical program, Gladys Kruger.
10:00 p. m.—Popular music.

WHMP—NEW YORK—41.
7:15 p. m.—Concert of sacred music.
7:45 p. m.—Selections from the Bible and Science and Health with Key to the Scriptures by Mary Baker Eddy, read by Augusta E. Stinson, C. S. P.
8:50 p. m.—Organ recital, Mary Ray Plimney.

WHAR—ATLANTIC CITY—275.
10:45 a. m.—Service of the Chelsea Baptist Church.
2:15 p. m.—Sermon, Rev. Walter Bruce-Whelan.
7:45 p. m.—Service of the Chelsea Baptist Church.
9:00 p. m.—"An hour with the classics."

WHAS—LOUISVILLE—309.
11:00 a. m.—Service of the Fourth Avenue Presbyterian Church.
5:30 p. m.—Choral evening service from Christ Church Cathedral.
7:20 p. m.—Capitol Theatre program.
9:15 p. m.—Atwater Kent hour.

WICR—BRIDGEPORT—283.
10:30 a. m.—First Street Congregational Church service.
2:00 p. m.—Studio program.

3:00 p. m.—Orchestra.
5:00 p. m.—Ensemble.
7:00 p. m.—Forum, United Congregational Church.
9:30 p. m.—Orchestra.
10:15 a. m.—Service from Holy Trinity Church.
10:30 p. m.—Concert.

WJZ—NEW YORK—154.
9:00 a. m.—Children's hour.
11:00 a. m.—Park Avenue Baptist Church service.
1:15 p. m.—Studio orchestra.
1:45 p. m.—Rock and his gang.
3:55 p. m.—St. George's Vesper service.
4:30 p. m.—Vesper.
5:00 p. m.—Organ recital.
7:30 p. m.—Male quartet.
8:00 p. m.—Concert orchestra.
8:30 p. m.—Travelling.
9:00 p. m.—Gladys Ladd, violinist; Lillian C. Gunning, pianist.
9:30 p. m.—Musical program.
9:50 p. m.—Weekly review.

WKBY—BUFFALO—302.
10:30 a. m.—Service (Churchill Tabernacle).
12:30 p. m.—Sacred and classical music.
2:00 p. m.—Service (Churchill Tabernacle).
7:00 p. m.—Sacred concert and evangelistic service.
10:15 p. m.—Concert.

WLV—CINCINNATI—472.
9:30 a. m.—Sunday school.
11:00 a. m.—Service from the Seventh Presbyterian Church.
12:15 p. m.—Food and Glenn.
3:00 p. m.—Organ recital.
5:30 p. m.—Crosby hour.
7:20 p. m.—Hanna Rose, Food and Glenn.
7:30 p. m.—Service of the First Presbyterian Church of Walnut Hills.
8:25 p. m.—Diano music.
8:50 p. m.—String orchestra.

WMAK—BUFFALO—305.
10:30 a. m.—First Presbyterian Church of Lockport.
2:00 p. m.—Musical.
4:15 p. m.—Address, Right Rev. William Turner.
7:30 p. m.—First Church of Christ, Scientist.

WMAQ—CHICAGO—245.
11:15 a. m.—Service from People's Church.
3:00 p. m.—String quartet.
4:30 p. m.—West Point Military Academy choir.
5:30 p. m.—Crosby program.
7:30 p. m.—The Chicago Sunday Evening Club.
8:30 p. m.—Organ recital.
9:00 p. m.—Music by quartet and choir.
10:15 p. m.—Classical program.

WNC—NEW YORK—526.
10:30 a. m.—Holy Name Society communion breakfast.
1:15 p. m.—Musical program.
3:00 p. m.—Religious service, conducted by Dr. Daniel Poling.
4:30 p. m.—West Point Military Academy choir.
7:20 p. m.—Church service.
9:15 p. m.—Atwater Kent hour.
11:00 p. m.—Musical program.

WORT—ROCHESTER—310.
10:30 a. m.—Concert.
11:00 a. m.—Early Home of Truth.
10:15 p. m.—After-church concert.
WPD—PHILADELPHIA—508.
2:30 p. m.—Sunday school.
4:00 p. m.—Organ recital.
7:20 p. m.—Service from Bethany Presbyterian Church.

WOR—NEWARK—105.
4:30 p. m.—Studio program.
6:00 p. m.—Studio ensemble.
7:00 p. m.—Organ recital.
7:45 p. m.—Concert.
WOW—OMAHA—570.
10:45 a. m.—Chapel service.
2:30 p. m.—Father Flanagan's Boys' Home.
7:00 p. m.—Bible study period.
10:10 p. m.—Chapel service.

WPA—ATLANTIC CITY—299.
3:15 p. m.—Organ recital.
4:15 p. m.—Vocal and instrumental recital.
7:20 p. m.—Concert.
7:30 p. m.—Evangelistic church service.
9:00 p. m.—The minute news review.
9:10 p. m.—Musical.

WRC—WASHINGTON—469.
11:30 a. m.—Service from local church.
4:00 p. m.—Service from Washington Cathedral.
6:45 p. m.—Vesper concert.
7:20 p. m.—Musical program from the Capitol Theatre.
9:15 p. m.—Atwater Kent hour.

WRN—NEW YORK—371.
11:00 a. m.—St. Matthew's Lutheran Church service.
4:30 p. m.—American Hebrew Forum.
4:45 p. m.—Bellevue Spang, soprano, and Helen Wilson, pianist.
4:50 p. m.—Clarinet quartet.
5:25 p. m.—Twilight hour of music.
6:00 p. m.—Business men's hour.
7:30 p. m.—Church. Methodist Episcopal Church service.

WSMA—CINCINNATI—328.
11:00 a. m.—Service from the Presbyterian Church of the Covenant.
3:15 p. m.—Miss Edith Hollinger.
3:45 p. m.—Chips concert.
4:15 p. m.—Address by Dr. S. Parkes Cadman.
4:30 p. m.—West Point military choir.
8:00 p. m.—Sonnet.
9:15 p. m.—Atwater Kent hour.

WSM—NASHVILLE—582.
12:00 p. m.—Service from First Presbyterian Church.
7:20 p. m.—Capitol Theatre program.
9:15 p. m.—Atwater Kent hour.
WTG—WOKESTON—515.
4:00 p. m.—West Point Military Academy choir.
4:15 p. m.—Vocal conference from Bedford Branch, U. M. C. A., Brookline.
7:20 p. m.—Capitol Theatre program.
9:15 p. m.—Daily news bulletin.

WTM—CLEVELAND—289.
10:45 a. m.—St. Louis Emmanuel Episcopal Church.

3:00 p. m.—Musical.
6:30 p. m.—Orchestra.
7:00 p. m.—Variety program.
8:30 p. m.—Service from Emmanuel Episcopal Church.
9:15 p. m.—Atwater Kent hour.
10:15 p. m.—Orchestra.
WTC—HARTFORD—175.
5:00 p. m.—Organ recital, Prof. Harry B. Johnson.

WWD—DETROIT—352.
10:45 a. m.—Church service from Temple Beth-El.
3:20 p. m.—Detroit Symphony Orchestra.
7:20 p. m.—Capitol Theatre band.
9:15 p. m.—Atwater Kent hour.

Radio Engineers Needed.
There are in the Signal Corps of the army vacancies for the position of one radio engineer at \$3000 a year and two associate radio engineers at \$2000 and \$2400 a year, respectively.
The work of radio engineers is in connection with the development, design, construction, installation and standardization of and the writing of specifications for practical and special radio apparatus and methods of radio communication, such apparatus to include sets for land use for more or less permanent stations, also for portable land stations and for airplane and ship sets.
Applications for these positions must be on file with the Civil Service Commission.

See Spidebale Used Car Bargain Strip in Automobile Section

mission at Washington not later than Tuesday, March 22.

"BOOTLEG RADIO"

Commission's Lack of Funds Prompts New Term.

The failure of the Senate to provide funds for the Radio Commission, according to word from Washington, has given rise to a new expression in Government circles. It is "bootleg radio."

In the event the commission is unable to grant renewals of licenses before expiration of the 60-day period allowed by the law, all broadcasting would be in violation of the law, for which there is a penalty of \$500 for each offence.

If the broadcasters continued in operation without authority from the commission, in the words of Assistant Secretary of Commerce Stephen Davis, it would be "bootleg radio."

SOURCES OF INSIDE INTERFERENCE. If a receiver seems to work poorly,

there are at least 10 sources of interference, any or several of which may cause trouble. Here is the list: Bad tube, poor fitting socket, defective grid leak, improperly tuned receiver, grid charged or weak batteries, fixed condenser with defective insulation, "B" battery eliminators, electrolytic type under certain conditions. Defective tuning condensers, elementary shorting of condenser plates, loose connection in receiver, broken wires in headphone or loud speaker.

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Improved Results with Tube or Crystal
Try entirely at my risk the wonderful improvement this little device will make in reception. Increase volume, and partially absorb static. No back if not delighted.
\$1 Postpaid if you are not satisfied with results you get your dollar back.
New STEINITE Light Socket NO-BATTERY RADIO, \$100; with built-in Speaker, \$125; (Candle, built-in Speaker, \$150; Hear and see them at your dealer. STEINITE LONG DISTANCE CRYSTAL SET, \$25; Aerial Eliminator, \$1; Crystals, 50c each, 3 for \$1.
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WOMEN who love beautiful furniture—we created this outfit for you! Its luxurious, massive pieces will thrill you with their elegance! JACQUARD coverings, hundreds of springs, and thick, soft cushions will give you supreme comfort! Wing chair, Arm Chair and Sofa are extra-size throughout! A specially planned outfit to make us new customers. The latest extras leave nothing else to buy! See them pictured above! MONDAY and TUESDAY you can choose all 20 pieces for only \$135 and get a set of SILVER Free as well! Be sure to see it before choosing anywhere else!
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2 PICTURES
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