

The Daily News

SAN FRANCISCO, MONDAY, JULY 28, 1924



STUDIO SET TO BE MOVED INTO AUDITORIUM:

Plans for daily programs to be broadcast from the Civic auditorium during the Pacific Radio exposition, Aug. 16 to 21, inclusive, were announced today by William P. Bear, manager of the show, coincident with the appointment of KPO, Hale Bros.' station, as the official broad-casting station

casting station.

Bear stated that the studio equipment of KPO will be moved to the auditorium and installed on the main stage, where the apparatus and performing artists will be in full view of visitors to the show. It is planned to operate the studio so that fans throughout the country will be able to hear the applause of the crowds as well as hear the artists. The public address system of the building also will be brought into play to carry the programs over the auditorium.

A series of elaborate and novel stunts is now being arranged by the executive committee of the Pacific Radio Trade Ass'n, of which A. S. Lindstrom is chairman. These stunts also will be broadcast.

Plans virtually are completed for the exposition.

for the exposition.

Nearly all exhibit space at the show has been contracted for and the money paid in, assuring the success of the exposition, Lindstrom said. Virtually every type of radio receiving set as well as various accessories will be shown. Booth structures are be shown. Booth structures are nearly completed and an elab-orate decorative scheme, featring radio, has been worked

More than 100,000 persons, including hundreds of trade leaders and technical experts from throughout the United States are expected to attend the show. Daily trade meetings will be held on the mornings of the six days, afternoons and evenings being devoted to the public. A special train, known as the "Pacific Radio Convention Special," will leave the east the week before the show, while another train is planned to bring Southern California trade members.

Put Pad Under Dial

To prevent scratching of the panel by a dial, set close to it, put a soft felt pad between the dial and panel. The result is not only prevention of scratching, but lack of any noise in turning the dial.

Voltmeter Handy

A voltmeter is especially useful to check up on the strength of the B and C batteries, where several tubes are used and the drain on plate voltage is high. The storage battery is tested by a hydrometer.

S. F. AVIATRIX TALKS OVER RADIO



Miss Lillian Gatlin, intrepid woman flyer, who established a record transcontinental flight during October, 1922, from San Francisco to New York in 27 hours and 11 minutes, has a new use for air waves. Not only does she fly on them but she spens over them, too.

Last Tuesday night, as a member of the League of American Pen Women, Miss Gatlin gave a talk over station KPO.

"It is 13 years since aviation

and I adopted each other," she said. "At that time it was a little toddling, winged baby. During the 13 years it and I have flown together, it has, after the manner of all children, taught me much. Also, after the manner of all children, it has increased, multiplied and replenished—that refers both to itself

Miss Gatlin then referred to the fact that many of her am-bitions for aviation had been

"It has so far fulfilled its splendid promises, but the best is yet to be," she declared.

If a regenerative receiver has stopped oscillating, check up on stopped oscillating, check up on connections and on the A and B batteries. If both are all right, excessive voltage on the plate may have paralyzed the tube. To cure this keep the tube lighted for half an hour with the B battery disconnected.

and to its activities." casting. Law and Protest

Oscillation Trouble

SIGNALS BOWDOIN

Great interest has been taken by the radio world in the efforts of "hams" to communicate with Capt. Donald B. MacMillan, Arctic explorer, on board his "radio rigged" schooner Bowdoin. During the past year, including the complete cycle of Arctic daylight and darkness, reliable communication was maintained between the ship and amateur operators of the American Radio Relay League for nearly seven months.

Much information regarding radio conditions in this region has been gahered that will be of use in future expeditions of the kind, but some of the phe-nomena experienced cannot be explained with present knowledge of the effect of the aurora on radio transmission. The most surprising condition encountered was the directional shift of the "Bowdoin's" signals as the little ship went farther north. The belief that once the explorer's ship reached winter quarters its signals would be heard equally borne out.

Barrier Is Lifted

While the vessel was on its way up the coast of Greenland, Donald Mix, radio operator, was in good two-way contact with radio amateurs in the eastern part of the country, but just as soon as the most northerly destination was reached, signals, in-stead of being heard in New England, were picked up on the west coast. This peculiar con-dition continued all through last winter, except for brief periods when the barrier was lifted temporarily and short messages from Mix were picked up at widely distributed points all over North America.

From the latter part of June last year up until July 28, while the Bowdoin was working its way up north, except at certain times when the ship was under way, regular communication was maintained with New Eng-land hams. From July 28 until land hams. From July 28 until Aug. 27, when MacMillan was making a concerted effort to dodge the ice flows, moving southward, there was a period of complete silence. This was a cause of considerable concern until R. B. Bourne, at Chatham, Mass., who had been keeping a Mass., who had been keeping a regular early morning vigil, picked up WNP's signals and copied a message saying that the Bowdoin had passed Etah, Greenland.

Signals Have Persisted

Although this place is within a few miles of Refuge Harbor, where the expedition spent the entire winter, this incident was practically the last time that an amateur in New England was in direct two-way contact with Mix. From that time until the early part of this year, signals from the Bowdoin have persisted in their westerly direction and Jack Barnsley of Prince Rupert, British Columbia, has been the most reliable relay operator be-tween MacMillan and the United States. Practically all press dispatches from MacMillan and messages destined for the Bow-

well on either coast was not, and December of the year 1923 communication with WNP was everything that could be asked and thousands of words of press matter were received and scores of private messages were sent in both directions. Several broadcast stations were heard by MacMillan's crew, while WNP's signals were picked in such places as Minot, picked in such places as Minot, N. D., Evanston, Ill., Des Moines, Ia., Hanover, N. H., Avalon, Catalina Island, Calif., Fairmont, Minn., Glenside, Pa., Jamestown, N. D., Alaska, Fort William, On-tario, and in Texas. Beginning the latter part of Innury signals from Mix began

January signals from Mix began to straggle and they have continued to fall off with the approach of daylight in the Arctic except for an occasional short message containing the infor-mation that "all's well." Mac-Millan will soon start for home and it is expected contact will be renewed again.

Aerial Condenser

A variable condenser in the antenna circuit reduces the wavelength range of the receiving set. If this is intended, such a connection is best

HUGE STATIONS MAY CHANGE BROADCASTING

NEW YORK, July 28.—The question "Who is to pay for broadcasting?" promises soon to answer itself.

The answer may come with the erection of a dozen or so super-power stations, blanketing the country and gradually forcing the 500-odd stations out of business.

This sudden change in radio is suggested from two sources.

1. The Associated Manufacturers of Electrical Supplies, who at their Atlantic City convention recently proposed the erection of ten giant stations to

replace those now broadcasting and to be paid for by two per cent of the radio receipts.

2. The American Telephone and Telegraph Co., which announces the completion of a 5000-watt apparatus for broadcasting.

Against this definite trend toward limited super-power broad-

casting stand two obstructions.
One is the present law which
limits Class B broadcasters to between 500 and 1000 watts. Only on special permit have broadcasters been permitted to transmit on more than one kilowatt, and then only for experimental purposes. The actual perflection of larger apparatus by the biggest company in the field, however, is an almost certain sign of a change in the limitations.

The other big obstruction to the other hig obstruction to super-power transmission, for the present, is an increased op-position to the scheme from va-rious interested sources, headed by the American Radio Ass'n.

Hard to Escape

"While it is stated that such a broadcasting system would not interfere with local stations which take care of local needs," says Alfred M. Caddell, secretary of the association, "experience has shown that unless exceptionally selective receivers are used it is impossible to tune out stations using a carrier wave of high power. "The radio business has been

built largely on the thrill of getting distance, and if this thrill (and therefore other stations) is destroyed by blanketing the country steadily with high power it might lead to serious consequences in the radio world."

According to Pierre Boucheron of the Radio Corp'n of America, however, we have too many broadcasting stations. Cutting them down to ten high-power broadcasters would be not only more efficacious but more economical he adds

nomical, he adds.
Only the more wealthy and profitable firms would be able to take up broadcasting of the super-power variety. For the cost of an installation is figured between \$40,000 and \$50,000, and its operation would be much higher than the Class B 500-watt stations of today.

Detroit Cops Catch Crooks In Radio Car

Burglars and crooks of all the police cars, and in all three types have to watch their step cases they arrived in time to in Detroit, since the advent of apprehend the criminals. in Detroit, since the advent of

radio equipped police automobiles in that city.

The automobiles, which are capable of a speed of 80 miles an hour, are in constant touch with the police broadcasting sta-tion KOP on a wave length of 236 meters.

Three separate gangs of hold-up men have been caught through the use of these cars. Since the advent of radio cars Detroit police have materially lessened hold-ups, owing to their ability to arrive on the scene of a crime within a few minutes after receiving the information broadcast from KOP. In each of the instances mentioned above, a telephone alarm to police headquarters was promptly broadcast by radio to In outward appearances there

is nothing to show that the automobiles are unusual. This is due to the concealed aerial. The windshield is seven-eighths of an inch thick, and is composed of bullet-proof glass. Two gun racks are installed in the cars fitted on the front and rear seats. Sawed-off shot guns are carried in them. The cars are maintained in patrol service 24 hours of the day.

The antenna consists of four wires stretched back and forth

inside the automobile top, which is of the touring car type. Each of these four wires is nine feet long. The receiver is fastened doin were sent by way of permanently in its compartment back of the front seats and the batteries are located close to it. September, October, November Russian River.

Russian River.

The S. F. R. C. were gue the Oakland Radio Club, have bitten all the members of the S. F. R. C. The latest members the Bush-st headquarters.

F. Hams Find New Use For Rainpipe

Local hams are scouring the vicinity of San Francisco for rainpipes to be used as aerial masts, following the successful experiments of 6BS. 6BS obtained the idea from a recent returned from his vacation.

issue of QST.

The latest ham to follow the rainpipe suggestion is 6CPW. He has just returned from his vaca-tion and soon will start work on the new aerial.

9 0 6CMM, will be off the air this week. He is to vacation on the Russian River.

Lady Luck seems to have deserted 6BQL. After tinkering with and pulling out each part in his transformer he reports that he still has difficulty in getting DX.

6BBS has finished installation of his transformer in Sausalito. The S. F. R. C. were guests of

the Oakland Radio Club, Thursday. No meeting was held at

Monday, July 28

KPO—Hale Bros., San Francisco (423 Meters)

M-Reading of Scriptures in ew and English by Rabbi Her-Lissauer of Temple Emanu-El, Hebrew and English by Rabbi Herman Lissauer of Temple Emanu-El, San Francisco.

1 TO 2 P M—Rudy Seiger's Fairmont Hotel Orchestra.

2:30 TO 3:30 P M—Plano solo, Quartet (from "Rigoletto"); Dorothea Clarissa Ergers.

Double voice baritone and soprano solos, The Little Damozel; At Dawning; T. Roy Innes.

Tenor solos, What Will I Do?; Lazy; Richard Giblin; Nina Hinds, accompanist.

Whistling solo, Waltz Song (from "Romeo and Jullet"); T. Roy Innes.

Fiano solos, To Spring; Iris; Dorothea Clarissa Eggers.

Double voice, baritone and soprano solos, Serenata, Twickenham Ferry; T. Roy Innes.

Tenor solos, Rosse of Picardy;

Tenor solos, Roses of Picardy; Shine; Richard Giblin; Nina Hinds, accompanist.

4:30 TO 5:30 P M—Rudy Sciger's Fairmont Hotel Orchestra.

5:30 TO 6:30 P M—Children's Hour. Stories by Big Brother of KPO, taken from the Book of Knowledge: The Witch of the Forest Tree; How a Lighthouse Is Built; Sinbad the Sailor.

Witch of the Forest Tree; How a Lighthouse Is Built; Sinbad the Sailor.

7 TO 7:30 P M—Rudy Selger's Fairmont Hotel Orchestra.

8 TO 9 P M—Organ recital by Theodore J. Irwin; March, Pomp and Circumstance (by request); Gavette; Vorspiel, "Lohengrin" (by request; Abandonada (Mexican waltz); Traumerel (hy request); waltz, "Nutcracker Suite"; symphony, Im Walde (slow movement); Ariechino, "A Day in Tuscany"; light open selection, "Joianthe."

9 TO 10 P M—Bass-baritone solos: The Lost Chord (organ accompaniment by Theodore J. Irwin); Kitty of Colraine (old Irish); Believe Me (old English); William Worthington, one of the directors of Peninsula Studios, San Mateo; Nina Hinds, accompanist.

Western Union radio concert: Plano solo, Medley; Helen Heineman.

Soprano solos, Aria from "II Trova-

Piano solo, Medley; Heien Heineman,
Soprano solos, Aria from "Il Trovatore"; Mary of Argyle (old Scotch); Clare Harrington; Elsa Vogel, accompanist,
Instrumental selections, A Dream of the Shepherdess; The Glow Worm; Orpheum Instrumental Trio, F. R. Wilkins, flutist; Philip Talt, violinist; H. Eastwood, pianist.
Baritone solos, Where the Lazy Daisies Grow; When Lights Are Low; B. Minner; Harold Sutcliffe, accompanist.

B. Minner; Harold Sutchife, accompanist.

Vocal selections, Minnie Haha; Willee Brown; Bye and Bye; Western Union Trio, B. Doherty, G. M. Carter, B. Minner; Harold Sutcliffe, accompanies.

Soprano solos, At Dawning; When Irish Byes Are Smiling; Dorothy Mar-vin; Jessie Diehl Thomson, accom-panist.

Tenor solos, I'm Falling in Love With Some One; I Did Not Know; S. J. Thomas; Harold Sutcliffe, accom-panist.

panist.
Soprano solo. Sweetheart; Mrs. Nell
Welsh; F. W. Thrapp, accompanist.
Contralto solos, Love Sends a Little
Gift of Roses; What Aloha Means;
Maye Brown; Harold Sutcliffe, accompanist.
10 TO 11 P M—E. Max Bradfield's
Versatile Band.

KGO—General Electric Co., Oakland
(312 Meters)

1:30 P M—New York Stock Exchange and United States weather bureau reports,
3 P M—Studio musical program.
4 TO 5:30 P M—Henry Haistead's Hotel St. Francisco.
6:46 P M—Final reading, stock exchange and weather reports, and news items,
8 P M—Educational program, with musical numbers. Courses in agriculture, Spanish, music, economics and literature.

KLX-Oakland Tribune (509 Meters)

8 TO 10:20 P M—Educational talks by members of the summer session faculty at the University of California, and music by the Elder Trio, Scott Elder, violinist; Winston Petty, cellist, and Grace Jurges, planist. The program will be broadcast from Stephens Union Hall at the University of California over a private leased wire through radio KLX.

KLS-Warner Bros., Oakland (360 Meters) 11:30 TO 1 P M—Phonograph se-

DISTANT STATIONS

RFI—Earle C. Anthony, Inc., Los
Angeles (469 Meters)

\$ TO 9 P M—Evening Herald
Radiolans Dance Orchestra.
9 TO 10 P M—Examiner, Rod Loring Orchestra.
10 TO 11 P M—Ambassador HotelCocoanut Grove Orchestru.

KFOA—Rhodes Co., Seattle
(455 Meters)

\$:30 P M—Seattle Chamber of Commerce presenting monthly program of vocal and, instrumental music under direction of Mrs. G. O. Guy.

Liewellyn and the Sunkist Orchestra.

10 TO 11 P M—Art Hickman's Dance Orchestra from the Biltmore Hotel.

KGW—Oregonian, Portland
(492 Meters)

\$ P M—Concert by George Webber and his orchestra.

KFI—Earle C. Anthony, Inc., Los Angeles (469 Meters)

6:45 TO 8 P M—Acolian organ recital.

Cocoanut Grove Orchestra.

9 TO 10 P M—Examiner, Highland Park Hickman's Park Highland Park Hickman's Park Highland (492 Meters)

8 TO 11 P M—Concert by George Webber and his orchestra.

8 TO 9 P M—Acolian organ recital.

10 TO 11 P M—Art Hickman's Park Highland (492 Meters)

8 TO 10 P M—Concert by George Webber and his orchestra.

8 TO 9 P M—Acolian organ recital.

10 TO 11 P M—Art Hickman's Park Hotel.

Tuesday, July 29

KPO-Hale Bros., San Francisco (423 Meters)

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(423 Meters)

12 M—Time signals; Scriptures.

1 TO 2 P M—Rudy Selger's Fairmont Hotel Orchestra.

2:30 TO 3:30 P M—Organ recital by Theodore J. Irwin:
Fox trot, All Because of You; Madrigal; waltz, Victory; operatic selection, "Il Trovatore'; popular waltz song, Ten Thousand Years From Now; musical comedy selection, "Sailly"; song melody, Little Gray Home in the West; old time song melody. Little Gray Home in the West; old time song melody.

4:30 TO 5:30 P M—Rudy Seiger's Fairmont Hotel Orchestra.

5:30 TO 6:30 P M—Children's Hour, Storles by Big Brother of KPO, taken from the Book of Knowledge: The Eagle Girl of the Mountain; Animals That Fly and Burrow; The Unhappy King of Persia.

7 TO 7:30 P M—Rudy Seiger's Fairmont Hotel Orchestra.

8 TO 9 P M—Scotch night: Sopn he soles, Annie Laurie; Loch Lomond; Alice Goodmurphy.

Batsipe selections, Marches, strathspefs and reels; Scotch airs; James Lemon.

Baritone soles, Bonnie Scotland It's a Fine Thing to Sing; Robert (Sandy) Donaldson.

Concertina selections, Sextet (from "Lucia"); Scottlish gems; Robert Donaldson.

Baritone soles, Scotland Yet; Battle of Striing: Robert

mann.

9 TO 10 P M—Address by Lavar
S. Samolloff, noted New York vocal
teacher, who came to the United
States 17 years ago with Chaliapin.
This is his first trip to the west, He
is a teacher of Claire Dux and other
famous operatic singers. For seven
years he was the official lecturer on
breathing on the board of health of
New York City. His subject will be
"The Voice."
Program under management of R.
Romani:

Frogram under management of R. Romani:
Vocal selections, I'm a-Longing fo'
You; Mountain Madrigal; ladies'
quartet.

Romani:
Vocal selections, I'm a-Longing fo'
You; Mountain Madrigal; ladies'
quartet.
Instrumental selections, Adoration;
Rose in the Bud; instrumental quartet.
Bass-baritone seles, The Horn; The
Lute Player; Robert Romani; Luzuear
Elwell, accompanist.
Soprano solos, Songs My Mother
Taught Me; By the Waters of Minnetonka; Joelle Cleghorn; Luzuear
Elwell, accompanist.
Instrumental selections, Heinrich
Marschner Trio; By the River; Breier
Trio.
Bass-baritone solos, The Song of the
Volga Boatman (revised by Charles
J. Galsberg); The Pipes of Pan; Robert Romani; Luzuear Elwell, accompanist.
Contraito solos, Che Faro (from
"Orfeo"); My Dear Soul; Josephine
Nunziato; Luzuear Elwell, accompanist.
10 TO 11 P M—E. Max Bradfield's
Versatile Band.
KGO—General Electric Co., Oakland
(312 Meters)

1:30 P M—New York Stock Exchange and United States weather
bureau reports.
4 TO 5:30 P M—Concert Orchestra
of the Hotel St. Francis, San Francisco, Vinton Le Ferrera, conducting,
6:45 P M—Final reading, stock exchange and weather reports, and news
items.
8 TO 10 P M—Instrumental selections: Selections from "Lohengrin";
Lullaby from "Jocelyn"; Arion Trio.
Vocal selection, Ciribiribin; Hail,
Smiling Morn; KGO Mixed Quartet.
Soprano solos, Una voce poco fa;
Melba Waltz; Claire Harsha Upshur.
Duet for contralto and tenor, Still
is the Night; Mary Groom Richards,
Bwynfi Jones,
Hawaiian melodies, Joseph Lario,
steel guitar; Jack Andrade, Spanish
yuitar.
Bass solos, O'er the Billowy Deep;
Asleep in the Deep; Richard Lundsren,
Vocal selection, My Old Kentucky
Home: KGO Mixed Quartet.

Bass solos, O'er the Billowy Deep; Asleep in the Deep; Richard Lundfren.
Vocal selection, My Old Kentucky Home; KGO Mixed Qaurtet.
Vaudeville sketch, Boruck and Tarleton.
Piano solo, The Fountain, Joyce Holloway Barthelson.
Duets for soprano and contralto, Tuscan Folk Songs, Claire Harsha Upshur, Mary Groom Richards.
Tenor solos, Little Lad o' Dreams; Look Down, Dear Eyes; Gwynfi Jones.
Contralto solos, My Ain Folk; My Ship; Mary Groom Richards.
Hawaiian melodies, Joseph Lario, steel guitar; Jack Andrade, Spanish guitar.
Vocal selections, La Spagnola; Soldiers' Chorus (from "Faust"); KGO Mixed Quartet.
Duet for soprano and tenor, Zuleika and Hassan; Claire Harsha Upshur, Gwynfi Jones.
Cello solo, Song of India; Margaret Avery.
Duets for tenor and Baritone, Ex-

Cello solo, Song of Tadia; Margaret Avery.
Duets for tenor and Baritone, Excelsior; The Moon Has Raised Her Lamp Above; Gwynfi Jones, Richard Lundgren.
Contralto solos, My Dear Soul; A Farewell; Mary Groom Richards.
Vocal trio selection, Praise Ye (from "Attila"); Claire Upshur, soprano; Gwynfi Jones, tenor; Richard Lundgren, baritone.
Instrumental selections, To a Wild Rose; Tarantella; Arlon Trio.

KLX-Oakland Tribune (509 Meters)

KLX-Oakland Tribune (509 Meters) 3 TO 5 P M—Baseball.
7 TO 7:30 P M—News, weather.
KLS—Warner Bros., Oakland
(360 Meters)
11:30 TO 1 P M—Phonograph sesections

lections DISTANT STATIONS

KHJ—Los Angeles Times (395 Meters)

KHJ—Los Angeles Times (395 Meters)
6 TO 6:30 P M—Art Hickman's
Concert Orchestra from the Biltmore
Hotel,
6:45 TO 7:30 P M—Children's program presenting Prof. Walter Sylvester Hertzog. The weekly visit of
the Sandman and Queen Titania.
Frances Bardo, 9 years old, reader.
Bedtime story by Uncle John.
8 TO 10 P M—Program presented
through the courtesy of the B. T.
Spencer Wall Paper and Paint store
of Anaheim, arranged by Gladys
Liewellyn and the Sunkist Orchestra.
10 TO 11 P M—Art Hickman's
Dance Orchestra from the Biltmore
Hotel.

KGW—Oregonian, Portland
(492 Meters)
8 P M—Concert by George Webber

Park Six Orchestra.

10 TO 11 P M—Lawrence Lambert Concert Co.

Wednesday, July 30

KPO—Hale Bros., San Francisco (423 Meters)

1 TO 2 P M—Rudy Seiger's Fairmont Hotel Orchestra.

2:30 TO 3:30 P M—Matinee program by Fisher's Cabiria Orchestra.

4:30 TO 5:30 P M—Children's Hour.

5:30 TO 6:30 P M—Children's Hour.

Storles by Big Brother of KPO, taken from the Book of Knowledge: The Cobbler and the Elves; Answers to Questions; The Golden Bird in the King's Garden; Cinderella and the Glass Slipper.

7 TO 7:30 P M—Rudy Seiger's Fairmont Hotel Orchestra.

8 TO 11 P M—E. Max Bradfield's Versatile Band.

Piano solos, Walt (E): Butterfly Etude, Op. 25; Black Key Etude, Op. 10, No. 5; Waltz, Op. 64, No. 1; Ethly Kruse.

Talk, "Thrift in Education for Your

mond; Alice Goodmurphy,
Bagpipe selections, Marches, strathspeys and reels; Scotch airs; James
Lemon.
Baritone solos, Bonnie Scotland;
It's a Fine Thing to Sing; Robert
(Sandy) Donaldson.
Concertina selections, Sextet (from
"Lucia"); Scottish gems; Robert Donaldson.
Baritone solos, Scotland Yet; Battle of Stitling; Robert Ballantyne.
Bass solos, The Auld Scotch Songs;
Bonnie Dundee; Harry E. Bultmann.

KUO

San Francisco Examiner— 360 Meters

Daily Except Saturday and Sunday 9:05 A M—We at her forecast.

11:00 to 11:30 A M—Market re-

forecast.
forecast.
market reports.
s:30 P M — Fin a notal bulletin
f:00 to 6:20 P M — Fin a notal and garden hint broadcast.
forecast.
Saturday Only
9:05 A M — We at her forecast.

Boy and Mine," William T. Elzinga

Boy and Mine," William T. Elzinga.

KGO—General Electric Co., Oakland
(312 Meters)

1:30 P M—New York Stock Exchange and United States weather
bureau reports.

3 P M—Short musical program.
Speaker furnished through the courtesy of the Cora L. Williams Institute, Berkeley.

4 TO 5:30 P M—Concert Orchestra
of the Hotel St. Francis, San Francisco: Vinton La Ferrera conducting.
6:45 P M—Final reading, stock exchange and weather reports, and news
items.

change and weather reports, and news items.

KLX—Onkland Tribune (509 Meters)

3 TO 5 P M—Baseball.

7 TO 7:30 P M—News, weather.

8 TO 10:20 P M—Studio program and orchestral and organ selections by the American Theater, broadcast directly from the theater pit over a private leased wire through KLX.

Studio program:
Baritone solos (a), Invictus; (b), The Bandolero; (c), It Is Enough (from "Elijah"); Byron Mills, baritone.

Recitation by Fern Brabandt, 4-

The Bandolero; (c), It is Enough (from 'Ellijah'); Byron Mills, baritone.

Recitation by Fern Brabandt, 4-year-old reader.

Tenor solos (a), Heart of Gold; (b), At Dawning; (c), The Praser Perfect; Leon Mills, tenor.

Tenor and baritone duets, (a), The Garden of Your Heart; (b), Solenne in Quest 'ora (from 'La Forza del Destino'); Leon and Byron Mills.

Orchestral selections, to be announced, played by the American Theater Orchestra and broadcast directly from the orchestra pit in the theater over a private leased wire through KLX.

Baritone solos (a), With a Garden Rosary; (b), Because; Byron Mills.

Tenor and baritone duets (a), Serenade; (b), So Thou Liftest Thy Petition; Leon and Byron Mills.

Tenor solos (a), If With All Your Hearts; (b), The Star; (c), Tell Her I Love Her So; Leon Mills, Organ selections played on the American Theater organ and broadcast over a private leased wire from the theater through KLX.

KIS—Warner Bros., Oakland

KLS—Warner Bros., Oakland (360 Meters) 11:30 TO 1 P M—Phonograph selections DISTANT STATIONS

BISTANT STATIONS

KHJ—Los Angeles Times (395 Meters)
3 TO 10 P M—Program presented through the courtesy of the Hollenbeck Chanters; an evening of old-lashioned songs. Dr. Mrs. Baumgardt, lecturer.

10 TO 11 P M—Art Hickman's Dance Orchestra from the Biltmore Hotel.

KGW—Oregonian, Portland (492 Meters)
7:30 P M—Baseball scores, weather forecast and market reports.
8 P M—Concert.
9 P M—Concert by Wendall Hall, presented by National Carbon Co.
10 P M—Dance music by George Olsen's Metropolitan Orchestra of Hotel Portland.

KFI—Earle C. Anthony, Inc., Los

Hotel Portland.

KIT—Earle C. Anthony, Inc., Los Angeles (469 Meters)
6:45 TO 8 P M—Detective stories and vocal concert.
8 TO 9 P M—Evening Herald, Wright's Rejuvenators Orchestra.
9 TO 10 P M—Examiner, Penwomen of America.
10 TO 11 P M—Hollywood Community Orchestra.
11 TO 12 P M—Ambassador Hotel-Docanut Grove Orchestra.

KFOA—Rhodes Co., Seattle

Cocoanut Grove Orchestra.

KFOA—Rhodes Co., Seattle (455 Meters)

8:30 P M—Admiral-Oriental Steamship Co. presents program of dance music by orchestra of S. S. President Grant. This orchestra is a selected group of musicians of University of Missouri student body and extremely popular among pasengers. Joyce Reynolds, contralto, will sing two groups of popular melodies. Five-minute address by an officer of Admiral-Oriental line.

Thursday, July 31

KPO—Hale Bros., Sán Francisco

(423 Meters)

1 TO 2 P M—Rudy Seiger's Fairmont Hotel Orchestra.

2:30 TO 3:30 P M—Plano solos by Antoinette Adelaide Rathmann.

Soprano solos by Ellen Harper Joses, accompanied by her teacher, Edna Wilcox.

4:30 TO 6:30 P M—Rudy Seiger's Fairmont Hotel Orchestra.

5:30 TO 6:30 P M—Children's Hour.

Stories by Big Brother of KPO, taken from the Book of Knowledge: The

Million Point Super-Crystals

are unconditionally guaranteed to be the best for distance and there is no louder crystal made. Sold by first class jobbers and dealers everywhere.

Sample postpaid 40c if your dealer does not stock them

Hubbard Laboratories 1944 Cabrillo St., San Francisco

Boy at the Giant's Castle; Carlou-Animals.
Animals.
TO 7:30 P M—Rudy Seiger's Fairment Hotel Orchestra.
TO 9 P M—Organ recital by Theodore J. Irwin, official organist, at the Wurlitzer:
March; overture, Stradella; Am Meer; Nocturne; Pas de Deux; Valse Lente; Prophet Bird (from "Forest Seenes"); Internezzo, Op. 7; light opera selection (from "Merry Widow"); fox trot, A Man Never Knows.

seenes"); Intermezzo, Op. 1; Inginopera selection (from Widow"); fox trot, A Man Never Knows.

9 TO 10 P M—Piano solo, Hungarian March; Irma Harris Vogt.

Bass solos, To Scenes of Peace Returning (from the grand opera "Magic Flute"); Il Lacerato Spirito (from the opera "Simon Bossanegra"); H. Victor Vogel; LeRoy Henshaw, accompanist, Cornet solos, Silver Stream; Roses of Picardy; Grace Adams East; Irma Harris Vogt, accompanist, Piano solo, Silver Stream; Roses of Picardy; Grace Adams East; Irma Harris Vogt, accompanist, Piano solo, Shadow Dance; Irma Harris Vogt, accompanist, Piano solo, Shadow Dance; Irma Harris Vogt, accompanist, Piano solo, Shadow Dance; Irma Harris Vogt, accompanist, Cornet solos, The Turnkey (from opera "Rob Roy"); When the Bell in the Lighthouse Rings Ding Dong (by reques); H. Victor Vogel, LeRoy Henshaw, accompanist, Cornet solos, The Temple Bells; Kashmiri Song; Grace Adams East; Irma Harris Vogt, accompanist.

Contrallo solos, By the Waters of Minnetonka; Life; Edna Fisher-Hall; Irma Harris Vogt, accompanist.

10 TO 11 P.M—E, Max Bradfield's Versatile Band.

KGO—General Electric Co., Onkland

Versatile Band.

KGO—General Electric Co., Oakland
(312 Meters)

1:30 P M—New York Stock Exchange and United States weather bureau reports.

4 TO 5:30 P M—Concert Orchestra of the Hotel St. Francis, San Francisco; Vinton Le Ferrera conducting.

6:35 P M—Final reading, stock exchange and weather reports, and news items.

S P M—Three-act drama, "The Great Divide," presented by KGO Players under direction of Wilda Wilson Church. Music by Towler Trio.

KLX—Oakland Tribune (509 Meters)

KLX—Oakland Tribune (509 Meters)

3 TO 5 P M—Baseball.

7 TO 7:30 P M—News, weather.

KLS—Warner Bros., Oakland

(360 Meters)

11:30 TO 1 P M—Phonograph selections.

DISTANT STATIONS

KHJ—Los Angeles Times (395 Meters) 8 TO 9 P M—Program presented through the courtesy of the Platt Music Co., arranged by Edwin Lester. 9 TO 10 P M—Program presenting Al Schiller, pianist. "Radio Red's" Hawaiian Trio.

10 TO 11 P M—Art Hickman's Dance Orchestra from the Biltmore Hotel.

10 To The Dance Orchestra from Hotel.

KGW—Oregonian, Portland (492 Meters) 9 P M—Concert by Wendall Hall, presented by National Carbon Co.
10 P M—Dance music by George Olsen's Metropolitan Orchestra of the Hotel Portland.

Hotel Portland.

KFI—Earle C. Anthony, Inc., Los Angeles (469 Meters)

6:45 TO 8 P M—Y. M. C. A. lecture and Bon Ton Orchestra.

8 TO 9 P M—Ambassador Hotel-Cecanut Grove Orchestra.

9 TO 10 P M—Examiner, Kentucky Colonels Orchestra.

10 TO 11 P M—Instrumental and vocal concert by Marguerite Bitter and Patsy Forsythe.

FFSG—Angelus Temple, Echo Park,
Los Angeles (278 Meters)
7:30 TO 9:15 P M—Water baptismal service and sermon by Aimee
Semple McPherson. Temple Choir
and Silver Band under direction of
G, N. Nichols. Esther Fricke Green,
organist.

G. N. Nichols. Esther Fried Con-organist.

9:15 TO 10 P M—Gray Studio pro-gram by Carl Edward Hatch, violin-ist, and assisting artists. Courtesy of Butts Music Co.

10 TO 11 P M—Organ recital and program through courtesy of Esther F. Green and assisting artists.

Friday, August 1

RIX—Oakland Tribune (509 Meters)

3 TO 5 P M—Baseball.

7 TO 7:30 P M—News, weather.

8 TO 10:20 P M—Studio program
and orchestral and organ selections by
the American Theater, broadcast directly from the orchestra pit of the
theater over a private leased wire
through KLX. Studio program:
Instrumental selections (a), Sweet
Leilahua; (b), Hono, Hono, Hawaii;
Pala's Hawalians.

Vocal solos (a), Rosary; (b), Carry
Me Back to Old Virginny; (c), Sovra
il sen; Mme, Dorothy Raegen Talbot,
Instrumental solos (a), I Love You,
Honolulu; (b), It Ain't Goin' to Rain
No More; Pala's Hawaiians.

Vocal solos (a), Last Rose of Summer; (b), Logie o' Buchan (Scotch
folk song); (c), Pearl of Brazil (from

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California Radio Minerals Harry Grant, Jr., 904 Oak Grove Ave., Burlingame, California,

the opera of the same name); Mms.
Dorothy Raegan Talbot.
Instrumental selections (a), One,
Two, Three, Four; (b), Hawaiian Medley; Pala's Hawaiians.
Overture by the American Theater
Orchestra, Owen Sweeten directing,
broadcast directly from the orchestra
pit of the theater over a private
leased wire through radio KLX.
Instrumental selections (a), Alice
March; (b), Nancy; Pala's Hawaiians,
Vocal solo, selected; Ronald King,
baritone.
Instrumental selections

baritone.

Instrumental selections (a), Nololulu Tomboy; (b), Aloha; Pala's Hawalians.
Organ recital by Clement Barker on the American Theater organ, broadcast directly from the theater over a private leased wire through radio KLX.

KLS.—Warner Bros., Oakland (360 Meters)

11:30 TO 1 P M—Phonograph selections.

DISTANT STATIONS

DISTANT STATIONS

KHJ—Los Angeles Times (395 Meters)
6:45 TO 7:30 P M—Children's program presenting Prof. Walter Sylvester Hertzog. The weekly visit of Richard Headrick, screen juvenile.

Bedtime story by Uncle John.
8 TO 10 P M—Program presented through the courtesy of the Hellman (Commercial Trust and Savings Bank, arranged by A. K. Berkland.

10 P M—Charlie Wellman, tenor, and Bill Hatch, planist, "Music Makers."

and Bill Hatch, planist, "Music Makers."

KGW—Oregonian, Portland (492 Meters)

8:15 P M—Studio concert by George Olsen's Metropolitan Orchestra of the Hotel Portland; Herman Kenin, director.

10:30 P M-Hoot Owls. KFI-Earle C. Anthony, Inc., Los Angeles (469 Meters) 6:45 TO 8 P M-Acolian organ re-

cital.

8 TO 9 P M—Evening Herald, Carl
8 dward Hatch arranging concert.
9 TO 10 P M—Examiner, Grace
Eaton Dow arranging concert.
10 TO 11 P M—Pupils of Myre Belle
Vickers in vocal recital.
11 TO 12 P M—Ambassador HotelCocoanut Grove Orchestra.

EVEN BERGERS Co., Seattle

Uccoanut Grove Orchestra.

KFOA—Bhodes Co., Seattle
(455 Meters)
8:30 P M—Nelle Duffy, contralta,
will sing three groups of specially requested numbers. Alfred Green, one
of Seattle's most promising baritones,
will sing several groups with Mrs.
Willeke as accompanist.

Saturday, August 2

KPO—Hale Bros., San Francisco.
(423 Meters)

§ TO 12 P M—Dance music by Art
Weldner's Orchestra. Mr. Weldner is
offering a cash prize of \$10 to the
radio fan sending in the lyrics or
words best suited to his new fox trot.
"Bye and Bye." It will be played
this evening and the next two Saturday evenings. Send your letters to
Mr. Weldner, 645 Market-st, San
Francisco.

KGO—General Electric Co. Cakhang

Francisco.

KGO—General Electric Co., Oakland
(312 Meters)

12:30 P M—New York Stock Exchange and United States weather
bureau reports.

4 TO 5:30 P M—Concert Orchestra
f the hout at Francisco, Vinton La Forera conducting.

8 TO 10 P M—Instrumental selections: Selection from "The Serenade"; Autumn and Winter; Arion
Trio.

made"; Autumn and Winter; Arion Trio.
Tenor solos, The Sailor Song; The Year's at the Spring; Robert E. Saxe.
Vocal selections, Viking Song; Love's Old Sweet Song.
Cello solos, Lamento; Nocturne; Margaret Avery.
Baritone solos, Indian Love Lyrics; (a), The Temple Bells; (b), Kashmiri Song; (c), When I Wake; Clarence H. Oliver.
Instrumental selections, Hungarian

Oliver.
Instrumental selections, Hungarian Dance No. 6; Musette; Arion Trio.
Selections for male trio, The Cavanaugh; Robert E. Saxa, tenor; Clarence H. Oliver, baritone; George Madison, hese

naugh, Robert B. Sarak change, and an ence H. Oliver, baritone; George Madison, bass, Soprano solos, O Bocca Dolorosa; Le coeur de ma nie; Mignonette; Ruth Collins; Charlotte Collins, aecompanist.
Fiano solos, Mazucka; Rondo Capricloso; Joyce Holloway Eathelson.
Vocal selections, Rocked in the Cradle of the Deep; Medley of the South; Bay City Male Qaurtet.
Tenor solos, Bon Jour, Ma Bells; The Lilac Tree; Carl Anderson.
Violin solos, Mazurka; The Old Refrain; Josephine Holub.
Duet for tenor and baritone, Cruci-(Concluded on Page Three)

KPO—Hale Bros., San Francisco (423 Meters)

12 M—Time signals; Scriptures.
1 TO 2 P M—Rudy Seiger's Fairmont Hotel Orchestra.
2:30 TO 3:30 P M—Organ recital by Theodore J. Irwin: Fox trot. Some One Loves You After All; overture, Morning, Noon, Night in Vienna; Nocturne, Au Bord du Danube; musical comedy selection, "Irene"; operatic selection, "Alda"; song melody, The Rosary; intermezzo, Fleur de Lis; fox trot. My Fair Lady.
4:30 TO 5:30 P M—Rudy Seiger's Fairmont Hotel Orchestra.
RGO—General Electric Co., Oakland (312 Meters)

1:30 P M—New York Stock Exchange and United States weather bureau reports.
3 P M—Studio musical program.
4 TO 5:30 P M—Concert Orchestra of the Hotel St. Francis, San Francisco, Vinton La Ferrera conducting.
5:45 P M—Final reading, stock exchange and weather reports, and news of the Hotel St. Francis, San Francisco, Vinton La Ferrera conducting.
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5:45 P M—Final reading, stock exchange and weather reports, and news of the Hotel St. Francis, San Francisco, Vinton La Ferrera conducting.
6:45 P M—Final reading, stock exchange and weather reports, and news of the Hotel St. Francis, San Francisco, Vinton La Ferrera conducting.
6:45 P M—Baseball.
7 TO 7:30 P M—News, weather.
8 TO 10:20 P M—Studio program selections by size, 45 volts. Regular \$5.00. Our price. D2.05
Burgess B Batteries, 221/2 volts. Regular \$1.95. \$1.35

World's greatest phone value Brandes Sur Regular \$6.00. Superior \$3.90

\$5.85 Mozart, grand phonograph ment, gives good results. Our price Vernier Condenser. Regular \$1.50.

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Bible Reading By Radio New Plan of KPO

Scriptures broadcast in differ-

ent languages!
That is the innovation of KPO radio station in San Fran-

Broadcasting Biblical passages in English has been carried on for the past year. Beginning today, however, the scriptures also will be sent by radio to lis-tening fans, in foreign tongues as well.
Following in historical se-

quence the various translations of the Bible, scriptures will first be read in Hebrew, then in Greek and other languages of Southern, Central and Northern Europe. Then in rotation, scriptures will be read in the languages of the Orient, including Japanese, Chinese and Sancrit.

Rabbi Herman Lissauer of Temple Beth Israel will read over station KPO at noon today.

He will read the scriptures both

He will read the scriptures both in English and Hebrew.

'Lullaby Hour' Now Entertains Kiddies

Lullaby Hour is a new bed-time feature for kiddie radio fans being broadcast every evening over the Sears-Roebuck Agricultural Foundation's sta-tion, WLS, at Chicago. It is an hour of stories, old and new nursery rhymes, and barnyard jingles set to music to fit the themes. The Lullaby Kiddies have a regular club of their own. More than 3000 are mem-

MASTER'S HIS VICE



Feature for Blind

One of the features in a new magazine for the blind, printed in raised braille, is given over to radio. The magazine is published by the Minnesota Council of Agencies for the Mind.

PROGRAM CONTINUE

(Concluded from Page Two)
fix; Calm as the Night; Carl Anderson and Clarence H. Oliver.

Basso-profundo solo, Th. Big Bass Viol; Gw/rge Madison.
Instrumental selections, Rondo; melodies from 'The Mikado''; Arion Trio.

Vocal selections, The Lost Chord; When the Flag Goes By; Bay City Male Quartet.
Soprano solos, Le Bonheur Est Chose Legere; Goin' Home; Thou Art So Like a Flower; Norwegion Echo Song; Ruth Collins.

Tenor solos, Blow, Blow, Thou Winter Winds; Drink to Me Only With Thine Eyes; Gwynfi Jones.
Instrumental selections, La Paloma; Humoresque; Arion Trio.

10 P M to 1 A M—Henry Halstead's Hotel St. Francis Dance Orchestra, San Francisco.

KLX—Oakland Tribune (509 Meters)

KLX-Oakland Tribune (509 Meters)

3 TO 5 P M—Baseball.
7 TO 7:30 P M—News, weather,
KLS—Warner Bros., Oakland
(360 Meters)
11:30 TO 1 P M—Phonograph se-

lections.

KRE—Berkeley Gazette (278 Meters)

8 TO 12 P M.

DISTANT STATIONS

KHJ—Los Angeles Times (395 Meters) 8 TO 10 P M—Program presented 10 TO 11 P M—Art Hickman's through the courtesy of the Martin Music Co., arranged by J. Howard Johnson. Dance Orchestra from the Biltmore

Johnson
Dance Orchestra Hom
Hotel

KGW—Oregonian, Portland
(492 Meters)

bas

10 P M—Police reports, baseball tores, weather forecast and music by Zeorge Olsen's Metropolitan Orchestra of the Hotel Portland (two hours).

KFI—Earle C. Anthony, Inc., Los Angeles (469 Meters)
6:45 TO 8 P M—Hennessy's Paramount Players.
8 TO 9 P M—Los Feliz Trio.
9 TO 10 P M—Examiner, Ida May Walls' program.

Walls' program. 10 TO 11 P M—Popular song concert.
11 TO 12 P M-Ambassador Hotel-Cocoanut Grove Orchestra.

Sunday, August 3

KPO—Hale Bros., San Francisco (423 Meters)

11 A M TO 12 M—Non-sectarian church services, Rev. A. W. Sarlander, Evangelical Lutheran Church. Sermon and prayers. Soloist, Fanny P. Ryan, soloist. Organ selections, Theodore J. Irwin.

\$:30 P M—Concert, Rudy Seiger's Fairmont Hotel Orchestra.

Fairmont Hotel Orchestra.

KIX—Oakland Tribune (509 Meters)

9:30 TO 10 P M—Evening church
service. Address by Rev. John
Stephens of the First Methodist
Church of Oakland; music by mentors of the church choir before and
after the address.

KGO—General Electric Co., Oakland (312 Meters)

(312 Meters)

11 A M TO 12 M—Non-sectarian church services, prayers and sermon; organ selections, 3:30 TO 4:30—Waltz, "Harvise"; "Sallituch"; overture, "Ilka," Four Mexican dances; KGO Little Symphony Orchestra.

Soprano solos, "Come Unto Him"; "There Are They"; Beatrice L. Sherwood.

Plano solos, "Griller", "Extract to Sherwood.

wood.
Plano solos, "Grillen"; "The Bird";
"A Prophet"; Mrs. Herbert Avery.
Soprano solos, "Love Me Sweet";
"Japaness Love Song"; Beatrice L
Sherwood.

KLS-Warner Bros., Oakland (360 Meters)

12 M TO 1 P M—Radio Church of America, Rev. Dr. George Chambers; music in charge of Charles Dickens.

America, Rev. Dr. George Chambers; music in charge of Charles Dickens.

DISTANT STATIONS

KHJ—Los Angeles Times (395 Meters)
10 A M—Sermon from KHJ studio by Rev William C. Isett, pastor of Amanda Chapel, Carthy Center.
10:30 A M TO 12:30 P M—Organ redital and entire religious service from the First Methodist Episcopal Church; Arthur Blakesley, organist, and Rev. Elmer E. Helms, pastor.
6:30 TO 7 P M—Art Hickman's Concert Orchestra from the Biltmore Hotel.
7 TO 7:30 P M—Organ recital from the First Methodist Episcopal Church; Arthur Blakesley, organist,
8 TO 10 P M—Program presented through the courtesy of Faul G. Hoffman Co., Inc. The Neblett Concert Trio; Leona Neblett, violinist; Ruth May Schaffner, soprano, and Raymond McFeeters, planist.

KGW—Oregonfan, Portland

mond McFeeters, planist.

KGW—Oregonian, Portland
(492 Meters)
6 P M—Church services.

KFI—E. C. Anthony, Inc., Los
Angeles (469 Meters)
10 TO 10:45 A M—Los Angeles Federation service.
6:45 TO 7:30 P M—Messiah Quartet.
7:30 TO 8 P M—Metropolitan Theater program.
8 TO 9 P M—Ambassador Hotel
Concert Orchestra.
9 TO 10 P M—Examiner program.
10 TO 11 P M—Pack Six Orchestra.

'Ham' at Curry Gets DX Stations

CAMP CURRY, Yosemite, July 28.—Some excellent receiv-ing records have been made during the past few weeks by Kenneth Hughes, amateur radio experimenter at Camp Curry. Hughes' portable set operates under great difficulty due to cliffs 3000 to 5000 feet high on all sides of the Yosemite Valley. As a result of his observations, he believes that it is possible to hear ether waves from great distances despite natural bar-riers. He has reported amateur stations in all nine radio dis-

International Aerial

H. G. Dickinson, superintendent of the Niagara Falls lower steel arch bridge, has an antenna that crosses the border from the United States to Canada. It's about 1000 feet long, stretching over the lower rapids.

Battery Conference

Dry battery manufacturers are planning to meet with government radio men in a conference to adopt certain standards for their products. The best kinds of batteries for radio use are planned.

British amateurs recently heard an Argentine station.

S. F. Amateurs Hear Test Signals

HARTFORD, Conn., July 28.—
Having communicated in both directions with amateur radio telegraph operators in South America, amateurs of the United States and Canada are now turning their attention to the Pacific Ocean for the purpose of engaging in a two-way radio engaging in a two-way radio contest with the experimenters in Australia and New Zealand. Two ten-day periods, one in August and the other in September,

have been set aside.

This test is being arranged by the American Radio Relay League, in a determined effort to establish two-way radio contact with North American oper-ators before the end of the year. All of the transmission will be carried on with very short waves.

Announcement was made at the A. R. R. L. headquarters today that the first transmitting

today that the first transmitting period will be from Aug. 10 to 21, and the second from Sept. 7 to 17. Australian and New Zealand amateurs will listen from 3 to 3:30 a m, and they will transmit from 3:30 to 4 a m.

Two-way work will be attempted daily starting at 4 a m.

While the amateurs in the United States and Canada will be losing sleep in the early

be losing sleep in the early morning hours, Australian and New Zealand operators will be working their stations about 6 p m. The transmitting hours will be the same each day.

Radio World Fair Lures Exhibitors

NEW YORK, July 28.—Inventors are getting ready to send heretofore unheard of ideas and apparatus for exhibition at the first radio world's fair, which will be held here Sept. 22 to 28.

The promise of new inventions

is so great that Managers U. J. Herrmann and James F. Kerr have been compelled to enlarge the "New Inventions Section" for the exhibition of 100 devices.

Among the noteworthy American discoveries to be shown will be at least three different methods for transmitting photographs by radio. Europe also will be well represented here.

The first program of radio motion pictures may come from this fair. Herrmann and Kerr hope to be able to broadcast the first radio movie show on the opening night of the exposition.

Opera by Telephone

Munich (Bavaria) telephone subscribers may now listen to their famous opera company by paying an additional fee. The music does not interfere with any conversation along the same

Clean variable condensers often with pipe cleaner.

Rosy Future In Radio For Boys, Claim

"Radio offers a great future to the American boy," declared E. W. Lovejoy, United States radio inspector, in an address to members of the Alameda Amateur Radio Club in Melrose re-

cently.

That same urge which led our That same urge which led our forefathers to explore the unknown seas, and to pioneer in new lands, still lingers in the heart of mankind," Lovejoy said. "There are no more uncharted seas to explore. Every piece of the earth is known, labeled and inhabited, but the modern young blood in search of adventure often finds it as ship radio operator of vessels which ply between foreign ports."

According to Lovejoy, there

ports."

According to Lovejoy, there is always a demand for good ship radio operators. These positions are filled by large wireless companies which contract with steamship companies to supply men and radio apparatus. "To qualify as ship radio operator," Lovejoy stated, "the applicant must hold a first-class radio operator's license. He must be able to send and receive code at a speed of at least 20 words per minute. He also must be acquainted with the theory of radio, and have a practical knowledge of its operation.

theory of radio, and have a practical knowledge of its operation.

"Adventure also beckons in other branches of the radio industry," Lovejoy continued.

"With the great number of experiments being carried on, its rapid development, and evergrowing popularity, radio offers unlimited opportunities to young men."

U. S. farmers have invested about \$20,000,000 in radio, re-ports the department of agricul-

RADIO NOW FOR TANKS

WASHINGTON, July 28. W Army tanks will be equipped with radio sending and receiving sets, according to word from the United States war depart-

This has been decided on after successful tests made with equipment suitable for rough usage such as tanks undergo.

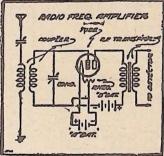
The only difficulty with these is that the noise while the tanks are in motion is so great that the sets cannot be used. Even while the tanks are not moving, for proper trans-mission the sets have to be well shielded from metal bodies.

FROM THE GROUND

We have studied the vacuum | tube as a detector of radio frequency currents, and we now come to its other use in radio reception—as an amplifier. Here its action even more closely resembles that of the valve conlling the water supply than it does in the case of the detector. As an amplifier a small change of voltage applied to the grid of the tube causes a very much greater change in the current of the "B" battery. Of itself the tube is capable of amplifying energy between five and eight times.

The tube is employed as an

amplifier in two outstanding ways—as an amplifier of radio frequency impulses and as an amplifier of audio frequency im-pulses. The radio frequency amplifier amplifies the incoming energy which is picked up by the aerial and strengthens it before it reaches the tube or crystal detector. On the other hand, the audio frequency amplifier is designed to magnify the intelligible speech and music already heard on the detector so as to make it louder. The effect of the radio frequency amplifier is to bring the sending statistics were



tion, and in that case the effect would be that of moving the sending station nearer to you and at the same time bringing the loud speaker nearer your ears. Therefore, the radio frequency amplifier is employed to receive over longer distances, while the audio amplifier is used to increase the volume or loudness of the music or speech already audible.

the telephone or loud speaker closer to your ears, so that the sounds are louder.

It is possible to make up a receiving set using both radio and audio frequency amplificament. The plate circuit of the substitute is connected to the "B" battery through a coil of wire the intervent the ister this must be multiplied by the coupler. This is termed the "radio frequency transformer," and it is so constructed that it is not necessary to tune it care-supplied by a variable condenser, as the volume about forty times, was done in the case of the more or less. The radio fretransferred to the grid circuit of the tube. This is accomplished by winding the primary and secondary coils on a core of iron sheets and by using very fine

wire for both.

Voltage Amplification

The audio amplifier is much the same, although the transformer is wound with thousands of turns of wire instead of the few that are needed for radio frequency. This is because of the much lower frequency (much longer wave length) of audible impulses and the audio transformer must transfer energy on frequencies between about 100 and 3,000 cycles. The Sherwood.

Piano solos, waltz, Mazurka; Mrs.

Herbert Avery.
Selection, Hansel and Gretel, "Shadows Dance."

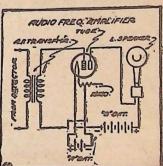
"President's March"; Old Song Series, No. 12, "Long, Long Ago"; Paraphrase; Voigt.

Paraphrase; Voigt.

Ti30 P M—Non-sectarian church services, prayers and sermon.

Heard on the detector so as to make it louder. The effect of the radio frequency amplifier is to bring the sending station nearer to the receiving station. The arrangements for a single stage of radio frequency amplification. The primary and secondary cir
The primary and secondary cir
Transformer must transfer energy on frequencies between about 100 and 3,000 cycles. The there is shown in outline the arrangements for a single stage of radio frequency amplification may be considered good.

was done in the case of the more or less. The radio fre-coupler or transformer by which quency amplifier does not nearly the energy from the aerial is approach this high figure be-



ADIO PHOTOS NOW REAL

TRANSMISSION OF PICTURES NOW POSSIBLE

WASHINGTON, July 28. -Transmission of pictures by radio, long the subject of worldwide discussion and experiment, is at last ready for practical

Initial installations are now being made and soon the whole United States, as well as other countries, is expected to be covered with a network of radio photo transmitting and receiving apparatus.

A company has already been

formed here for the purpose. It establishes and operates trans-mitting equipment, manufactures and leases receiving apparatus, and is continuing research work for perfection of the machinery. Basic patents have already been

issued and others have been applied for.

Behind this tremendous advance in the history of wireless is C. Francis Jenkins, the inventor, who is as famous in the motion picture field as he is in the radio field. He has the distinction of being accredited the inventor of the first motion picture projector.

The Apparatus

For the last few years it has been known that Jenkins had been working on a method of sending pictures by radio. Others, too, have been busy with the same idea, but Jenkins' machine is unique.

The basic of the apparatus is a prismatic ring, or disc, a new optical shape in glass, which Jenkins himself designed and can make only by the use of special apparatus. In the sending apparatus four prismatic rings are combined revolving arross are combined, revolving across a light beam directed through a ploto negative. These rings slee the rays into strips and convert the light values into electrical values.

The electrical values are then sent out into space on radio carrier waves, just as sound is transmitted. At the receiving end these electrical waves are caught, converted into light and recorded on a photo negative.

PRESENTS "GREAT KGO



KGO players in a scene from the drama, "The Great Divide," to be given in the studio of the General Electric station on Thursday evening, July 31. From left to right: Bert Horton and Pearl King Tanner.

can transmit a photograph to as many points as have the required receiving apparatus, powerful enough to detect the wave of the broadcaster. In this, the photo broadcasting is similar to sound broadcasting, the distance of transmission being dependent on the power of the station and the strength of the receiving

Radio Vision Ahead

Jenkins expects to go even further. He forecasts the com-ing of radio vision and radio movies within a few years. In his laboratory here five youths are helping him perfect these wonders. Combined with audioradio, Jenkins sees the next gen-eration listening and seeing plays and events enacted far

For the present the Jenkins installation for broadcasting pictures by radio includes the transmission of messages, contracts and newspaper copy by this method. Jenkins has been able to flash 100 words a minute in this way. He predicts 1000 words a minute within a short time.

Aimail Radio

The airmail service has been assigned the use of wavelengths between 3000 and 4000 meters. All stations are called on the Thus one broadcasting station general 3998-meter wavelength. station.

Correct Time Now Given By Radio

Elgins, Walthams, Ingersolls and other timepieces may play tricks with Father Time. But rs lio fans who tune in on KPO's n on signals can regulate their watches to the fraction of a sec-

Five minutes of 12 the time signals from the Mare Island naval yard are sent to Hale Bros., and by them broadcast throughout the west. All Western Union clocks from Ogden, Utah, west, get their time from these signals.

The three great clocks at Mare Island are regulated by the stars. The time is accurate within a two-hundredth part of a second. At five minutes to 12 every second is broadcast to the Western Union stations.

Theater on Air

The Mark Strand Theater in New York, one of the largest movie theaters in the country, will broadcast its music and special concert programs every Sunday night from station WMAF at South Dartmouth, A special telephone line carries the concert from the theater several hundred miles to the

DIVIDE" | Neutrodyne Wins Broadcast Test

In announcing the results of its annual distance competition, Radio Broadcast shows that the Neutrodyne receiver won in the constructors sets used for this purpose. The winners using this type of receiver covered an ag-gregate of 371,813 miles, each of the three Neutrodyne winners covering a greater distance than any of the other sets winning prizes in the competition.

LET'S SWAP

These "Swap" advertisements will be published free of cost until further notice in the Mon-day Radio Magazine of The Daily News. The article to be traded must be radio equipment. Keep the wording concise.

TO SWAP—Brand new tubes, UV199 or C299 or C300; will swap one for audio-freq. transformer or new 45-volt battery; or will sell each for \$3.50. Call at 2711 Bryant-st between 7:30 and 9 p.m.

O SWAP—25-voit rechargeable "B" battery and 4-volt rechargeable "A" battery, for a loud speaker. J. F., 2369 Howard-st. Phone Mission 5956.

TO SWAP—Good crystal set for vac-uum tube and socket or a good "B" battery or "V" condenser. Francis Kirby, 244 Allisan-av, San Francisco.

TO SWAP—Loose coupler crystal set, complete except for headphones; will exchange for a variable con-denser or something of equal value, E. N. Hacker, 3047 Logan-st, Oak-land.

land.

O SWAP — Ten-watt transmitter, complete, \$50; 6-volt, 140-amp. "A" battery, new; \$15 honeycomb colls and parts. Martyn, 475 30th-st, San Francisco. Phone Val. 1717.

TO SWAP—Half kilowatt spark set, complete for parts for low power tube set. Or what have you? White (6CFS), 470 Page-st. Phone Park 5403.

TO SWAP—Lemco tuner set (range 1000 mfles), without phones, tubes or batteries, for good complete crystal set. Write George Paulouis, 3345 21st-st, San Francisco.

O SWAP—One-stage audio frequency amplifier in cabinet, for other radio equipment. R. W. Kispert, 320 Frederick-st.

TO SWAP—Two Cyme variometers, 1 Remier variometer, 2 variocouplers, 1 Regal inductance switch for radio parts or cash. E. Schoenfeld, 472 Clementina-st. Kearny 4086.

TO SWAP—One audio frequency amplifier on panel, with "C" batteries, using Kellogg transformer, for two slightly used C-299 tubes. Phone Valencia 954.

L'HAMS' PLAN AUSTRALIAN RADIO TEST

HARTFORD, Conn., July 28 .-Signals from 66 amateur radio telegraph stations in the United States and Canada were heard by three amateur operators in South America during the recent Pan-American short wave tests, according to letters which have straggled into the Amer-ican Radio Relay League headquarters.
With the single exception of

the seventh, all radio districts in the United States were represented in the list of calls reported by listeners in either Argentina or Brazil. Out of the grand total given above, two of

grand total given above, two of the stations heard are in Can-ada. The South American lis-teners are Carlos Braggio of Bernal, Argentina; R. Y. Jones of Sao Paulo, Brazil, and Ig-nacio M. Gomez of Buenos Aires. When the calls are divided ac-cording to districts the first takes the lead with 17 calls; the eighth, 13; the third, 11; the fourth, 7; the ninth, 7; the sixth, 4; the second, 3, and the fifth, 2. Both of the successful Canadian Both of the successful Canadian stations are in the first district.

Oakland Broadcasts Curry Program

CAMP CURRY, Yosemite, aly 28.—Camp Curry's eveming campfire entertainment was broadcast from station. KGO of the General Electric Company at Oakland at 8 pm Saturday, July 26. Many hundreds of radio fans who have visted the famous Yosemite resort tuned in for this special event.

The entire group of Camp Curry's regular entertainers journeyed from Yosemite to San Francisco for the occasion.

World Language

Stations WLW, Cincinnati; CKAC, Montreal, and CKY, Winckac, Montreal, and Ckar, Whinipeg, are planning the broad-casting of lessons in Ilo or Es-peranto, two "international lan-guages" urged for universal use. Ilo is the more popular among radio men.

AMPLIFIER IS EASY

BY DAVID DIETZ

A one-tube radio set necessitates the use of headphones. Where it is desired to operate a loud-speaker, more than one tube must be

The addition of one stage of audio-frequency amplification will add about \$12 to the cost of a radio set. The addition of two stages will add about \$24.

It is no harder to add two stages of amplification than it is one. Consequently, except in cases where the amateur feels that the additional cost is too great, it is better to add two stages than one.

One stage will give plenty of volume on the loud-speaker on local stations. It will be found a bit weak, however, for out-of-town sta-

However, it is possible to add one stage of amplification to a set and then add the second stage at a later

If the amateur is thinking of doing this, he should make the panel of his set long enough to allow room for the second stage.

The accompanying hookups show how to add one stage of amplification to the three most popular cir-

cuits previously described.
Figure 1 shows the modified Copp circuit with one stage of amplification. This is the non-radiating form of the cir-

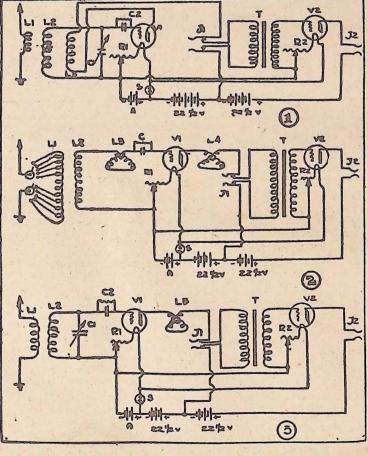


Figure 2 shows the Armstrong three-circuit regenerative set plification.
Figure 1 shows the modified with one stage of amplification.

with one stage of amplification. Copp circuit equipped with an aperiodic aerial coil to prevent radiation. employing a fixed coupler. It

also includes one stage of am-

This is made by winding six

turns of annunciator wire in the transformer. form of a helix over the primary of the variocoupler. This wind-ing should be in the same direction as the primary of the coupler.

It is unnecessary to use the

taps on the coupler primary. If the amateur desires, one tap at the center of the winding can be used. This makes tuning a little sharper.
Apparatus is labeled as fol-

lows in Figure 1:
L1, aperiodic aerial coil. L2, coupler primary.

L3, coupler secondary. C1, 23-plate variable conden

c2, grid leak and condenser. V1 and V2, vacuum tubes. R1 and R2, rheostats.

T, audio-frequency amplify ing transformer.

S, battery switch.
J1, double circuit jack.
J2, single circuit jack. Armstrong Set Figure 2 shows the Armstrong three-circuit regenerative set. This set employs a vario-coupler

and two variometers. vario-coupler should be the type equipped with two sets of taps. Two rotary switches must be used then to control the pri-

This is a circuit which is known to all experienced amateurs as one which tunes sharply and brings in distant

Apparatus labeled as follows in Figure 2:

L1, coupler primary.
L2, coupler secondary.
L3 and L4, variometers.
C, grid leak and condenser.
V1 and V2, vacuum tubes.
R1 and R2, vacuum tubes.

T, audio-frequency amplifying

S, battery switch.
J1, double circuit jack.
J2, single sircuit jack.

Fixed Coupler

Figure 3 shows the modified form of the Armstrong circuit employing the fixed coupler.

There are a number of fixed couplers on the market. One can be made at home, however, if the amateur wishes to.

It should be wound on a four-inch cardboard tube. The pri-mary, consisting of six turns of No. 22 wire, is wound at the center. The secondary is wound in two sections, one on each side of the primary. Each section consists of 20 turns of No. 22 wire. All three windings should be in the same direction.

This set will appeal to many amateurs because it has only a minimum of tuning controls.

Apparatus is labeled as follows in Figure 3: L1, fixed coupler, primary.

L2, fixed coupler secondary. L3, variometer. C1, 23-plate variable conden-

ser. C2, grid leak and condenser.

V1 and V2, vacuum tubes. R1 and R2, rheostats. T, audio-frequency amplifying

transformer.
S, battery switch.
J1, double-circuit jack.

J2, single-circuit jack,

For Sale or Exchange complete set of honeycomb collar astorioid mounting for panel.

LOUIS NOUGUIER

378 2nd Ave., S. F. Pao. 916—6:30-9:30 P. M.