

# SECRETS OF TRANS-OCEAN BROADCASTING DIVULGED

## Semitechnical Explanation of Plan Used in Transmissions of London Programs Given Listeners-In

"TIMES" COMIC STRIPS OF THE AIR, KHJ, 8 A.M.  
World-Wide News, 10:15 p.m.

BY JOHN S. DAGGETT

How do trans-Atlantic broadcasts sweep overseas to your home and mine in Southern California? The majority of listeners-in have little conception of the fashion in which these programs are brought to them; and it is our purpose to set out a semitechnical explanation of "just how this is accomplished."

When a European statesman broadcasts from his capital to America, in the Sunday series of international programs scheduled regularly on the WABC-Columbia network, two high-power transmitters employing four different wave lengths are used to span the Atlantic, and two receivers are used on this side of the ocean to pick up the signals before they reach Columbia's master control room in New York.

A speaker from England, such as Sir John Simon or Viscount Cecil, addresses a microphone in the London studios of the British Broadcasting Corporation.

From the B.B.C. master control room the signals are passed to the long-distance department of the British postoffice telephone service, regardless of whether the program is to be sent to British stations also.

From the London telephone headquarters they are relayed to Rugby, where the transmitters are located for transoceanic radio-telephone. The impulses are passed to four transmitter antennas, three operating on short wave lengths, between fourteen to thirty meters, and the fourth on 5000 meters, and radiated simultaneously toward the United States. All of the antennas are directional, so as to obtain the maximum possible efficiency with the power input used.

### AMERICAN DISTRIBUTION

At Netcong, N. J., the American Telephone and Telegraph Company has a number of receiving antennas, also directional, and pointing toward Rugby. These are specially constructed for short-wave work of this kind. The signals which they pick up, greatly weakened in power after crossing the Atlantic, are amplified enormously, and passed by land wire to the long lines headquarters of the A. T. & T. in New York.

The long-wave signal, on 5000 meters, is not received at Netcong, but at Houlton, Me., where special equipment for work on this wave length is installed. Reception on this channel also is piped down to the long-lines office, so that four different signals are being received there simultaneously. The best of these is selected and relayed to Columbia's master control room on Madison avenue.

From this point the American distribution begins—to WABC's transmitter; to the short wave station, W2XE, and to the line which joins the eighty-seven stations on the network.

### WEST-EAST TRANSMISSIONS

If the pick-up is to be made on the continent of Europe, studios of the local broadcasting service generally are employed—those of the French government system in Paris, and of the Geneva broadcasting station for League of Nations events. From these points the signals travel by land line to London, before being passed on to Rugby for transmission in the usual way.

For west-to-east transmissions, such as that by the New York Philharmonic-Symphony Orchestra recently, which was the first of a series of programs which Columbia will send to Europe, the A. T. & T. facilities again are employed.

Microphones on the stage of the Metropolitan Opera house, as in the broadcast by Arturo Toscanini, or in WABC's studios, connect with the master control room, which relays them to the long-lines department of the telephone system. From this point they are fed to the short-wave transmitters at Lawrenceville, N. J., where a directional antenna points toward Baldock, Eng. Here a directional receiver is used to pick up the signals, which are transmitted to the London telephone headquarters.

KFOK, Long Beach, 1250 K., 239.9 M., 11 a.m. to 12:30 p.m.; St. Luke's Episco. Dal Church services; First Church of Christ, Scientist, 8 p.m.

KFSG, Los Angeles, 1150 K., 267.7 M., Angelus Temple Sunning Hour, 8 a.m.; symphony, 9; services, 10:30 and 2:30; band, 6:30 p.m.; revival at 8.

KGER, Long Beach, 1360 K., 220.4 M., 8:30 a.m., M.E. Church, Long Beach radio pupils, 9:30 a.m., Trautman's Men's Bible Class, 11 a.m., Calvary Church, Placentia, 5:30 p.m., St. Anthony's Hour, 7:30 p.m., Catholic services, 8 p.m., Calvary Church, Placentia.

KHJ, Los Angeles—First Methodist Episcopal Church, 11.

KNX, Los Angeles, 1050 K., 285.5 M., Third Church of Christ, Scientist, 10:30 a.m.

KECA—Organ, 10.

KFI—Piano Pictures, 9; Western Artist (C.), 9:30; Helen Guest, 10; Walter Damrosch (C.), 10:15.

KFWB—Funny Paper Man, 8:15; records 9.

KHJ—Inspirational talk, 8; Times' comic page, 8; Voice of St. Louis (C.), 8:30.

"Home Sweet Home" (KFRG), 9.

KMPC—Melodies of Spain, 7; John Brown, 9:15.

KNTR—Ship Ahoj, 7; pianist, 9:30 records.

KNX—Shardles' Gang, 7; Judge Rutherford, 10; Joseph Diskay, 10:30; Third Church of Christ, Scientist, 10:30.

KTM—Records, 7; Judge Rutherford, 8:30 Dr. Walter Raymond, 8:45; Watch tower, 9.

11 a.m. to 12 Noon

KECA—Records, 11.

KFI—Sunday Blish; Spots (C.), 11:15 Yeast Foamers (C.), 11:30.

KFWB—Jean Leonard, Piano, 11.

KHJ—First Methodist Episcopal Church, 11:15.

KNTR—Music Land Revue, 11.

KNX—Third Church of Christ, Scientist, 12 Noon to 2 p.m.

KECA—Helen Guest, songs, 12; ballads, 12:45; Sonoland (C.), 1; classical records, 1:30.

KPAC—Studio Special, 12:30.

KPI—Organ, 12; Beach Boys, 12:45; Florheim Frolic (C.), 1; Lyric String Trio, 1:30.

KFWB—Records, 12.

KHJ—New York Philharmonic Symphony (C.), 12.

KMPC—Happy Chappies, 12; news, 1:15; Fox William, 1:30.

KNX—Third Church of Christ, Scientist, to 12:10; Astro-Analyst, 12:30; I.B.S.A., 1.

KNTR—Records, 12; Happiness Ambassador, 12:45; Syncopators, 1:30.

KTM—Records, 1.

2 to 4 p.m.

KECA—Twilight hour (C.), 2:30; Beach Boys, 3.

KFWB—Records, 3:30.

KFI—Poetry, 2; auto races (C.), 2:30.

KHJ—Roy Mace, soloist, 3; Rabbi Masnin, 3:15; Brooks and Ross (C.), 2:30; Hook, Line, Sinker (C.), 2:45; Chicago Knights (C.), 3; Prof. Lindsay (C.), 3:30.

KMPC—Records, 2:30; Church of Latter Day Saints, 3:30.

KNTR—Records, 3.

KNX—Park Board program, orchestra and soloists, 3-4.

KTM—Sylvia, 2; records, 3.

4 to 6 p.m.

KECA—The Vasabonds (C.), 4; Frank Kneeland, baritone, 5:30; Manly Hall, 5:45.

KFI—Willis-Overland Special (C.), 4; Jolly Revue (C.), 4:15; Three Bakers (C.), 4:30; Enna Jettick melodies (C.), 5; Collier's Hour (C.), 5:15.

KFWB—Organ, 5:30.

KHJ—Dr. Julius Klein (C.), 4; Swiss Yodelers (C.), 4:15; "The Old Reporter" (C.), 4:30; Devil, Drugs and Doctors (C.), 5; vesper, hour, 5:15.

KNTR—Records, 4.

KNX—Advanced Thought, 4; Christian Business Men, 4:45; Dr. John Matthews, Radio Church of the Air, 5.

KTM—Zandra, 4; Rev. Thomas, 4:30.

6 to 7 p.m.

KECA—Lyric String Trio, 6; violin and songs duo, 6:30.

KFI—Atwater-Kent Special (C.), 6:15.

KFWB—"Step On It," 6:30.

KHJ—C.H.C. Muzicals (C.), 6; Adventures (C.), 6:30.

KNTR—Twilight Melodist, 6; Ethiopian Night Club, 6:30.

KNX—Dr. Aked, 6; Theodore C. Abel, 6:30.

7 to 8 p.m.

KECA—Raising Junior (C.), 7; Melody Weavers, 7:15; Alabama Boys, songs, 7:30; Seth Parker's Neighbors (C.), 7:45.

KFI—Beach Boys, 7:15; concert special, 7:30.

KFWB—Burr Mcintosh, 7; Nip and Tuck, 7:30; Gus Arnheim's Orch., 7:45.

KHJ—Tessie Symphony, 7; Paice's Orch., 7:30; Ernest Hutchinson, pianist (C.), 7:45.

KNTR—Fishing news, 7; Symphonists, 7:30; Candy Parade, 7:30.

KNX—Arizona Wranglers, 7; Bobrick Girls, 7:45.

8 to 9 p.m.

KECA—Organ, 8:15; concert orch., 8:30.

KFI—Concerted hour (C.), 8:30.

KFWB—Sunday Night Hi-Links, 8.

KHJ—Edison String Symphony, 8; California Melodies, 8:30.

KNTR—Fox Wilshire, 8; Dahl's Varieties, 8:30.

KNX—Frost report, 8; First Presbyterian Church, 8:05.

KTM—Concert, 8; Royal Serenaders, 8:15.

9 to 10 p.m.

KECA—Abas String Quartet (C.), 9.

KFI—Chase and Sanborn (C.), 9; salon orchestra, 9:30.

KFWB—Italian Idylls, 9; Warner's stage show, 9:30.

KHJ—Chevrolet Chronicles, 9; Harmony High Lights, 9:30; Musical Comedies, 9:45.

KMPC—Plantation Crooners, 9; Happy Chappies, 9:55.

KNTR—Fine and Dandy Revue, 9.

KNX—A Night in Paris, 9; mother songs, 9:15; Calmon Lubovsk; violinist, 9:30.

KTM—Beverly Hill Billies, 9.

After 10 p.m.

KECA—Felipe Delgado, 10; Billy Ross, 10:30.

KFI—News, 10; Air Chancellor, 10:15; Bohemians dance band, 10:30.

KFWB—Raritime Review, 10.

KHJ—World-wide news, 10; Success Interview, 10:10; KFRG Master Concert.

10:15: organ, 11-12.  
KMPC—Bill Billies, 10; records, 11.  
KNTR—Red Clover Mystery, 10; organ, 10:15; Music Box, 11.  
KNX—Lubovsk; recital, 10.  
KTM—Dance orch., 10; organ, 10:30.