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RADIO  
MAGAZINE

# The Daily News

EVERY  
MONDAY

SAN FRANCISCO, MONDAY, APRIL 21, 1924

## RADIO THEORIES ARE UPSET

### TEN PER CENT TAX MAY HIT INDUSTRY

WASHINGTON, Apr. 21.—What is the radio tax and how is the government going to collect it?

Well, it is the newest bright idea of the senate's tax advisers. And an effort is to be made to add it to the 1924 tax bill.

The radio tax is incorporated along with a tax on mah jongg sets in the bill to provide for 1924 taxation revenue, to take the place of reductions in auto truck, jewelry and auto accessory taxes.

If the bill is passed by congress a 10 per cent tax will be placed on all radio receiving sets and all parts for radio receiving sets sold in this country regardless of price.

Sen. Smoot, who drafted the bill, wanted the tax to apply only on sets selling for \$50 and upwards.

This provision was taken off in committee, when it was pointed out that unscrupulous manufacturers might evade the law by selling sets without batteries, loud speakers and other parts, in order to keep the price below \$50.

The bill provides that the tax is to be assessed directly against the manufacturer or importer. Of course this means that the retail purchaser is to be taxed indirectly.

Figures showing exactly how many radio sets are being manufactured or sold in the country annually are not available. But Joseph S. McCoy, government actuary, who assisted the senate committee to draft the bill, estimates that \$10,000,000 could be collected each year from the radio tax.

This would indicate that the radio business for the next year will be in the neighborhood of \$100,000,000 from a wholesale standpoint alone.

### Radio Calls Aid For Stricken Man

LONDON, Apr. 21.—Radio saved the life of a patient critically ill here recently.

Broadcasting station 2LO, notified that a blood transfusion was necessary to save the patient, immediately sent an appeal through the air for a volunteer, asking that persons willing to offer their blood telephone Hampstead 3101.

More than 100 calls came in within a few minutes, a suitable person was selected and the patient is recovering today.

### Radio Beacon For S. F. Fogs

Safer passage across San Francisco bay in foggy weather could be effected through use of the cross-coil radio beacon, developed at the bureau of standards in Washington, bureau engineers believe.

This beacon marks out a line in the ether, and a boat equipped with an ordinary receiving set can be directed safely to its destination by keeping in touch with that "line."

The beacon consists of two coil antennae crossing at 135 degrees. Its strongest signal is heard on a line bisecting this angle, so that a boat off this line would hear a signal from one coil stronger than that from the other, and would know it is off the directional line.

### DOCTOR HAS RADIO CURE

BY A. H. FREDERICKS

Radio soon may join the ranks of pill, scalpel and tonic as a curative, especially for nervous cases.

This is the declaration of Dr. Wallace H. Barnes, local physician and surgeon, and clinical instructor of medicine at the Stanford University Medical School.

"Utilization of radio music by doctors first occurred to me as the result of personal phenomena," Dr. Barnes explains.

"I have been a radio fan for years. Of late I noticed a decided reaction to certain kinds of music. Also that music which one evening would cheer would, the next evening, depress.

"After several months I found I could 'tune' myself with amazing accuracy to accord with my mood."

#### Tonic for Moods

Dr. Barnes decided to profit by this in his work. He installed a radio receiving set in his office, made careful daily study of the broadcasting programs, diagnosed the mood which he wished to correct, and tuned in on the proper "tonic."

"The results were marvelous," he declares. "Intensive days, which formerly would have completely worn me out, now could be got through with a minimum of fatigue.

"Also, for the sake of experimentation, I would sometimes cut in on numbers which had the effect of increasing an unwelcome mood, and found that they did so to a marked degree."

#### Patients "Prepared"

Dr. Barnes continued his research by applying it to patients. In cases where he knew the history of the ailment, he would, when necessity demanded a wait in the ante-room, tune in on music which would have an antidotal effect.

"The result was that patients, formerly hysterical, would enter my office calmly and would even go through minor operations which they would not previously have faced without an anaesthetic. Of course this was not true in all cases, as some persons seem incapable of more



Dr. Wallace H. Barnes examining a patient preparatory to prescribing a radio program for her.

than a negligible reaction to music."

Dr. Barnes now commenced a systematic study of "type reaction to music, in addition to 'mood' reaction. He has carried this to the point where he now feels capable of "prescribing" music for certain patients, and in specified doses.

"For instance, I have advised several highly nervous persons to plug in on only the most soothing music and to switch off whenever the program calls for music of a highly stimulative nature.

Others, subject to lethargic depression, I have advised to take frequent and strong 'doses' of jazz. Still others I have directed to 'take' jazz until they feel certain reactions, then to

follow with quieter numbers."

#### Try It on Self

Dr. Barnes would not undertake to prescribe for types.

"My experiments have been stethoscopic and by the testing of blood pressure," he explains. "But general results can be obtained by the individual if he will keep careful reckoning of his moods, changes and subsequent reactions."

Dr. Barnes hails the advent of radio as the probable antidote to the increasing nervousness of the country.

While most of our inventions—autos, airships, and such—tend to increase the speed of life, with consequent increased nervousness, radio, properly utilized, will be counteractant, he believes.

### 'RCA' DENIES HOLDING UP TUBES

Denial that the Radio Corporation of America is withholding sale of vacuum tubes to crush its competitors was made today in a statement from R. W. Brewster of the local sales department.

The company is pushing production to keep a stock of tubes on hand, the statement avers. It follows:

"There is no desire on the part of the Radio Corporation to do anything other than produce tubes in sufficient quantities to meet every possible requirement of the trade. We are in the business to sell and not to withhold. However, the circumstances under which the manufacturer works in meeting the requirements of the market must be given due consideration.

"Briefly, the industry is too young to enable either the dealer or the distributor to place orders with the manufacturer sufficiently in advance to meet the fluctuating demands for the specific types of tubes. As the factories, on the other hand, must prepare their production and procure new material from 90 to 120 days in advance of actual deliveries, it becomes necessary for us to endeavor to predict at least four months in advance what the trade require-

ments may possibly be. To this end the Radio Corporation maintains a staff of expert statisticians whose time and energies are devoted solely to a study of this situation, frequent conferences are held with the manufacturers and production schedules are revamped to meet the fluctuating demands of the market.

"During the latter part of November, 1923, a largely increased demand for the storage battery types of tubes became evident, but no prior notification of this possible increase was given to the Radio Corporation by the trade channels. Major steps were then taken in our factories to increase production on that type such as the building of additional plant facilities, the installation of new machinery and the training of additional personnel. Between the first week of December and February, production on the storage battery types of tubes was actually doubled and still further increases are obtained week by week.

"Production schedules have been laid down in the factories for the remainder of this year, which it is confidently believed will be largely in excess of the trade requirements, for it is the

avowed policy of this company to keep its production ahead of the demand.

"A temporary tube shortage may develop in any particular locality not by reason of insufficient factory production, but because of the difficulties of obtaining uniform distribution. The Radio Corporation sells its tubes to distributors; from that point on it has no control over distribution to the dealers. We are aware, however, that distributors are making every effort to serve dealers in all localities, but, the actual quantities distributed in any particular territory are also governed by the amount of dealers' orders, dealers' credits, inability of some dealers to sense the public demand sufficiently in advance to enable them to serve customers promptly, and numerous other factors, all of which have bearing on the situation.

"As further evidence of our desire to meet all possible trade demands, it is important to point out that only 10 to 15 per cent of our total tube production is required for our own merchandise and all that we need is more concise advance notification of what the trade wants thus enabling us to prevent shortages."

### ETHER IDEA IS ALL FALSE SAYS CHICAGO MAN

NEA Service

CHICAGO, Apr. 21.—Set aside your present convictions about radio, its whys and wherefores, and listen to the theories of Dr. Calvin S. Page of this city.

Dr. Page has been nominated for the Nobel Prize in physics for 1923, by the Swedish Royal Academy of Science. The work upon which the nomination for this important award is based is his book, "Rx, the Life Atom," explaining his theory of a new kind of matter upon which all other matter depends.

Rx, pronounced rex, is the name he gives this mysterious matter, which he says he discovered as far back as 1889.

On his studies of Rx, Dr. Page evolved a peculiar and revolutionary theory about radio.

Climb the stairs to the lone bedroom, third floor rear, of this simple mannered, 70-year-old Swedenborgian philosopher, and listen to his ready explanation.

First, Dr. Page explains, Rx has the distinguishing characteristic of repelling its own atoms and cohering with varying strength to all other atoms. It is the basis of everything.

#### Radio Defined

Thus he defines radio:

"Radio is the interception of light sound and reproduction of the air sound that generated it."

And the means by which this is made possible is Rx.

Dr. Page scouts the idea of the existence of ether. "There is no such thing as ether," he says, and adds, "Not one single phenomenon is explained by the ether without breaking known laws and common everyday experience."

This is how he explains radio:

"There are five separate operations in radio. The generation of light-sound Rx on and by the aerial; the catching of the light-sound Rx by the antenna; the multiplication of the feeble force with storage batteries; the reproduction therefrom of the air sound that produced them, and increasing the loudness of the sound.

"Light sound is the periodic movement of light Rx with relatively corresponding form movement as that of the generating air sound."

#### Faster Than Light

The speed by which this wireless Rx travels Dr. Page sets at about 224,000 miles a second. This he explains as follows:

Light traveling at 186,000 miles a second, is represented by a constant bombardment of radio antennae by Rx at this velocity. This is kept up even while the receiving apparatus is not in use, or is not tuned in. Therefore, the tuning-in process needs a much higher rate of bombardment than 186,000 a second, in order to produce a result in the phones.

Rx, the peculiar "life atom," is the means for radio transmission, Dr. Page goes on. "We speak of radio frequency carrier waves. But it must be understood that they do not leave the aerial. They produce the real carrier waves that speed through space, which are not really waves but Rx atoms moving in straight lines independently of each other, and it is their relative distances apart that actually produce the voice, sound, the real phenomena of radio. Their frequency is frequency of the diaphragm motion which spaces the transmitting Rx atoms."

Dr. Page continues with his

(Continued on Page 7, Column 5)



# Now You SEE'em



The handsome chap is none other than Dick V. Haller, announcer at KGW, Portland, Ore.

One of the reasons that folks never get tired of radio entertainment is that the element of mystery and novelty is never dispelled by familiarity with the players. Few of the thousands of fans who have heard KGO programs and a relatively small number of those who have listened into KPO, for instance, have seen the studio and met the announcer. Of course, being human (we insist), radio fans want to know what their hidden friends look like. So this week we have gathered some more pictures from far and wide.



This is Radio Station KGO functioning in Oakland with Carl Anderson, program director about to sing, "Why Do They Smile At Me?"



Ruby Cole, a KGO player who is very easy to look at, eh?



Here's Miss Lucy Bridge who runs KFAE programs at Pullman, Wash. Cute, isn't she?



Uncle John and his bird at KHJ, Los Angeles Times.



Henry Halstead's dance orchestra which you



# ITALIAN LAD USES AN EXTRA COUNTERPOISE

HARTFORD, Conn., Apr. 21.—An Italian radio experimenter, Adriano Ducati, has communicated very successfully with amateurs in this country with a novel antenna arrangement, the use of which is new to radio men in the United States, according to a communication that has just been received by the American Radio Relay League. Ducati increases the capacity between his antenna and counterpoise with an extra counterpoise erected above the regular antenna system.

He is easily the foremost amateur in Italy, inasmuch as he was the first to establish two-way connection with this country. Being unfamiliar with all of the methods employed by American radio men, he did not place any special stress on his novel aerial. The technical department of the A. R. R. L., however, is interested in the use of an additional counterpoise over the antenna and experiments will be made shortly to determine its special advantages.

In other respects Ducati's equipment is similar to the better class of amateur stations in this country and the results are regarded as remarkable considering that an interest in amateur radio is just beginning in Italy. He states that the broadcast bug is biting and conditions as regards reception of programs are about the same as they were in the United States two years ago.

Everyone wants radio sets but the ready-made apparatus is far from being standardized. The fan who is starting in radio is in doubt as to what kind of a set he should get and interference conditions are likely to be troublesome for some time to come. Strange to say, most of the interference on short waves comes from stations in Holland, France, England, Switzerland, Belgium and other places.

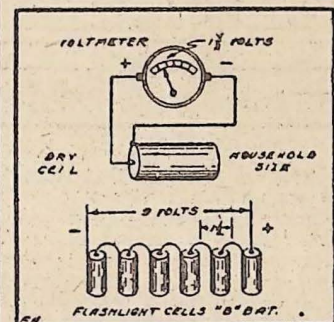
## Legion Station

Charles E. Erbstein, famous Chicago attorney, has offered his broadcasting station, WTAS, about four miles east of Elgin, Ill., as official station of the American Legion. Formal announcements will be broadcast twice a week, and the rest of the week will be given over to musical entertainment.

# RADIO FROM THE GROUND UP

One of the most convenient forms in which we can buy electricity is the dry battery. This is really a small parcel of electrical energy, and it is mainly useful where we do not require a large amount of energy—either high voltage nor high amperage. Although the batteries are called "dry," they really are not dry at all, but are merely contained in a waterproof case with a tightly sealed cover. As a matter of fact, a dry cell becomes useless when it has dried.

In a few words, a dry cell consists of a quantity of pasty chemicals having a carbon and a zinc electrode dipping into it. For convenience sake, the zinc



is made the container and the carbon is in the form of a heavy rod placed at the center. There is a binding post soldered to the side of the case—the negative terminal—the terminal where the return current enters the cell. The positive terminal is fastened to the top of the carbon rod.

## Chemical Contents

The inside of the zinc casing is lined with a heavy blotting paper and the space remaining between the paper and the carbon rod filled with a mixture of manganese dioxide—a black powder—and finely ground up coke. This is compressed tightly into the cell to within an inch of the top. Then a solution of seal ammoniac is poured in and the coke mixture thoroughly saturated. The top is sealed with a tar compound to prevent evaporation of the water.

If we connect a wire between the positive and the negative terminals, electric current traverses the wire from positive to negative—from carbon to zinc. During the process the zinc is

slowly eaten away and chemical changes go on inside the cell. A great deal of hydrogen gas is liberated by the chemical action and would surround the carbon rod in short order, thus stopping the flow of current and "polarizing" the cell. It is the work of the manganese dioxide to absorb this hydrogen gas, which duty it accomplishes by releasing oxygen gas to combine with the hydrogen and form water. The manganese dioxide is called the "depolarizing agent" because of its important function in the cell.

## Battery Connections

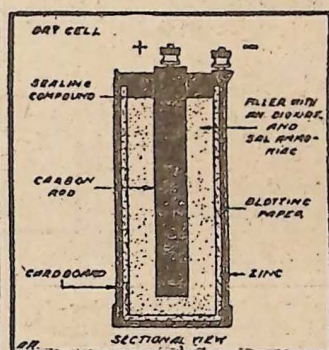
The ordinary dry cell has a voltage of 1½. Fairly heavy currents may be drawn from the battery for a few seconds—perhaps up to several amperes. This "intermittent service" is familiar in connection with the use of two or three dry cells for the house doorbell, the office boy's buzzer and the small flashlight. If such current were drawn steadily, the amount of hydrogen gas given off would be more than the depolarizing agent could counteract, and the current would quickly cease flowing. Hence dry cells are used only for intermittent work or for steady work where the amount of current required is no more than one-quarter of an ampere.

We know that if we connect four equal tanks of water to a large pipe it is possible to get four times as much water out of the pipe. The four tanks are connected in "parallel," because they all discharge their water supply into the same large outlet. But if the tanks were a certain distance from the ground and had 1½ pounds of

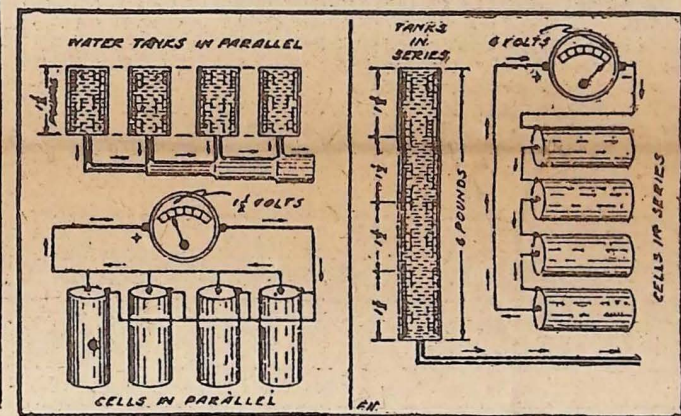
pressure each, the addition of more tanks at the same level would not increase the pressure at all, but would only serve to supply more water.

Likewise, if we connect four dry cells in "parallel"—that is, with their similar binding posts connected together—we can secure four times as much current as with one cell alone, but the pressure will still be 1½ volts. The effect is the same as making a single cell four times as large and in that way making its current capacity four times as great.

But if the four water tanks



are set on top of each other, so that the pressure of one tank is applied right on top of the pressure from the tank next underneath it, we should have four times the pressure that we obtained with only one tank, or six pounds. In the same way, if cells are connected end to end, or in "series," the voltages add up, and four dry cells would exert a pressure of six volts. But since the size of each cell hasn't been changed, we cannot take more current from four



cells than from one without harming them.

## Sizes of Batteries

Going a step farther, it is easy to see that the cell could be made in various sizes, with the 1½ volt pressure remaining just the same. Therefore, if we desire a cell capable of supplying as much as a quarter ampere, it is made about 6 inches high and 2½ inches in diameter. But if we don't need much current, but require a higher voltage, the cell is made small and a great many of them connected in series. The radio "A" battery supplying the current for a dry cell tube is an example of the type of cell giving low voltage, but a fairly heavy current. The radio "B" battery often contains 15 little cells, each giving 1½ volts, so that the pressure of the "B" battery is 45 volts. So little current is necessary that it is not economical to make the cells of the "B" battery large, or the evaporation and natural depreciation would spoil the battery before much use had been had out of it.

## Recipe Exchange

WOC, Davenport, Ia., has started a woman's exchange of household hints, which has proven so popular that a booklet of these hints and recipes is planned for distribution. Women listening in on WOC send in their own recipes, the best of which are rebroadcast for others.

## Speedier Cables

"Permalloy," a new kind of alloy, is going to be used to speed up the oceanic cables in competition with radio. It is an alloy of nickel and iron, very sensitive to magnetic changes and therefore more responsive to the touch of the telegrapher's key.

## Circus Broadcast

Children far away from the circus to open soon in New York will have an opportunity to listen in on them—if they have a receiving set. Stations WJZ, New York, and WGY, Schenectady, have arranged to broadcast the grunts and roars of the animals when the circus opens on Apr. 10.

# WEEK'S AIR PROGRAMS, CONTINUED

(Concluded From Page 4)

mental concert arranged by Myra Belle Vickers.

11 TO 12 P M—Ambassador-Max Fisher's Cocomat Grove orchestra.

KFS—Angelus Temple, L. A.

3:30 TO 4 P M—Organ recital of historical church music by Roy Reid Brignall.

4 TO 5:30 P M—Madeline Gilliland, the happy song girl; Mildred Wetkawska, violinist; Gladwyn N. Nichols, cornetist; Ruth Russell, soprano.

6:30 TO 7:30 P M—Kozy hour; mother's story; Anne Burr Jacker, soprano; Dwight Sankey Tock, baritone; Roy Reid Brignall, accompanist.

8 TO 9 P M—Crusaders; Christ the Ideal Citizen, and address by Judge Charles S. Hardy, justice superior court.

9 TO 10 P M—Gray studio program; Margaret Knox McGraw, contralto; L. F. Peckham, baritone; Madeline Gilliland, "the happy song girl;" Angelus Temple Silver band.

10 TO 10:30 P M—Organ recital by Roy Reid Brignall.

KFOA—Rhodes, Seattle, Wash.

8:30 TO 9:30 P M—The Seattle Chamber of Commerce, presenting a special program of vocal and instrumental music and talks of an instructive nature.

EGW—Morning Oregonian, Portland

12:30 P M—Program by Peck Holton's orchestra of Christensen's hall.

3:30 TO 4 P M—Lecture by Esther B. Cooley, clothing expert of extension service, Oregon Agricultural college.

7 P M—Forest Protection Week talk.

8 TO 8:30 P M—Lecture provided by extension division.

10:30—Hoot Owls.

KHJ—Los Angeles Times—395 Meters

12:30 TO 1:15 P M—Program of news items; weather report and music.

10 TO 11 P M—Art Hickman's orchestra from the Biltmore hotel.

WBAP—Star Telegram, Fort Worth, Texas—476 Meters

6:30 TO 6:30 P M—Concert by old-time fiddlers of Lewisville, Texas; C. C. Robertson, director.

7:30 TO 8:45 P M—Concert by the Lone Star Hawaiian Trio of El Paso, Texas.

KFAE—Washington State College, Pullman, Wash.—330 Meters

7:30 TO 8:30 P M—The League of Nations; Its Achievements and Failures, by Prof. N. J. Alken.

Agricultural talk—Treatment of Foul Brood in Bees, by B. A. Slocum, apilary specialist.

Mezzo-contralto solos—Mildred Smalling Donald; Vincent Hiden, Rochester; piano numbers; other instrumental selections.

## SATURDAY, APRIL 26

KPO—Hale Bros., S. F.—423 Meters

NOON—Time signals; Scriptures.

1 TO 2 P M—Rudy Seiger's Fairmont hotel orchestra.

2:30 TO 3:30 P M—Matinee by the Aloha Troupe Hawaiians; S. Alama, manager.

Maama—Hulu; I Love You Honolulu; Hilo March, instrumental.

Tenor solo—He Manoa Healohe, by Palani Anderade.

Dusky Maid—Waikiki Beach Song; Aloha ae—Farewell to Thee; Honolulu Hula Girl.

Steel solo—Rosary, by Kimo E. Piko.

Koni au—Kiss Me My Darling; The One I Love Belongs to Somebody Else.

Falsetto solo—Wahine U—Beautiful Lady, by Sam Alama.

Hawaii—Hulu; Ne Lei o Hawaii—Song of the Islands; steel guitar duet, Pasopikie; Old Gang of Mine; Old Plantation; Kuu Mililili—Beloving One; O Sole Mio—Oh, My Sun (Italian number); One, Two, Three, Four; Imi au ia oe—King's Serenade; Mai Poina oe Iau—Forget Me Not; What Aloha Means.

3:30 TO 5:30 P M—E. Max Bradfield's Versatile band playing in the Palace Rose Room Bowl.

8 TO 12 P M—Dance music by Art Weidner and his popular dance orchestra. During intermissions of this orchestra the KPO Trio will sing popular songs. This trio—Bonnie Bernum, Jimmie Raymond and Harry Hume—is a regular feature at KPO every Saturday.

KLX—Oakland Tribune—509 Meters

## KUO

KUO—S. F. Examiner (360 meters).

Daily except Saturday and Sunday.

9:05 to 9:20 a m—Weather forecast and news bulletin.

11:00 to 11:30 a m—Market report.

2:30 to 2:45 p m—Sporting news.

3:00 to 3:05 p m—Financial bulletin.

5:45 to 6:30 p m—Sporting news and financial report.

6:40 p m—Weather forecast.

Friday, add to daily schedule:

5:30 to 5:45 p m—Health bulletin.

Saturday only:

9:05 to 9:20 a m—Weather forecast and news bulletin.

2:30 to 2:45 p m—Sporting news.

5:45 to 6:30 p m—Sporting news and financial report.

6:40 p m—Weather forecast.

Sunday only:

9:05 a m and 6:40 p m—Weather forecast.

versity Christian Church orchestra.

Vocal duet—O, for the Wings of a Dove, by Georgia Carpenter, soprano; Daisy O'Brien, mezzo-soprano.

Instrumental selection—Nocturne (from A Midsummer Night's Dream), by University Christian Church orchestra.

Violin solo—Souvenir, by Mme. Swartfager; with orchestral accompaniment.

Mezzo-soprano solo—The Open Road, by Daisy O'Brien; Mrs. J. H. Reed, accompanist.

Instrumental selection—The Sea and Sinbad's Ship (first movement of Scheherazade), by University Christian Church orchestra.

Violin solo—Serenade, by Mme. Swartfager; with orchestral accompaniment.

Instrumental selection—Wedding of the Winds, by University Christian Church orchestra.

10 P M TO 1 A M—Music by the St. Francis hotel dance orchestra; Henry Halstead, leader.

## DISTANT STATIONS

KGW—Morning Oregonian, Portland 492 Meters

11:30 A M—Weather forecast.

2:30 TO 4 P M—Children's program; bedtime story by Aunt Nell.

10 TO 12 P M—Weather forecast; dance music by George Olsen's orchestra by direct telephone from the Portland hotel.

KHJ—Los Angeles Times—395 Meters

12:30 TO 1:15 P M—Program presenting E. J. Goins and the Highlanders.

2:30 TO 3:30 P M—Program presented through the courtesy of Barker Brothers.

6:30 TO 7:30 P M—Children's program presenting Prof. Walter Sylvester Hertzog, P. Helene Pirie, screen juvenile; bedtime story by Uncle John; Kathrya Stillwell, soprano.

8 TO 10 P M—Program presenting the Mary Christine Albin Trio; Floryane Thompson, soprano.

10 TO 11 P M—Art Hickman's orchestra from the Biltmore hotel.

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

4:45 TO 5:15 P M—Evening Herald news bulletins.

KFSG—Angelus Temple, Los Angeles 278 Meters

5 TO 5:30 P M—Organ recital of German composers by Roy Reid Brignall.

6:30 TO 7:30 P M—Gertrude Wilding, child soprano; James R. Hood, baritone; Frances Henking, reader; International Sunday School lesson preview; Jene Kennedy, boy soprano.

## SUNDAY, APRIL 27

KPO—Hale Bros., S. F.—423 Meters

11 TO 12 M—Organ prelude, Theo. J. Irwin.

Prayers and sermon, "Supreme Court," by A. R. Mack, director of Golden Gate college; soloist, Miss Maxine Morris, contralto.

8:30 TO 10 P M—Rudy Seiger's Fairmont hotel orchestra.

KGO—General Electric Co., Oakland 312 Meters

3:30 TO 4:30 P M—KGO Little Symphony orchestra.

KLX—Oakland Tribune—509 Meters

9:30 TO 10 P M—Talk by Rev. John Snape of First Baptist church of Oakland; sacred songs.

## DISTANT STATIONS

WBAP—Star Telegram, Fort Worth, Texas—476 Meters

11 A M TO 12:15 P M—Complete services of the First Presbyterian church; Rev. J. K. Thompson, pastor.

4 TO 5 P M—Organ concert by Miss Margaret Agnew White of the Rialto theater.

5 TO 6 P M—Concert by Wylbert Brown and his orchestra.

11 TO 12 P M—Popular concert by Fred Cahoon's WBAP Southern Serenaders' orchestra.

KHJ—Los Angeles Times—395 Meters

10 A M—Sermon from KHJ studio by Dr. E. T. MacMahon of Cleveland, O., a guest in Los Angeles.

10:30 A M TO 12:30 P M—Organ recital and entire religious service from the First Methodist Episcopal church; Arthur Blakeley, organist, and Rev. Elmer E. Helms, pastor.

7 TO 7:30 P M—Organ recital from the First Methodist Episcopal church; Arthur Blakeley, organist.

8 TO 10 P M—De Luxe program.

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

10 TO 10:45 A M—L. A. Church Federation service.

4 TO 5 P M—Federated Church Musicians Vesper service.

6:45 TO 7:30 P M—Foothill Four Quartette.

8 TO 9 P M—Ambassador hotel concert.

9 TO 10 P M—Examiner concert.

10 TO 11 P M—Packard Six orchestra.



# HERE IS IMPROVED SUPERDYNE CIRCUIT

BY DAVID DIETZ  
Daily News Science Editor

FEW sets have obtained as hearty a response from radio amateurs in recent months as the new superdyne has received.

The superdyne is a radio-frequency hook-up. However, like the neutrodyne, it contains a method for controlling regeneration.

In the neutrodyne, small condensers are used to neutralize the internal tube capacity and thus prevent regeneration. In the superdyne, a tickler coil with reversed connections is used to quench regeneration.

An improved five-tube superdyne set has been developed.

This employs one step of radio-frequency, a detector tube and three stages of audio-frequency amplification.

"C" batteries have been inserted in the audio-frequency units to prevent distortion.

Bringing in DX stations on the loud-speaker is an easy trick with this set.

It will cost about \$80 to build this set.

## Parts Required

The hook-up is given in the accompanying diagram. The apparatus required is referred to in the diagram by letters as follows:

L-1, L-2, and L-3, windings of the special vario-coupler. Directions for making this are given below.

L-4, special radio-frequency coil. Directions for making this are also given below.

C-1, 23-plate variable condenser.

C-2, 23-plate variable condenser.

C-3, fixed condenser, .00025 mfd. capacity.

S-1, S-2, two-point switches.

V-1, V-3, V-4, V-5, amplifier tubes.

V-2, detector tube.

R-1, R-2, R-3, R-4, R-5, rheostats.

T-1, T-2, T-3, audio-frequency amplifying transformers.

J-1, J-2, J-3, double-circuit jacks.

J-4, single-circuit jack.

A six-volt "A" battery is required.

The "B" battery must total 90 volts with taps taken off at 22½ volts and 45 volts as shown in the diagram.

Three "C" batteries of four volts each are used. Four-volt flashlight batteries can be used as "C" batteries.

The special vario-coupler is wound on the usual forms used for the ordinary vario-coupler. These can be purchased at any radio store.

The primary tube should have a diameter of four inches. The rotor should be of the ball type. No. 22 double silk covered should be used in winding the coupler.

The secondary winding, indicated by L-2 in the diagram, is wound on the primary tube first. This consists of 42 turns. The winding should start about three-fourths of an inch down from the top of the tube.

A tap should be made at the 20th turn.

It is advisable to mount small binding posts directly on the tube and make connections for the winding to them.

The primary winding, L-1 in the diagram, is now wound directly over the secondary.

It consists of four turns in the form of a spiral or helix.

Two more binding posts should be mounted on the tube, one at the top and one at the

bottom. The primary winding is fastened to these.

The tickler coil, L-3, in the diagram, is now wound on the rotor. It consists of 36 turns. Eighteen turns are wound on each side of the shaft.

The radio-frequency coil, L-4, is wound on a separate tube four inches in diameter. It consists of 46 turns and is tapped at the 25th turn.

## Assembling Set

The photographs show how the assembled set should look. The photo at the right shows the panel with the dials in place. The photo at the left shows a rear view of the set with all connections made.

Gearing dials were used on this set for the two condensers and the tickler coil. This simplifies sharp tuning. It is not necessary, however, to use such dials unless the amateur wishes to.

The circuit diagram shows the same set with the exception that the ammeter has been omitted. This was put into the set for experimental and testing purposes and is unnecessary for ordinary reception.

It will be noticed that the third step audio-frequency amplification has been placed at the extreme left instead of at the right with the first two steps of audio-frequency amplification.

This was done to conserve space and get the set onto a smaller panel.

If all three steps are placed at the right, the connections will be simplified. However, a slightly longer panel and base will be required.

The panel shown in the photo is 18 inches long and seven inches high.

The average amateur will find construction easier if he uses a panel 24 inches long and eight inches high.

## Tuning Controls

The dials in the photo control the apparatus as follows:

The first large dial at the left controls the variable condenser in the aerial circuit.

The second large dial controls the tickler coil.

The third large dial controls the variable condenser in the radio-frequency circuit.

Three small knobs in triangu-

lar formation are shown below the ammeter at the right.

The one at the left controls the rheostat in the radio-frequency circuit. The one at the right controls the rheostat for the first two stages of audio-frequency amplification.

The lower knob controls the rheostat in the detector circuit.

The small knob at the extreme left of the panel controls the rheostat in the third stage of audio-frequency.

The other two small knobs are the two-point switches for changes from low to high wavelengths.

The circuit diagram shows individual rheostats for the first two stages of audio-frequency instead of one rheostat for both. The average amateur will find this easier although the other method works well.

In tuning, both rotary switches should be set on the points connected with the taps when stations on short wave-lengths are wanted.

When tuning for stations on long wave-lengths set the switches so that the whole coils are in use.

# IF YOUR NEUTRODYNE IS NOISY THIS WILL HELP

BY FRANCIS J. ARMSTRONG

Many neutrodyne fans, particularly those who "roll their own," have noticed a marked sputtering and whistling on the shorter waves.

These annoyances have been incorrectly attributed to many things—static, loose connections, worn "B" batteries, etc., but perhaps the sketch below may help some fans to locate the true cause.

Of course, on the 350-meter wave length and below the relation of inductance to capacity as shown, is not correct for best results; but the worst offender is the unneutralized tube capacity, due to the introduction of the grounded rotors between the shells of the successive condensers.

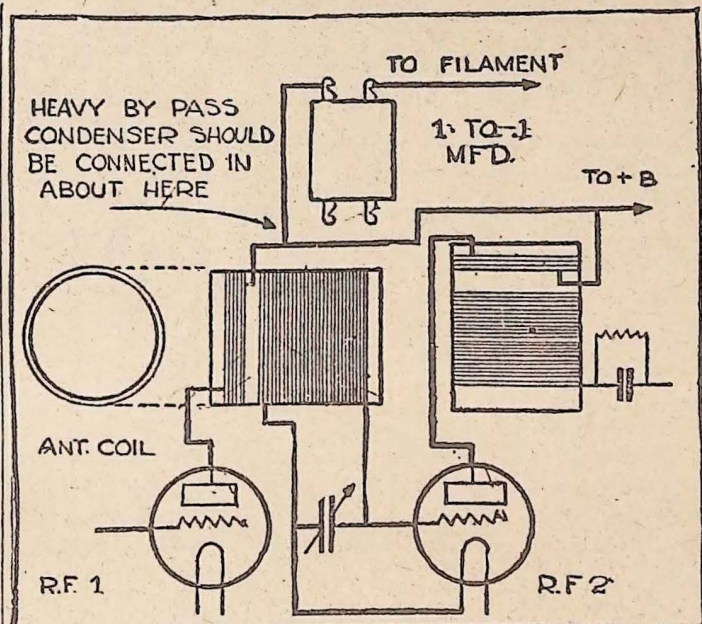
The stator, or shell, of each condenser is quite properly connected to the grid of the next tube and in unshielded sets these tuning condensers become an inherent part of the tube balance. This is due to the capacity between condensers 1, 2 and 3.

Natural Grid to Grid Capacity. This capacity is small, owing to the 5¼ or 6-inch spacing, but nevertheless the grid to grid capacity is present without "neutrotons" in the set at all.

A tube balance on 492 meters, with rotors almost meshed within the shells, will be wrong when the rotors are withdrawn and interposed in the space between condensers.

And, of course, the reverse is true. If the "neutrotons" are properly adjusted on the short waves the grids become over-neutralized on the long ones. Either condition will permit oscillation or ruin reception.

The remedy is to completely shield each stage or to mount the condensers horizontally with only the coils on the zero coupling angle. An even better solution is to use condensers having shielded stators, such as the



F. J. Armstrong's cure for neutrodyne balancing.

Cardwell type.

There is also the problem of mounting the neutroformers so that they will be at zero capacity. This angle has been variously stated at 54.7, 55 and 58.50 degrees. Which is correct for individual cases depends on many factors not usually considered by the fans, and perhaps a short discussion of these will help.

The axis of each coil is parallel to the next, but the coils are not on the same plane. It is obvious, then, that the center to center spacing must have an effect on the proper angle. Also the position of the winding on the coil has an effect on the plane on which the coil is located.

On the commercial coils the mounting brackets are standard, and if the dial centers are spaced in accordance with the manufac-

turers' specifications the proper zero coupling will probably result.

If, on the other hand, the fan drills his own panel and varies his dial centers he may have to vary the coil angles until zero coupling is accomplished. This can be determined by trial.

The wires of the set will couple the stages, if permitted to do so, and will prevent successful neutralization. It is essential, therefore, to keep all wires as far out of the magnetic field of the coils as possible.

It is essential, also, to shorten, through a heavy condenser, the common high voltage "B" battery line to a filament line. Otherwise this wire will introduce a stage coupling that will resist all efforts to neutralize the set.

I have noticed in a good many

home-made "neuts" that while this heavy capacity may be present, it is often improperly placed. It is often located at the high "B" battery binding post or at the audio-transformers, whereas for the best results it should tap in somewhere between the second and third neutro coils and go from there to a filament connection. It will then tend to short-out the currents, which would otherwise couple these stages. Again, this capacity is often too small. It should be one mfd. or at least .1, but too often it is only .006.

Neutroformers at Right Angles

For the fan who wants to experiment with neutroformers I would suggest that he try mounting the three neutroformers at right angles to each other instead of at the usual angle. This would bring the first coil "end-on" to its condenser and in a horizontal position. The second will be either vertical or horizontal and parallel to the panel, while the third will take the remaining right angle of the three dimensions possible.

This style of mounting provides zero coupling magnetically, regardless of the spacing, and will it does not look so well, it

works nicely. The coil that is parallel to both the base and the panel will need about five extra turns on the secondary to make a uniform dial reading on any given station.

There is one other line of experiment that will improve results, and that is getting nearer a proper balance of inductance and capacity on each neutroformer.

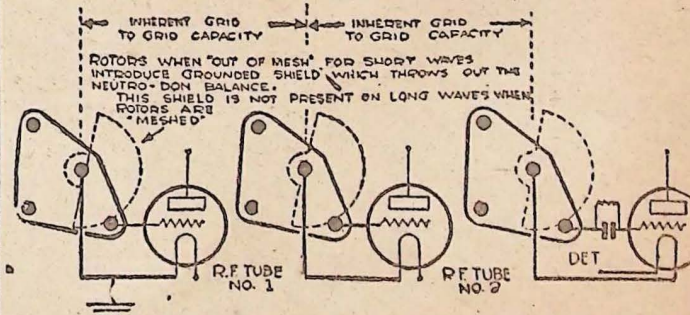
The 65-turn secondary, with 12 or 15-turn primary, and a .00025 variable condenser, is fine for 400 meters and up—within broadcasting range—but the inductance is high on the 300-meter waves.

On one experimental set I obtained good results with home-wound coils, the primary and secondary being on the same 3-inch tube and the secondary being split with a tap switch.

Tap switches are evil things to introduce in any set, and particularly in a neutrodyne, but those I provided were on the condensers themselves, so that no extra wiring was necessary.

## 360-Degree Condensers

The rotation of the shaft operated the switch and made a 360-degree use of the condensers possible.



Francis J. Armstrong's views of why inherent grid to grid capacity between condensers is unbalanced and the neutralization between the stages of a neutrodyne receiver, as the rotor plates are meshed and unmeshed.



## CONGRESS IS FLOODED BY RADIO KICKS

BY LEO R. SACK

WASHINGTON, Apr. 21.—One of the most popular bills before Congress now is that of Sen. C. C. Dill of Washington, prohibiting the charging of copyright fees for the broadcasting of popular music over the radio.

One day last week 7200 telegrams were delivered to senators urging their support of the bill. One senator alone received 500 of those telegrams.

Music publishers contend that the broadcasting of music hurts the sale of their publications. Testimony does not bear out their contention, however. One independent publisher, who, for 10 years has been trying to put over a certain song, said there was no demand at all for the piece until it was broadcast first from a Pacific Coast station. Since then he has been unable to print copies fast enough to supply the demand. Contrary to opinion of members of the music "trust," this publisher welcomes the radio as a sure means of popularizing appealing tunes.

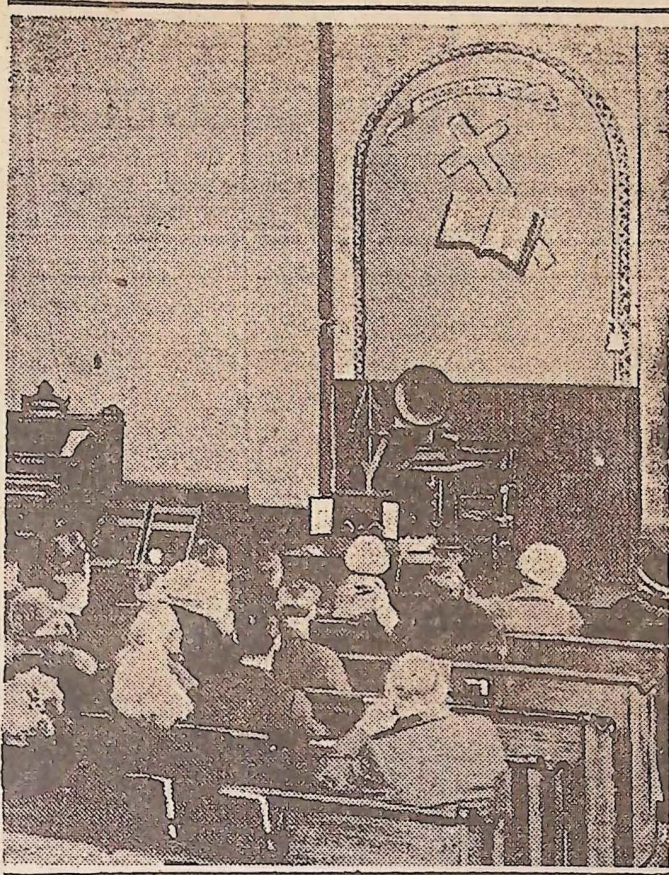
Broadcasters say that payment of royalties is unfair for the reason that they do not profit by their services—in fact, they broadcast at a loss.

## EVEN AN ARTIST CAN ENTERTAIN!

CHICAGO, Apr. 21.—"Speaking over the radio has at least one advantage over after dinner speaking," said Cartoonist Williams of the Chicago Tribune speaking from that paper's station, WGN, recently.

"You don't have to wear a dress suit, play with your water glass while awaiting your turn to speak, or write your notes on your cuff."

## WHEN THE PASTOR'S AWAY—?



The congregation of the Community Methodist church of Hampden, Mass., finds that the radio makes a first class substitute. The above pictured amplifier mounted the pulpit recently when Rev. H. J. Fulton, pastor, was suddenly called away. It was tuned in on another church and the services went on without interruption.

### Heard in Japan

An Esperanto speech broadcast recently from WOR, Newark, N. J., is reported to have been heard at Tokyo. Hiroshi Ando, Japanese radio engineer, says he heard the speech after listening in on broadcasts all day.

### When Do They Sleep?

Night Owl or Night Hawk clubs are forming all over the country for the reception of late programs from distant broadcasting stations. Because of the difference in time this is the only way easterners have of listening in on coast programs.

## YOUR FAVORITE RADIO DEALER

### Radio Set

#### 3-Tube Radio Set

Used few months; good buy for cash; can hear same.

554 Hill St.

### RADIO BOOKS

Engineering, Industrial, Technical and Scientific Books  
TECHNICAL BOOK COMPANY  
Mills Building San Francisco  
Phone Garfield 10

Representing  
D. Van Nostrand Co., John Wiley & Sons, Inc.; J. B. Lippincott Co., Longmans, Green & Co.

### Radio Receiving Set

\$2.50

The Institute of Technology offers to the public a radio set developed by its experts for student use. Remarkable for its range, selectivity and low price. Mail orders filled or hear demonstration at Suite 205, 1181 Market Street. Open evenings.

## A-1 CRYSTALS

GET DISTANCE

"I get KFSG, KFI, KHJ, KGW, KJB and KCBX on home made crystal set with A-1 Crystal."

J. M., Alameda, Calif.

### A-1 CRYSTAL

Approved Radio News Testing Laboratories

Sent Postpaid, 50c each

CALIFORNIA RADIO MINERALS

Harry Grant, Jr.  
904 Oak Grove Ave.,  
Burlingame, Cal.

### Announcement

We Have Opened at 418 Castro Street

### A Radio Store

where we will handle a staple line of Radio Supplies, including the Atwater-Kent Radiodyne Wonder Set Sold on Terms.

Come in any afternoon or evening and hear the concert.

### Webb and Gross

418 Castro Street  
Opposite Castro Theater

### Standard Signals

The United States Bureau of Standards is keeping the broadcasting, amateur and commercial stations standardized as to their wave lengths by transmitting special signals of standard frequencies twice each month. Transmitting apparatus is adjusted by these signals.

### News From Travelers

Broadcasting station WTAM, from listeners-in on ocean liners, Cleveland, is getting reports both on the Atlantic and the Pacific. And even a traveling salesman in Texas wrote in about joys of receiving the concert programs from this station.

### Radio Superstition

A new superstition is going the rounds, especially through the farming population of Europe. It is the belief that radio is responsible for thunder and lightning. The result is an opposition to the growth of radio in Europe.

### Distant Interference

Amateurs in the New York district have received a complaint from their brother "hams" in California and Oregon against their transmission. The western amateurs say the easterners have been interfering with their local work.

### One-Tube Record

The London, Eng., owner of a one-tube receiving set with an indoor aerial of only 20 feet reports he heard KDKA, Pittsburgh, recently. His set was originally built for local reception, he says.

### Radio for Farmers

Canadian farmers have a chance to listen in on 36 broadcasting stations in that country not only for grain and livestock reports but for agricultural lectures from Manitoba Agricultural College or the University of Saskatchewan.

### RADIO SPECIALS

Scientific Radio Headset, 3000 ohms; the world's greatest headset value and fully guaranteed . . . . . \$2.95

Swedish-American Radio Headset with sanitary head band; regularly sell at \$3.00. Sale . . . . . \$3.35

Manhattan Headset—3000 ohms; regularly sells at \$7.00; sale price . . . . . \$3.10

Loud Speaker Unit for Phonographs . . . . . \$4.00

Fixed Crystal Set; receives all local stations . . . . . \$1.75

### I. S. COHEN'S SONS

1015 Market St., near 6th.  
Mail orders filled promptly.

## Recharging



"A" and "B" Batteries

75c

"A" and "B" Batteries at wholesale prices.

6-volt, 160-amp. hour Batteries, \$14

Day and Night—Phone Pacific 2144

Gerard Battery & Electrical Works  
Geary at 13th Ave.

## Battery Recharging Service

\$1.00

Called for and Delivered

### "A" Batteries for Your Radio

100-amp., 6-volt . . . \$12.50  
200-amp., 6-volt . . . \$18.50

### New York Pacific Battery Co.

987 Post St.  
Prospect 4130

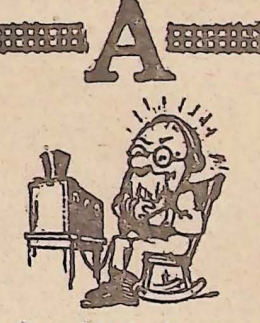
## AN EVENING AT HOME WITH THE LISTENER IN

(By Courtesy of and Copyright, 1924, by Radio Digest Publishing Co.)

(SEE INSTRUCTIONS FOR USE BELOW)

Station and City	Met.	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
CFCN, Calgary, Alta.	440	12:00-1:00	Silent	11:00-2:00	Silent	Silent	11:00-1:00	Silent
CKAC, Montreal, Que.	425	Silent	6:00-10:30	Silent	6:00-10:30	Silent	6:00-10:30	3:30-4:30
CYB, Mexico City, Mex.	425	Silent	8:00-9:30	Silent	8:30-10:30	Silent	8:00-9:30	Silent
CYL, Mexico City, Mex.	500	Silent	9:30-11:00	Silent	Silent	9:30-11:00	Silent	Silent
KDKA, E. Pittsburgh, Pa.	326	5:00-9:00	5:00-11:30	5:00-9:00	5:00-11:30	5:00-9:00	5:00-9:00	6:30-7:30
KDZE, Seattle, Wash.	455	10:30-12:30	Silent	10:30-12:30	Silent	10:30-12:30	Silent	Silent
KFAE, Pullman, Wash.	330	9:30-10:30	Silent	9:30-10:30	Silent	9:30-10:30	Silent	Silent
KFAF, Denver, Colo.	360	9:00-10:00	9:00-10:00	Silent	8:30-9:00	9:00-10:00	9:00-10:00	Silent
KFI, Los Angeles, Calif.	469	12:00-1:00	8:45-1:00	8:45-2:00	8:45-1:00	8:45-2:00	8:45-2:00	8:45-1:00
KGO, Oakland, Calif.	312	Silent	8:00-9:00	Silent	8:00-9:00	8:00-9:00	8:00-9:00	Silent
KGU, Honolulu, Hawaii	360	12:00-1:30	12:00-1:30	12:00-1:30	12:00-1:30	12:00-1:30	12:00-1:30	12:00-1:30
KGW, Portland, Ore.	492	9:30-12:30	9:30-1:00	9:30-1:00	9:30-1:00	9:30-2:00	9:30-1:00	8:00-10:00
KHJ, Los Angeles, Calif.	395	8:45-2:00	8:45-2:00	8:45-2:00	8:45-2:00	8:45-2:00	8:45-2:00	10:00-12:00
KLX, Oakland, Calif.	509	Silent	10:00-12:00	10:00-12:00	10:00-12:00	10:00-12:00	Silent	Silent
KPO, San Francisco, Calif.	423	10:00-1:00	10:00-1:00	10:00-12:00	10:00-1:00	10:00-11:00	10:00-2:00	10:30-12:00
KSD, St. Louis, Mo.	546	8:30-1:00	8:00-1:00	8:00-1:00	8:00-1:00	Silent	7:00-9:00	Silent
KTV, Chicago, Ill.	536	Silent	7:00-9:30	7:00-2:00	7:00-9:30	7:00-2:00	7:00-12:00	6:30-8:00
NAA, Radio, Va.	435	5:45-7:20	6:05-7:20	6:25-7:40	5:45-7:40	7:05-7:40	Silent	Silent
PWA, Havana, Cuba.	400	Silent	Silent	Silent	Silent	Silent	7:30-10:00	Silent
WBAP, Fort Worth, Texas	476	7:30-10:45	7:30-10:45	7:30-10:45	7:30-10:45	7:30-10:45	7:00-7:30	5:00-6:00
WBAY, Columbus, O.	390	8:00-10:00	Silent	Silent	Silent	8:00-10:00	Silent	4:00-5:00
WBZ, Springfield, Mass.	337	6:00-9:00	6:30-9:00	5:00-11:00	6:30-8:00	5:00-11:00	6:30-8:00	5:45-8:30
WCAE, Pittsburgh, Pa.	426	5:30-8:30	5:30-8:30	5:30-8:30	5:30-8:30	5:30-8:30	5:30-8:30	5:30-8:00
WCAP, Washington, D. C.	469	Silent	6:30-9:00	Silent	6:15-11:00	Silent	6:15-11:00	6:20-9:00
WCBD, Zion, Ill.	345	8:00-10:00	Silent	Silent	Silent	8:00-10:00	Silent	2:30-5:30
WCL, Detroit, Mich.	517	7:30-9:00	7:30-11:00	7:30-9:00	7:30-9:00	7:30-9:00	Silent	6:15-7:15
WDAF, Kansas City, Mo.	411	8:00-1:00	11:45-1:00	8:00-1:00	11:45-1:00	8:00-1:00	11:45-1:00	Silent
WDAF, Chicago, Ill.	360	Silent	7:00-1:00	7:00-1:00	7:00-1:00	7:00-1:00	7:00-1:00	9:15-11:15
WDAF, Philadelphia, Pa.	395	6:30-9:55	6:30-7:00	6:30-10:00	6:30-7:00	6:30-12:00	6:30-7:00	1:00-3:00
WEAF, New York, N. Y.	492	6:30-9:00	6:30-9:00	6:30-9:00	6:00-11:00	6:30-9:00	6:30-11:00	6:20-9:00
WFAX, Dallas, Tex.	476	8:30-9:30	8:30-12:00	Silent	8:30-9:30	8:30-9:30	8:30-12:00	6:00-11:00
WFL, Philadelphia, Pa.	395	5:30-6:00	5:30-8:00	5:30-6:30	5:30-8:00	5:30-6:30	5:30-8:00	6:30-7:30
WGL, Medford, Mass.	360	Silent	6:30-7:30	6:00-8:00	6:00-7:30	6:30-8:00	6:30-8:00	7:30-10:00
WGR, Buffalo, N. Y.	319	5:30-11:00	5:30-7:45	5:30-11:00	5:30-7:45	5:30-11:00	5:30-7:45	2:00-4:00
WGY, Schenectady, N. Y.	380	6:45-9:00	6:45-9:00	Silent	6:45-9:00	6:45-10:30	8:30-9:30	6:30-7:30
WHA, Madison, Wis.	360	7:30-8:30	Silent	7:30-8:30	Silent	7:30-8:30	Silent	Silent
WHAS, Louisville, Ky.	400	Silent	7:30-9:00	7:30-9:00	7:30-9:00	7:30-9:00	7:30-9:00	4:00-5:00
WHAZ, Troy, N. Y.	380	8:00-9:30	Silent	Silent	Silent	Silent	Silent	Silent
WHB, Kansas City, Mo.	411	7:00-7:45	7:00-10:00	7:00-7:45	7:00-10:00	7:00-7:45	7:00-7:45	8:00-10:00
WHK, Cleveland, O.	283	5:00-5:30	5:00-5:30	5:00-5:30	5:00-5:30	5:00-5:30	5:00-5:30	7:00-9:00
WHN, New York, N. Y.	360	6:30-11:00	8:30-11:00	6:30-11:00	8:30-11:00	8:30-11:00	6:30-11:00	8:30-11:00
WIP, Philadelphia, Pa.	509	5:00-6:30	5:00-11:00	5:00-6:30	5:00-10:00	5:00-6:30	5:00-11:00	8:30-11:00
WJAR, Providence, R. I.	360	Silent	6:00-7:00	6:00-11:00	Silent	6:00-9:00	Silent	Silent
WJAX, Cleveland, O.	390	Silent	6:30-8:30	Silent	7:00-9:30	Silent	Silent	Silent
WJAZ, Chicago, Ill.	448	Silent	10:00-2:00	10:00-2:00	10:00-2:00	10:00-2:00	10:00-2:00	6:00-9:00
WJY, New York, N. Y.	405	Silent	6:30-9:30	Silent	6:30-9:15	6:30-11:00	Silent	7:15-10:00
WJZ, New York, N. Y.	455	6:00-10:30	6:00-10:30	6:00-10:30	6:00-10:30	6:00-10:30	6:00-10:30	6:00-9:30
WKAQ, San Juan, P. R.	360	Silent	7:00-8:30	Silent	Silent	7:00-8:30	Silent	Silent
WLAG, Minn.-St. Paul.	417	Silent	Silent	9:15-10:45	Silent	9:15-10:45	9:15-12:30	7:45-9:15
WLW, Cincinnati, O.	309	10:00-12:00	10:00-12:00	8:00-10:00	10:00-12:00	Silent	Silent	Silent
WMAQ, Chicago, Ill.	448	Silent	7:00-10:00	7:00-10:00	7:00-10:00	7:00-10:00	7:00-10:00	Silent
WMC, Memphis, Tenn.	500	8:30-9:30	8:30-12:00	Silent	8:30-9:30	8:30-12:00	8:30-9:30	Silent
WNAO, Boston, Mass.	278	5:00-9:00	7:00-9:00	5:00-9:00	7:00-9:00	5:00-9:00	8:00-9:00	6:30-8:30
WOAI, San Antonio, Texas	385	Silent	9:30-10:30	Silent	7:30-8:30	Silent	Silent	9:30-10:30
WOAW, Omaha, Neb.	526	6:00-11:00	6:00-11:00	Silent	6:00-11:00	6:30-11:00	6:00-11:00	9:00-11:00
WOC, Davenport, Ia.	484	8:00-9:00	Silent	8:00-11:00	8:00-9:00	8:00-9:00	9:00-10:00	7:00-11:00
WOO, Philadelphia, Pa.	509	6:30-10:00	Silent	6:30-10:00	Silent	6:30-10:00	Silent	Silent
WOR, Newark, N. J.	405	5:15-10:00	5:15-6:30	5:15-10:00	5:15-6:30	5:15-6:30	5:15-10:00	Silent
WOS, Jefferson City, Mo.	441	8:00-9:30	Silent	8:00-9:30	Silent	8:00-9:30	Silent	7:30-8:30
WRC, Washington, D. C.	469	7:00-9:00	Silent	7:00-9:00	Silent	7:00-9:00	Silent	Silent
WRM, Urbana, Ill.	360	Silent	7:00-9:30	Silent	8:30-9:30	Silent	Silent	Silent
WSAI, Cincinnati, O.	309	Silent	8:00-10:00	Silent	8:00-10:00	Silent	10:00-12:00	Silent
WSB, Atlanta, Ga.	429	8:00-12:00	8:00-12:00	Silent	8:00-12:00	8:00-12:00	8:00-12:00	7:30-9:15
WSY, Birmingham, Ala.	360	Silent	8:00-9:00	Silent	Silent	8:00-9:00	Silent	8:00-9:00
WTAM, Cleveland, O.	390	Silent	Silent	7:00-9:30	Silent	Silent	8:00-10:00	Silent
WWJ, Detroit, Mich.	517	7:30-9:00	7:30-9:00	7:30-9:00	7:30-11:00	7:30-9:00	Silent	4:00-5:00

Instructions for Use.—All the hours above are given in Central Standard Time. If your city uses Eastern Time, add one hour to each of the periods stated; if your city uses Mountain Time, subtract one hour; if your city uses Pacific Time, subtract two hours. This table includes only the evening broadcasts, and, on Sunday, the late afternoon program.



**Says Little Ampere:**  
"Your set can't be better than your batteries. Willard Rechargeable Radio Batteries give better results at less cost."

## Willard Radio Batteries

**They're Rechargeable**

For Sale by  
**Your Radio Dealer**  
or  
**Julius Brunton & Sons Co.**  
13



## THIS WEEK'S AIR PROGRAMS

## MONDAY, APRIL 21

KFO-Hale Bros., S. F.—423 Meters  
NOON—Time signals; Scripture.  
1 TO 2 P M—Rudy Seiger's Fairmont hotel orchestra, by wire telephony.

2:30 TO 3:30 P M—Musical program by the College of the Pacific, broadcast from the Palace hotel.  
Program by Jack Falt's Entella Cafe orchestra.

4:30 TO 5:30 P M—Rudy Seiger's Fairmont hotel orchestra, by wire telephony.

5:30 TO 6:30 P M—Children's hour; stories for children by "Big Brother" of KFO, taken from the "Book of Knowledge." His selections:

The Real Wealth of a Nation; answers to children's questions; Scramble and Scramble-pipe.  
Violoncello solo—Nina, by Natalie Heymann, 10 years old.

7 TO 7:30 P M—Rudy Seiger's Fairmont hotel orchestra.

8 TO 9 P M—Organ recital by Theodore J. Irwin at the Wuritzer. Humorous musical recitation—Almost Bald; recited by A. C. Decker.

Man; musical suggestions by Theodore J. Irwin; light opera selection, from Pinatore; Last Chord (by request); Gavotte, from Holberg Suite; operatic selection, from Madame Butterfly.

Soprano solos—Aria of Lisa, from Dame de Pique; Allignon, Connals tu le Pays; Pierrot (English song), by Natalie Albini, member of the Petrograd opera; Theodore J. Irwin, accompanist.

9 TO 10 P M—Fire, the Scourge of the Forests—Talk by Robert L. Deering of the United States forest service.

Tenor solos—Questa o quella, from Rigoletto; Until, by Nazareth Regoli; Minnie V. Aliberti, accompanist.

Soprano solos—Over de Holve Fjeld (Over the lofty mountains); Oa, Oa, Oa, Min Eien Onge (Oh, Oh, Oh, I Loved You Dearly), by Lily Aurora Stad; Mynard S. Jones, accompanist.

Tenor solos—Arioso, from Pagliacci; Lolita, Spanish Serenade, by Nazareth Regoli; Minnie V. Aliberti, accompanist.

Soprano solos—Aagot's Fjeldsang (Aagot's Mountain Song); Jeg Elsker Dig (I Love Thee), by Lily Aurora Stad, Norwegian; Mynard S. Jones, accompanist.

Piano duet—A Minor Concerto, by Miss Cole and Mischa Lhevinne.

10 TO 11 P M—E. Max Bradford's versatile band playing in the Palace Rose Room Bowl.

KLX—Oakland Tribune—509 Meters  
7 TO 7:30 P M—News, weather, forecast, market and financial news.

8 TO 10 P M—Program by Radio Club of University of California broadcast from Stephens Union hall on the campus over private leased wires through KLX.

News by A. S. U. C. publicity bureau; piano solos by Edith L. Jones, 26; readings from Kipling by Prof. Frederick M. Blanchard of the public speaking department; dance music.

## DISTANT STATIONS

KFI—Earle C. Anthony, Inc., Los Angeles—469 Meters  
4:45 TO 5:15 P M—Evening Herald news bulletins.

5:15 TO 5:45 P M—Examiner news bulletins; Eve Unsell, scenario editor of Principal Pictures Corp., talk on scenarios; Dr. Frank McCoy, address.

8 TO 9 P M—Evening Herald concert; Evening Herald Radiolians, playing popular dance music; Cora Knapp, contralto; Prof. Ridenhoff, accompanist.

9 TO 10 P M—Examiner concert; snappy program of "blue" numbers and others by the Collegiate Californians from the University of Southern California.

10 TO 11 P M—Ambassador-Max Fisher's Coconut Grove orchestra.

KHJ—Los Angeles Times—395 Meters  
12:30 TO 1:15 P M—Program presenting Elizabeth Carroll Swan, mezzo-soprano.

KFOA—Rhodes, Seattle, Wash.—455 Meters  
8:30 TO 9:30 P M—Pacific States Electric Company of Seattle giving a special program of dance music, presented by Bab's B. B. Girls' orchestra; Margaret Dickson, leader.

KGW—Portland Morning Oregonian—492 Meters  
11:30 TO 4 P M—Weather forecast.

3:30 TO 4 P M—Literary program by Portland Library Ass'n.

7 P M—Talk by Florence Holmes Gerke of the city park bureau.

7:30 P M—Weather forecast and market reports.

8 P M—Joint harp recital by Ruth Lorraine Close and Helen Martin.

9:30 TO 10 P M—Musical program by Portland Civic Music club.

WBAP—Star Telegram, Fort Worth, Tex.—476 Meters  
5:30 TO 6:30 P M—Concert by the John Tarleton college of Stephenville, Texas.

7:30 TO 8:45 P M—Concert by the orchestra of Bowie, Texas; Mr. Sadler, directing.

## TUESDAY, APRIL 22

KFO-Hale Bros., S. F.—423 Meters  
NOON—Time signals; Scripture.

1 TO 2 P M—Rudy Seiger's Fairmont hotel orchestra.

2:30 TO 3:30 P M—Organ recital by Theodore J. Irwin. KFO official organist at the Wuritzer.

Overture—Jolly Robbers; novelette, Lace and Graces; Silhouette; fox trot; selected; song, Somewhere a Voice Is Calling; light opera selection, Fortune Teller; Pierrette; Morning, from Peer Gynt; fox trot, selected.

4:30 TO 5:30 P M—Rudy Seiger's Fairmont hotel orchestra, by wire telephony.

5:30 TO 6:30 P M—Children's hour; stories for children by "Big Brother" of KFO, taken from the "Book of Knowledge." His selections:

The Mystery of the Brain; How a Flower Is Born; Undine—the Story of a Water Nymph.

6:30 TO 7 P M—Presented by Chandler-Cleveland Motor Car Company—Cleveland Six orchestra, under direction of Wilt Gunzendorfer: I'm Worried Over You; Blue Grass Blues; Adoration Waltz.

Saxophone solo—At Dawning, by Wilt Gunzendorfer.

Mindin' My Business; Only a Butterfly.

Violin solo—Thais Aria, by Ben Lindholm.

Old Times; Valse Boston; If You'll Come Back.

7 TO 7:30 P M—Dinner concert by Rudy Seiger's Fairmont hotel orchestra.

8 TO 10 P M—Program by Orpheus club of Oakland assisted by the Mills College Trio.

Chorus—The Gladness of Nature; The Clover Blossoms Kiss Her Feet, by Orpheus club; Ernest McCandlish, director; R. A. Brown, tenor; Bessie Beatty-Roland, accompanist.

Instrumental selections—Andante,

## SAVE THIS COMPLETE SCHEDULE

This is the only COMPLETE broadcasting program published by a California newspaper. Radio fans are urged to preserve this magazine for reference during the week. Its small page size makes The Daily News Radio Magazine a handy accessory to your receiving set. Phone the Circulation Department if you desire another copy. Tell your friends about it.

from Symphony in D; Hungarian Dance, by Mills College Trio; Doris Olson, pianist; Rey Marchant, violinist; Jozlena Vander Ende, cellist.

Lassie o' Mine, by Carl Volker; Bessie Beatty-Roland, accompanist.

Chorus—Dreaming Alone in the Twilight; Only One Way, by Orpheus club.

10 TO 11 P M—E. Max Bradford's versatile band playing in Rose Room Bowl of Palace hotel.

Baritone solos—Had a Horse; The Little Irish Girl, by C. A. Larson; Bessie Beatty-Roland, accompanist.

Soprano solos—The Mad Scene, from Lucia; Silver Threads Among the Gold, by Dorothy Bauman Talbot.

Violin solo—Hymn to the Sun, by Rey Marchant; Doris Olson, accompanist.

Chorus—Pilgrims; Ole Uncle Moon, by Orpheus club.

Instrumental selections—Extase; My Heart at Thy Sweet Voice, by Mills College Trio.

Tenor solos—Springtime of Love; Evening, from Summer Song Cycle, by J. J. Rhea; Bessie Beatty-Roland, accompanist.

Cello solo—Kol Nidre, by Jozlena Vander Ende; Doris Olson, accompanist.

Chorus—Song of the Camp; Little Grey Home in the West, by Orpheus club; Bessie Beatty-Roland, accompanist.

Soprano solos—O Come to Me, from Neapolitan Barcarolle; Home, Sweet Home, by Dorothy Bauman Talbot; Bessie Beatty-Roland, accompanist.

Piano solo—Hungarian Rhapsody, No. 12, by Doris Olson.

Tenor solos—Ave Maria; Sea Dreams, by J. I. Thomas; Mrs. J. I. Thomas, accompanist.

Instrumental selection—Andante Religioso, by Mills College Trio.

Baritone solo—Lettie Bates.

KGO—Gen. Electric Co., Oakland 312 Meters  
1:30 P M—New York stock exchange and weather.

4 TO 5:30 P M—Music by the concert orchestra of the St. Francis hotel, San Francisco; Fernin Cardona, conducting.

6:45 P M—Final stock exchange reports; weather and news items.

8 TO 10 P M—Instrumental selections—Paradise Hawaiian Trio.

Soprano solo—I Hear a Thrush at Eve, by Geraldine Jackson (courtesy of Homer Henley).

Piano duet—Dance Macabre (after a poem by Henri Cazalis), by William and Bonita Keasbey.

Reading—The Forgotten Actor, by Richard Mill.

Vocal selection—It Was a Lover and His Lass, by the Rose Florence Ladies' Quartette; An Original Song—The Joy of Spring, by Otto Richl.

Baritone solos—Shipmates' Mine; My Jacqueminot, by Leslie H. Jackson (courtesy of Homer Henley).

Piano solos—Rhapsodie in G Minor; Love Song, by Norman MacPherson (courtesy of Loraine Steblinger).

Vocal selection—Barcarolle, by Ladies' Ensemble from studio of Rose Florence.

There'll Never Be One Like You, by Leslie H. Jackson (courtesy of Homer Henley).

Two Finnish songs—Lullaby; Since You Left Me, by Martha Jalava (courtesy of Rose Florence).

Soprano solos—I Heard a Cry; When Song Is Sweet, by Geraldine Jackson (courtesy of Homer Henley).

Vocal selection—Tian Gypsies, by Ladies' Ensemble from studio of Rose Florence; Irma H. Vogt, accompanist.

Instrumental selections—Paradise Hawaiian Trio.

Vocal selections—O del mio dolce ardor, by Reva T. Ker; Vaghiissima Sombianza, by Irene Carroll; Nymphs and Shepherds, by Janie Johnston; Ritorna (Aida), by Emily Beal (from the studio of Rose Florence); Helen McGlory, accompanist.

Piano duet—A la bien Almee, by William and Bonita Keasbey.

Three Spanish songs—Preguntale a las Estrellas; Me Guran Todos; Clavellitos, by Leonore Keithley (courtesy Rose Florence).

Instrumental selections—Paradise Hawaiian Trio.

## DISTANT STATIONS

KFSG—Angelus Temple, L. A. 278 Meters  
3:30 TO 4:30 P M—Organ recital of well known and beloved melodies by Esther Price Green; assisted by Alfred C. Green, lyric tenor.

4:30 TO 5:30 P M—Ada Lantz, soprano; Mrs. Eva Jensen, evangelistic singer; John Walker, tenor; Selma Johanson, Swedish singer and accompanist.

6:30 TO 7:30 P M—Kosy Hour, Inez Lasley, soprano; Paul DeRonde, age 14, marimba soloist; Grace Waldron, soprano; fireside story.

8 TO 9 P M—Great auditorium services.

9 TO 10 P M—Swanes Jubilee Singers; Margaret Knox McCraw, contralto; Taps—Almee Simple McPherson; Roy Reid Brignall, accompanist.

WBAP—Star Telegram, Fort Worth, Texas—476 Meters  
5:30 TO 6:30 P M—Concert arranged by Frank Cheek, baritone.

7:30 TO 8:45 P M—Monthly program by the Fort Worth Harmony club.

KFI—Earle C. Anthony, Inc., Los Angeles—469 Meters  
4:45 TO 5:15 P M—Evening Herald news bulletins.

5:15 TO 5:45 P M—Examiner news bulletins; Dr. M. J. Stormand of the University of Southern California, "Can We Teach Others How to Think?" H. A. Marks, manager of the Germain Seed Co., talk on gardening.

6:45 TO 7:30 P M—Globe Five orchestra.

8 TO 9 P M—Ambassador-Max Fisher's Coconut Grove orchestra.

9 TO 10 P M—Examiner concert; classical program presented through the courtesy of Barker Brothers.

10 TO 11 P M—Sarah Crosby arranging vocal concert.

KGW—Portland Morning Oregonian 492 Meters  
11:45 A M—Market Basket.

11:30 A M—Weather forecast.

12:30 P M—Concert by Civic Club

of Portland.

3:30 P M—Talk by Jeanette P. Cramer, home economics editor of the Oregonian.

7:30 P M—Weather forecast and market reports.

7:45 P M—Talk for farmers, Oregon Agricultural college extension service.

## WEDNESDAY, APRIL 23

KFO-Hale Bros., S. F.—423 Meters  
NOON—Time signals; reading of the Scripture.

1 TO 2 P M—Rudy Seiger's Fairmont hotel orchestra, by wire telephony.

2:30 TO 3:30 P M—Mezzo contralto solos—A Group of California Wild Flower Songs, by Celene Sheldon Olsen.

Tenor solos by Ned Nicholson.

Mezzo contralto solos—Bon Voyage; Baby Smile Awhile; Some Day, by Celene Sheldon Olsen.

4:30 TO 5:30 P M—Rudy Seiger's Fairmont hotel orchestra.

5:30 TO 6:30 P M—Children's hour; stories for children by "Big Brother" of KFO, taken from the "Book of Knowledge." His selections:

The Marvel of Hearing; The Spider and the Fly; The Life of the Sponge.

Vocal solo—Songs My Mother Taught Me, by Allison Church; Willie Jager, accompanist.

Vocal duet—O Sole Mio, by Leo Christiansen and Allison Church; Willie Jager, accompanist.

Vocal solo—Love's Old Sweet Song, by Leo Christiansen; Willie Jager, accompanist.

7 TO 7:30 P M—Rudy Seiger's Fairmont hotel orchestra.

8 TO 11 P M—Talk, Your Boy and Mine, by William Elzinga.

E. Max Bradford's versatile band playing in Rose Room Bowl of Palace hotel; during intermissions Baron Keyes, composer, will sing some of his own compositions, playing his own accompaniment; Marchetta's Sister; The World Loves a Lover; Rip Saw Blues; After a While; Just a Dreamer; Somebody's Smile; Blase (piano solo); piano medley (Oh, Baby; Cover Me with Kisses and Mindin' My Business).

KLX—Oakland Tribune—509 Meters  
3 TO 5 P M—Baseball scores.

7 TO 7:30 P M—News, weather, market and financial summary, garden hints.

8 TO 10 P M—Studio program under direction of Walter Horace Bundy.

Vocal selections—Italia Beloved; Garden Scene (from Faust), by Sunset Club Mixed Chorus.

Orchestra selections.

Vocal solo—Perfect Day, by Raymond Ramsey.

Vocal solo—Uncle Moon; Angel Serenade, by Mrs. Hampel, Miss Hammel and Miss Clevenger (violin obligato by Lee Mack).

Vocal selections—Sunrise and You; One Sweet Day, by Sunset club (violin accompaniment by Martin Thornton).

Address—Radio Battery Does and Don'ts, by J. A. Ramsey, National Club.

Orchestra selections.

Duet—Barcarolle (from Tales of Hoffman), by Misses Hammel and Clevenger.

Saxophone duet—Somewhere a Voice Is Calling, by Messrs. Roe and Fournier.

Piano solo—Selected, by H. D. B. Soule.

Duet—Absent, by Messrs. Carrelli and Lindquist.

Orchestra selections.

Vocal duet—Fleecy Clouds, by Dolly and Thelma Jones (violin obligato by Lee Mack).

Vocal solos—A Memory; Perseus, by Miss Graham, blind soprano.

Marimba selections by Charles Birnbaum.

Vocal selections—Selections from Aida, by Sunset club.

Vocal solos by Misses Hammel and Clevenger; Messrs. Carrelli and Lindquist.

Duet—Moonlight Nights, by Miss Hammel and Mr. Lindquist.

Selection—Gallia, by Mrs. Ethel Hammel and Sunset club.

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; address by John Collier on "What the Pueblo Indian Has to Contribute to Our Knowledge of Civic and Ethical Training of Youth."

4 TO 5:30 P M—Music by the concert orchestra of the St. Francis hotel, San Francisco; Fernin Cardona, conducting.

6:45 P M—Final stock exchange reports; weather and news items.

## DISTANT STATIONS

KGW—Morning Oregonian, Portland 492 Meters  
11:15 A M—Window shopping.

11:30 A M—Weather forecast.

12:30 P M—Concert by Darby's orchestra of Cottillion hall.

3:30 TO 4 P M—Children's program.

7 P M—Forest Protection Week talk.

7:30 P M—Weather forecast and market reports.

8 P M—Orchestra concert by Ladies' Columbia Concert orchestra.

9 P M—Alexander Hamilton Institute business talk by James Albert.

10 TO 11 P M—Dance music by George Olsen's Metropolitan orchestra of Hotel Portland.

KFOA—Rhodes, Seattle, Wash.—455 Meters  
8:30 TO 9:30 P M—The Sunset Electric Co. of Seattle giving a special program of vocal music presented by Prof. Karl Schwerdtfeger, prominent voice instructor.

An instructive talk on "Automotive Ignition" will be given by a representative of the Sunset Electric Co.

KFAE—Washington State College, Pullman, Wash.—330 Meters  
7 TO 8:30 P M—Animal Husbandry talk, by Prof. Richard T. Smith; The League of Nations; What Is It, by Prof. Carl Mautschagen; Keeping Tab on Farm Costs, by R. N. Miller; piano solos, by Frances Bates, Greenacres; violin solos, by William Just, Ritzville; Women's Collegiate orchestra.

KLX—Oakland Tribune—509 Meters  
12:30 TO 1:15 P M—Program presenting Wally Wallenius, tenor.

2:30 TO 3:30 P M—Program pre-

sented through the courtesy of Barker Brothers.

6:30 TO 7:30 P M—Children's program presenting Prof. Walter Sylvester Hertzog, Dick Winslow, Juvenile reporter; Baby Muriel MacCormac, screen juvenile; Aaron Blackman, pianist, seven years old, pupil of Esther Denniston; bedtime story by Uncle John.

8 TO 10 P M—Program through the courtesy of Estelle B. Mills, Studebaker Radio orchestra of Long Beach. Dr. Mars Baumgardt, astronomer.

10 TO 11 P M—Art Hickman's orchestra from the Biltmore hotel.

KFI—Earle C. Anthony, Inc., Los Angeles—469 Meters  
4:45 TO 5:15 P M—Evening Herald news bulletins.

5:15 TO 5:45 P M—Examiner news bulletins; Elmer S. Nelson, University of California, "Why Business Men Should Study Economics," Dr. Ralph L. Power, talk on education.

6:45 TO 7:30 P M—Nick Harris detective stories and concert.

8 TO 9 P M—Evening Herald concert; Laurence Lambert Concert company under management of Harry W. Nixon; Oscar Bellman, phenomenal boy pianist.

9 TO 10 P M—Examiner concert.

10 TO 11 P M—Hollywood Community orchestra.

11 TO 12 P M—Ambassador-Max Fisher's Coconut Grove orchestra.

WBAP—Star Telegram, Fort Worth, Texas—476 Meters  
5:30 TO 6:30 P M—Concert by True's True Tone orchestra.

7:30 TO 8:45 P M—Concert to be announced later.

KFSG—Angelus Temple, Los Angeles 278 Meters  
2:30 TO 4:30 P M—Auditorium service; congregational singing and organ.

6:30 TO 7:30 P M—Kosy hour; mothers' story; A. J. W. Galbraith, basso; Francis Foto, bird whistler; Frances Henking, reader; Essie Binkley Lacy, cornetist; Annie Lacey, child soprano; Ruth Thomas, accompanist.

## THURSDAY, APRIL 24

KFO-Hale Bros., S. F.—423 Meters  
NOON—Time signals; Scripture.

1 TO 2 P M—Rudy Seiger's Fairmont hotel orchestra.

2:30 TO 3:30 P M—Matinee program of Indian music under the direction of Mrs. Suzanne McKelvey.

Address—Indians of California, by Mrs. Suzanne McKelvey; member of California club and Indian board of co-operation.

Vocal solo—I Love You Truly, by Mrs. Alma Olsen, Pomo Indian.

Address—The Indian of Yesterday, Today, and What We Hope for the Indian of Tomorrow, by Frederick G. Collett, executive representative Indian board of co-operation.

Indian Legends; Tribal songs, by Alfred C. Gillis, Wintoon Indian.

4:30 TO 5:30 P M—Rudy Seiger's Fairmont hotel orchestra.

5:30 TO 6:30 P M—Children's hour; stories for children by "Big Brother" of KFO, taken from the "Book of Knowledge." His selections:

King of the Golden Mountain; The Fable of Buddha; The Princesses' Five Servants.

7 TO 7:30 P M—Dinner concert by Rudy Seiger's Fairmont hotel orchestra, by wire telephony.

8 TO 9 P M—Talk, Banks as an Instrument of Economic Welfare, by Stewart D. Beekley, former president of Institute of Banking.

Organ recital by Theodore J. Irwin at the Wuritzer.

March; waltz; You and I; three musical themes will be played in cooperation with music memory contest; intermezzo, There Once Was An Owl; Dream Music (from Hansel and Gretel); popular waltz song, The West, a Nest and You; musical comedy selection (from Wildflower); minuet, L'Arlesienne; Gavotte; operatic selection, Cavalleria Rusticana; selection, Old-time Favorites.

9 TO 10 P M—Program by the Third band, coast artillery corps; guardians of the Golden Gate, Fort Winfield Scott; Warrant Officer J. C. Coe, director.

March—Ponderosa.

Overture—Isabella.

The Citizens' Military Training Camps of 1924, by R. N. Lynch, vice president San Francisco Chamber of Commerce.

March—Marche Militaire; selection, The Velvet Lady; The National Prize Essay Contest for Girls, by Mrs. G. H. Taubles, president Bay Cities Unit Women's Overseas Service League.

March—Marche Alla Turca; menuet, Celebrated Menuet; march, Desert; The Citizens' Training Camps from the Standpoint of a Young Man Who Has Attended One, by Stanford E. Moses Jr.

Czardas—Dernier Armour; march, The Steel King.

10 TO 11 P M—E. Max Bradford's versatile band playing in Rose



# NOW YOU DON'T OWN THE AIR ANY MORE

BY RUTH FINNEY

Daily News Staff Correspondent

WASHINGTON, Apr. 21.—If you are tired of worrying about taxes and the rent and spring gardens, here's something new to ruin the digestion.

Somebody may be stealing your air!

You may not have thought it and it may not be true, but, according to Sen. William Cabell Bruce of Maryland, every man who owns land owns in fee simple all the air over it.

In fact, he owns from heaven

clear down to hell. Well, Bruce says so! And it's printed in the Congressional Record! Bruce told about the air and who owns it when Sen. Howell of Nebraska brought up his radio bill, reserving to the government of the United States the ether and the use thereof for transmission of signals, words and energy.

Whereupon a whole new catalogue of assorted causes of brain fag and apoplexy opens up to the harassed land owner.

Suppose a fresh wind blows your piece of air across the street onto your neighbors' land.

How are you going to get it back?

Suppose a quarter section of land belonging to the municipal garbage dumps or a tannery blows onto your land and refuses to depart. How'll you get it off? And can you recover damages?

Suppose you want to expand a little and decide to buy air adjoining your property. Will you order it by the gallon, front foot or cubic yard? Will you buy all the way to heaven or only half way? How far is half? How'll you know you're getting all you paid for? To prevent intrusion, property ought to be fenced. And how the deuce—

If aviators are going to tramp around over one's air, they ought to pay taxes, or toll or something. Therefore, why not toll gates at the edge of each piece of air? Why not? But how?

Or, if the government wants to send its aviators across private property all the time, why shouldn't it buy a right of way?

Why shouldn't every radio broadcasting station buy a right of way, too? Then if a man disapproved of the sentiments of some speaker he could put up the gates and keep him off his property. Of course. Isn't every man's home his castle?

Every air owner would have a

perfect right to sue to keep manufacturers from making his property all smoky and black. You'd sue if a man dumped garbage all over your front yard, wouldn't you?

If you're exhausted and nerve-wracked by this time, here's relief for you.

The senate heard Mr. Bruce without comment and proceeded at once to pass the Howell bill, proclaiming the air to be the property of the people of the United States and the government thereof.

And you don't own the road to heaven any more than you ever did!

## RADIO 'HOP' TAKES A FLOP!

BY LEWIS KONNECTION

"Come out to the house tonite, Lew," invites the Fan at the next desk, "we're goin' to have a radio dance. You'll have a great time."

You know I'm not keen on this radio stunt after me trying to do the "unseen audience" act last week at \$25 a seat.

Naturally I'm skeptical about these "alphabet twisters" when they handed me an anchor as I was goin' down for the third time, but thinks I, maybe he holds the rabbit's foot and can make the thing do tricks, so out I go.

Bein' somewhat early, mine radio host and I hold an autopsy on his set.

"She's a beauty, Lew. Got P. D. Q. last night. Brought her in clear as a bell. This old baby will bring 'em all in," he orates, gazing fondly at the baby door knobs.

Forthwith he peels back the

casing and we amble through the wiring, grid leak, tubes, condensers, etc.

To me it looked as though a plumber with the St. Vitus dance tried to fix what the electrician forgot, but mine host thought the solder—platinum and the copper wire—strands of gold.

Happily the arrival of the rest of the gang relieved the ordeal and after we get all nicely introduced, we prepare for the radio shindig.

Splut. Split. Fshsh.

By gosh he made it work! Coughing and wheezing, the ore crusher began to grind out what sounded suspiciously like music.

We did a few turns and the "orchestra" did a fade out, and anon a melodious voice announced that the next number from BUGS would be a recitation by the child prodigy, so and such.

Mine host oscillated over to the set, did a few magic passes,

and we were off again to Red Hot Blues.

"Great invention," muttered my fair partner.

Funny how people like to lie to those they meet for the first time. "Sure is," I lie right back.

Bzz. Brr. Dot. Bzz. Bzz. Dash.

"Spark station," breathes the fair one, "I hate sparking, don't you?"

"Behave," I commanded her. I don't believe in this parlor petting.

The Bzzz kept up. Mine host twisted. We all twisted. Conversation lagged.

Success. Far off in the distance came the strains of faint music.

More turning. It grew louder. Then it burst upon us.

Some bagpipe band was serenading "Till the Sands of the Desert Grow Cold."

I refuse to be a sheik. Polite like, I get my hat.

"Night," I mutter, and vanish into the streets.

Bzzz!

## AMATEURS OF WORLD PLAN TO ORGANIZE

NEA Service

HARTFORD, Conn., Apr. 21.—Organization of the radio amateurs of the world has taken on big strides since the return recently of Hiram Percy Maxim, famous inventor and president of the American Radio Relay league.

According to Maxim, the International Amateur Relay league is an assured possibility for the near future. Plans for its organization were completed at the European amateur conference, from which he returned.

For some time amateur radio enthusiasts, transmitting on low wave lengths, have been hearing one another across seas and continents. Reports come in to A. R. R. L. headquarters here almost daily of unique long distance reception experienced by American and foreign amateurs. Japan, Australia, the Philippines, England, France, other European countries, South America—in fact, almost all points of the globe are reporting great progress in amateur activities.

From Australia comes the offer of a genuine Australia boomerang, representing two-way radio communication on amateur wave lengths between New Zealand or Australia and North America.

It is a sign of the unofficial interest of amateurs, which Maxim and others prominent in amateur radio are trying to organize throughout the world.

### Action By Sound

When dramas are broadcast by radio, the action ordinarily seen by an audience has to be transmitted by sound. An entrance or exit, for instance, is designated by a slamming door. A bell helps sometimes to announce a newcomer. A telegraph key or locomotive whistle signifies a railway station scene. And so on.

As far back as 1909, Lee De Forest, radio engineer, succeeded in broadcasting Caruso's voice in "Cavalleria Rusticala."

### Began Early

First steps in the invention of wireless may be traced back as far as 1840, when Professor Henry first produced high frequency electric oscillations and pointed out that the discharge of a condenser is oscillatory.

Morse, inventor of the telegraph, two years later made wireless experiments by electric conduction through water.

In 1882, Professor Dollbear was awarded a United States patent for wireless apparatus in connection with which he said "electrical communication, using this apparatus, might be established between points certainly more than one-half mile apart, but how much farther I cannot say."

Edison in 1885 took out a patent on long distance wireless telegraphy.

But it was not until the discovery of Hertz, in 1887, that electro-magnetic waves are in complete accordance with waves of light and heat, that a big advance was made in radio signaling.

In 1897 Marconi established wireless communication over a distance of four miles.

### Unique Contest

Nearly 1300 fans listened in for two steady hours on WJAX, Cleveland, recently to report the two-hour program and participate in the contest for three best reports. Entries came in from as far as Winthrop, Me., and Garrochales, Porto Rico.

### Unique Contest

Nearly 1300 fans listened in for two steady hours on WJAX, Cleveland, recently to report the two-hour program and participate in the contest for three best reports. Entries came in from as far as Winthrop, Me., and Garrochales, Porto Rico.

## BANK AIDS ITS CLIENTS WITH RADIO STATION

The Union Trust Co. of Cleveland, the fifth largest trust company in the country, has the unique distinction of being the only banking institution owning and operating a radio broadcasting station.

George A. Coulton, president of the company, says that among the many reasons for the bank's interest in radio is the fact that it can keep its clients, scattered throughout the state of Ohio and adjoining states, informed in matters that are of business interest to them. It offers news of the various markets, including stock and bond quotations. Cotton, grain, livestock and cattle prices are also given. In many cases clients get these quotations a day or two before they would read them in their local newspapers. Of course, general financial news, together with weather reports, is given.

The bank has received hundreds of letters from farmers, bankers and cattle dealers congratulating it on the help given them through this broadcasting, as many of them live in outlying districts where they are unable to get quotations readily by wire and where there is no daily newspaper immediately available.

Incidentally the station has the distinction of being "on the air" for the longest period without interruption—from 7:30 p m to 5 a m.

### Quickest First Aid

Ambulances soon may be picking up emergency calls by radio, while on the road. Huston, Dallas and Fort Worth, Tex., are planning municipal broadcasting stations at police headquarters, whereby first aid calls could be flashed to the ambulances while the drivers are attending to other calls.

Another 1000-watt broadcasting station has entered the air. It is station WHO, Des Moines, Ia.

## ARTIST



Miss Vivian Consula Sengler, well known Bay City composer, pianiste and teacher, will entertain radio fans over station KRE to-night.

## LET'S SWAP

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

TO SWAP—Willard rechargeable "A" battery, type CTR125 for WD11-12 tubes, 2 volts. For something of equal value.—M. Finnegan, 120 Eugenia-av., San Francisco.

TO SWAP—A good crystal set for a pair of phones or a V. V. 199 tube.—W. E. B., 109 Banks-st., San Francisco.

TO SWAP—Flewelling receiving set mahogany cabinet. Fine for distance. For one r. c. loop or something of equal value.—J. B. Vassallo, 676 Pennsylvania-av., San Francisco.

TO SWAP—Loose coupler crystal set, complete except for headphones. Will exchange for other radio equipment.—P. S. Jones, 1410 Milvia-st., Berkeley.

### Set for Convention

A \$12,000 loud speaker is to be placed in and outside of the Cleveland auditorium during the coming Republican convention. It has been leased by the national committee for use during the convention, and an option for its purchase thereafter has been offered to the city.

### Dust Off Set

Just dust off your radio set with a dry rag, or, at most, moistened slightly. Polishing with an oiled cloth causes trouble in receiving.

## Women Demand Fancy Tones In Loud Speakers

The feminine influence is commencing to make itself felt in radio. One large manufacturer of loud speaker horns has received orders for thorite horns to be made in nine different pastel shades to harmonize with the color schemes of boudoirs and the complexions of their owners. Dealers report that where a man will insist

on purity of tone and volume from a loud speaker, the women buyers will devote just as much attention to the coloring and design of the outfit.

Incidentally, the loud speaker industry is assuming tremendous proportions, 600,000 horns and 90,000 complete torophone loud speakers being, fixed as the 1924 production from one Chicago factory.

## IDEA OF ETHER IS FALSE ONE, DR. PAGE SAYS

(Concluded From Page 1)

revolutionary ideas about radio, in defining some of the terms related to this science. Here are some of his definitions:

"ANTENNA—A Rx coated, high tension wire which makes it a constant and perpetually charged electric battery. The light-sound Rx striking it keeps it in action.

"CONDENSER—This should have been named 'multiplier,' for it positively does not condense the feeble impulses received by the antenna, but multiplies it thousands of times and preserves periodicity.

"TUNING-IN—It is generally understood that 'tuning-in' consists in placing the sending and receiving sets in unison, which is incorrect. Tuning-in is bringing impulse-producing parts of the receiving set in unison with each other so that they will assume their quiescent conditions between impulses without oscillations. It is only slightly, if at all, concerned with the sending set.

"TUNING-OUT—Placing the sending and receiving sets in connection, but not in unison, for the distinctiveness of the message is secured by the unison of the receiving set itself."

### Japanese Radio

Radio in Japan has begun to take popular interest only since Dec. 20, when the government first authorized broadcasting. Newspapers and banks are planning such stations, but it is hard to tell to what extent this will go, according to a consular report to the U. S. Department of Commerce.

### Inventions Sought

Preparatory to the first world radio show next September, radio authorities are making an extensive search for unknown wireless inventions of all sorts. At the same time they are planning important experiments and tests of new radio inventions and theories.

### Test Short Waves

Government experts of the United States Bureau of Standards are experimenting with short wave radio transmitting and receiving sets. They have been able to measure extremely short waves measuring from 9 to 16 meters.

Some experienced radio operators can receive two or even three wireless messages at the same time.



# THIS WILL BE A GREAT YEAR IN RADIO

Rapid and far-reaching achievements in radio during the past year will open unequalled opportunities for the public to enjoy broadcasting this year, according to a review of the radio situation in the current issue of Electrical Merchandising.

"Ten million persons will listen into the two great national political conventions, speeches of presidential campaign messages to and from a polar expedition, and all the big events of this busy world," the

publication declares.

"Both the Democratic national convention in New York and the Republican national convention in Cleveland, during the month of June, will have their proceedings broadcast by radio, so that members of the general public all over the country can listen in to the speeches and events on the floors of the conventions.

"For the first time in history a campaign for the election of a president of the United States will be conducted to a large de-

gree by radio. The campaign will start in earnest by the latter part of August, and will be on at high speed by September and October.

"This summer will also be notable for the attempt of Explorer MacMillan to reach the north pole, carrying with him a radio outfit by which he hopes to keep in touch with civilization during all his efforts, and to report his success directly through the air, 'Station North Pole speaking.'

"All important sporting events,

games, contests, etc., will be reported by radio. Famous bands and great orchestras will dispense their music to millions, instead of to the mere thousands within earshot of their instruments. Radio versions of well known plays and musical successes will be regularly 'on the air.'

"Compared with last summer, there are now many more of the high-powered 'class B' broadcasting stations in operation all over the country, and certain of the principal stations have in ad-

dition greatly augmented the power used, so that the music and signals sent out by these stations 'come in' much louder, making reception much better, particularly on occasional nights when static is present.

"Metropolitan broadcasting stations of tremendously increased power, additional large broadcasting stations, greatly increased sensitiveness in commercial sets for home operation, and reduced prices of sets, tubes and auxiliaries, are some of the latest strides in the art."

## NEW YORK IS GETTING RADIO SCHOOL COURSE

BY ISRAEL KLEIN  
NEA Service Writer

Having succeeded in winning over the American public to the idea of education by radio, colleges and other educational institutions are going a step farther.

They are inaugurating a series of courses on various subjects, by which radio students listening in on them will be eligible for examinations entitling them to "points" toward college entrance, teaching or a degree.

It is a sort of compromise between the correspondence school and direct education.

Almost at the beginning of the popular adoption of radio, the New York Board of Education took up this form of teaching. At first it was only experimental. Lectures were broadcast from headquarters to a schoolroom that had a receiving set, while observers watched the effect this had on the children.

### Parent Talks

That has broadened out until now the Board of Education of New York is broadcasting daily lectures not only to its children but to their parents. Thus, it is hoped, closer co-operation will be maintained between the school and the home.

According to William L. Ettinger, New York superintendent of schools, the programs broadcast through station WJZ between 2 and 2:30 each afternoon will include talks on special phases of education, music lessons, songs, glee clubs, music appreciation, orchestras, recitations in reading English, history, civics, geography, arithmetic, nature study, science, spelling lessons and exercises for special holidays.

Hereafter, mother will be in a position to discuss daughter's lessons with her intelligently.

But this is only for the development of elementary education. From various colleges throughout the country come lectures for the benefit of those intending to enter such institutions and needing only a few more points to qualify.

To help these especially, such institutions as Columbia University, New York University and others are offering courses by radio, after which examinations may be taken to qualify for entrance.

### Courses Paid For

New York University broadcasts a regular daily program through station WJZ, including such courses as municipal affairs, history, philosophy, social economy and systematic psychology. Weekly, on the same day, each topic is continued through a "semester," after which the radio students may take examinations entitling them to a certain number of points toward entrance or a degree.

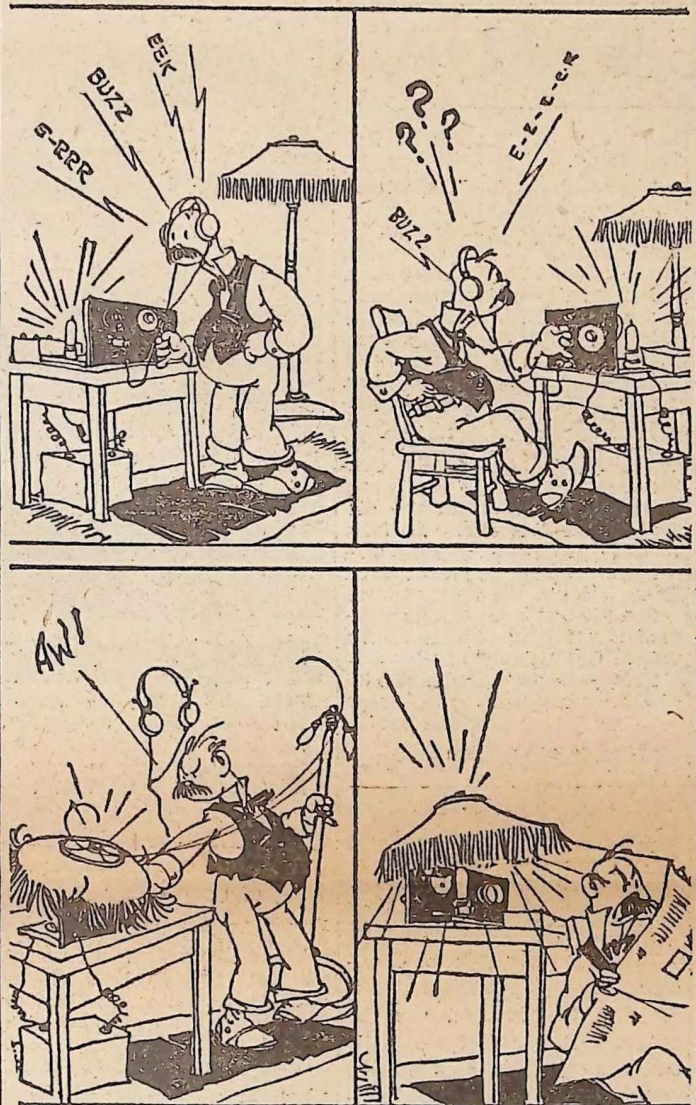
Revenue for the broadcasting of this educational series is obtained from those taking the examinations, at a certain sum a point. When a course on Browning was broadcast from Columbia University, anyone could benefit by it without charge.

But to get full profit from the course, a student would have to buy a syllabus. That would bring in some revenue and more would come in from those desiring to take the examinations at the end of the series of lectures.

Brazil has granted permission for the construction of four new broadcasting stations there.

## BUGS

By Roy Grove



## X-Ray Machine Often Fools Listeners-In

The doctor has been causing quite a bit of interference at various times.

X-ray machines cause most enthusiastic interference when in operation.

Generally these machines make a fairly steady rattling or buzzing. It sounds something like a bad sending set, the key

of which is being held down for a long time.

The noise may have a high-pitched hissing quality, and sometimes even a musical tone.

Sometimes it may give an experienced operator the idea that he is hearing a transmitting station in action—until he tries to read the stuff and discovers that it does not make sense.

### Show Radio Film

Radio fans will have an opportunity of seeing behind scenes in radioland. The Pathe News reel people have made several hundred feet of motion picture film showing scenes and persons in station WJAZ, Chicago.

### Loud Speakers

Your phonograph may be a more efficient loud speaker, for less cost, than many you might buy. A phonograph attachment is all that is needed to connect your radio set to the horn.

## DAILY RADIO NEWS

There is only one way to be certain of getting the best of the news of the radio world as it occurs daily. That is by having The Daily News sent to your home each afternoon. If you are not a regular subscriber, mail this coupon to the Circulation Department and receive The Daily News. The price is only 50c a month.

Name .....

Street and number .....

Send this coupon to The Daily News, 340 9th-st, San Francisco; or just telephone and say, "I want The Daily News."

## BOY HURT AS AERIAL HITS POWER LINES

Lionel Ormsby, 14, of 6596 Chabot Road, Oakland, climbed a tree near his home, throwing a coil of wire, intended for a radio aerial, over the high voltage power line near by, jeopardizing not only his own life but others in the vicinity.

Fortunately for Ormsby, the insulation on the power wires and lack of a good ground, prevented serious accident. The boy received a severe shock but no burns. Seeing the wires flashing, a witness immediately called the office of the power company and a man was sent to cut down the crossed wires.

The power company officials report that a similar case occurred recently where a boy contacted his aerial with the street car company's trolley in the vicinity of 45th-av and Redding-st, and which caused him to become badly burned and necessitated his being taken to the emergency hospital.

Hazards involved in stringing of wireless aerials indicate the necessity of keeping them from close proximity to power lines.

## WAVELETS

There are 36 broadcasting stations in Canada.

First radio installation in India was made in 1922.

Great Britain now has about 580,000 licensed broadcast listeners.

Purchase or operation of radio sets in China is prohibited.

Sale of radio equipment in this country is running nearly twice as large as that of sporting goods.

In 1923 alone, about \$24,000,000 was spent for vacuum tubes.

Bureau of Standards is transmitting special signals of standard frequency about twice a month.

First act requiring use of radio on passenger-carrying vessels was approved June 24, 1910.

First licenses for broadcasting stations in the United States were issued in September, 1921.

Broadcasting in India first was undertaken in February, 1923, by government permission.

Permission to broadcast by private enterprises in Japan was granted only last December.

Ships at sea, regardless of nationality, may receive free medical advice from the Thorshaven radio station, Faroe islands.

Most receiving sets in Great Britain are crystal receivers, due to their closeness to the broadcasting stations.

An expedition from the United States to explore the Amazon and Orinoco rivers will have radio as the only means of communication.

Commercial spark stations, sending in 450 meters, are blamed for much of the interference met with by broadcast listeners.

A single conversation over the telephone is said to occupy only one-sixth of the line wires—plenty of room for wired radio.

## ANSWERS

Questions addressed to this department will be answered by L. E. Day of the Day Radio Laboratory, 693 Mission-st. No hookups will be printed.

William Pabst Jr, 1163 Kansas-st, asks:

(1) How far can I receive with this set (diagram enclosed)? I have a 50-foot, 2-strand aerial, 35 feet high, C12 tubes, etc.

(2) Where can I get a Grant crystal?

(1) Your aerial is good. You should receive all coast stations if you shunt a .001 fixed condenser across the headphones.

(2) Grant's address is 904 Oak Grove-av, Burlingame.

## Giant Station Is Erected by Army

Construction of the giant radio control station being erected at Ft. Leavenworth by the War Department is progressing rapidly and should be completed and ready for operation some time in April, according to Capt. H. W. Webbe of the U. S. Signal Corps.

Capt. Webb, who will be in charge of the station, said that the normal daylight range for high speed commercial service will be 1200 miles.

The set will permit either the use of code or voice.

## Champ Freak Artist

Fourteen freak radio sets is the record accomplishment of 13-year-old Wilbur Wetlin of Chicago. He had a set in his mother's vanity case, another in a powder box, and a pencil and two fountain pens caps were receptacles for three others. Other pieces of "junk" included the rest of his sets—all in working order.

Radio amateurs at El Paso, Tex., found the interference they had been getting came from street lights.

## No Cause for Getting Lost

NEA Service

SAN ANTONIO, Tex., Apr. 21.—Balloonists hereafter will have no cause for being lost, whether they meet storm or disaster. Radio broadcasting stations will watch them closely.

This assurance comes out of here, where preparations are being made for the start of the national balloon race on the afternoon of Apr. 23.

At least one of the balloons will be equipped with a radio receiving set, which will get regular reports of its position from WTAM (Willard Storage Battery Co.), Cleveland. Its pilots will drop messages identifying their balloon. These will be telegraphed to WTAM, and WTAM in turn will broadcast the place and time of the message. So the pilots will learn within a few minutes what city they passed over.

And listeners, eager to learn of the balloonists' progress, may tune in on WTAM and other broadcasting stations for their latest reports.