

1927
OFFICIAL PROGRAM

5¢

4TH ANNUAL
~ ~ PACIFIC ~ ~
RADIO EXPOSITION
CIVIC AUDITORIUM
AUG-20-27

ARW
VITALITONE
CONE SPEAKER

Santa
Maria



Pacific Wholesale Radio Inc.
BOOTHS ~ 74-75-78-79

Pioneers

Eleven years ago—long before broadcasting was popularized—long before radio shows were staged—there was pioneered on the Pacific Coast what has since become the nationally recognized authority in the radio magazine field—"RADIO." This magazine with its editorial policy guided in an unbiased manner by A. H. Halloran and its technical staff in charge of Gerald M. Best brings to you, month in and month out, the latest and best in radio.

It has helped many a radio man along the road to fame. It has gained the admiration and respect of the radio industry. It is the magazine without the bunk.

Your newsdealer has a copy for you. It sells for twenty-five cents. Be sure to ask for "RADIO"—just plain "RADIO"—that's all!

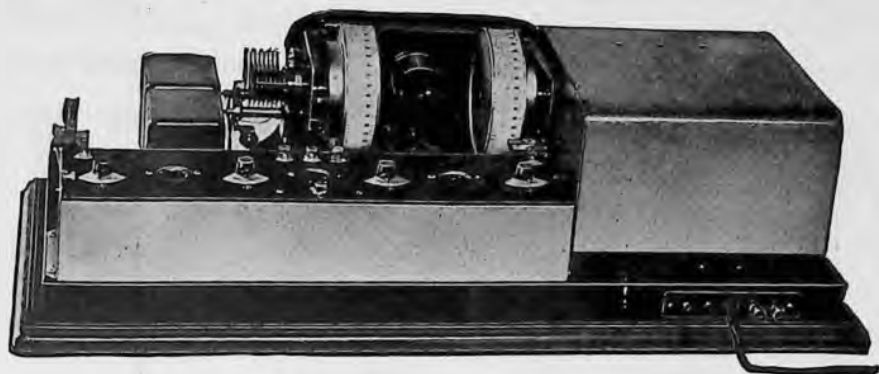
Pacific Radio Publishing Co.

Pacific Building --- San Francisco

New York

Chicago

Boston



The Sensation of the Show Because

of its ability to bring in stations clearer, sharper, louder and better than on any other receiver the new 1928 Infradyne will be the center of attraction at the radio show. Don't miss it! So many improvements have been made in design and construction of this wonder receiver that it is really three years ahead of the times. By the throw of a switch you convert this receiver from five tubes for local operation to ten tubes for hearing stations on the loud speaker you never heard before.

\$179⁵⁰

The price includes a pure copper cabinet, beautifully finished in lacquered crystalline. You can buy all of the parts for this set with wiring instructions for \$7 less than the assembled receiver.

\$179⁵⁰

Write for free booklet---"RADIO PAR EXCELLENCE"

Radio Constructors Corporation

357 Twelfth Street

Oakland, Calif.

KOLSTER Radio

Manufactured by

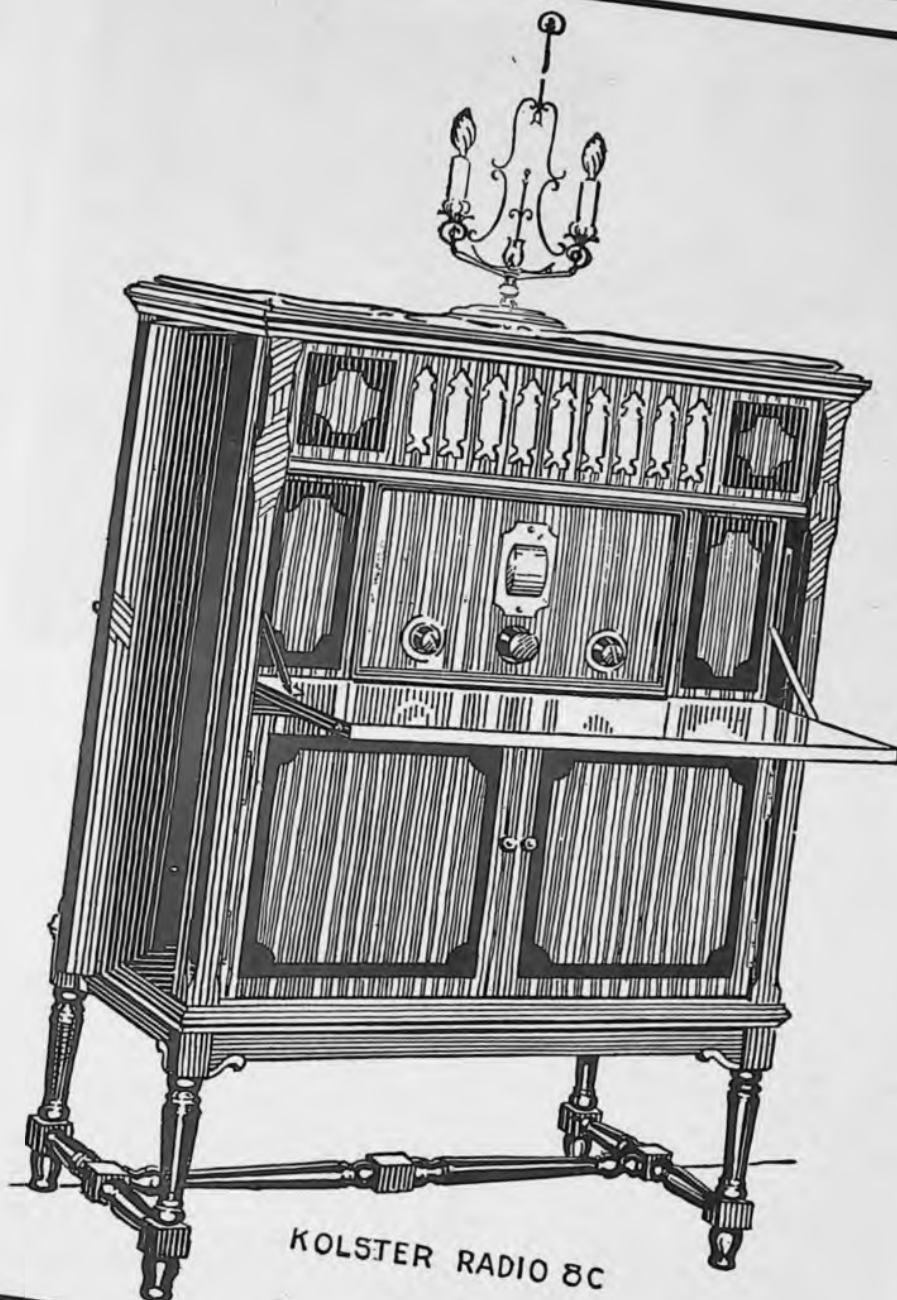
FEDERAL-BRANDES
INC.

Distributed in California by

H. EARLE WRIGHT, Inc.

Sold by

AUTHORIZED KOLSTER DEALERS



KOLSTER RADIO 8C



Radio is better with *Battery* Power

RADIO receivers designed for quality reproduction operate best on well-made dry cell "B" batteries. What your ear tells you about the performance of battery-run sets is confirmed by laboratory tests that reveal that batteries alone provide steady, noiseless "B" current, taking nothing from and adding nothing to radio reception. Batteries, and batteries alone, provide pure DC (Direct Current). Only such current can give you the best results of which your set is capable.

Battery Power is dependable, convenient, and reliable, under your sole control, ever ready to serve you when you turn on your set. As your "B" batteries approach the end of their usefulness, a slight drop in volume warns you in ample time. You need never miss a single concert if your set is battery-equipped.

Not only in results, convenience and reliability are "B" batteries unequalled, but they are also unapproachable in economy, provided, of course, the correct size batteries are used. That means the Heavy-

Duty type for all receivers operating loud speakers, as most do nowadays. Smaller batteries are not as economical, though they give you the quality advantages of Battery Power.

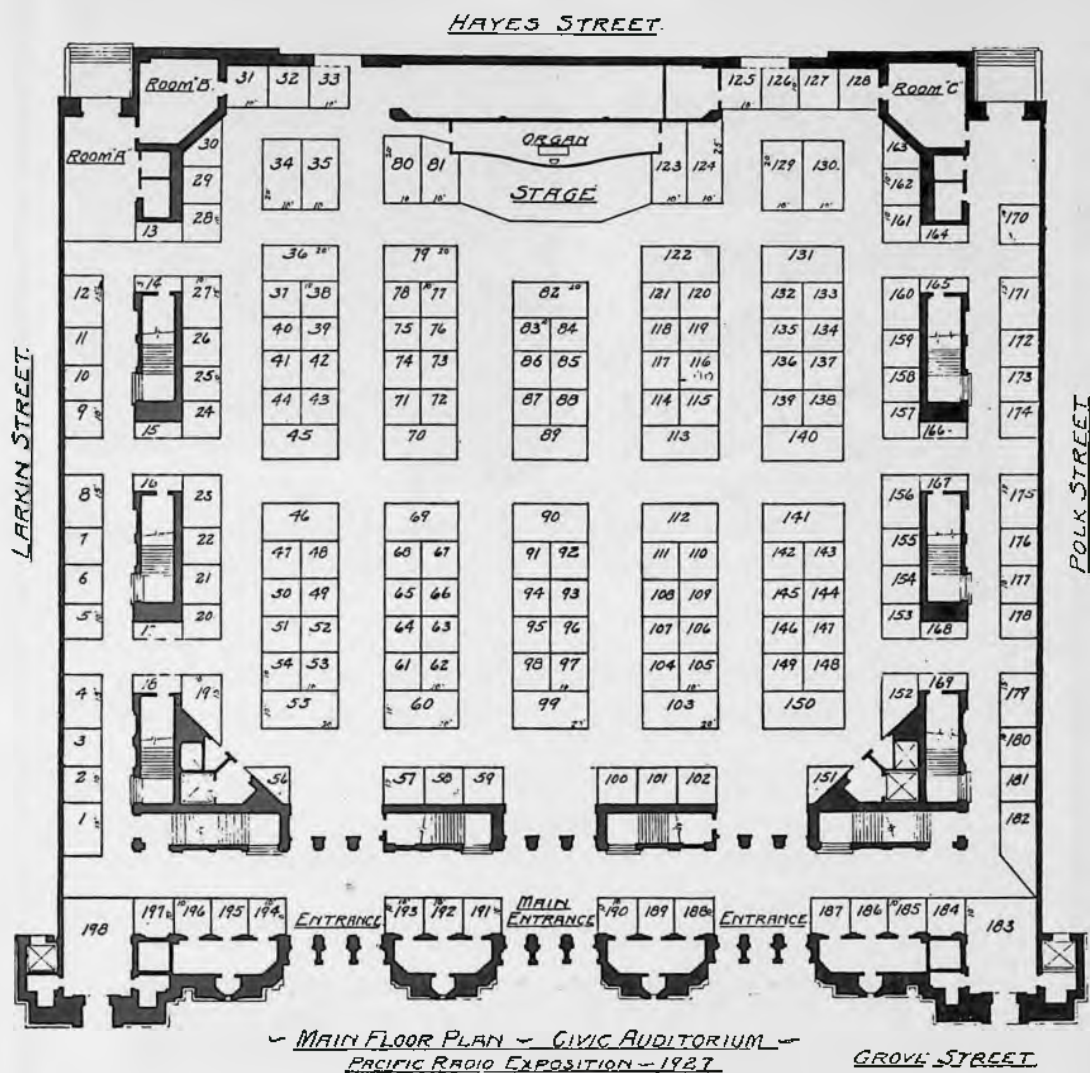
For best economy, choose the Eveready Layerbilt "B" Battery No. 486. In every test and trial this has proved conclusively to be the longest-lasting "B" battery ever built. Its unique, patented internal construction is responsible for its astonishingly long life. It is, we believe, the most economical, as well as the most satisfactory, convenient and reliable source of "B" current available. Just remember this: Radio is better with *Battery Power*, and the extraordinary Eveready Layerbilt "B" Battery No. 486 offers you that power most economically.

NATIONAL CARBON CO., INC.

New York

San Francisco

Unit of Union Carbide and Carbon Corp.



IMPROVE YOUR PRESENT RADIO RECEIVER

Why Fuss With Obsolete Batteries

MAJESTIC
"A" and "B" Combination



This efficient Majestic Current Supply Unit furnishes all you need of noiseless, even flowing power, direct from the lighting current in your home.

The Majestic Super "B" Current Supply Unit, now available from your radio dealer at the new price of \$29.50, including tube, frees you forever from the annoyance of "B" batteries that are, at best, a temporary proposition.

The Majestic "A" Supply Unit soon available from your dealer at \$39.50, ready to operate, frees you forever from storage batteries, faulty switches and chargers. This unit does not contain any liquids or tubes to burn out.

WHOLESALE DISTRIBUTORS

KIERULFF & RAVENSCROFT

RADIO EQUIPMENT

ON DISPLAY



BOOTHS 110-11-12



Two Stellar Attractions *at the* Radio Exposition—

“LING”

Famous Broadcaster of Droll Chinese Stories and

Majestic “A” & “B” Current
Supply Units

Power for Radio—From the Light Socket

SEE

Them at Booths Nos. 93 and 94

Manufactured by

GRIGSBY ~ GRUNOW ~ HINDS ~ CO.

4552 Armitage Avenue, Chicago

W. J. SEROY

Pacific Coast Sales Manager

122 Broadway

Oakland, Calif.



CLAROSTAT

The Master Key to all Resistance

THE Clarostat is to resistance what the variable condenser is to capacitance; namely, it provides a positive, gradual, durable, reliable and foolproof adjustment over a wide range of values. Turning the knob of the Clarostat to the left serves to vary the resistance from practically zero to 5 megohms or 5 million ohms. Turning the knob to the right reduces the resistance gradually and positively. The action of the Clarostat is fully reversible. Any degree of resistance within the wide limits may be obtained, and any adjustment may be held indefinitely. The same resistance value is obtained time and again with the same knob adjustment, for the Clarostat is hand calibrated. In operation, even when handling exceptionally heavy currents up to its full capacity of 20 watts, the Clarostat is absolutely noiseless, without hissing or microphonic characteristics so common in most high-resistance units. Lastly, the Clarostat does not wear out, despite constant service and no end of adjustment, since there are no wearing parts.



Standard Clarostat.
Universal range.
Carrying capacity
20 watts. List. \$2.25.



Power Clarostat. Universal range. Carrying capacity 40 watts. List. \$3.50.

The Power Clarostat is of the same general design and construction as the usual Standard Clarostat, but necessarily on a considerably larger scale. It is a pressure-operated resistor, making use of a special resistive material of definite formula for the given range of resistance. The heavy metal case, hermetically sealed, contains the resistive material as well as the movable piston which is adjusted for any required pressure on the resistive mass by means of the micrometer screw shaft turned by the adjusting knob. The resistive material contains both conducting and resilient components. The former insures ample current-carrying capacity for all resistance settings, with positive contacts throughout the mass at all times, so that there is no possibility of noise. The latter provides the necessary resiliency so that the mass cannot concrete or pack permanently, but, instead, springs out to fill up the space between the container and the movable piston, as pressure is released. Also, the formula of the resistive mixture, together with ingenious mechanical design, takes care of whatever heat may be generated by the passage of heavy current. Finally, there are no movable contacts in the Clarostat: the resistive mass is in constant contact with two stationary contacts, while the density of the resistive mass is altered to vary the conductivity.

Write for Complete Information

American Mechanical Laboratories, Inc.

285 NORTH SIXTH STREET, BROOKLYN, N. Y.

General Information

OPENING DATE—The show will open SATURDAY, AUGUST 20, 1927, at 7 p. m., and will remain open each day and every day thereafter from 2 o'clock p. m., until 5:30 p. m., and 7 p. m. until 11 p. m., except SUNDAY, AUGUST 21, and CLOSING DAY, AUGUST 27, 1927, when the show will run continuously from 2 p. m. until 11 p. m.

PLACE—Civic Auditorium (located at Larkin and Grove Streets).

DEALER HOURS—The Exposition will be open every day, with the exception of opening day, from 10 a. m. until 12 noon, for the benefit of radio dealers who may desire to visit the exhibits. These morning hours will be confined to the trade exclusively.

ADMISSION PRICE—Tickets are 50 cents each, except that special half price tickets can be obtained from radio dealers which will be honored at the door upon payment of the sum of 25 cents.

MANAGEMENT—This is the Fourth Annual Pacific Radio Exposition held in San Francisco and conducted under the auspices of the Pacific Radio Trade Association.

SHOW CHAIRMAN—Leo J. Meyberg.

MANAGING DIRECTOR—Anthony A. Tremp.

ASSISTANT DIRECTOR—Jess C. Tremp.

EXPOSITION COMMITTEE—Leo J. Meyberg, H. L. Auger, C. B. Clendenen, James P. Hermans, John Rapp, A. B. C. Scull.

ASSOCIATION OFFICERS—Ernest Ingold, President; J. W. Laughlin, Vice-President; W. J. Aschenbrenner, Secretary-Manager.

ASSOCIATION DIRECTORS—H. W. Dickow, Robert D. Eastman, Ernest Ingold, W. H. Jackson, W. H. Kaemper, E. J. Koepke, J. W. Laughlin, E. A. Portal, James A. Ramsey.

ASSOCIATION OFFICES—284 New Chronicle Building, San Francisco. Telephone Garfield 6214.

BROADCASTING STATIONS PARTICIPATING—KPO, KGO, KFRC, KFWI, KYA, N. B. C.

BOOTH CONSTRUCTOR: Nelson Greene Co.

ELECTRICIAN—Charles Holtzmueller.

PLATE GLASS—W. P. Fuller & Co.

FLORIST—Pelicano Rossi & Co.

ILLUMINATING DIRECTOR—Elliott Conrey.

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This Program
has been
compiled and
published by
BROADCAST
WEEKLY

A. J. URBAIN
Publisher



Foreword

By Arthur H. Halloran

YOUR presence at the Pacific Radio Exposition demonstrates your interest in the manner whereby radio's messages of knowledge and cheer may best be reproduced. As you make the circuit of the various exhibits you will mentally compare different types of equipment for accomplishing this purpose. Upon this comparison you will probably base your decision as to what new equipment you may purchase.

The radio expert generally knows what to look for. But the casual visitor or novice may be helped by the few words of suggestion here given. Radio has changed greatly, even in the year that has passed since last year's show in San Francisco. What are these changes?

The first thing to impress the eye is the handsome housing of the new sets. The new radio is not a laboratory instrument thrown together helter-skelter, but a piece of beautiful furniture. The wife, mother, daughter or sweetheart will see the possibilities of this or that design in harmonizing with the furnishings of the room which is to be graced by a radio set. There is a wide range of choice from an unobtrusive type to be set on a small table to the most elaborate period design.

But as the prime purpose of a radio is to be heard, rather than to be seen, the final criterion is furnished by the ear rather than the eye. Is the set selective enough to separate the local broadcast stations without interference? Is the tone quality of the reproduced music comparable with the original performance? Is the set capable of bringing in distant stations if you want to hear them?

Some of these questions cannot be definitely answered by a mere inspection. It may require a home demonstration of the model which otherwise pleases you. This of course, can be arranged to meet your convenience.

The one puzzling point in the choice of the new models is the determination of the kind of current to be used to operate

them. Formerly this was confined to electric current from batteries. But now it is possible to operate directly from the alternating current plug which you use for lighting your room.

The A. C. operated set is a remarkable convenience and represents the result of a great amount of expensive experimentation. For the person who is unwilling or unable to take care of and to occasionally replace batteries it is ideal. But its quality of tone reproduction is no better than that of the battery-operated set.

Two general types of A. C. sets are on exhibit. Both utilize a socket-power rectifier and filter to supply high voltage for the vacuum tube plates. But though different in the method of filament current supply, one using rectified and filtered current and the other using raw A. C. of low voltage. The one method can be adapted for use with any existing set. The other requires special circuit wiring. There is also the possibility of using socket-power for the plates and battery-power for the filaments.

Besides these improvements in sets and the current supply therefor, great advances have been made in loudspeaker construction and design. Here again individual preference of tone quality is the final criterion. With the improvements in audio frequency amplifiers and loudspeakers it is now possible to give fidelity of tone reproduction from 100 to 5000 cycles.

The fine programs that are regularly on the air justify the purchase of a fine set to hear them. The radio show presents the opportunity for easy comparison. In this exposition San Francisco has an advantage enjoyed by no other city. For this is the first consumer showing of the new models.

And as you leave the show satisfied with what you have seen and heard, why not pass on the word of its worthwhileness to your friends? We feel sure that they will thank you for the opportunity that you may thus afford them.

H. EARLE WRIGHT

Incorporated

welcome all those interested
in Radio to the 4th Annual
RADIO EXPOSITION
and invite them to inspect
the new models at Booths
No. 53-55

KOLSTER CROSLEY
Burgess Batteries, Radiotron
Tubes and other standard
worthwhile accessories

H. Earle Wright, Incorporated

123-129 Second Street
San Francisco

415 East Eighth Street
Los Angeles

The Pacific Radio Trade Association

By W. J. ASCHENBRENNER

OLDEST of radio trade associations in this country, the Pacific Radio Trade Association was organized in 1921, for the purpose of coordinating the various factors composing the industry toward the end of establishing and maintaining uniformity and harmony in the customs and commercial usages of the radio industry and to promote a more enlarged and friendly intercourse among those engaged in the industry.

Conceived in the pioneer days of radio and when the industry was confronted with chaos and uncertainty, the years of its existence have proven that the theories of its organizers were sound and out of chaos has come a stable and unified industry in San Francisco as well as northern and central California. The success of the organization is further demonstrated by the fact that today the Pacific Radio Trade Association is one of the largest and most prosperous radio trade organizations in the United States. Its influence is felt far and wide. Its opinions and its studies are sought after by the trade and other kindred organizations.

Cooperation is a primal instinct. Its intrinsic value has been demonstrated throughout the ages both in life generally as well as in business. The object of this Association and all trade organizations is to bring about intensified cooperation. Only by coordinating the efforts of individuals and smaller groups, into a larger working unit, can real effective trade-association benefit be accomplished. This latter purpose has been one of the main objects of the Pacific Radio Trade Association.

The membership of the Association is composed of radio manufacturers, manufacturers' agents, jobbers, dealers, broadcasting stations, and those interested in radio and its development.

Activities of the organization are governed by a Board of Directors representing the various groups of the industry and they are elected by a majority of its members. Various committees are appointed

for their special knowledge or facilities, helpful to the Association. Two studies and surveys have recently been completed by several committees both of which have created much favorable comment among the trade.

Directors and officers serve without pay, except the Secretary-Treasurer, who is also the Association Manager, selected for his experience and ability to conduct the work of the organization under the authorization of the Board of Directors.

The territory covered by the activities of the Association includes the San Francisco Bay region and central and northern California. So great is the interest that Association meetings are universally attended by delegations from outlying cities such as Sacramento, Stockton, San Jose and elsewhere.

Offices are maintained in the New Chronicle Building, San Francisco, in charge of the Secretary and an assistant.

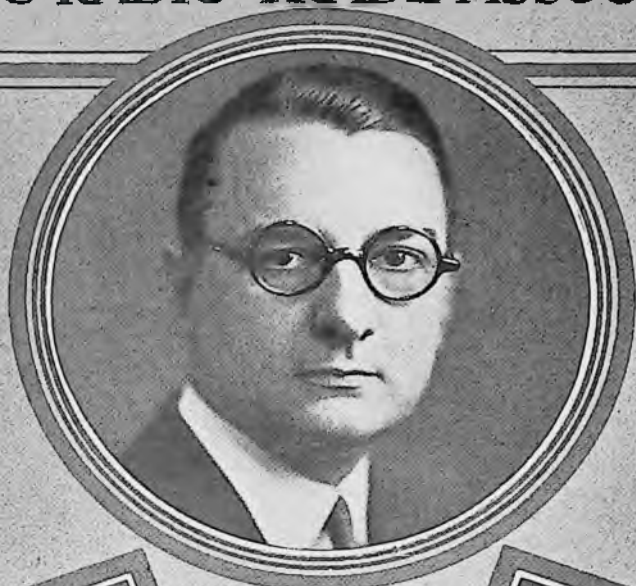
The activities of the Association are numerous and its accomplishments have been many. One of the most important is the annual radio exposition, the fourth of which is now in progress.

THE PACIFIC RADIO EXPOSITION is the first of its kind to be held in the United States each year. In other words, it opens the radio season in this country and for one week concentrates the attention of the public on the Pacific Coast on radio. It is a combined trade and consumer show, attracting from 750 to 1,000 dealers annually. During the first three expositions nearly 300,000 people passed through the doors of the Civic Auditorium.

In size and importance the San Francisco Show ranks with the largest radio expositions held in New York and Chicago. Nearly every national manufacturer of radio takes advantage of this Exposition to bring before the western public and dealers the new developments in his products. Radio

(Continued on Page 18)

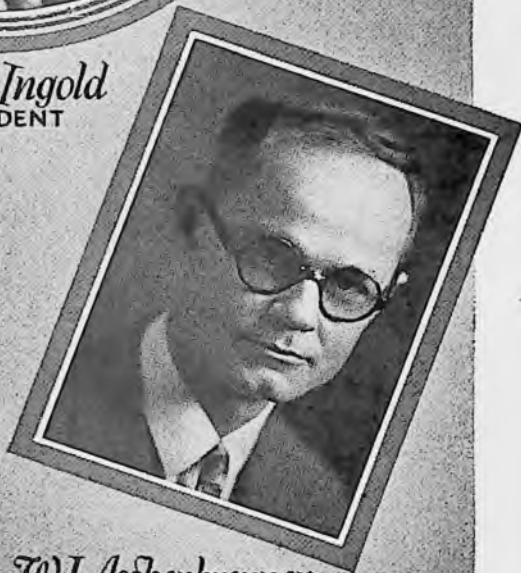
OFFICERS OF THE PACIFIC RADIO TRADE ASSOCIATION



Ernest Ingold
PRESIDENT



J. W. Laughlin
VICE PRESIDENT



W. J. Aschenbrenner
SECRETARY-MANAGER

RADIO TRADE ASSOCIATION

(Continued from Page 16)

dealers find this Exposition an unsurpassed market for selecting lines and meeting the principals of manufacturers, distributors and jobbers of radio devices.

Broadcasting, the very life of radio, has had both the financial and moral support of the Association from its inception. In the infant days of radio when local stations were struggling for a foothold, the Pacific Radio Trade Association for many months contributed liberally toward the support of stations in order that the radio public might receive entertainment and that the trade might develop its business adequately.

This interest has never lagged. The Association stands for good programs, educational as well as entertaining. Among the outstanding broadcasts made available through its efforts are the broadcast of President Coolidge's inaugural address on March 4, 1924; broadcast of the Los Angeles Philharmonic Orchestra; that of the San Francisco Symphony Orchestra, and others.

A MATTER which has received little recognition is the effective work of the Association in obtaining and maintaining the unified cooperation of local broadcast stations with respect: (1) to observance of the so-called DX period from 7:30 to 8:00 p. m., each day; and (2) obtaining the unqualified adherence of local stations to assigned wave lengths during the period when the federal government lacked control over radio. The Association takes this opportunity to express its appreciation to the local broadcasters for their fine and hearty cooperation.

Last summer and again this year a musical program was broadcast over KGO each afternoon of the week with the exception of Sunday and Monday by the Association and its contributing members. This broadcast was for the specific purpose of aiding the radio dealer and incidentally providing entertainment for the radio public at a time when there was very little on the air.

In this manner as well as in others, the radio public benefits through the activities of the Pacific Radio Trade Association. An-

other example of combined aid to both dealer and public is the Interference Campaign which has and still is being conducted jointly by this Association and the Pacific Gas & Electric Company and the Great Western Power Company.

This is the first organized attempt in San Francisco to eliminate and reduce interference. In numerous other cities throughout the United States the matter of interference has been taken over by listener's clubs or private individuals and at considerable cost to the radio fan. In San Francisco, however, we have the picture of the radio industry through the Association, cooperating with power agencies, reducing interference without any cost whatever to the radio public.

The campaign was inaugurated in December of last year and is still under way. During its progress several hundreds of complaints have been investigated and rectified. A technical expert is employed by the Association, working directly under its jurisdiction. Radio fans of San Francisco who are still experiencing interference troubles are advised to communicate with the Association office.

Realizing the importance of the dealer in the field of radio distribution, the Association has concentrated its efforts on devising practical aids for the radio retailer. These have taken numerous forms. Meetings have been held from time to time in the various districts of San Francisco where dealers could come and discuss their problems. They have provided means of creating good fellowship and bringing about a better understanding of the problems of each.

Advertising aids have been supplied from time to time in the form of posters and window strips announcing important broadcast events.

THE services of the Secretary-Manager are always available to dealers where advice or suggestions may be desired. So also the Secretary is called upon from time to time to address dealer meetings on subjects of interest to this group of the trade.

As said before, special committees have undertaken studies and made surveys of matters vital to the trade. Among the

(Continued on Page 20)

DIRECTORS OF THE PACIFIC RADIO TRADE ASSOCIATION



R.D. Eastman



Ernest Ingold



E.J. Koepke



W.H. Kaemper



J.W. Laughlin



H.W. Dickow



J.A. Ramsey



E.A. Portal



W.H. Jackson

RADIO TRADE ASSOCIATION

(Continued from Page 18)

most important have been those involving: (1) "Trade-Ins"; and (2) involving that of "Service." In both instances the reports of the committees have been followed by comprehensive printed suggestions, copies of which are available to the trade by applying to Association headquarters. Both were compiled from data obtained from many hundreds of questionnaires returned to the Association by dealers throughout California. They are, therefore, real and practical aids.

With respect to "Trade-Ins," the Association came to the conclusion that the dealer is entitled to the same margin of profit on a second hand set as he is on a new, and that the amount allowed for a second-hand set should therefore be that at which the receiver can be resold at the regular margin of profit, less the expense to which the dealer is put of testing the set, correcting any defects, and of putting the set in presentable appearance as well as in operative condition.

Regarding "Service," the Association found that more than one-half of the service departments of retail radio outlets in California are being conducted at a profit. Its conclusion was, therefore, that radio service does pay and if in some instances it does not, it can be made profitable by study and reorganization of the department. Among the suggestions made as prerequisites to profit were the following: (1) limiting the period of free service; (2) that radio service be sold with the set; (3) that service contracts good for 6 months, or one year, providing for a monthly inspection service, be adopted; (4) that service men be selected with sales ability in view and trained as carefully as floor salesmen; (5) that a simple but adequate cost record be kept of the service department; and (6) the desirability of handling reliable merchandise.

Proposal by the railroads some time ago to increase freight rates on receiving sets 50 per cent, was actively opposed by the Association, resulting in a denial of the proposed increase by the Interstate Com-

(Continued on Page 68)

PACIFIC RADIO EXPOSITION MANAGERIAL STAFF

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Meyberg*
CHAIRMAN
EXPOSITION
COMMITTEE



*Anthony
A. Tremp*
MANAGING
DIRECTOR



Jess C. Tremp
ASST. DIRECTOR

PACIFIC RADIO EXPOSITION ~ ~ COMMITTEE ~ ~



Leo J. Meyberg
CHAIRMAN



H. L. Auger



J. P. Hermans



C. B. Clendenen



A. B. C. Scull

Program

of the 4th Annual

Pacific Radio Exposition

*From the model studio on the
stage at the Civic Auditorium*

Saturday, August 20

P. M.

7:45 to 8—KYA

Address

8 to 9—National Broadcasting Company
"Saturday Night Review"

9 to 11—KPO

Dance Orchestra (ten men), under the direction of Cyrus Trobbs. Elmer Herling, baritone, soloist

Sunday, August 21

P. M.

2 to 3—KGO

Pacific Radio Trade Association Trio

3 to 4—KFWI

Mandolin Orchestra, Mae Muntz, director
Vocal duets; instrumental and vocal solos

5 to 6—KFRC

"Twilight Recital," featuring Dorothy Fletcher, soprano; Herman Reinberg, cellist; Frank Moss, pianist

9 to 10—National Broadcasting Company
Bible drama, "David and Goliath"....Manley
By the National Players, under the direction of William S. Rainey

CAST

David.....	William S. Rainey
Jesse.....	M. E. Harlan
Captain.....	M. E. Harlan
Soldier.....	Roy Sexton
Saul.....	Benjamin Purrington
Eliab.....	Wheaton Chambers

Monday, August 22

P. M.

2 to 3—KGO

Pacific Radio Trade Association Trio

4 to 5—KFWI

Tea Party, featuring George and Clem; Ray Canfield and his uke, Eddie Holden and Zizz Black

8 to 9—National Broadcasting Company
National Opera Company, under the direction of Max Dolin—

CarmenBizet

CAST

Don Jose, a Brigadier.....	Harold Spaulding
Escamillo, a Toreador.....	Harold Dana
Dancairo.....	Harrison Ward
Remendado.....	Harrison Ward
Zuniga, a Captain.....	Mynard Jones
Micaela, a Peasant Girl.....	Elfrieda Wynne
Carmen, a Cigarette Girl.....	Margaret O'Dea

9 to 10—KPO

Twentieth program of Shell Company of California in a series of Spanish Nites, featuring the Troubadour Quartet (male quartet), Shell Troubadours (instrumental ensemble), Eva Gruninger Atkinson, contralto; Mildred Lenore Epstein, soprano, and Allan Wilson, tenor. (This company consists of ten artists, appearing in Spanish costume)

GALA PROGRAM

10 P. M. to 1 A. M.

Broadcast by KPO-KGO-KFRC-KFWI-KYA
P. M.

10 to 10:30—National Broadcasting Co.

"In a Persian Garden" (Liza Lehmann), under the direction of Max Dolin. Barbara Blanchard, soprano; Mary Groom Richards, contralto; Gwynn Jones, tenor; Mynard Jones, bass

(Continued on Page 24)

JUST ARRIVED

The Finest "A" and "B" Power Units Ever Built

Immediate Delivery

STEWART

ALWAYS IN THE LEAD



Electric "A"

NO BATTERY

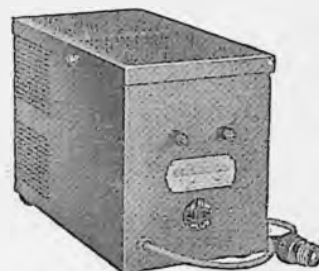
NO ACIDS

NO LIQUIDS

NO MOVING PARTS

NO HUM

†††



Electric "B"

"A" Units Use No Tubes

"B" Units Use Raytheon Tubes

†††

"A"—Model V-70.....\$46.50

"B"—Model U-80 (less tube)..... 36.00

"A-B"—Model T-90 (less tube)..... 75.00

†††



Electric "A-B"

Distributed by

COAST RADIO SUPPLY CO.

648 HOWARD STREET SAN FRANCISCO, CAL.

EXPOSITION PROGRAM (Continued from Page 22)

- 10:30 to 11—KFRC
Portnoff's Russians—
Russian National Music
Duets: Lucille Atherton Harger and Jun-
nita Tennyson—
Songs of Long Ago
The Cecilians—
Instrumental Numbers
- 11 to 11:30—KGO
The Wharry Lewis Quintet
International Four
Cornet solos, Grace Adams East
- 11:30 to 12—KPO
Kane's Hawaiians
Swedish dialect. Anna Kristina
Harmonica solos. Johnny O'Brien
Piano novelties (two), Merton Bories and
Bob Allen
Soprano solos (with her little harp), Ro-
berta Leitch
Baritone solos, Elmer Herling
- A. M.
- 12 to 12:30—KFWI
Alexander's Ragtime Band; Gloria Del
Rae, blues; George Taylor, popular se-
lections; Clem Kennedy, pianist; Ed-
ward Oversby, ballads; Lois and Frieda,
harmony team
- 12:30 to 1—KYA
The Clarion Trio (ladies' voices); Alma
Michellini, soprano; Charles Molkenbuhr,
accompanist; Compagno Male Trio
(male voices)

Tuesday, August 23

- P. M.
- 2 to 3—KGO
Pacific Radio Trade Association Trio
- 4 to 5—KYA—
Bruce Cameron's Male Quartet, Sadie
Woodside and Isabelle Becker, singer
and pianist; the Columbian Instrumen-
tal Trio and Marion Vrang, soprano
- 8 to 9—KGO
Eveready hour, sponsored by the National
Carbon Company, makers of Eveready
Batteries
"Pilgrims" Orchestra—
Light Cavalry (Overture).....Von Suppe
Mission Bells.....Bergenholtz

- Orchestra and Chorus—
Blue Danube (Waltzes).....Strauss
Violin solo, Berthe Baret—
Rondo Capriccioso.....Saint-Saens
Orchestra—
SerenadeTiti
Orchestra and Soloist—
Rio Rita.....Tierney
Orchestra and Chorus—
Desert Song (Selection).....Romberg
Orchestra—
March of the Toy Soldiers.....Herbert
Orchestra and Chorus—
The Angelus from "Serenade".....Herbert
- 9 to 10—National Broadcasting Co.
"Hits and Bits of Topsy-Turvy." (Musical
impressions of an upside-down world.)
Dorothy Raegan Talbot soprano; Mar-
garet Groom Richards, contralto; My-
nard Jones, bass
Included in the program are:
Dance of the Goblins.....Enzelman
Fantastica
Selections from "The Wizard of Oz"
Alice in Wonderland
Krazy Kat Ballet.....Carpenter
Frolic in a Mad House.....Recker
Hallowe'en Episode.....Lake
Cinderella's Bridal Procession.....Dicker
Crazy Words, Crazy Tune

- 10 to 10:30—KGO
H. M. and J. P. entertaining
- 10:30 to 11—KGO
International Four: Gwynfi Jones, tenor;
Harold Spaulding, tenor; Oliver Jones,
baritone; Albert Gillette, bass
Mixed Quartet: Grace LePage, dramatic
soprano; Gwynfi Jones, tenor; Anna-
belle Jones Rose, contralto; Albert Gil-
lette, baritone
Rembrandt Trio: Mme. Bertha Baret,
French violinist; Dorothy Dukes Dimm,
'cellist; Eva Garcia, pianist

Wednesday, August 24

- 2 to 3—KGO
Pacific Radio Trade Association Trio
- 4 to 5—KFWI
Tea party, featuring George and Clem;
Ray Canfield and his uke; Lois and
Frieda; Jack and Jill; Edward Oversby

(Continued on Page 26)

SEE THE NEW

Steinite

Licensed by Radio Corporation of America

ELECTRIC SETS

Require No Batteries

Just Plug Into Light Socket and Tune Into Station Desired

GORGEOUS MODELS
POPULARLY PRICED
EXTREME SELECTIVITY
REMARKABLE TONE

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Coast Radio Supply Co.

648 Howard Street

San Francisco, Cal.

Dealers: Some territory still open. Write for franchise proposition.

EXPOSITION PROGRAM (Continued from Page 24)

8 to 9—KFRC

"Operatic Favorites" by the Maxwell House Orchestra with Juanita Tennyson and Lucille Atherton Harger, soloists

9 to 10—National Broadcasting Co.

Dramatic reading, William S. Rainey—
Enoch Arden Tennyson
(Music by Richard Strauss)

Fantastic comedy "The Maker of Dreams" (Olin Downes) by the National Players under the direction of William S. Rainey
Cast: Pierrot, William S. Rainey; Columbine, Doris Canney; Old Man, M. E. Harlan

10 to 11—KYA

The Golden Gate Amphions (Dance Orchestra) directed by Frank Stefanik; Philneas Goulet, French baritone; Isabelle Becker, pianist, and the Blotcky Carriers (female singing group)

Thursday, August 25

2 to 3—KGO

Pacific Radio Trades Association Trio

4 to 5—KFWI

Tea party, featuring George and Clem; Ray Canfield and his uke; Spence Kapp; Dell Parry and Zizz Black

8 to 9—KYA

The "26th Squad." This organization is a farce on army life, composed of a number of "Misfits." Their troubles and trials and the funny situations and scrapes they get into, are a constant source of amusement. "Elmer," "Tony," "Hal," "Dutch," "John" and others comprise this program

9 to 10—National Broadcasting Company

Musical comedy hour, selections from "Florodora"—
In the Shade of the Palm
Tell Me Pretty Maiden
I Want To Be a Military Man
Island of Love

Baritone solo, Harold Dana—

My Object Sublime from "The Mikado"

Duets: Elfrieda Wynne and Harold Spaulding—

Angelus Duet from "Sweethearts"....

.....Herbert

Selection from "Pink Lady"

Tenor solos, Harold Spaulding—

When Ships Come Home.....Kern

Oh Lady, Lady

Soprano solos, Elfrieda Wynne—

Love Nest

Orchestra—

Say It With Music.....Berliu

Selections from "Rio Rita"

10 to 11—KYA

Initial appearance of KYA Philharmonic Orchestra of forty-five pieces under the direction of Gregory W. Golubeff. Featured with the orchestra will be the Spanish prima donna, Madam Isabelle Zentino

Friday, August 26

2 to 3—KGO

Pacific Radio Trade Association Trio

4 to 5—KFWI

Tea party, featuring George and Clem; Ray Canfield and his uke; Edward Oversby; Eddie Holden

8 to 9—KFWI

Clyde Cooper's Roof Garden Orchestra, with incidental solos by Clyde

9 to 10—National Broadcasting Company

"An Hour in Memory Lane"

Orchestra—

American FantasieHerbert

Baritone solo, Harrison Ward—

Battle Cry of Freedom.....Root

Comic Song, William Powers—

Capt'n Jenks

Ensemble—

Dixie

Just Before the Battle Mother

Kingdom Comin'

Orchestra—

Blue and the Grey

Marche MilitaireSchubert

Ensemble—

Blue BellMorse

Recitation—

Call to the Colors.....Rand Wilson

Tenor solo, Gwynfi Jones—

We're Tenting Tonight.....Kittredge

Orchestra—

March Semper Fidelis.....Sousa

Ensemble—

Over There

(Continued on Page 52)

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DISTRIBUTORS FOR THE FOLLOWING NATIONALLY KNOWN LINES

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Cutler-Hammer

CRL
Daven
Dudlo
Eby
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Ferranti
Hammarlund
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Exhibitor	Booth	Exhibitor	Booth
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stiel parts, Farrand speakers, Baldwin		Brach Co.	
speakers, Cunningham tubes, Stei-			
nite eliminators, Eveready batteries,		Ingold, Ernest, Inc.....	83-89
Philco batteries, Stewart A & B units,		Atwater Kent sets and speakers, pow-	
miscellaneous parts.		er units, Pooley console cabinets,	
Cunningham, E. T., Inc.....	42, 43, 45...	Pooley speakers, Precision A and B	
Tubes.		units, Elkon chargers, Cunningham	
		tubes, Eveready batteries, USL wet	
		batteries.	
Detsch, A. & Co.....	125-126		
Socket power units, chargers and		Jackson Co., W. E. & W. H.....	159-160
testers		Spartan sets, Gould storage battery,	
Dixie Reproducer Co.....	163	Majestic eliminators.	
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Fansteel Products Co.....	34	ers cabinets, Temple speakers, Pec-	
Balkite eliminators, power units.		less speakers, Cunningham tubes,	
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Federal Telegraph Co.....	108-109	Carter radio parts, Triple "A"	
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"THE EAR SAYS BUY"

Farrand

CONE SPEAKERS

"B" ELIMINATORS

Series

1928



Farrand 24" Oval
Senior, \$35



Farrand 19" Oval
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Farrand Speaker Developments

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—a new, eye-arresting beauty plus increased reproductive capacity.

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a new triumph of the Farrand Laboratories that marks an amazing advance in TONAL PURITY—eclipsing all radio reproduction of the past!



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Wall, 32", \$48
(Model 30)



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(Less Tube)
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Farrand "B" Eliminators are made in
two sizes to handle all sets

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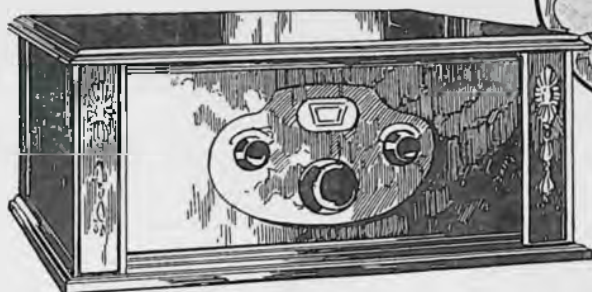
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General Radio Co., Tobe Deutschmann Co.		Technical information, publication.	
Lindstrom Co., A. S.	132-135	Radio Corp of America.	73-76-77-79-95-99-155-156
Dudlow Mfg. Co., Ajax Electrothermic Corp. transformers and speakers, Am. Insulated Wire Corp., Wm Brand & Co., D. K. Bullens Co., Grimes Radio Eng. Co., Marlon Insulated Wire & Rubber Co., Samson Elec. Co., Sandar Corp. speakers.		Freed-Elsemann sets, speakers and eliminators; Vitalltone.	
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Federal Orthosonic set, Mohawk set, Rola cone speakers, Philco A & B units, Sonatron tubes, Yale "B" batteries.		Philco products.	
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Magnavox sets, tubes and speakers.		Tubes.	
Martin-Copeland Co.	127	San Francisco Chronicle	19
Parts: dials, knife switches, rheostats, socket power units, dry trickle charger.		Newspaper.	
McClelland-Felthouse Corporation	51-52	Scott, W. D.	29-30
Bremer-Tully Products, sets, speakers, socket power devices, transformers, condensers, etc.; Vesta radio products, batteries, tubes, chargers and power units.		Balsa Wood, Browning Products Corp., Diamond Vacuum products, Dry Storage Battery Co., Duro Metal Products Co., Essenbee radio devices, Fidelity Radio Corp., Indiana steel Products, I. A. Lund Corp., Molded Wood Products, C. E. Mountford, Frank W. Morse Co., Peerless Radio Mfg. Co., Permanco Mfg. Corp., Radiocraft Labs., Inc., Runzel-Lenz Elec. Mfg. Co., Sovereign Elec. and Mfg. Co., The Webster Co.	
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National Carbon Co.	70-72	Sherman, Clay & Co.	113-122
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National products: dials, transformers, tuning units, "B" eliminators, chargers, tone filters; Arthur H. Lynch, Inc.: resistors, equalizers, suppressors, resistance coupled amplifier kits; Day-Fan sets.		Kits.	
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Q. R. S. Music Co.	28	United Radio Supplies Co.	140
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Complete With All Accessories

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\$20 Down
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The "Giant of the Air"—a six-tube radio whose price includes all accessories for operation and installation. Operated by automatic current supply from your electric light socket. Single dial control.

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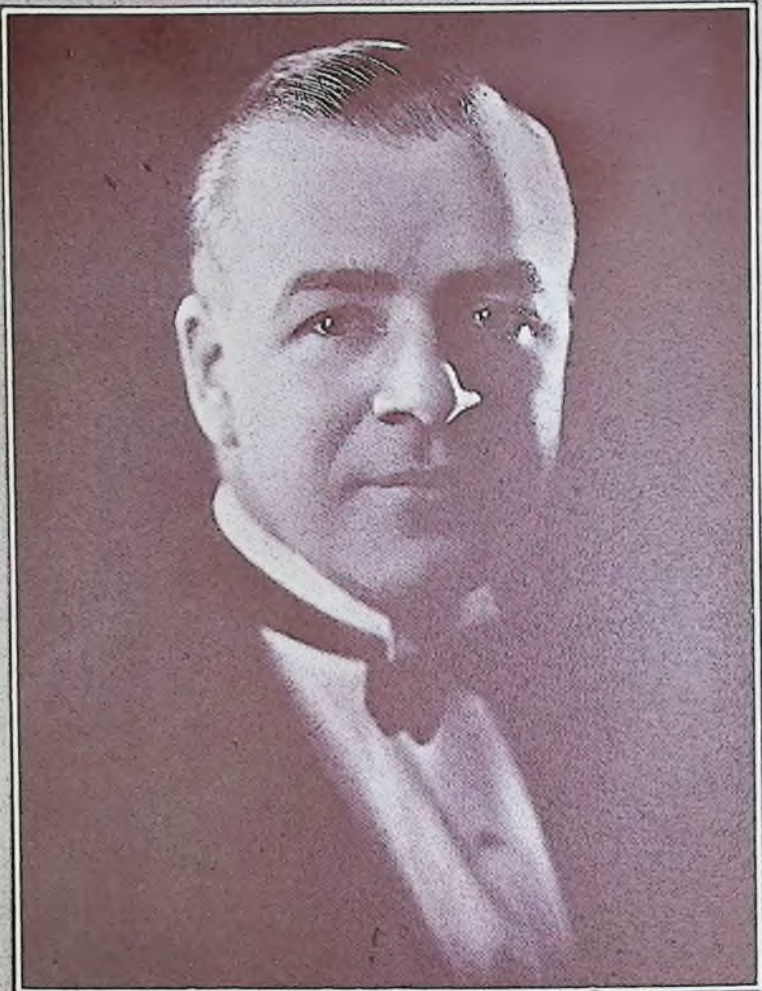
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Max Dolin
+NBC+

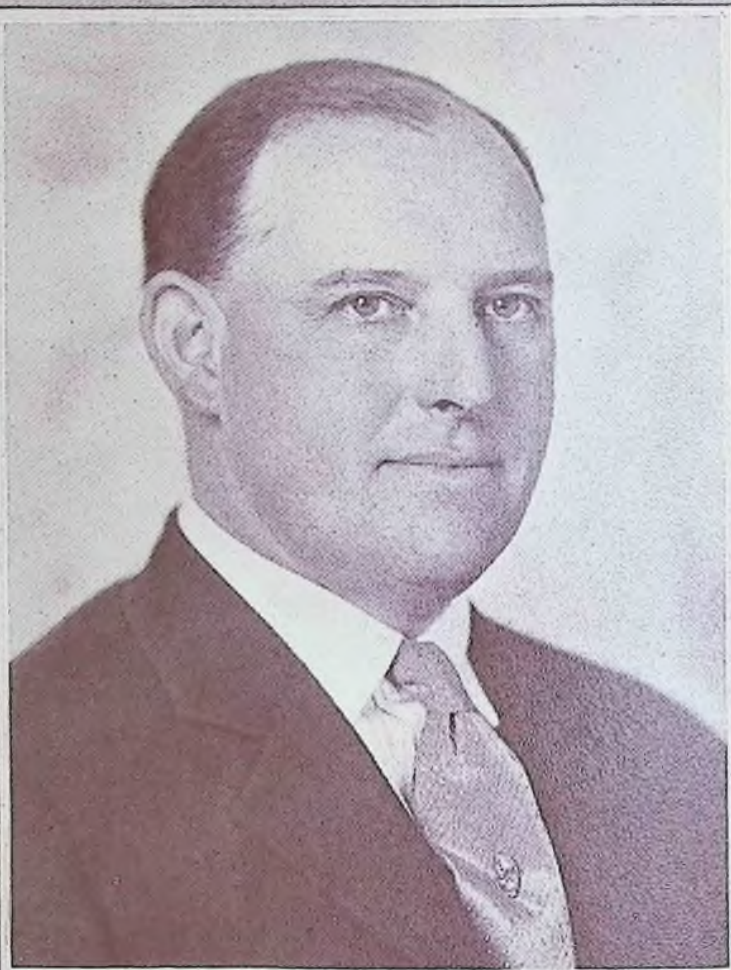






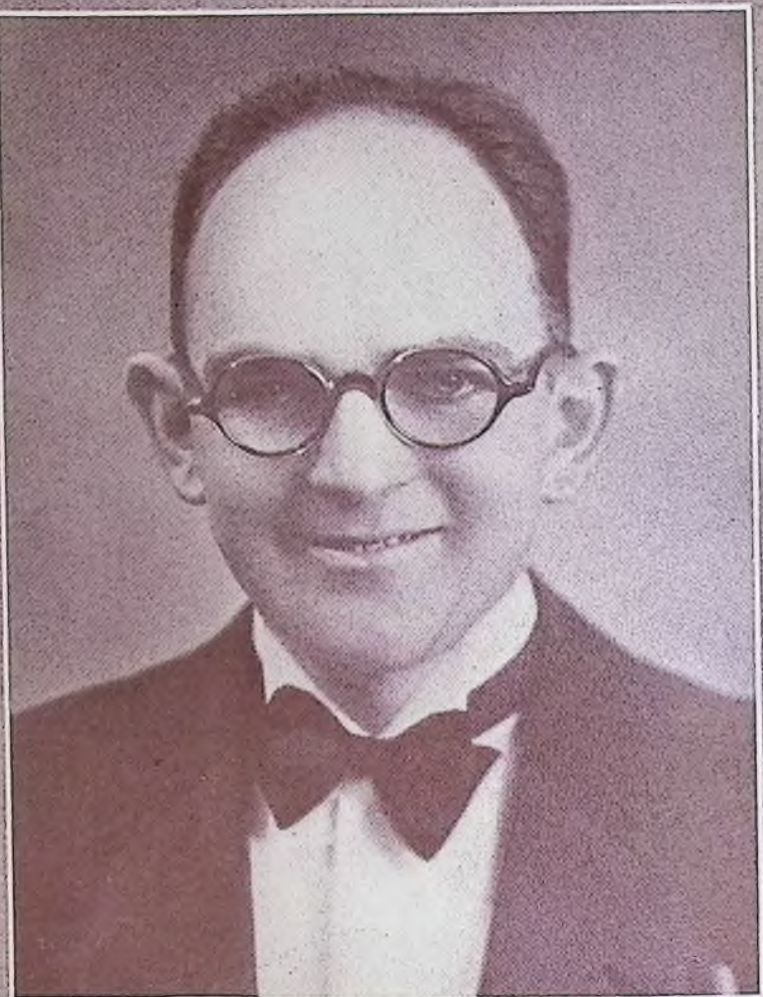


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Hear the entire range of the piano. Wonderful tone shading and faithfulness of reproduction. Almost unbelievable. With the sparton you can detect notes of the lower instruments, such as kettle drums and bass viols—tone shadings that are hard for the ear to separate when actually hearing the orchestra itself.



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Duo Range Chargers, 2½ or 5 amperes. Complete with fuses, tell-tale lamp, cord, black rubber-covered leads and battery clips and two Raytheon "A's."

Price, 5 amp., \$19.00
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Price, NATIONAL Tone Filter, with 5-foot phone cord for instant attachment to any existing set.....\$7.00
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KDN

The Birthplace of Radio in the West

The faintest whisper is to the blast of a trumpet as the five-watt radio station, first erected by the Leo J. Meyberg Company on top of the Fairmont Hotel in 1920, is to the radio broadcasting station of today with its 30,000 watt power.

Dreamers precede the so-called practical man of affairs. The Leo J. Meyberg Company combined in their personnel the dreamers and the men of action. They had a forward vision of what was then called wireless telephony, and pursued its development successfully.

It was a really great event when on July 2, 1921, the Dempsey-Carpentier fight was broadcast from KDN, the Meyberg Company's Fairmont Hotel station. The papers announced: "Every time that Dempsey 'lands one' you will know how the Frenchman 'took it' within a few minutes." Compare that with the time consumed transmitting the recent Dempsey-Sharkey fight.

Followed in rapid succession one improvement after another, the public responding to the novel features of the business which has grown with rapid strides.

Amateur operators expressed their inventive genius. A country newspaper invited its readers to

a dance on the street, to music coming from the wireless telephony on top of the Fairmont Hotel. The first lecture ever delivered over the air was heard by the American Association for the Advancement of Science, at the University of California, from the Meyberg station.

The last song of Caruso broadcast from a record was a triumph of the day. Letters began to be received and a tremendous interest upon the part of the people was aroused. One motorist set up a receiving station on his automobile at the beach, entertaining the crowd. The distance record was broken, a ship 1600 miles at sea heard music from the Meyberg Company's station. Grand Opera stars were broadcast. Connection was made with Los Angeles.

Thus, step by step, radio progress was made and the faith of the Meyberg Company was demonstrated. Its judgment proved to be sound. The horizon of the company's vision broadened, its business expanding in like proportion. Today, at 973 Mission street, the business of the Leo J. Meyberg Company is headquarters for the radio industry. The company also has branches in Oakland, Los Angeles, Fresno, San Diego and Sacramento.

Atwater Kent Enjoys Envi- able Year

THAT any factory should have been able to produce and market more than a million radio receiving sets without over-production, overstock or surplus goods on any model, is a unique situation. Yet this is just what the Atwater Kent Manufacturing Company has done.

With a careful functioning, distributing and retailing organization and with a production timed from day to day and merchandise which has sold readily, this record has been made. The Talking Machine Journal, after a careful analysis, recently estimated Atwater Kent as supplying approximately 45% of all radio receiving sets being sold today. The figure is probably not far wrong and indeed it is so colossal that it is almost unbelievable to anyone who does not know Atwater Kent merchandise.

This year's line is, as usual, entirely up to the market demand and keeps the Atwater Kent Company in as favorable or more favorable a position than it has enjoyed in past years.

The model 35, which is the set with the ship model on top, has been reduced in price to \$70. Selectivity, tone and sensitivity are increased to a very marked manner.

The model 30 6-tube one dial mahogany cased set has been reduced to \$85. It is one of the big sellers in the Atwater Kent line.

The most sensationally priced set in the line at this moment is the Model 32 which a year ago sold for \$145 and which has seven tubes and one dial. It now sells for only \$115 and for a 7-tube one dial receiving set of extreme selectivity and sensitivity and for a set which operates on almost no aerial at all, the value is truly remarkable.

The two new numbers in the line are the Model 33, which is a one dial 6-tube set with antenna tuning and selling for \$95 and the Model 50 selling for \$155 which is a doubly shielded 7-tube set of entirely new construction and type embodying principles not heretofore used in set operation.

This means that Atwater Kent has a complete line of radio receiving sets ranging in price from \$70 to \$155, appealing both to the competitive market and to the better class market. In every case, tone sensitivity and selectivity has been improved over previous years and the line is widely accepted as setting a standard.

In the speaker line, the bell type speakers Models L, H and G, are continued at last year's prices of \$17, \$21 and \$23. For a service-less speaker of low price, these set a standard. In addition, Atwater Kent offers its Model E speaker which is an entirely new development in speaker construction embodying a unit of radically different design, cadmium nickel plated and of extremely sturdy construction. The speaker has no adjustments and no service

and embodies a suspended cone operating free of all outer supports. It reproduces over the entire musical range faithfully and takes power in abundance or operates on very little power. Due to its construction, it is sensitive in the extreme to distant signals. Every part of it is thoroughly moisture-proofed and the entire mechanism, including the cone, is housed in a metal container. This speaker has been dropped six feet as many as twenty successive times without damaging it in any way. It is finished in brown and is of strikingly beautiful appearance. The E speaker is priced at \$32.



ERNEST INGOLD
President of Ernest Ingold, Inc., Distributors for Atwater Kent Products in Northern California.

(Continued on Page 52)

ATWATER KENT RADIO

A Complete Quality-Price Competitive Line

ATWATER KENT RECEIVING SETS:

6 tubes, 1 dial.....	\$ 70
6 tubes, 1 dial, mahogany cased.....	85
6 tubes, 1 dial, antennae tuned	95
7 tubes, 1 dial	115
7 tubes, 1 dial, double shielded, super- sensitive and selective.....	155

Atwater Kent Bell type speakers \$17, \$21, and \$23
and the new type E Atwater Kent Speaker, \$32.

Atwater Kent B power unit, including relay and
Atwater Kent tube, approved by National Board
of Fire Underwriters, \$52.50.

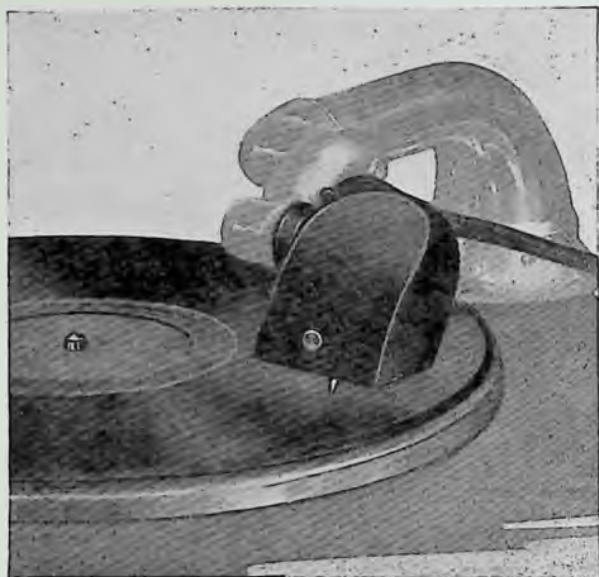
Pooley cabinets, beginning at \$37.50, and including
a variety of woods, finishes, and design.

It's complete, good, serviceless, permanent. No
overstocks, just good merchandise sold methodically

ERNEST INGOLD, INC.

930 Van Ness Avenue

San Francisco



Price
Complete
\$12.50

Adds increasing pleasure from your favorite records

BY ATTACHING the Pacent PHONOVOX to your radio set and phonograph you can obtain the wonderful tone quality of reproduction, rivaling the costly electric phonograph, bringing a new enjoyment and added pleasure from your favorite records.

The PHONOVOX is easily attached in about five minutes without the aid of tools, or requiring any changes in the wiring of the set.

On sale at the better radio and phonograph dealers.
Ask for a demonstration!

Pacific Coast Representative

James P. Hermans

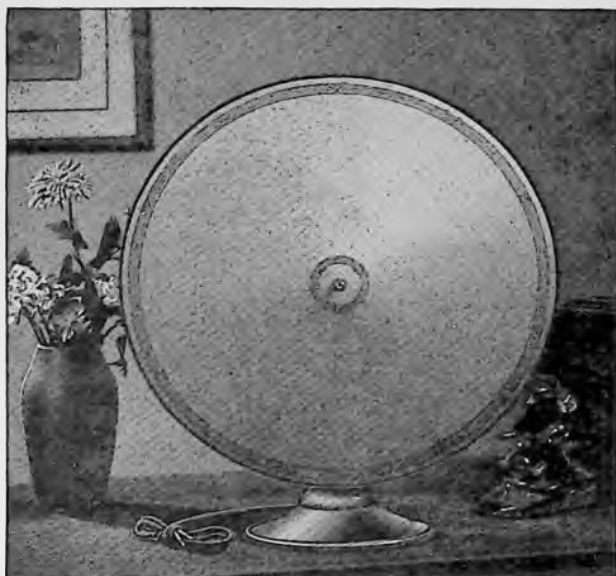
585 Mission Street, San Francisco

PACENT RADIO CORP., NEW YORK CITY

PACENT

PHONOVOX

—the ELECTRIC Phonograph Reproducer



Type B
17-Inch
\$22.50

A triumph in Cone reproduction

THE flawless reproduction of the New Pacent Cone—the realism of its tone quality, brings a new conception of cone speaker reproduction. From the highest violin note down to the zooming of the bass viol, each note is reproduced clearly, distinctly, with a fidelity that is almost phenomenal.

Even when taking the tremendous power output of an electric power amplifier, there is an entire absence of blurring, fuzziness or rattle.

Hear this sensational cone speaker at your dealer!

Pacific Coast Representative

James P. Hermans

585 Mission Street, San Francisco

PACENT RADIO CORP., NEW YORK CITY

The NEW **PACENT CONE**

Sonora Phonograph Company Announces New Line

THIS YEAR the Sonora Phonograph Company presents the greatest radio line-up in the history of the company with a greater variety of prices than has ever been known before in Sonora merchandise. The 1928 Sonora line is composed of five distinct models, each one a leader in its particular field.

First, the Selective Six Table Model No. 850—Sonora's most outstanding value. A six tube set built into an ornate walnut burl cabinet. Price \$99.50

Sonora Selective Six Junior Highboy No. 860—an attractive walnut design, doors in distinctive two-tone effect. This model was built to satisfy the taste of those who want their speaker outside the cabinet and who, at the same time, want an attractive furniture model. Dial light. Price \$165.00.

Sonora Selective Six Standard Highboy No. 865—attractive highboy burl walnut cabinet with built-in speaker. This set is designed to meet the demand of those who want an attractive looking Sonora set with speaker built in but who will not pay over \$200.00. Dial light. Price \$195.00.

Sonora Selective Six Deluxe Highboy No. 870—new Sonora six tube set built into a beautifully hand-carved, burl walnut cabinet of exquisite period design. Dial light. Price \$250.00.

Sonora Electric Seven No. 875 was designed for those who have been waiting for the development of a DeLuxe radio receiver of unlimited performance ability and housed in a luxurious cabinet. This receiver operates either from a loop or antenna. The loop is hidden within the hinged door forming an end cabinet panel. Four stages of newly perfected R. F. L. balanced bridge radio amplification system makes possible the reception of distant stations within a range of 5000 miles. While the price does not include electric equipment, the consumer is advised

to purchase it in the electric form unless alternating current is not available. In this event, batteries may be employed without changing the chassis. The dial light serves the triple service of a pilot light, illumination of dial and the casting of a hair line shadow of light upon a scale calibrated in kilocycles to correspond with the published frequency figures. The control is so simple that a child can operate it. It is only necessary to set the dial on the kilocycle frequency of the station desired and to turn the volume control for the loudness desired.

The matching and selection of veneers, attractiveness of finish and polish employed in the construction of the cabinet reflect the handicraft of the same master craftsman who made the \$5000.00 DeLuxe period model phonograph. This model lists at \$375.00 without electric equipment.

From this brief summary of the 1927 Sonora line, it is evident that here is one of the most comprehensive lines in the history of the radio industry.

EXHIBITOR'S DIRECTORY (Continued from Page 30)

Exhibitor	Booth
Brach products, Exide batteries, Eveready batteries, Philco batteries, Radiotron tubes, Raytheon tubes, Remier products, Sentinel re'ays, miscellaneous products, Utah speakers, Willard batteries.	
Universal Agencies.....	101
Electrad, Inc., Greene-Brown eliminators, Yahr Lange, Inc., Cardwell Mfg. Corp., Am. Braiding Co., General Instrument Corp., Shamrock sets.	
Weinstock Nichols Co.....	20-21
Grebe sets.	
Western Auto Supply Co.....	64-65
Set.	
Wholesale Radio Supply Co.....	136
Neutrowound sets, Bretwood variable leak, Morris ball aeriels, Continental tubes.	
Wright, H. Earle, Inc.....	53-55
Kolster sets, Crosley sets.	

GUY E. ALTERTON RADIO CO.

827 PHELAN BUILDING

San Francisco, Calif.

WHOLESALE RADIO DEALER
of
BETTER RADIOS AND ACCESSORIES

The Following Popular Lines Are Always in Stock

HALOWAT RADIO

WEBSTER SOCKET POWERS

RAYTHEON TUBES

THOROLA PRODUCTS

BALL AERIALS

GILCHRIST AERIALS AND GROUNDS

EXPOSITION PROGRAM (Continued from Page 26)

Comic song, William Powers—

Zip, Zip, Zip

Orchestra—

Medley March

Baritone solo, Harrison Ward—

Roses of Picardy

Comic song, William Powers—

Beautiful K-K-Katy

Ensemble—

Keep the Home Fires Burning..Novello

10 to 11—KFWI

Condensed version of KFWI hour of mirth

with dance orchestra; George and

Clem; Lois and Frieda; Gloria del Rae;

Eddie Holden; Ray Canfield and others

Saturday, August 27

2 to 3—KGO

Pacific Radio Trade Association Trio

4 to 5—KFWI

Tea party with George and Clem; Ray

Canfield and his uke; Frank Gibney and

Lloyd Munroe and Zizz Black

8 to 9—KFWI

Bill Bennet and Eddie Holden, introducing

surprise features and San Francisco

celebrities

9 to 10—KFRC

Sherman Clay hour of music, featuring

Kajetan Attil, solo harpist of the San

Francisco Symphony Orchestra; Harri-

son Cole, tenor, and Evelyn Phelan,

pianist

10 to 11—KFRC

"Bits from the Jamboree," featuring

Mac and his Haywire Orchestra;

KFRC's Hawaiians; Mae Thompson, so-

prano; Robert Olsen, tenor and Profes-

sor Herman Schnitzel

ATWATER KENT ENJOYES ENVI- ABLE YEAR

(Continued from Page 46)

Another new Atwater Kent development is the B power unit which has been produced after two and one-half years of experimental work. This unit is also designed

to go into operation and render years of use without service as are all Atwater Kent products. All voltages are fixed. There are no adjustments and no meter settings are necessary. It is of typical Atwater Kent finish and design and uses an Atwater Kent rectifying tube of conventional type but radically different in construction. It is provided also with an automatic relay very similar to the one furnished to Packard in the past and which was as near trouble-proof as anything could be made. The B power unit sells for \$52.50 and from the standpoint of operation and construction is excellent. In tone quality it has all the effect of a power amplifier.

The Atwater Kent advertising continues with all the vigor and strength of past seasons and the merchandising policy remains the same; in fact, Atwater Kent has made practically no changes in policy, in distribution or in selling methods since radio started. It has proven one of the stable, firm lines of the industry.

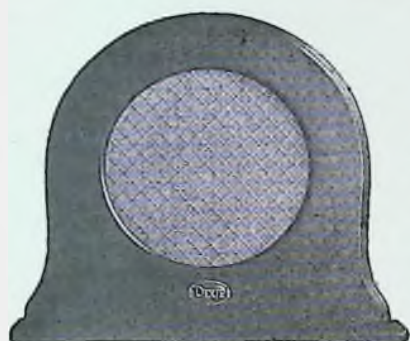
The Pooley line, which is distributed with Atwater Kent embraces a line of radio cabinets that are unusually beautiful and this year in particular have been made extremely low in price. These cabinets house the various Atwater Kent sets. Some use the Pooley speaker; some have the new development in the Pooley double tone speaker, and some embrace the Atwater Kent Model E speaker. They are furnished in lacquer in decorative designs, in mahogany and in walnut and prices range from \$37.50 upward. The line also includes a combination speaker and battery compartment table suitable for an Atwater Kent Model 35 or for other receiving sets.

In northern California the entire line of Atwater Kent products is distributed by Ernest Ingold, Inc., 930 Van Ness Avenue, a firm which has contributed a great deal to the industry as a whole by its splendid broadcasting and by its consistent and continuous advertising in the trade press and in the daily newspapers. The firm's showrooms would do credit to Fifth Avenue, New York, and are beautifully appointed in every respect. Its conventions and dealer meetings, its bulletin service and its methods are vigorous, consistent and clean and the combination of Atwater Kent with Ernest Ingold, Inc., is well nigh ideal.

Dixie Reproducers



Model A \$30



Model D \$25.00



Model C \$37.50



Model B \$28.50

See the Dixie at Booth 163 or at Your Dealer's

Dixie Reproducer Co.

**1450 San Pablo Avenue
Berkeley, Cal.**

R. C. A. Models Described

PRELIMINARY to the opening of the Pacific Radio Exposition, A. B. C. Scull, District Sales Manager of the Radio Corporation of America, announced the outstanding features of the 1927-28 RCA line of Radiolas and loudspeakers to be introduced at that show.

"Essentially," said Scull, "the new models which include dry battery, storage battery,



A. B. C. Scull, District Sales Manager, Radio Corporation of America

and complete AC and DC operation covering the entire range of the market in point of price and performance, continue with the tried, tested and perfected feature which has long distinguished RCA offerings. The Radio Corporation of America long ago discerned a well defined public demand and preference for radio receivers utilizing lighting current

as the source of power to do away with all batteries and the need for their periodical replacement. The new line therefore brings complete socket power operated receivers within the reach of every purse and home, and for the millions of homes in communities not yet electrified there is provided the last word in dry battery and storage battery operated sets. They include numerous refinements as well as ingenious combinations in keeping with the growing importance of radio in the home, but the sound value of basic research and true engineering is borne out once more in the survival of certain definite fundamentals of radio reception which the Radio Corporation of America introduced several years ago and which remain unsurpassed," Scull said. "Perhaps the outstanding feature of the new RCA models is in the perfected method of light socket operation which they embody although the marvelous tone quality for which RCA sets have always been famous has been further improved. Also, attractive appearance has been sought

and gained. Beautiful cabinets with the radio components entirely self-contained yet made readily available by convenient doors, now place Radiolas on a par with the finest of home furnishings."

The leaders of the R. C. A. line continue to be represented by the RCA 8-tube loop-operated super-heterodyne receiver and the Radiola Loudspeaker 104 a socket power Loudspeaker of surpassing tone and volume, together with complete rectifier supply for the A, B and C requirements of the Radiola with which it is used in combination. Scull's announcement continues: "The Radiola 28 and the improved 104 Loudspeaker have no equal in the radio art today. Supreme in selectivity, sensitivity and tone quality; easy of manipulation and superior in the perfected method of socket-power drive which the combination employs, these two elements, either in the form of separate units or incorporated in one cabinet, have been retained among the higher-priced RCA models about to be introduced.

The Radiola 32, with its handsome walnut grained cabinet and entirely self-contained components, even to the concealed loop wave interceptor, represents the highest technical and artistic achievement in broadcast reception. Certain refinements in design have permitted the inclusion of the powerful 104 Loudspeaker in one cabinet with the super-sensitive superheterodyne, not only with a complete absence of microphonic effect but also emphasizing its extraordinary tone quality.

"A lower-priced model, likewise characterized by a distinctive cabinet, is an entirely self-contained combination, comprised of the well-known 8-tube super-heterodyne receiver with the new 100-A Loudspeaker, and operated by socket power. Both Radiola 32 and 30-A may be had for either alternating current or direct current operation.

"THE superheterodyne circuit, as represented in the 32 and 30-A combinations, as well as in the present Radiola 28, continues as the standard of broadcast perfection after four years in the hands of the

(Continued on Page 66)



"You're There With a Crosley"



The BANDBOX \$60.50

A 5 Tube Receiver
Bass Boost Crystal Filter—
Remote Intercom.

THE BANDBOX

Since Crosley is licensed to manufacture under nearly all important radio patents, this combination with Crosley leadership and experience, naturally produced an amazing radio, the remarkable value of which can be judged by the following features incorporated:

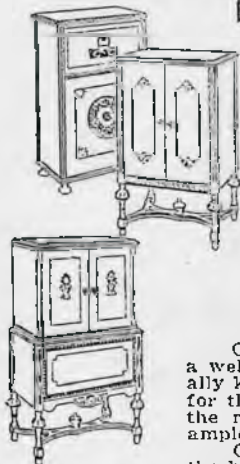
- 1—Completely shielded coils, condensers and wiring.
- 2—Accumulators for sharper tuning.
- 3—Volume control.
- 4—Single tuning knob.
- 5—Illuminated dial.
- 6—Single cable outside connections.
- 7—Designed for easy installation in consoles.
- 8—Beautiful frosted brown crystalline finished cabinet.

"AC" model using new Cunningham "AC" tubes and working directly from electric light socket through Crosley Power Converter is \$71.50. Power Converter, \$66.00 extra.

IMPROVED CONSOLES AND SPEAKERS

Consoles for the Crosley Radio this season are not made by Crosley, but by a well-known manufacturer whose designing and production ability are nationally known, The Showers Brothers Company. These consoles are built especially for these sets and are not just a cabinet with a hole or shelf in which to stick the radio. In these cabinets is incorporated the new Crosley Musicone, and ample space is provided for batteries or "AC" power unit.

Consoles are built of walnut-burl panels and rich carvings add much to the beauty of their lines and finish.



Authorized
Distributors

KIERULFF & RAVENSCROFT
RADIO EQUIPMENT

Booths
110-11-12

RCA announces a complete line of Radiolas

—for all methods of operation

—for all requirements of location

FROM the Research Laboratories of Radio Corporation of America, Westinghouse and General Electric have come these RCA Radiolas and Loudspeakers—the greatest achievements of the radio art.

These tried, tested and perfected receiving sets are individually adapted to the different methods of operation, as well as to the exacting requirements of different locations.

RCA Radiolas set the standard for radio because of their unrivalled perfection of tone and simplicity of operation. They are designed by the same engineers who planned the leading high-power broadcasting stations. They are the time-tested sets that have been chosen for exclusive use by Victrola and Brunswick in their finest instruments.

Included in the new Radiola line are dry battery sets, storage battery sets, and, of course, the sets that operate directly from the electric light circuit.

RADIO
CORPORATION
OF AMERICA
New York Chicago
San Francisco

*You haven't really heard radio until you have listened to a Radiola and RCA Loudspeaker.
Ask any RCA Authorized Dealer to demonstrate these marvelous instruments.*



Buy with confidence where you see this sign.

RCA Radiola

MADE BY THE MAKERS OF THE RADIOTRON

*These Sets Are
Battery Operated*



RCA RADIOLA 20
Less accessories \$78.00
With Radiotrons \$89.50



RCA RADIOLA 16
Less accessories \$69.50
With Radiotrons \$82.75



RCA RADIOLA 28
With Radiotrons \$260



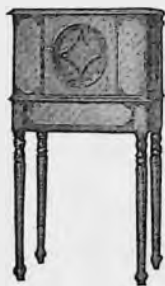
RCA
LOUDSPEAKER 100-A
\$35



RCA RADIOLA 32
Complete with
Radiotrons
\$895



RCA RADIOLA 28
With Radiotrons \$260
A. C. Package for adapt-
ing RADIOLA 28 for A.C.
operation with RCA
Loudspeaker 104 . \$35



RCA
LOUDSPEAKER 104
(A. C.) \$275
(D. C.) \$310



RCA RADIOLA 30-A
Complete with
Radiotrons
\$495



RCA RADIOLA 17
Less accessories . \$130.00
With Radiotrons . \$157.50

Socket Power Operated

SEE THESE SETS AT THE RCA BOOTH

Halowat Executives Have Colorful Career

PERHAPS no two personalities in coast radio heads have had a more wide and varied experience in the profession than those of the two heads of the present HALOWAT RADIO CORPORATION, manufacturers of HALOWAT radio receivers of Portland. These two men, J. H. Hallock and C. H. Watson have been intimately associated in commercial, government and broadcast radio since 1907.

During the summer of 1908 Watson picked up an "SOS" from the old steamer Kansas City, aground in the Columbia River. By "pulling out of the spark gap" and "shooting" a few condenser plates he established communication (fifty miles), had tugs sent out and was awarded by much publicity, and what was vastly more important a \$10 check as reward!

In 1909, both Watson and Hallock "broke in" as commercial operators in the old "DZ" station of United Wireless Company in the Perkins Hotel, Portland. Later Watson was assigned as night operator at the "KE" St. Helens station and Hallock took a berth on the pilot schooner Pulitzer, in which the old 1 kw transmitter and the operator each occupied about equal space in the fore'sle bunk provided.

From 1909 to 1913 these two men took a course of electrical engineering at O. A. C. in Corvallis and during the summer time acted as commercial operators and later as installing electricians for United Wireless and Marconi Companies at various ship and shore stations on the Pacific Coast. One of the later jobs being employed on the installation of the "high power" 25 kilowatt station at Fauntleroy Seattle.

In the winter of 1913-14 Watson and Hallock built and installed two complete two kilowatt limited commercial spark transmitters for the Northwestern Electric Company, one at Underwood, Washington, and one at Portland, Oregon. These two old

stations will be remembered by old timers as "KGN" and "KGU" operating on 1700 meters and handling a great deal of traffic between these two points.

In 1915, Mr. Watson was employed by the Montana Power Company and built and installed four complete spark stations for limited commercial service in Great Falls, Thompson Falls, Rainbow and Butte, Montana. During this period, Mr. Hallock was employed as commercial radio operator by the Telefunken Company between Pacific and Atlantic ports.

1916 saw both men appointed as assistant U. S. Radio Inspectors. Watson at Seattle, Washington, and Hallock at Norfolk, Va., and S. E. Coast points.

In May, 1920, Mr. Hallock was selected by the Chinese Government to build 30 radio telephone stations throughout southern China, this job taking eleven months to complete.

In January, 1921, both felt the urge to get into the broadcasting equipment business, which was just then commencing its phenomenal rise to popularity. They consequently, in January, 1921, left their engineering professions and opened at Portland, Oregon, the firm of HALLOCK & WATSON RADIO SERVICE.

For the next couple of years, this concern expanded very largely and went into the wholesale of radio broadcast equipment. In 1923 HALLOCK & WATSON RADIO SERVICE commenced the commercial manufacture of broadcast radio receiving equipment, using the trade name of "HALOWAT." From that time on the company steadily expanded until its HALOWAT receivers were known and recognized as one of the leaders on the Pacific Coast, and their present highly efficient products are favorably known and highly regarded in the radio industry.

Halowat Radios

Comparison Proves Their Superiority

Distributed by

Guy E. Alverton Radio Co.

827 PHELAN BUILDING

760 Market Street, San Francisco

Phone Douglas 1985



On the closing evening of this Radio Show a Halowat Radio (fully equipped) will be given away. Get your lucky number!

SEE IT!

HEAR IT!

BOOST IT!

SELL IT!

Federal-Brandes at the Show

THE EXHIBIT of the Federal Telegraph Company and its allied company, Federal-Brandes, Incorporated, is of particular interest to us on the Pacific Coast.

Founded in 1909, The Federal Telegraph Company is the oldest radio company in the United States today existing under its original name. It originated in San Francisco and is still controlled and largely owned by Pacific Coast men. A number of years before the war, the Federal engineers intro-



Frederick A. Kolster

duced continuous wave transmission into the United States, and the superiority of this method over the then widely used "spark" type, was at once apparent. Using this system, the Federal Company organized and built up a commercial radio telegraph system, which today serves the seven Pacific Coast cities of Seattle, Tacoma, Portland, San Francisco, Oakland, Los Angeles and San Diego, and handles a very considerable portion of the commercial telegrams between these cities.

Shortly after becoming engaged in point to point work, the Federal Company entered the marine field, at that time almost wholly controlled by the English Marconi Company. From a very small beginning, it has built up its marine business until, today, on the Pacific it controls the traffic on nearly one hundred commercial ships, and operates land stations at Portland, San Francisco and Los Angeles. A number of the largest and best known vessels on this Coast are Federal equipped including the Dollar "535's," the Admiral line vessels, the Australian boats of the Matson Navigation Company, and the "Calawaii" and "City of Los Angeles" of the Los Angeles Steamship Company.

During the war period, and shortly thereafter, the engineers of the Federal designed and built most of the high power stations

for the United States Navy, including those at San Diego and Mare Island; Pearl Harbor, Honolulu; Cavite, P. I., and the La Fayette Station at Bordeaux, France.

For a great many years, the Federal Telegraph Company, and now Federal-Brandes, Incorporated, have been exceptionally fortunate in having as their Chief Research Engineer, Dr. Frederick A. Kolster, a scientist of international reputation. Prior to his con-



Kolster power cone operated from light circuit

nection with these companies, Dr. Kolster was for many years head of the radio section of the United States Bureau of Standards. Perhaps his most outstanding contribution to radio is the Kolster Radio Compass, one of the most important navigation instruments developed in recent years, which enables a navigator to determine his position in any weather. Since that time he has developed his Marine Beacon, so that even in the thickest fog a ship equipped

(Continued on Page 100)

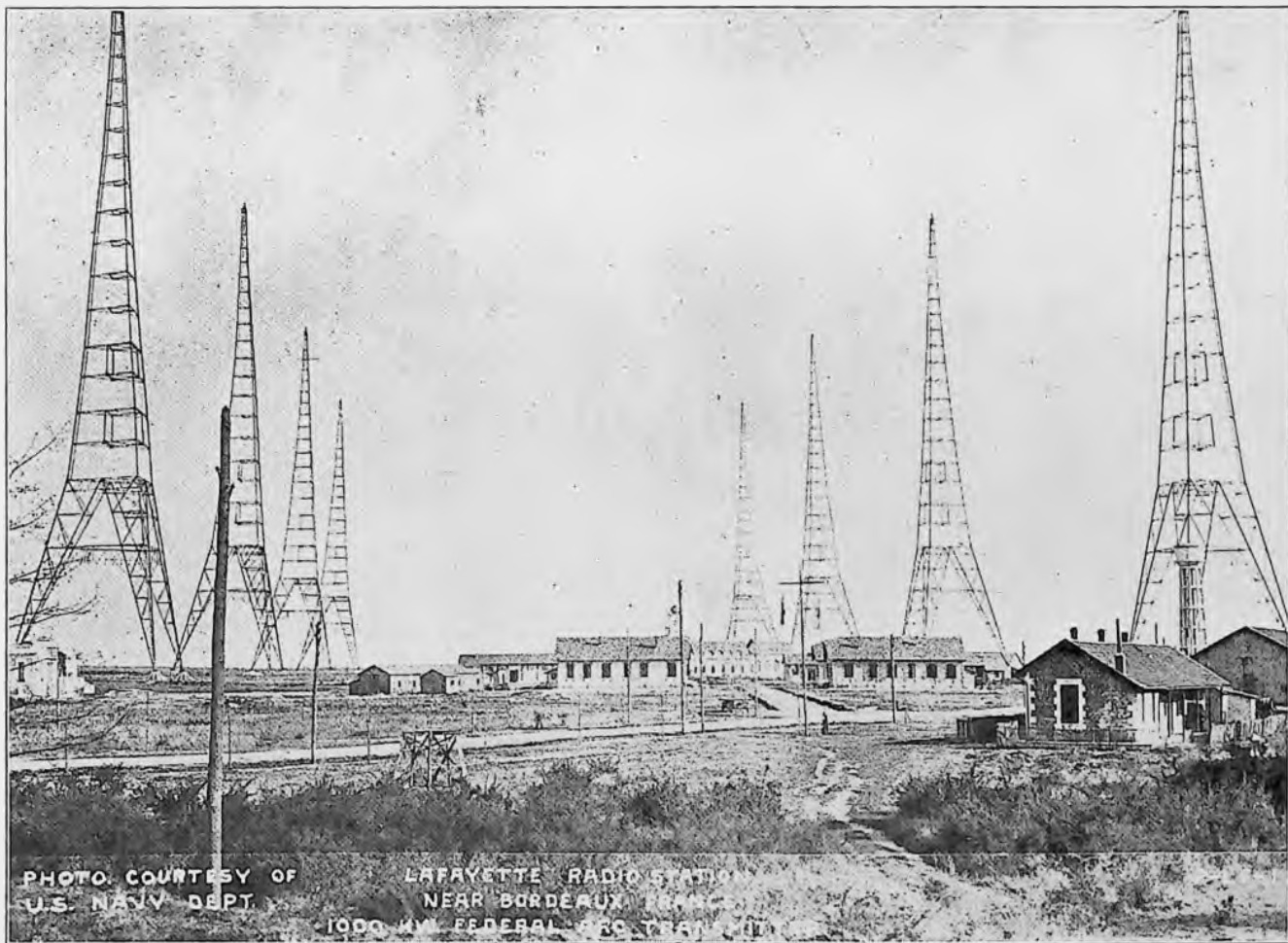


PHOTO. COURTESY OF
U.S. NAVY DEPT.

LAFAYETTE RADIO STATION
NEAR BORDEAUX, FRANCE
1000 MW. FEDERAL PROTECTIVE

United Radio Supplies Company Has Steady Growth

THE foundation for "The House That Parts Built," slogan for United Radio Supplies Company, was laid in 1922 at 1138 Sutter street, San Francisco, by three men who have since formed a partnership and are well known among radio men on the Pacific coast. The partners, C. C. Brown, O. A. Huber and R. W. Johnson, were formerly engaged in the manufacture and sale of radio equipment and also were active in wire and wireless telegraphy. Broadcast reception was comparatively new to the public at that time, but its increasing popularity foretold the coming of a great industry and the development of a large field for the sale of radio equipment.

It was decided to specialize on parts for the home set-builder as it was evident that a great interest lay in that direction in the mind of the public and furthermore, the parts business could be developed by those who followed the particular demands of the set-building consumers, and who were acquainted with that branch of the radio industry. The success with which this venture met is indicated by the fact that within six months larger quarters were secured at 693 Mission street, and since then new quarters with additional space and facilities for handling still greater business have been secured in a new building at 1062 Howard St., where the firm is now located.

The United Radio Supplies Company is recognized as carrying a stock of parts of the greatest variety and completeness on the Pacific coast. Practically every reputable parts manufacturer in the United States is represented by this company. Radio sets and accessories are also distributed. Such well known lines as Apex and Bremer-Tully sets and Utah speakers are sold exclusively by this concern, which also has an R. C. A. Radiotron franchise.

The concern recognizes the fact that its success depends largely on the growth of the dealers to whom it sells, and its function is to promote the sales of its retailers by such co-operation as keeping them posted on radio developments, supplying

sales helps as furnished by factories, referring prospects to them, furnishing engineering and cost data, furnishing salesmen to assist in demonstration and sales to consumers and formulating and printing form letters which the dealer can mail to his trade list on his own letterhead. Every key man in the employ of the organization is a radio man of experience and from top to bottom the United Radio Supplies Company is a radio house devoting its entire energy to the sale of radio equipment in a way that transfers merchandise from the manufacturer to the dealer in the most efficient and satisfactory way possible.

The radio public may write the United Radio Supplies Company for information on set building, and data on the parts required and cost will be furnished as well as name of nearest dealer from whom the parts can be purchased. Wiring diagrams for building sets, B-eliminators and power supply devices will also be sent free on request.

DIXIE REPRODUCER MAY NOW BE HAD IN FOUR MODELS

THE DIXIE REPRODUCER is the result of three years experiment and research. It is the outcome of three years of constant effort to produce the best in a real musical instrument.

It is built on the principles of the finest stringed instruments combining the mellowness of the violin, the deep full note of the cello and the rich tone of the harp. Its rich deep tone is produced by a combination of its disc with a free-edge sounding board. The idea of the sounding board was taken from the violin and is a patented feature of the Dixie Reproducer. There are no harsh notes from the Dixie because there is absolutely no steel, iron or tin used in its manufacture.

Besides being a musical instrument of real quality the Dixie is a beautiful piece of furniture. It is built of fine grained Philippine mahogany, which will harmonize with any style of furniture. With its four models of varying price the Dixie will suit any home and any pocketbook.

"THE HOUSE THAT PARTS BUILT"—"THE HOUSE THAT PARTS BUILT"

FOLLOW THE CROWD TO BOOTH 140

WHERE YOU WILL FIND THE GREATEST NUMBER OF SET,
ACCESSORY AND PART MANUFACTURERS REPRESENTED

There you will see something NEW and something of INTEREST, whether you OWN a set or CONTEMPLATE BUYING one. You may BUILD SETS or you may WONDER HOW TO BUILD THEM. You may want to find out in what manner YOU CAN IMPROVE THE PRESENT OPERATION of your set; what ACCESSORIES you can add to BRING IT UP-TO-DATE.

All Paths Lead to BOOTH 140, for There You Will Find
"THE HOME OF UTAH SPEAKERS"

"Apex" Radio Sets

"A-I Crystal"
"All-American"
"Aleo"
"Aero" Coils
"Amertran"
"Amperlites"
"Allen-Bradley"

"Bremer-Tully" Radio Sets

"Balkite"
"Browning Drake"
"Benjamin"
"Bruno"
"Blackburn"
"Baldwin"
"Bodine" Coils
"Brach"

"Celatsite"

"Carter" Parts

"Celoron"

"Citizens Radio-Call Books"

"C. R. L."

"Cardwell"

"Carborundum"

"Cannfield"

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"Chrostats"

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"Dublier"

"Dudlo" Wire

"Elec-Tru-Tone"

"Exide"

"Eby"

"Electrad"

"Eveready"

"Federal"

"Formica"

"Findlay Insulators"

"Goodrich"

"Hammarland"

"H-K" Lugs

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"Jones"

"Jewell"

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"Kellogg"

"Kurz-Kasch"

"Kester"

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"Madison Moore"

"Mueller"

"Mar-Co"

"Marion Wire"

"Nat'l Browning Drake"

"Phileo"

"Penetrola"

"R. C. A. Radiotrons"

"Rauland-Lyric"

"Raytheon"

"Remler"

"Royalty"

"Silver-Marshall"

"Sentinel Relays"

"Signal"

"Super Bull Ant."

"Samson"

"Sickles" Coils

"Sangamo" Condensers

"Thordarson"

"Tungar" Chargers

"Toke-Deutschmann"

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"Universal"

"Victoreen"

"Weston"

"Willard"

"Ward-Leonard"

"XL-Variodensers"

"Yaxley" Parts

UNITED RADIO SUPPLIES CO.

Northern California Distributors for the "Bremer-Tully" and "Apex" Sets

1062 Howard Street
San Francisco

"Radio Exclusively"
(Wholesale Only)

Phones: Douglas 8357
Douglas 8358

"THE HOUSE THAT PARTS BUILT"—"THE HOUSE THAT PARTS BUILT"

The Jewell Electrical Instrument Company

THE JEWELL ELECTRICAL INSTRUMENT COMPANY was established in 1899 by Edward W. Jewell who disposed of his interests in 1909 to the present management. Our growth has been substantial, year by year, until today we have one of the largest factories in the world devoted exclusively to the manufacture of electrical measuring instruments.

The success of our company cannot be attributed to any individual executive or to any outstanding sales policy or factory organization. There has been, however, a continual effort to make a better product and to supply the electrical industry and its allied trades with special types of instruments to meet their need.

The "Jewell Spirit," among our employees, has grown from year to year until today we have an organization which is unique unto itself: On account of there being no competitive labor market in the middle west it has been necessary for us to train our own instrument makers, and as these men become skilled and assume charge of different departments, they in turn insist that the men under them measure up to the high standard of craftsmanship established many years ago. "Better Instruments" is our constant aim.

A cordial invitation is extended to the reader to visit our factory when in Chicago. Our factory is located at 1640-50 Walnut street, only ten minutes ride from Chicago's congested loop district.

Radio engineers and experimenters who have closely observed the trend and development of radio, concede that Jewell's contribution to the industry has been very substantial and valuable. This applies especially to the instruments and sets for testing tubes.

The Jewell Electrical Instrument Co., has supplied precision instruments to laboratories for radio investigations for

years. In fact, long before the advent of broadcasting, the Jewell Electrical Instrument Co. made many instruments applicable to certain specific radio uses only.

This array of measuring instruments, which we have kept in advance of the field, includes devices for checking tubes, for taking their static characteristic curves and for the actual measuring of their three fundamental characteristics. Instruments for measuring grid leaks, instruments for measuring capacities, and delicate high frequency galvanometers for wavemeter work are among these special applications. To these should be added the standard precision instruments for measuring direct and alternating current voltage and current, without which the radio industry would find itself very much in the dark.

Those interested in laboratory measurements know of these things from actual experience. To those desiring an individual instrument or two for checking battery voltage, in the operation of a set, an eliminator or a tube, we point with pride to our contributions to the art of radio measurements.

The craftsmanship of Jewell instrument makers is extremely exacting: In addition to the very close limits encountered in the assembly of parts, there are many electrical problems involved. There must also be care and precision of calibration and accuracy of scale drawing, requiring experience, steady nerves, keen eyesight and knowledge of instrument applications. Practical designing, however, has simplified many of the assembly operations, and reduced to a minimum the possibilities of faulty workmanship.

We invite you to advise us of your measurement problems, since from our wide and varied experience in radio measurements we are usually able to suggest apparatus or methods by which many puzzling measurements, comparisons or indications may be made.

Booth No 35

SEE THE NEW

WILLARD

Power Units for every set
Operates from the Light Socket

COMBINATION	"AB"
SUPER	"B"
STANDARD	"B"
SUPER	"A"
STANDARD	"A"

Ask at Booth for Coupon

YOU MAY WIN ONE OF THESE UNITS FREE

HEAR THE DIFFERENCE

BAY SALES CO.

DISTRIBUTORS

1384 Bush Street

Phone Graystone 356

R. C. A. MODELS DESCRIBED
(Continued from Page 54)

critical radio public. This circuit, quite as much as any other factor, has made for the increasing stability of radio marketing and the growing confidence of the public. Moreover the Radio Corporation of America feels that in combination with the perfected socket-power operation provided in Radiola 32 and 30-A combinations, as well as with the Radiola 104 Loudspeaker, its solution of the A-B-C socket supply still justifies the efforts of its designers, even after several years during which all manner of solutions have been attempted by others.

"Of revolutionary character is the introduction of Radiola 17 which marks an epoch in the progress of receiving set design. This set is the culmination of years of research in set and tube design aimed to produce, for a moderate price, a receiver completely AC operated with a minimum of operating controls. Simplicity of operation and of maintenance are the main features of Radiola 17. It has three stages of radio frequency amplification, a detector and two stages of audio-frequency amplification. The new AC Radiotrons UX-226 are used in the radio-frequency stages and in the first audio-frequency stage. In the detector socket the new UY-227 gives unusual sensitivity with complete absence of hum. In the last audio-frequency stage, the use of Radiotron UX-171 gives faithful reproduction at extraordinary volume, when desired. The B and C voltage is supplied by means of a rectifier-power-amplifier unit, built into the set and employing the new, high-output Radiotron UX-280, for full-wave rectification of the alternating current taken from the light socket. All filaments are lighted by the same current stepped down by means of transformers to suitable voltages.

"There are only three controls on this set, one knob for tuning, one for volume control to regulate output of the receiver and a power control switch to turn the power on and off.

"For those who prefer battery operation or whose homes are located in rural districts not as yet electrified, Radiola 16 will be found to fill the most rigid requirements for sensitivity, selectivity and fine tone quality in its class."

**STERLING MFG. CO. KEEPING ABREAST
OF THE TIMES**

KEEPING up to the minute with every refinement in radio power supply manufacture is the task of The Sterling Manufacturing Company, Cleveland, Ohio, exhibitors at the Pacific Radio Exposition.

That the Sterling Company is ably accomplishing this purpose is attested by A. J. Detsch of San Francisco, who recently returned with his associate, Mr. Trupp, from an eastern trip.

Mr. Detsch, who is president of Detsch & Co., factory representatives, made a complete tour of inspection through the Sterling Company's Cleveland plant.

"Never before have I seen such intensive radio power research as that displayed in the Sterling laboratories," declares Mr. Detsch. "New power units have been produced that place Sterling months ahead of prominent competitors. Makeshifts of every description are scorned. The various models of Sterling "A," "B" and "C" power now make it possible to fit exactly the needs of every radio receiving set."

The industry shown by Sterling's engineers is the more remarkable, in Mr. Detsch's opinion, because the Sterling Manufacturing Company has successfully conducted its business since 1906, and is a pioneer in radio. Many firms in that position would be content to rest on past laurels, and not endeavor so strenuously to promote new mechanical improvements. Sterling, to the contrary, aims to keep a few steps ahead, all the time.

"As interesting a unit as I have yet seen," reports Mr. Detsch, "is the new Sterling "A-B-C" power supply, called model R-100. This compact combination, within a single box, provides "A," "B" and "C" power direct from the light socket. Any set using from three to eight tubes is operated by the R-100, and the voltage is controlled with amazing certainty and simplicity to answer the particular needs of the set.

"The R-100 is interesting in many ways, and one, apart from its wonderful efficiency, is its economy. It uses only 50 watts at maximum output. Raytheon tubes form an important part of its equipment.

"We expect to treble our sales of Sterling Power Units this year," adds Mr. Detsch.

Sterling

Permanent Power Units



No. R-81

Light Socket Power at its best comes to you with Sterling equipment. The Sterling line is so complete that exactly the best-adapted power supply is found for every set. And Sterling service endures, not for just a year or two, but permanently.

Sterling "B" Power Supply R-81 is one of the newest, most popular models. Built for sets of from 3 to 8 large tubes, and for Radiolas. Capacity at 35 mills. is 150 volts. Uses the BH Raytheon Tube, and is equipped with a convenient "on" and "off" switch. All voltages variable. A decidedly well-constructed unit.

Sterling "A-B-C" Power Supply R-100 combines your complete power equipment within a single unit. Operates any 3 to 8 tube set. Occupies less space, is more convenient, and costs less than individual units. Operates with great economy. Sterling Meter and Rheostat provide correct "A" output for any set. Uses 2½ amp. Raytheon cartridge for "A," and BH Raytheon tube for "B-C" rectification. Full charge assured at all times.

In every case, with the right Sterling equipment, you will find that the volume, the tone, the entire performance of your set will reach its peak and stay there.



No. R-96

The Sterling Manufacturing Co.

2831 Prospect Avenue

Cleveland, Ohio

Pacific Coast Representatives

Detsch & Company

Los Angeles

Seattle
DenverSpokane
Salt Lake City

San Francisco

W. E. & W. H. Jackson Announce New Fall Line

THE very rapid development of the radio business in the last few years is, in just measure, due to the tremendous impetus given the industry when the buying public first came into the market with a tremendous demand some four years ago. A real economic problem was manifest owing to the fact that the radio jobber hardly existed and the means of supplying the dealer with merchandise and service was a serious problem. It soon became apparent to the automotive jobber that his sales force and service men were particularly adapted to enter this new field and one of the pioneers was the firm of W. E. and W. H. JACKSON with establishments in San Francisco and Oakland and salesmen covering Northern California and Nevada, as well as the Hawaiian Islands.

An announcement of considerable interest to the trade is the fact that the Jackson firm is distributing for 1928 the Sparton line of one Dial Control Receivers, consisting of five models, including both light socket and battery operated sets. The Sparton is manufactured by the Sparks-Withington Company of Jackson, Michigan, with a successful history of 26 years. Their greatest achievement without doubt is the AC Light Socket Set, operated without batteries of any kind, and in this field they are the pioneer, this particular type of set having been developed by them and first sold on a commercial basis over a year ago. The radio public today is insistent on tonal qualities and in this particular as in all other desirable attributes the Sparton meets the requirements of the most critical buyer. The Jackson firm has closed some very fine dealer contracts for the 1928 season and the little remaining territory is being sought by the best class of radio dealer.

A few of the other outstanding lines handled by this firm are Eveready B Batteries, Gould A Batteries, Radiotron Tubes, General Electric Tungar Battery Chargers and Trickle Chargers and Majestic B Current Supplies.

A very attractive exhibit is located at Booths No. 159 and 160 and in attendance are W. H. Jackson, general manager, E. L. Rettig, sales manager, E. F. Chemnitz, Oakland store manager and Charles Meyer, radio technician.

Mr. Leigh Borden, western factory representative and Mr. F. L. Drake, factory service supervisor will be in attendance during the time of the Pacific Radio Exposition.

RADIO TRADE ASSOCIATION

(Continued from Page 20)

merce Commission and the California Railroad Commission. Had this increase been allowed it would have meant a material advance in price for the consumer.

In matters of legislation pertaining to radio, the Pacific Radio Trade Association has taken an active interest. It cooperates with the United States Department of Commerce (the branch of Government which regulates radio), and the District Government Radio Supervisors, forming a point of contact for the radio industry in eliminating abuses and presenting the needs and requirements of the industry.

A file of detailed information regarding various lines carried by agents and jobbers is maintained in the Association office. This information is available to members of the radio trade.

All activities are thus carried on for the benefit of the radio industry. To be truly effective the Association should have in its membership the major proportion of all those interested in the radio industry. Membership in the Association is open upon application to the Board of Directors. Dues are but nominal, particularly when the benefits derived from such affiliation are considered and the magnitude of the work of the Association is analyzed. It will be well worthwhile for any member of the radio industry to investigate and join this active organization. Members of the trade—it is your Association, conducted for your benefit and to aid you in making profit.

Give Your Radio the Best and Most Complete
Protection Possible

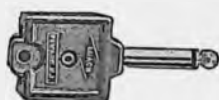
INSTALL A

STORM KING Lightning Arrester



—the DOLLAR ARRESTER
that carries \$100 FREE INSURANCE

*When You Buy Your Storm King Ask Your Dealer
To Show You These Famous Brach Products*



**BRACH SHOCK-
PROOF RADIO PLUG**

No metal parts to shock you. Insulated to withstand high voltages. Attachment to cord is automatic and can't slip.

50c EACH



**BRACH
CONTROLIT**

Operate your radio with house current. Run your Set, Trickle Charger and "B" Eliminator with one switch—the set switch itself.

\$4.50



**BRACH EXTENSION
CORD CONNECTOR**

Place your Loud Speaker in any room, on the porch on the lawn, anywhere, without moving your set. A great convenience.

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L. S. BRACH MFG. CORP.

NEWARK, N. J., U. S. A.

TORONTO, CAN.

H. Earle Wright, Incorporated Keeps Step With Progress

KEEPING abreast of the popularity wave of radio, H. Earle Wright, Incorporated were, early in 1927, appointed exclusive California distributors of Kolster Radio and the Federal Brandes lines.

Even those fans whose knowledge of radio



is no deeper than the turn of the dials are aware of the tremendous strides of radio in the past three years and most of them know of the leading part Kolster has played in perfecting radio reception.

New Kolster Sensation

H. Earle Wright

The newest improvement of the famous line is a power cone reproducer with a fidelity of tone so natural, it hardly seems possible that further improvement can be made.

This power speaker, together with the new Kolster receiver, is a combination that has already turned the customary "summer slump" of all selling into the "holiday rush."

Added Popularity of Other Lines

As running-mate to this splendid line, H. Earle Wright, Incorporated, are equally enthusiastic about the new Crosley line—new cabinets, new features, and meeting a remarkable price with a quality that was but recently impossible at any cost.

Greater Service Through Enlarged Staff of Organization

Anticipating the increasing popularity of radio through careful analysis Mr. Wright and Mr. Rapp have added to the San Francisco office personnel the able services of Mr. Hall Berringer and Mr. P. J. Feeny—men of wide acquaintance in the radio world—possessing the initiative and vision to carry on the advanced merchandising plans that won the organization's present success.

Mr. M. G. Sues, long associated with the trade up and down the coast, has taken over the management of the Los Angeles territory—a fertile field for one of his endless enthusiasm and energy.

This Is Radio Year

Radio fans and owners everywhere can be jubilant at these radio advancements as they spell greatly increased popularity throughout the country and in that popularity comes finer programs, increased restriction of inconsequentials on the air, improved reception and greater radio enjoyment. H. Earle Wright, Incorporated, reflect the prosperity of the industry in general—it promises to be the greatest radio season yet.

Hale Bros. Sales Division Offers Large Variety

ONE way of combining the practical with the aesthetic is to do your radio shopping at Hale's.

Hale's Radio Sales Division on the sixth floor not only offers all that is newest and best in radio and radio maintenance, but it makes shopping a pleasure.

Originally the Pompeian room, the sixth floor, retains much of the beauty and spaciousness that formerly made it a favorite rendezvous for tea and luncheon. Quaint little gargoyles peer down from the cross beams—the fountain in the center of the floor is always at play, and, best of all, as the selling space is separated from the KPO Broadcasting Station by a mere pane of glass, visitors frequently have the delightful experience of seeing and hearing a favorite artist simultaneously—of watching him "on the air" just the other side of the glass and listening to him on one of the

(Continued on Page 108)

Announcing the New Fada Line. Everything New . . . Consoles . . . Cabinets . . . Loud Speakers. Every Mechanical Detail Improved

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DISPLAYING

The Fada Special

The Fada 7

The Fada Console

The Fada 8

The Fada 8 Console

The Improved Fada Cone
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Headquarters for the Pacific Radio Exposition

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Elfrieda Wynne
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**put clear glass
power tubes**

*in every
socket*

*"A" batteries last
twice as long with
Z-P-201-A
power tubes*



WHAT you want most in radio is smooth, well-rounded tones with just enough volume to make reproduction real.

without re-wiring—give you music rich and clear, with as much power as you'll ever need.

The new ¼ amp. oxide filament ZP 201 A all-socket Power Tubes now contribute this missing quality to radio. ZP 201 A power tubes take just enough current from your battery to assure smoothness of tone. Differing from the majority of other tubes there is no excess—no "crowded" current active in ZP 201 A's to set up the blasting microphonic noises that distort true tone and give volume an artificial rasp. ZP 201 A's in every socket—installed

The extremely conservative operating characteristics of ZP 201 A power tubes effect an appreciable economy in "A" power—reduces recharge bother and expense. And through elimination of magnesium coating they perform at topmost efficiency . . . actually improving with service.

*A better, longer life power tube at only
\$2.50 each*

*Ask for a demonstration at your nearest
dealer*

ZETKA Laboratories, Inc., 73 Winthrop St., Newark, N. J.

Representatives

JAMES P. HERMANS COMPANY, 585 Mission Street, San Francisco, Calif.

ZETKA
The Clear Glass Tube

Care and Installation of Receivers

NOTE—The following eight articles on the "care, installation and operation" of receivers have been prepared especially for this show program by one of the most eminent Radio Engineers Of America

GROUND

NEXT to a good antenna, the ground connection is the most important part of the installation of a radio receiver, and its installation should be given careful thought and attention. The customary ground connection is the water-pipe, and in a large percentage of installations, this is adequate. The cold water supply pipe should be used; never a hot water, drain or gas pipe, as they may have insulating joints which will increase the ground resistance enormously. If the receiver is located on the first floor of the home, the ground connection should be made in the cellar, near the point where the pipe enters the earth. A ground clamp should be fastened around the pipe, which should first be scraped clean with a knife, or sandpaper, and the ground lead fastened to the binding post or screw terminal of the clamp. If the ground lead first goes to the lightning arrester on the outside of the building, which is the best procedure, then the ground lead can be continued through the window to the set, and thereby avoid unsightly wires in the house. If the installation is in an apartment house, or upper floor of the dwelling, it may be impractical to run the wires outside the house, and a ground clamp will have to be placed on the piping in the bathroom or kitchen, wherever a conveniently exposed portion of water pipe is had.

If the water pipe does not provide good ground, a buried ground, or a counterpoise are the alternate arrangements. Amateurs who have transmitting sets often bury several old hot water boilers, or other large masses of metal, several feet in the earth, in well moistened soil and find that such a combination makes an excellent ground. For a simple receiving installation, there are several patented grounds which can be buried and which provide good contact with the earth if properly installed. A few feet of copper window screen, or chicken wire fencing, buried under the earth's surface

will also make a good ground, and one which can easily be abandoned if there is no further use for it.

A counterpoise consists of a network of wires, somewhat like an antenna, but suspended only a few feet above the earth. For a receiving installation, a counterpoise of four or five wires, spaced two feet apart, so as to form a rectangle at least forty feet long, and as near under the antenna as is possible, will make a very satisfactory ground. The wires should be high enough to clear the heads of persons walking under it, and if the antenna is very high, the counterpoise may be as high as 25 or 30 feet above the ground, with good results. The counterpoise should be insulated thoroughly, the same as the antenna. Often, where bad interference from power lines is had, when a ground is used, the installation of a counterpoise has greatly reduced the interference, especially where the power line ground, and the radio set ground are close together.

Underground antennas are also popular, and many claims for them have been set forth in recent years. There is no doubt but that an underground antenna will reduce the static to a certain extent, but it is a question but what the signals from the station are also reduced in about the same proportion. Underground antennas usually consist of a piece of heavily insulated wire, buried in a conduit of non-metallic material, six inches or more below the surface, and at least 75 feet long. They may now be purchased completely equipped with a flexible conduit, so that a narrow trench may be dug in the backyard or alongside the house, and the wire easily buried the proper distance. Where an underground antenna is used, a ground must also be employed, preferably located away from the buried antenna. A water-pipe connection is generally employed, as it has been found satisfactory in such installations.

You'll be amazed!

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Cone View, Model F



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Sylvan "Frusto" Cone and Enchanter Speakers



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See Them in
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130**



Model G
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Antennas

THE problem of selecting the right kind of an outdoor antenna, to best suit a particular location is often a difficult one for the novice, especially where there is no one who has had experience in such matters around to give suggestions of a helpful nature. The average factory built receiver has been designed for what is ordinarily called a "medium sized" antenna, having a total length, including the lead-in and ground lead, of seventy-five feet. It is customary, in figuring the correct size of the antenna, to take into account the length of the antenna wire itself, the lead-in to the antenna binding post on the set, and the length of the ground wire; where the water-pipe is used, in the same room with the set, then the length of the pipe to the point where it enters the earth should be used to determine the length of the ground lead.

A short antenna would be one having a total over-all length of forty feet, and a long antenna would be any type having a total length of over 100 feet. For broadcast and short wave reception, where the antenna is not to be used for transmitting, a single wire, solid or stranded, and preferably enameled, is all that is required; antennas having two or more wires will give little additional signal strength, and are primarily intended for transmitting purposes. Cage antennas, four wire flat tops, and others of that style were all designed for specific transmitting purposes, and it is a useless waste of wire and other material to build such an aerial for receiving purposes only. A single solid or stranded wire not larger than 14 B. & S. gauge is the best size to use, with a flat top of not less than thirty-five feet, and as high above the ground as possible, consistent with the total length of the antenna required. Keep the antenna and lead-in as far away from trees, tin-roofing and other grounded objects as is possible, and solder all joints carefully, for an ordinary wrapped joint will soon become dirty, and introduce a high resistance into the antenna circuit, which will greatly reduce the distance over which the receiving set connected to the antenna will operate.

For a single wire, flat top or slanting an-

tenna, two insulators will be needed; one at the far end, between the antenna, and the mast or support to which the antenna is fastened, and the other at the end nearest the lead-in. These insulators should be of glass, pyrex or porcelain, preferably three inches long and more if the expense is not prohibitive, and should be of heavy enough construction to stand a fair amount of strain. Where the lead-in enters the building, a protector, or lightning arrester should be installed, to conform with the Fire Underwriters regulations. There are a number of good arresters on the market, most of which are enclosed in weather proof cases to resist moisture. The antenna is connected to one of three terminals ordinarily furnished on the arrester, the remaining terminals being used for the lead-in to the receiving set, and the ground wire. The law requires that the ground lead from the arrester go directly to the earth by the shortest route, and that it be of heavy gauge conductor, preferably No. 12 B & S or larger. The ground wire for the receiving set may be an extension of this wire if convenient. The actual bringing-in of the lead-in can be accomplished by either installing a window strip especially designed to fit under the lower window sash when it is down, a clip being fastened to each end of the strip for attachment to the indoor and outdoor antenna lead-ins, or a hole may be bored through the window itself. Glass makes an excellent lead-in insulator, and if the lead-in wire is made of flexible material, the window can be raised without disturbing the lead-in.

If it is not convenient to erect a flat-top antenna such as previously described, a slanting antenna, having the lower end fastened directly to the lightning arrester, and the far end to the mast or other support, will do just as well, and requires one less insulator. Vertical antennas are very good for any kind of reception; one sixty feet high is adequate for any receiver, and will be practically non-directional.

Any single wire antenna is slightly directional in the two compass points toward which it points, but this is not sufficiently

(Continued on Page 86)

A. S. LINDSTROM COMPANY

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Special "A" Metal Nickel Alloy for Core Material for
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Permanent Magnets for Loudspeakers, Telephones, and
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Four and Six Tube Radio Receivers Unwired
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"Eagle" Brand Rubber Covered Wire, Cables, Cords and
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SAMSON ELECTRIC COMPANY

Audio and "B" Power-Unit Transformers, Chokes and
Public-Address Apparatus

Connections

THE usual radio receiving installation consists of the receiving set itself, a storage A battery or A power unit for lighting the filaments of the tubes, a B battery or socket power unit and a loud speaker. In outfit installed in a console cabinet, most of the connections are already made, and a battery cable having each wire marked with an identifying tag telling where it is to be connected is run from the receiver to the battery compartment, making the connections for the set very simple indeed.

Where the accessories are separate, however, a number of wires must be installed. The most convenient method of wiring is a piece of battery cable, having at least six conductors, two of which are of large size, for the filament current supply, and four are of small diameter, for the B or C battery leads. If the set is placed on the top of a table, it is customary to place the batteries, or power supply devices on the floor underneath, so that a six foot battery cable is usually adequate in length. At the receiving set itself there is usually a binding post strip, having posts marked—A, plus A,—B, plus B Det., plus B Amp. or R. F., and plus B power. The first two posts are for the negative and positive A battery, so that if a battery cable is not used, a pair of No. 14 gauge insulated wires should be used, for these two leads. The "plus B Det" post usually is connected to the positive 45 volt B battery terminal, and the "plus B Amp" to the 90 volt B terminal. The "B power" binding post may have voltages from 135 to 180, depending on the type of power tube used. The type 112 power tube ordinarily has 135 volts plate, and the type 171 tube can have voltages as high as 180 without harming the tube. The B battery leads can be No. 22 or 24 gauge wire, well insulated throughout their length. Late model sets have a set of "C" battery binding posts, to which the one or more "C" batteries are connected. Most sets use $4\frac{1}{2}$ volts C for the radio frequency or first audio amplifier tube, and from 9 to 40 volts for the power tube. Dry cell "C" batteries of $22\frac{1}{2}$ volts maximum, with taps at $4\frac{1}{2}$ and $16\frac{1}{2}$ volts can now be obtained, so that the positive of such a battery can be connected to the "plus C" binding

post, the $4\frac{1}{2}$ minus to the " $4\frac{1}{2}$ C" binding post, and the negative of the "C" battery can be connected to the "C power" binding post. Where 40 or more volts "C" are to be used, two of the $22\frac{1}{2}$ volt batteries can be connected in series. It is a good plan to place the "C" batteries fairly close to the receiver, although a distance of two or three feet between the batteries and the set will do no harm.

The loud speaker is usually provided with a flexible cord, with phone tips on the end to fit in "phone tip jacks," or in an attachment plug which can in turn be plugged in the output or phone jacks of the receiver. Sometimes a pair of binding posts are installed at the rear of the receiver, for permanent connection of the loud speaker. The two flexible loud speaker leads are marked for proper polarity by means of a red tracer stripe in one of the wires. This wire should be connected to the side of the jack or pair of binding posts connected to the positive B battery. If the wire is connected in the opposite manner, the loud speaker may become damaged in time by having the plate current of the tube flowing through its windings in the wrong direction. Some receivers are equipped with an output transformer or filter, which does away with the necessity for proper poling of the loud speaker leads, as the plate current does not pass through the loud speaker.

ANTENNAS

(Continued from Page 84)

marked to impair reception from stations located at right angles to the plane of the antenna. An umbrella type antenna, having many wires radiating from a central mast, like the ribs of an umbrella, is the only type which is not directional to some extent, but is usually difficult to build because of the great amount of space it requires. Antennas consisting of two wires placed in the form of the letter "V," with the lead-in from the center, are highly directional, and should never be used except to receive from one particular station. It is most efficient in the direction of the included angle, and will give very poor results from stations not included in this angle.

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Booth 131

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Use of Batteries

THE installation and care of batteries used in the receiving set is a simple one, after the initial connections are made, and if a system of periodical inspection and servicing is used, the receiving set will always be in first class operating condition. Where a storage battery is used for supplying the filament current of the set, the care of the battery is similar to that required by the automobile starting and lighting battery, in that distilled water must be added to each cell when the level of the electrolyte falls below $\frac{1}{2}$ -inch above the plates, and the battery must be kept charged. A battery, when allowed to stand in a partly or fully discharged state for more than a few days at a time, will form a compound known as "sulphate" on the plates, and once this sulphate has formed in any quantity, the battery has been ruined. If a trickle charger is used to charge the battery, it should have a charging rate high enough so that it will put back in the battery at least one and a third times as much current as is drawn out. If the set has four type 201-A tubes and one type 112 or 171 power tube, there will be a current drain of $1\frac{1}{2}$ amperes per hour from the storage battery. Supposing that the set is used 6 hours per day, a total of 9 ampere hours is drawn from the battery, and this will require a replacement of 12 ampere hours in the 18 remaining hours of the day during which the set is not used. Dividing the hours available into the current required, we will find that the charging rate for the trickle charger should be two-thirds of an ampere. Therefore, the trickle charger should be capable of giving at least .7 ampere if it is to keep the battery fully charged at all times. The specific gravity of the liquid in each cell should be measured with a hydrometer from time to time, and if the reading of the hydrometer float falls below 1200, the battery should be removed and taken to a good battery service station, where it can be given a good high rate charge to bring the gravity of each cell up to 1275, which is the correct value for a fully charged battery.

Where a charger having a rate of 2

amperes or more is used, the same method of figuring the length of time to charge the battery as was used for the trickle charger can be employed. The terminals of the battery should be kept well greased with vaseline, to prevent corrosion, and the top of the battery should be wiped clean with a damp cloth periodically, to prevent the accumulation of dust and corrosion.

The B battery may be a bank of dry cells, or a storage battery, although the latter is rapidly losing its popularity, due to the large number of cells which must be maintained, in order to have sufficient voltage for the present types of power tubes. Dry B batteries come in units of $22\frac{1}{2}$ or 45 volts, the latter being made in sizes ranging from the light duty type, for three tubes or less, up to the extra heavy duty size for sets of 8 tubes or more. The B battery blocks are connected in series, so that two batteries will give 90 volts, and three batteries will furnish 135 volts. As the battery nearest the negative end of the bank always has the greatest current drain, it should be of the heavy duty type, and if the drain from the 90 and 135 volt taps is rather small, lighter duty batteries can be used for those taps, thus reducing the expense, and allowing all batteries to run down at about the same time. In connecting up the batteries, always make the connections to the binding posts of the receiving set first, connecting the battery cable to the batteries last, so that there will be no danger of touching some of the loose wires to the A battery binding posts, and thereby burning out all the tubes. A protective resistance consisting of a 25 watt mazda lamp, placed between the negative B battery terminal and the negative B binding post in the set will protect the tubes against such occurrences, and will not affect the operation of the set if a 1 microfarad bypass condenser is connected across the terminals of the lamp. In case of a short circuit in the B battery connections of the receiver, this lamp will light up to full brilliance, and will allow only a small amount of current to pass, insufficient in amount to burn out the tube filaments.

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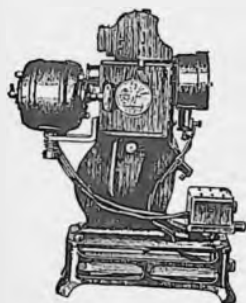
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Socket Power Apparatus

THIS season has seen the appearance of many new devices for converting the alternating current used for house lighting, into direct current for lighting the filaments of the receiving set tubes, and for supplying B and C voltages, thus replacing all batteries. For those who already have a good storage A battery and charger, the B eliminator will be most useful. The selection of a B eliminator, where the buyer knows absolutely nothing about the technical features of his requirements, should be placed in the hands of a radio man who knows the subject thoroughly. A "B" eliminator, to give satisfactory service, must give a clean cut, noiseless supply of direct current, at voltages of 45, 90 and 135 to 200 volts, with current drain up to the amount required by the receiving set. If the set has five tubes, this drain will usually amount to 20 or 35 milliamperes, but if the set has eight or more tubes, especially where it is a tuned radio frequency set, the current drain may be as high as 50 milliamperes, so that some "B" eliminators will not be suitable.

The best procedure is to estimate the current drain by counting the number of tubes in the set, and determining what voltage each one requires. In a tuned r.f. set, each tube in the r.f. amplifier draws about 5 milliamperes, when 90 volts plate is applied. The detector draws about $2\frac{1}{2}$ milliamperes, the first audio tube draws the same, and the power tube requires anywhere from 9 to 25 milliamperes, depending on whether it is the type 112, or the type 371. For a six tube tuned r.f. set having three stages of r. f. detector and two stages of audio, the drain will be 15 milliamperes for the r.f. tubes, $2\frac{1}{2}$ milliamperes for the detector, the same for the first audio, and a minimum of 9 milliamperes for the power tube. Adding up these figures gives a total of 29 milliamperes, so that in ordering a "B" eliminator, the dealer should be informed of the approximate current drain, and the voltages at which this current is supplied. "B" eliminators usually consist of a transformer and rectifier, with a filter and voltage distributor, enclosed in a metal can

so as to make them fireproof. The rectifier may be a tube having a filament and plate like a receiving tube; a gas filled bulb like the Raytheon or QRS; a contact rectifier using a set of metal and compounded plates; or a chemical rectifier having liquids, like the Balkite or Philco. All are noiseless in operation, and can be turned on or off by operating the main power switch at the input to the outfit.

In adjusting a "B" eliminator after it has been connected to the receiving set, it is not practicable to use a voltmeter such as is used for testing batteries, as the current consumed by such a voltmeter is often more than is required by the tubes in the set, and any reading of the voltmeter will be greatly in error, resulting in excess voltage being impressed on the tubes as soon as the voltmeter connections are removed. A high resistance voltmeter which draws very little current should be employed, and lacking such an instrument, the next best type of meter is a milliammeter, which should be placed in series with the various "B" voltage leads, so as to indicate the current flowing in the circuit. In the 45 volt detector lead, the current should read $2\frac{1}{2}$ milliamperes; in the 90 volt lead, for a six tube r.f. set, it should read 15 milliamperes with the volume turned on full; in the power lead it should be 9 milliamperes for a 112 power tube with 135 volts plate and 9 volts "C" battery, and 20 to 25 milliamperes for a 371 tube with 180 volts plate and 40 volts "C" battery.

A battery relay is a convenient instrument to use in conjunction with the "B" eliminator or battery charger, since it automatically turns on the "B" eliminator when the filaments of the set are turned on, and turns off the trickle charger. When the filaments are turned off, the "B" eliminator is disconnected and the charger is again connected, automatically. The relay is usually placed in series with one of the "A" battery leads, and requires no attention, nor does it consume enough current to impair the operation of the receiving set.

If the receiver is to be entirely operated

(Continued on Page 92)

Burns B Power

For Dependable Operation With all Radio Sets

No hum—No acid—No voltage drop even under the heaviest load.

Handles all sets, including those having the 171 power tube in the last stage. This eliminator delivers 180 volts at 50 mils. with ample reserve power.

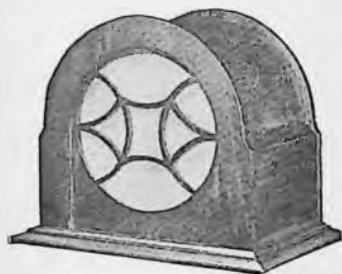
Equipped with B. H. 85 Mil. Raytheon tube—the most efficient rectifier made by the Raytheon Mfg. Co.



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Price slightly higher west of the Rockies
This eliminator is furnished in either
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Burns Cabinet Speaker Cone Equipped



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This beautiful, new cabinet speaker is so sensitive it covers the entire range of musical tones of the nearest as well as of the most distant and elusive station. Even with the Radio Set turned down, the tones are distinct and clearly audible.

This cabinet is furnished in a dark Walnut finish.

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Receiving Set Range

ONE of the first things a novice at radio receiving encounters is fading, and unfortunately, it is one of the hardest things to explain. Fading may be defined as a swinging or changing in the volume of a distance transmitting station, with the signals disappearing altogether for short periods of time, only to return to its former volume. Scientists who have made an intensive study of the phenomenon attribute it to the reflection of the radio waves by different layers of the earth's atmosphere, or to absorption of the waves by these layers. There is no cure for it in the receiver itself, and when a distant station persists in fading, it is useless to turn the dials and try to tune the station in at a wavelength slightly above or below its normal setting, as it is not a change in wavelength, but in intensity of signal.

Fading is most apparent at night, and on stations 200 miles or more distant from the receiver on stations 1000 miles or more away, the fading becomes more pronounced, and the station will fade out for longer periods of time than is usual with nearby stations, where the fading is rapid and not of such long duration.

In the summer months, static adds to the annoyances of fading, and by its presence, the reception range of the set is automatically reduced, since the amplification necessary to bring in the distant stations will amplify the static to such proportions as to drown out the station being received. Static is caused by atmospheric discharges of static electricity, and may be due to lightning storms, or to atmospheric conditions in the clouds where no rain is present. A large portion of the static on the Pacific Coast is supposed to come from Arizona, as it has been proved that static discharges are often directional, and the direction from whence they came can be determined with the proper measuring apparatus.

The past two years has seen an epidemic of static eliminators, few of which have been of any merit whatsoever. Most of them reduced the volume of the station being received in exactly the same proportion as the reduction in static noise, and were therefore of no use. A great deal of work

has been done by noted engineers on this subject, and some success has been had, but only at the expense of elaborate apparatus associated with the receiver, and at a large additional cost, beyond the means of the average set owner.

Thus it can be seen that the range of any receiver is affected by static and fading, so that its effectiveness should be judged by the stations it will bring in with no fading, and freedom from static or other interference. This has been found to be only about 20 miles in congested city districts, in the daytime, and only slightly greater at night. Of course, stations much more distant can usually be brought in with relative quiet and freedom from fading, but for 100 per cent perfect reception, in the city, the 20 mile range is considered correct. In the country, this range is greatly increased due to less man-made static, and the lack of steel structures to absorb the radio waves.

SOCKET POWER APPARATUS

(Continued from Page 90)

from the lighting socket, there are several "A" eliminators now on the market, which will deliver up to 2 amperes of direct current at 6 volts, so that the entire receiver may be turned on or off from the lighting switch. The care of this type of equipment depends on the make, and no specific instructions can be given to cover all cases. Usually the "A" eliminator is the same in principle as the "B" eliminator, except that the rectifier tube and transformer are designed to carry heavier current, and the filter system is also of very large current carrying capacity.

Many of the new socket power devices have an "A" battery and charger, together with a "B" eliminator, contained in one metal housing, so that there are no extra wires to run, to connect the different pieces of apparatus together. In buying such an outfit, make sure that the storage battery is in a separate compartment from the "B" eliminator and charger, and that there is adequate ventilation to carry off the acid fumes of the battery. If the apparatus is all in the same compartment, the "B" eliminator parts in time will become corroded.

Note: By arrangement with exposition authorities, Magnavox sets and speakers will be demonstrated during the show in Room C. See Magnavox displays at Booths 141-142-143.



MAGNAVOX

HIBOY RADIO

Six-tube, self-shielding circuit, single dial control. Extreme sharpness of tuning, highly selective, powerful range, can be operated from light socket (with "A" and "B" eliminators), handsome mahogany cabinet with tubes and cone speaker included. Costs only \$127.50.



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It matches today's higher quality standards in sets and broadcasting. Made under original Magnavox electro dynamic principle — the **ONLY** perfect construction for reproducing the finest of modern broadcasting. Combines rectifier, power amplifier, and "B" supply unit in rich walnut cabinet, \$160.00.



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Next to the power speaker in volume and purity of tone. Handles a full power tube current without distortion. Exquisite burl walnut circle mounted on mahogany base, \$27.50.

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Inspection and Service

ANY radio receiver will require a certain amount of service, from time to time, and while some of the requirements of the receiver can be taken care of by the average set owner, there are many things about the set which need attention, and which often escape notice.

In a receiver having five-volt tubes, for use with a six-volt storage battery or "A" eliminator, the tubes are designed to stand a one-volt overload on the filament for a long period of time, and thus will last a long while before the filament wears out. In dry cell sets such as the Radiola Superheterodyne, the filaments of the tubes are more delicate, and if overloaded for any length of time, the tube will become dead, and the filament must be "rejuvenated" if the tube is to be used again. When tubes of either of the above types have been used for a long time, or overloaded, the plate current flow drops below normal, the set loses its sensitivity, the volume even on locals becomes less, and the detector tube, when tapped with the finger, does not give a loud, sharp ringing sound as is heard with a new tube. It is then time to have the tubes tested at a reliable radio store, and those which have lost their filament activity should be put through the rejuvenation process, which consists of heating the filament by applying a much greater voltage than is normal, for a few seconds, and then burning the filament, with no "B" battery connected to the plate, at the normal filament voltage for a period of time until the filament is restored to its former condition. This work can be done at home if a tube rejuvenator is purchased, and rejuvenators are now obtainable in such a form that they can be connected directly to the receiving set, and all tubes rejuvenated at the same time without removing them from their sockets. An inexpensive tube tester is a good adjunct to a rejuvenator, in order to determine which tubes need attention.

In sets using "C" batteries, a notation should be made on the battery as to the date when it was installed, and replacements should be made about every six

months, especially if the batteries are of the extra small flashlight size. The large sized "C" batteries will last much longer, in some cases as long as a year, but if there is the slightest doubt about their condition, they should be tested with a voltmeter to see that they are giving the correct voltage, and do not have a high internal resistance. There is no part of a radio set which can cause more trouble than a worn-out "C" battery, as such a battery may have a very high resistance, of the order of several hundred ohms, so that the audio or radio amplifier tubes will oscillate violently. For example, if a $4\frac{1}{2}$ -volt "C" battery showed $4\frac{1}{2}$ to 4 volts, using a voltmeter, but no current whatever when a low range ammeter was connected across its terminals, it would be ready for replacement, as its resistance would undoubtedly be high. A worn-out "C" battery usually bulges at the sides, and will have stains at the bottom or on the sides where the salts have come through the container.

Tube contact prongs and the springs of the tube sockets should be cleaned with fine sandpaper at least once a year, and the same with the phone or loud speaker plugs. This prevents annoying scratching noises, which come in at the most inopportune times. The filament supply leads to the storage battery should be cleaned often, as they become corroded easily if not kept free from acid or foreign matter, and introduce a noise into the set which cannot easily be located. As stated in the chapter on batteries, the "A" battery should be kept well filled with distilled water, at least one-half inch above the level of the plates, and should not be allowed to remain in a continual state of semi-discharge, but should be kept sufficiently charged so that the gravity of each cell is 1225 or more, with an occasional full charge to 1275. Batteries having colored cork ball risers are handy because they eliminate the necessity of using a hydrometer to read the gravity of the cells, and are always visible as a reminder to keep the battery charged.

(Continued on Page 102)

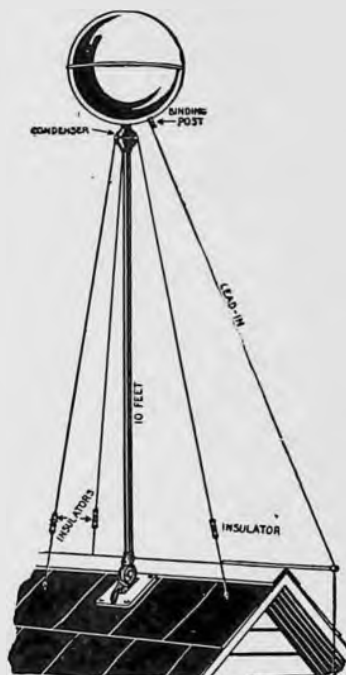
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Tuning

TUNING a single dial receiver is a very simple operation, and requires little skill, even for the novice. Where there are two or more dials, a certain amount of practice is required to get the most out of the receiver, especially where there is a volume control connected with the tuned radio frequency amplifier used in most sets.

After connecting up the receiver, and making sure that the battery voltages are correct, and that the antenna and ground connections are good, the volume control knob should be turned on part way, and the dials rotated slowly, keeping them set at approximately the same scale. When a station is heard, stop rotating one of the dials and adjust the others until the station is loudest, finally adjusting the first dial after the other dial settings are completed. If the station is heard with too much volume, so that the loud speaker or the power tube are overloaded, and a scratchy, rattling sound accompanies the speech or music, cut down the volume with the volume control knob. Do not reduce the volume by turning one or more of the dials slightly off the maximum setting for the station, for if the set is "detuned" in this manner, some other station operating on a nearby wavelength may cause interference with the station being received. In the case of the superheterodyne, using one of the tuning dials as a volume control may cause serious distortion, as it is very important that the oscillator dial in such a receiver be set at the exact resonant point, for any particular station, in order to have good tone quality. Never turn down the filaments of the audio frequency amplifier tubes to cut down the volume, for to do so is to surely introduce distortion in the loud speaker, due to the lowered plate current in the tubes. If there is an adjusting rheostat on the audio tubes, set this knob at the proper point, which should give a voltage of 5 volts across the tube filaments, and allow this adjustment to remain fixed thereafter, except when the battery runs down, or the tubes are replaced.

Many sets have an antenna adjustment, to take care of different sizes of antenna-ground

combinations. Usually there are two or more binding posts on the back of the set marked "long," "medium" and "short," or some similar arrangement. As described in the chapter on Antennas, a long antenna is one of 100 feet or more, including the lead-in and ground wire, while a short antenna is under 50 feet. If, after connecting the antenna to the binding post which seems to be correct for the particular antenna used, the set isn't sufficiently selective, always go to the next binding post towards the "long" end, rather than to the short, for the maximum coupling between the antenna and the first radio frequency amplifier tube is had with the "short" antenna connection, and to connect a long antenna to the "short" binding post, is to greatly reduce the selectivity of the set.

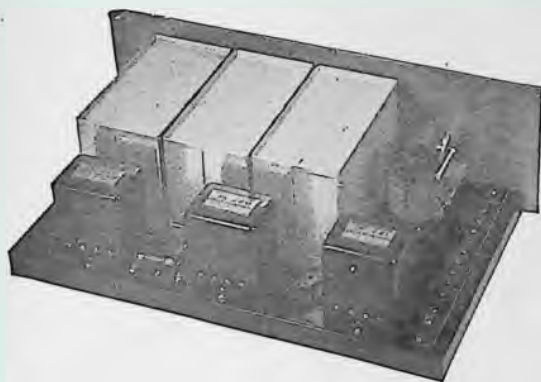
Where sets are provided with a variable detector rheostat, this adjustment should be made with a station which is at some distance away rather than with a powerful local station. Tune in the distant station to maximum volume, and then cut the volume down somewhat by means of the volume control knob. Then vary the detector rheostat until the station is heard loudest; with the ordinary type A tubes, this point is not very critical, but with the new type 200-A detector tubes, there will be a certain spot where the distant station will suddenly increase in volume to a marked degree.

In logging the set, tune in a station about at the center of the dials, and mark the dial settings in the log book or chart which comes with most receivers, first looking up its wavelength or frequency in BROADCAST WEEKLY. You now have a lighthouse to indicate at least one wavelength or frequency setting of your dials, and the rest of the work will be made easier. Assuming that you picked up KGO on 384.4 meters, 780 kilocycles, locate a station at a higher wavelength, and mark down its dial settings. Continue higher until the maximum wavelength or lowest frequency settings are reached. Then go back to the KGO setting at the center of the dial, and start towards the lower wavelength-higher frequency settings, until the entire broadcast band has

(Continued on Page 102)

SM

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The new items are of such importance and incorporate such a marked advance in radio engineering that you owe it to yourself to investigate and see the complete line. Full and detailed literature is also available—or will gladly be mailed free upon request.

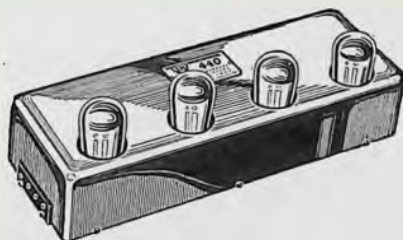
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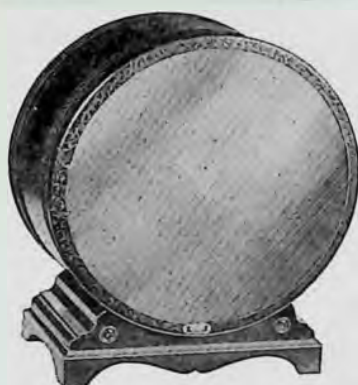
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Unequalled Tone Quality

Have you ever listened to the playing of a large organ in a beautiful cathedral? If you have, your greatest impression has been the purity of tone, the soft murmur of the bass notes, and the mellow beauty up the scale. When listening to a classical piece transmitted through the Temple Drum Speaker, no matter how fine or meager your surroundings, you would imagine yourself in such an atmosphere—for nothing is lost in this fine instrument throughout the entire musical scale. The Temple is not just "another speaker," it is not a cone, but rather a unique musical instrument of the long compensated exponential air column design, co-ordinated with a recently developed unit and built to precision with acoustical qualities of an unusual character. Write for special dealer proposition.

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TEMPLE, INC., 213 South Peoria Street, Chicago
Sales Offices in All Leading Cities

LEADERS IN SPEAKER DESIGN

Would You Hear Radio at its Best?

*Then
Hear
the*



*Priced at
\$32.00*

*Money-back
Guarantee*

Temple Drum Speaker

To hear one is to want one

- Sensitive beyond comparison. Equivalent to adding another stage to the average set.
- Acoustically and mathematically perfect. Covers the full grand orchestra range of seven octaves.
- Four and a half feet of air column. Reproduces every tone from a whisper to a full voiced massed orchestra.
- The same solidness and roundness of tone under any degree of power.

EXCLUSIVE DISTRIBUTORS

KIERULFF & RAVENSCROFT

RADIO EQUIPMENT

ON DISPLAY

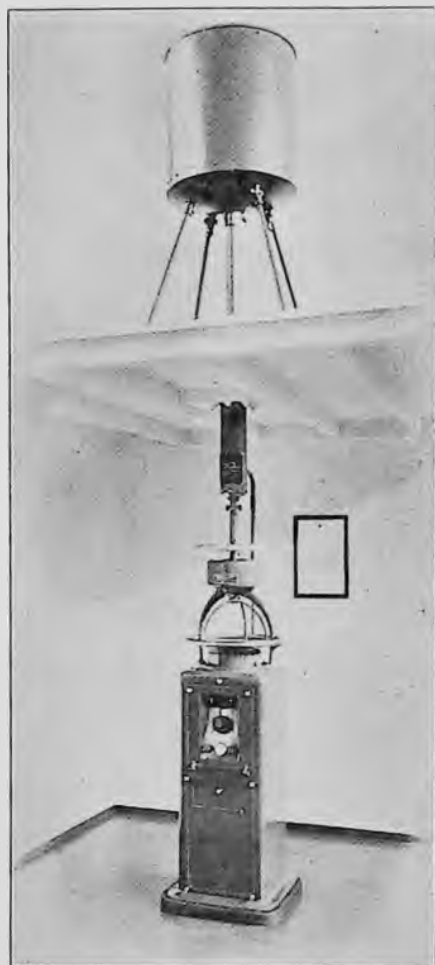


BOOTHS 110-11-12

FEDERAL-BRANDES AT SHOW

(Continued from Page 60)

with this Beacon (an automatic sending device) and a Compass, can establish accurately its position in relation to any other ship similarly equipped.



Kolster Radio Compass

During the period that radio broadcasting was being introduced to the United States and for a number of years thereafter, Dr. Kolster and his engineering staff were doing development and experimental work with

broadcast receivers. Entering this field in 1925, with the Kolster Radio line, the company has had remarkable success and is now well represented by distributors and dealers throughout the United States.

Models of all sets manufactured by the company will be exhibited in booths 103 to 109. These include Kolster's latest development,—a power speaker,—designed to work from any 110-volt AC circuit. All other models, may, if desired, be light circuit operated by using the company's "A" and "B" eliminators. Demonstrations for the trade may be arranged through the H. Earle Wright Company, Incorporated, the exclusive Kolster distributor for the state of California.

Infradyne Models Show Big Improvement

WITH a radical change in design and construction of radio receivers the new model Infradyne for 1928 will draw the attention of the radio fan at the Exposition. Conventional ideas of the past give way to an entirely new system of radio frequency amplification in the Infradyne. The signals from a broadcast station are amplified at the enormous frequency of 3,200,000 cycles before they enter the audio amplifier of the set. By amplifying the signals at this frequency the usual background noises are eliminated and the stations come in clearly and sharply. They do not "carry over" on the dials and true "one spot" tuning is attained. A marked improvement in tone quality is the result. Another feature of the 1928 Infradyne is the metal chassis upon which the units are mounted. "Harness Cable" wiring is used and the wiring is concealed below the chassis. The radio frequency amplifier is completely shielded with pure copper and the entire receiver is again re-shielded with a pure copper cabinet, finished in baked crystalline. A switch enables the user to instantly convert the new Infradyne from a 5-tube set for local reception to a 10-tube set for distance reception. The Infradyne has enjoyed much popularity in the past year due to its ability to clearly reproduce signals from stations thousands of miles away.

SONORA RADIO-LINE

OFFERS THE GREATEST SALES OPPORTUNITIES IN
QUALITY RADIO—A MODEL TO MEET EVERY
IMPORTANT PRICE DEMAND

A RADIO with the rich, deep mellowness that made Sonora famous—a set that is supremely selective and tunes with a single control to hair line accuracy. It makes use of the famous R.F.L. balanced-bridge circuit in three efficient amplifying stages. A new and remarkable distance range, freedom from interference of this highly refined system will astound the entire radio world. Sonora is fully licensed under every important patent, including the R. C. A. group. Only in the Sonora are all these qualities found. The Sonora franchise is valuable! Inquire now!



Sonora De Luxe Seven, the world's finest radio, housed in a luxurious cabinet with built-in speaker. Four stages of newly perfected R. F. L. balanced-bridge radio amplification makes possible the reception of distances. Licensed only for radio amateur, experimental and broadcast reception. Price without electric equipment, \$375.



SELECTIVE SIX
TABLE MODEL
\$99.50

A set that is perfectly free from oscillation squeals and noises, reaches the pinnacle in all performance characteristics, supreme tone quality, remarkable distance range and sharp selectivity. Walnut burl cabinet. Dial light. E 850.

Other Models \$165, \$198 and \$250

KOHLER DISTRIBUTING CO., Inc.

63-67 MINNA STREET

SAN FRANCISCO

INSPECTION AND SERVICE

(Continued from Page 94)

Needless to say, a good blowing out of the dust in the set during spring house-cleaning will do the set no harm, and will clean the dust off the plates of the variable condensers, where an accumulation of dust sometimes causes scratching noises while tuning.

For sets using dry cell "B" batteries, a voltmeter having a scale of at least 150 volts maximum will enable an accurate reading of the voltage, and the time when individual "B" battery blocks of 45 volts are worn out and ready to remove can quickly be determined. A new battery will read 45 volts, while a battery which is ready to be removed will probably read from 35 to 38 volts. If no voltmeter is handy, a crude but effective test is to take a piece of insulated wire which has been skinned at both ends, and short circuit the terminals of each "B" block for a fraction of a second. If a large, fat spark is seen, the battery is undoubtedly good; if the spark is very weak, or none is seen at all, the battery is below 40 volts, and one or more of the cells have probably passed out altogether.

In a "B" eliminator using rectifier tubes, about the only part which will need attention is the tube itself; if it is of the filament type, the filament can sometimes be rejuvenated when worn out, but if of the gas-filled type, the best remedy is a new tube. As most tubes nowadays last thousands of hours, this is a minor problem in servicing the set. Eliminators using electrolytic condensers will need distilled water in the jars at intervals of three months or more, but aside from this will not need attention.

Trickle chargers containing liquids will also require distilled water occasionally, and the electrodes may need replacing about once a year. If there is any doubt about the condition of the electrodes, the charger should be taken to a service station and tested. If an ammeter having a scale of 1 or 1½ amperes maximum is handy, connect it in series with one of the charging leads, and measure the charging current. A trickle charger will usually deliver .7 amperes; if it is very much less than this, say one-quarter to .3 ampere, and there is no adjustment

on the charger to increase the current, the rectifier cell has run down and should be renewed.

TUNING

(Continued from Page 96)

been covered. There will undoubtedly be gaps in the settings recorded, due to the fact that some of the local stations were not on the air at the time the set was being logged, but these gaps can easily be filled by means of interpolation. Assuming that you have first picked up KGO on 384.4 meters, and then KPO on 422.3 meters, you will find a certain number of scale divisions on the dial between these two points. Suppose that KGO was received at 50 on the dial, and KPO at 61. This makes 11 scale divisions in between, to cover a waveband of about 38 meters, or a little over 3½ meters per scale division. You wish to know where KHJ, at 405 meters, can be tuned in, so you subtract the wavelength of KGO, 384.4 from that of KHJ, 405, and you have a difference of about 20 meters. This means that KHJ will be found at about 56 on the dials, since it will be 6 scale divisions above KGO, a value obtained by dividing the 3½ meters per scale division into the 20 meters difference between the wavelengths of KGO and KHJ. This procedure may be followed for any of the stations, assuming that the set has straight line wavelength dials. If they happen to be straight line frequency dials, then the frequency of each station, instead of the wavelength, must be used. If the dealer from whom the set was purchased does not know which way the dials are calibrated, it can easily be determined by noting the separation of the stations at the higher wavelengths. If stations such as KPO at 422.3, KFI at 468.5 and KLX at 508 are bunched together, with settings very close to each other, the dials are straight line frequency; if the above stations are quite far apart, and the stations at the shorter wavelengths are very close together, then the dials are straight line wavelength.

Using the method described above, you can locate almost any station which is on the air, and which is within range of your set, by first looking up the wavelength, and finding out how far above or below the dial setting of some well-known station it may be found.

Complete Battery Elimination!

THIS one tube—the latest Raytheon achievement—provides noiseless, dependable ABC power from any light socket. The radio constructor can build a first class receiver, using any of the standard radio circuits and incorporating this tube (with transformer, filter, etc.) to furnish all the power. Its 350 m. a. and 200 volts is more than adequate for the largest receiver, using power amplification.

Manufacturers of receivers and eliminators employing the BA tube will announce their new developments in the near future. If they bear the Raytheon seal of approval you are assured of design and construction that has successfully met Raytheon's rigid standards.

Complete technical information on design and operation of series filament receivers using this remarkable tube will be sent free by our Technical Service Bureau on request. Ask for Radio Power Bulletin SF-1. You may obtain the tube and approved parts at your dealers. Tube price—\$7.50.



BA

350 Milliamperes



TYPE BH—
125 m.a.

Raytheon BH—125 m.a. is designed for heavy duty applications of light socket power. Its introduction made possible the remarkable developments of power amplifiers and complete A. C. operated receivers using 199 tubes connected in series.

Rating: 85 m.a. output at 200 volts.



RAYTHEON A—2 1/2 Amperes

The Last Word in High Current, Low Voltage Rectification

A new type of rectifier, revolutionary in principle—appearance—performance. It is compact and simple, contains no liquids or filaments, and is enclosed in an unbreakable metal casing. The size and ability of Raytheon A makes possible the smallest and most efficient battery charges and A power units. Leading radio manufacturers are designing apparatus to make full use of this new discovery.

RAYTHEON MANUFACTURING CO.
Cambridge, Massachusetts



TYPE B—
60 m.a.

Raytheon B—60 m.a. is the recognized standard for most of the B-power units now in use. Within the service for which it is rated, this rectifier is not surpassed by any rectifier made.

Rating: 60 m.a. output at 150 volts.

Raytheon

THE HEART OF RELIABLE RADIO POWER

See the Cunningham Radio Tube Exhibit at the Radio Exposition

Booths No. 42-43-45

Cunningham
RADIO TUBES

Since 1915, Standard for All Sets

Members of the Cunningham
Engineering Department will
be in attendance at all times
to demonstrate the full line of
Cunningham Radio Tubes.

E. T. Cunningham, Inc.

New York

Chicago

San Francisco

STROMBERG-CARLSON

Radio Apparatus

Booths No's 41 and 44

SOLD THRU
FRANCHISED DEALERS ONLY

TERRITORY NOW BEING ALLOCATED
SEE SPECIAL REPRESENTATIVE
AT BOOTH

STROMBERG-CARLSON GUARANTEE
EFFECTIVE ONLY ON APPARATUS SOLD THROUGH
FRANCHISED DEALERS

GARNETT YOUNG and COMPANY

PACIFIC COAST SALES AGENTS

San Francisco

Los Angeles

Seattle

Portland

YAXLEY

APPROVED RADIO PRODUCTS

Automatic Power Control



See this great radio convenience at our booth. It automatically does all the extra switching for you. Cuts in the "B" eliminator, cutting out the trickle charger when the set is turned on. The "B" eliminator is cut out and the trickle charger cut in again when the set is turned off. Easily attached. Makes your receiver a power operated set. Thoroughly dependable.

No. 444—Series Type Automatic Power Control. Now furnished with new construction, exclusively Yaxley, that keeps the voltage drop less than two-tenths ($2/10$) volts when used with sets having a current draw equivalent to four 199 type of tubes up to eleven 201 type of tubes.....\$5.00



Air-Cooled Rheostat

The air-cooled Rheostat has its filament suspended to permit ventilation. Smooth, quiet action, with extremely close adjustment doing away entirely with a vernier attachment. Bakelite base.

Air-Cooled Rheostat—from 2 to 100 ohms.....\$1.35

Switching Rheostat

The new Switching Rheostat controls the switching of the filament with the rheostat, thus doing away with an extra switch; otherwise it is the same as the standard Air-Cooled Rheostat.

Switching Rheostat—from 2 to 100 ohms.....\$1.75

Direct Representatives

Henger-Seltzer Co.

377 Brannan St., San Francisco

711 East 14th St., Los Angeles



Radio Convenience Outlets



With the neat and efficient Yaxley Radio Convenience Outlets you can enjoy your favorite programs in any room in the house. Your batteries can be placed in the basement, closet or any out-of-the-way place and wires brought to set from Convenience Outlets with cable and plug that keeps together in a neat and attractive way. Plug cannot be inserted incorrectly—always a positive contact. Yaxley Radio Convenience Outlets are easily installed. These Radio Convenience outlets fit any standard switch box.

No. 135—For Loud Speaker.....	\$1.00
No. 137—For Battery Connections.....	2.50
No. 136—For Aerial and Ground.....	1.00

Gang Combinations

Are also furnished in gang combinations as follows:

No. 235—For Loud Speaker Connections	\$2.00
No. 238—For Loud Speaker, Aerial and Ground Connections	2.00
No. 239—For Aerial, Ground and Battery Connections	3.50
No. 350—For Loud Speaker, Aerial, Ground and Battery Connections	4.50



Cable Connector Plugs



Here is a convenience that simplifies battery wiring and eliminates the old-fashioned unsightly mass of wires about the set. The Bakelite construction is neat and handsome in appearance. Metal cable markers and color chart (RMA standard color code) on the connector plate simplify

installation on any set. Phosphor bronze double contact springs are mounted in Bakelite and cannot work loose. Instant and correct battery connection at all times. Extra fine quality, seven-strand (RMA standard colors) five-foot cable. Six extra markers packed with each plug.

No. 660—Cable Connector Plug, complete.....	\$3.50
No. 670—Cable Connector Plug for Binding Post Connections.....	\$4.00

Direct Representatives

Henger-Seltzer Co.

377 Brannan St., San Francisco

711 East 14th St., Los Angeles

Service --- The Distributor's Best Asset

MR. A. FREED of the Pacific Motor Supply Company says that nine out of ten dealers wait until the last minute, when the selling season has begun, to order their requirements, which works a hardship on the distributor in getting the orders through the regular routine promptly and seeing that shipments are made with the least possible delay.

The distributor, or jobber, as he is commonly known in the radio industry, is a necessary factor in merchandise distribution, and the importance of the distributor in the mercantile world is not appreciated as it should be. The distributor has at all times the problem of securing merchandise that is right and has to keep in close touch with the manufacturing market to investigate all new inventions in his particular line to see that they are as represented and worth the buying consideration of the public. In other words, he has to protect his dealers, for their success and his success will be in proportion to the worth of the article he distributes. In addition, he has to keep at all times a sufficient stock on hand to fill all his dealers' requirements and has to present his selections of stock to the dealers before the market becomes flooded with inferior imitations. He must also exercise care not to overstock the dealer, as this results in complications for both the dealer and distributor. If the dealer is loaded with an excessive stock that he cannot dispose of during the season, he has to cut prices to get rid of it. Furthermore, he will not order in sufficient quantities the next season for fear of over-stocking himself again, which means a loss to both dealer and distributor. However, high pressure salesmanship is an excellent method if the jobber is presenting goods for which there is a steady market, such as radio sets, tubes, batteries, eliminators, etc.

Mr. Freed, in his weekly meetings with his salesmen, dwells especially on high-pressure salesmanship and cautions his salesmen as to the limit to be placed on the amount of merchandise to be sold to the

dealers in various localities. However, he is of the firm belief that it is impossible to be over-stocked with King Radio Sets, because with the improvements made in the 1928 lines, the King will be the outstanding set in the Radio Show for the coming season.

HALE BROS. SALES DIVISION

(Continued from Page 70)

receiving sets in which Hale's Radio Division specializes.

On days when the big ball games are being brought in, play by play, the Radio Division resembles a portion of the grandstand—crowds of people absorbed in the game, listening breathlessly to the returns—hearing an expert describe the changing fortunes of the diamond—and thrilling to the shouts of the actual spectators.

For those of quieter tastes, there is usually a well-worthwhile musical program to be listened to while one wanders about the sales floor—making a choice between the makes and models that are conveniently displayed.

Hale's Californian, Hale's Sequoia, Atwater Kent, Stromberg-Carlson, and the Fada are here in numbers, in a wide range of models and prices.

An important part of the Sales Division is the Accessories Division—everything you can imagine to make for radio satisfaction.

A recently added feature of the Sales Division is the Maintenance Department—in charge of radio experts. It enables one, for a nominal sum, to have one's set kept in order—no matter where the set was purchased—no matter what its make may be.

This store within a store—with its reliable merchandise, its courteous staff, its pleasant location and close proximity to the KPO studio, is well worth your elevator trip to the sixth floor, whether you are a customer or one who is merely looking about.

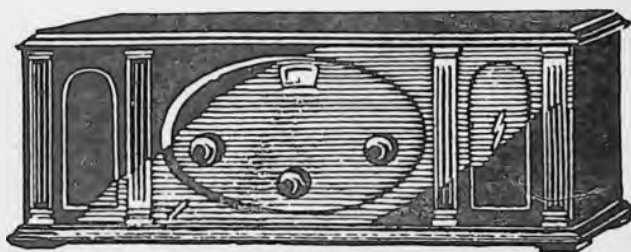
KING RADIO

"Most Radio Per Dollar"

Next Year's Sets—TODAY!

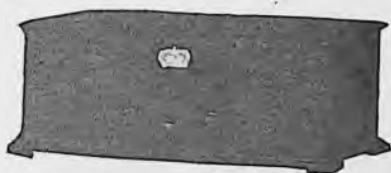


The CHEVALIER
Completely shielded, six tubes, single station selector, built-in 7-inch Peerless reproducer, beautiful hurl walnut highboy cabinet.



The CRUSADER
Completely shielded, six tubes, single dial control, handsome cabinet with two-tone finish.

**TERRITORY
OPEN
for
FRANCHISE
DEALERS**

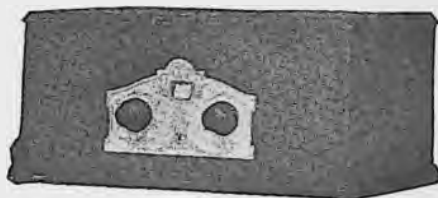


The BARONET
Six-tube tuned radio frequency, single dial station selector, vernier adjustments, beautiful Gothic design cabinet.

LET US HELP YOU TO
MAKE YOUR HOME A
CASTLE OF THE AIR
WITH THE NEW 1928

KING RADIO

IT WILL SURPRISE YOU!



The COMMANDER
Six tubes, completely shielded, loop folded inside cabinet, hurl walnut two-tone cabinet, single station selector with one-dial volume control.

**Booth
No. 80
at the
Radio Show
August 20**

Distributed by
PACIFIC MOTOR SUPPLY CO.

1440 Market Street

A. Freed

Phone Market 1536, San Francisco, Calif.

Also Distributors for:

Batteries. Sterling and Acme

Herald and Peerless cone speakers. R. C. A., Gem and Mus-selman radio tubes. Kleartone and Rayovac "A," "B" and "C" "A" and "B" Eliminators and chargers.

Revolutionary!

Entirely New—
Radically Different!

The most important contribution to radio science since the discovery of the vacuum tube. Ends the bother and uncertainty of ordinary batteries. Keeps any radio set, regardless of size, at the high peak of operating efficiency. There is a sentinel unit



Sentinel A-B-C (Completely Automatic) Unit supplies every power requirement of radio\$79.50

for every power



Sentinel B-C Power Unit—Beverly metered model. The 3 meters give absolute control of all plate voltages..\$65

need of Radio ~

Every Sentinel unit, (seven different types) from the Automatic Control to the metered Beverly "A-B-C" Completely Automatic is guaranteed by the manufacturers. We are always pleased to demonstrate the Sentinel Line to the Trade.

JAMES P. HERMANS COMPANY

Sentinel Representatives

585 Mission Street

San Francisco, Calif.

The first and only line of completely automatic radio power units.

Sentinel
Completely Automatic!

A-B-C Power Units





Latest Fall 1927 Products

New "A-B" Socket Power Units



AB-1 and AB-2

Type AB-1, Complete

\$69.00

For five to eight tube sets, 50-60 cycle
"B" Power Supply capacity 40 mills at 150 volts

"A" Battery of 60 ampere-hour capacity.
Two Rate Trickle Charger, $\frac{1}{2}$ or $1\frac{1}{2}$ ampere.
Enclosed in an attractive lacquered case.
Bulbs, cord and sockets included.

Greater Convenience

Automatic Control Switch included. Filament switch on your set controls everything.

POWERFUL COMPACT
EFFICIENT

Type AB-2, Complete

\$74.50

For six to twelve tube sets, 50-60 cycle
"B" Power Supply capacity 60 mills at 180 volts

Investigate This New 2 Rate Trickle Charger



The Latest, Most Efficient Charger of Its Kind
on the Market

This trickle charger has been designed to serve the larger radio receiving sets and with this charger there may be obtained two charging rates by simply throwing the toggle switch on the outside of charger from one position to the other. The charging rates delivered are of $\frac{1}{2}$ ampere and $1\frac{1}{2}$ amperes. This charger uses a 2 ampere tungar bulb with a specially designed transformer.

Type AT-2, Complete with Bulb, \$14.75

Manufactured by

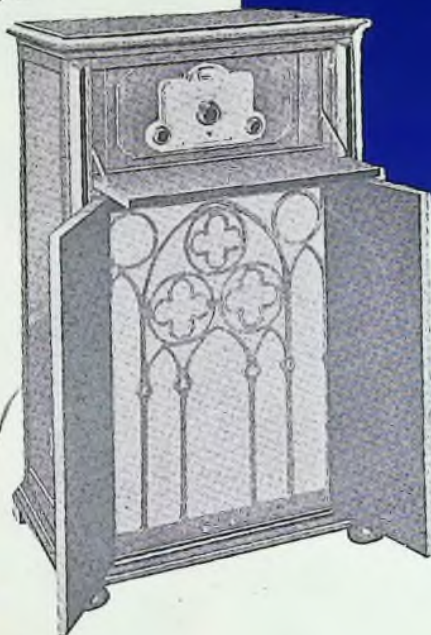
Acme Electric & Manufacturing Co.
CLEVELAND, OHIO

Stock for the Jobber Carried by Pacific
Coast Special Representative

N. F. ANDRUSS
426 LARKIN ST. SAN FRANCISCO

FREED-EISEMANN LIGHT-SOCKET RADIO

electric!
not electrified



*Pacific
Wholesale Radio Inc.*
BOOTHS 74-75-78-79