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# PACIFIC RADIO NEWS

*Pioneer Journal of  
 Western Radio News and Development.*

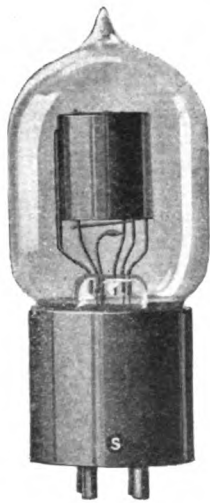
## Do You Know WHY

the new Westinghouse Receiving Equipment was designed  
 solely for use with A-P Tubes?

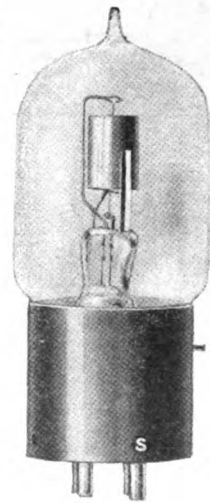
After the most exhaustive tests in their laboratories at East Pittsburgh, the Westinghouse Research Department found that the **A-P Tubes were the most efficient tubes on the market today**—for regeneration—for amplification—for detection.

**A-P Tubes** proved to be the most quiet in operation and gave the loudest received signal strength. **A-P Tubes** also proved the most economical in filament consumption, requiring only half the A battery consumed by competitive tubes.

**A-P Tubes** are the pioneer tubes on the market today. They have passed the experimental stage and are a proved success. They have the highest base insulation of any tube on the market and are the result of the design of the British, French and American Governments, under the rigorous specifications of military requirements. It is not surprising that **A-P Tubes** are approved and adopted by the Westinghouse Electric and Manufacturing Company.



THE A-P  
 Electron Relay  
 New Price  
 \$5.00



THE A-P VT  
 Amplifier-Oscillator  
 New Price  
 \$6.50

*For the best book on Radio, ask your dealer  
 for "Elements of Radiotelegraphy,"  
 by Lieut. Ellery W. Stone, U. S. N.,  
 or order direct from...*

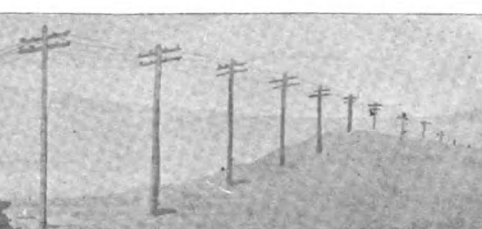
The Atlantic Radio Supplies Company, 8 Kirk Street, Newark, N. J.  
 The Pacific Radio Supplies Company, 638 Mission Street, S. F., Cal.

DISTRIBUTORS FOR

Moorhead Laboratories Inc.  
 Shaw Insulator Company

DeForest Radio Tel. & Tel. Co.  
 Diamond State Fibre Company

NOTE NEW REDUCED PRICES



# CUNNINGHAM

## TUBES MEET EVERY AMATEUR REQUIREMENT



The trade-mark GE is the guarantee of these quality tubes. Each tube is built to most rigid specifications.

	C300 Gas Content Detector	C301 Pliotron Type Amplifier	C302 5 Watt Power Tube	C303 50 Watt Power Tube	C304 250 Watt Power Tube
Filament Terminal Voltage.....	5 V.	5 V.	7.5 V.	10 V.	11 V.
Filament Supply Voltage.....	6 V.	6 V.	10 V.	12 V.	12 V.
Filament Current.....	1.0 amp.	1.0 amp.	2.35 amp.	6.5 amp.	14.75 amp.
Plate Voltage.....	18 to 25 V.	40 to 100 V.	350 V. normal	1000 V. normal	2000 V. normal
Plate Current.....	¼ to 1 milli. amps.	1 to 5 milli. amps.	.045 amp.	.15 amp.	.25 amp.
Output Impedance.....	10,000 ohms	21,000 ohms at 40 Volts 14,000 ohms at 100 Volts	4,000 ohms		6,000 ohms
Amplification Constant.....		6.5 to 8 at 40 V. 8 to 10 at 100 V.	7.5	10	25
Watts Output.....			5 normal	50 normal	250 normal
Dimensions (overall).....	1 ¾" x 4 ½" x 1 ½"	1 ¾" x 4 ½" x 1 ½"	2 ¼" x 5 ¼"	2" x 7 ½"	5" x 14 ½"
Base.....	4 Prong Standard	4 Prong Standard	4 Prong Standard	4 Prong Special	Special Mounting
PRICE.....	\$5.00	\$6.50	\$8.00	\$30.00	\$110.00



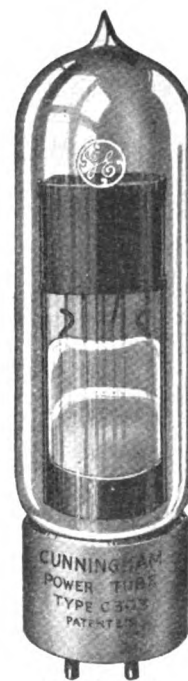
Cunningham  
Amplifier  
Pliotron Type  
C-301



Cunningham  
C-300  
Detector  
Gas Content



Cunningham  
C-302  
5 Watt Power Tube



Cunningham  
C-303  
50 Watt Power Tube



Cunningham  
C-304  
250 Watt Power Tube

DEALERS: Standard Packages F. O. B. Cleveland, San Francisco, Chicago, New York. Broken Packages F. O. B. San Francisco and Chicago.

### E. T. CUNNINGHAM

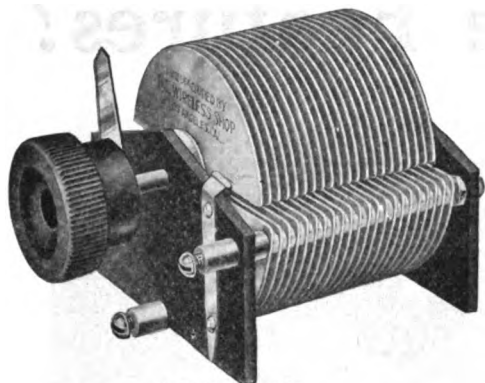
Trading as Audiotron Mfg. Company  
Since 1915

35 Montgomery St., San Francisco

Herbert H. Frost, Central and Eastern Representative, 154 West Lake St., Chicago, Ill.

# QUALITY OR PRICE?

Which are You interested in?



SERIES "T"

WOULD YOU RATHER TAKE AN INFERIOR INSTRUMENT AND SAVE A FEW CENTS—OR—PAY A LITTLE MORE AND GET THE BEST?

IF YOU WANT THE BEST—BE SURE AND SAY—

## "WIRELESS SHOP PRODUCTS"

"WIRELESS SHOP" VARIABLE CONDENSERS are now recognized as the standard. Why are they so popular? There's a reason—

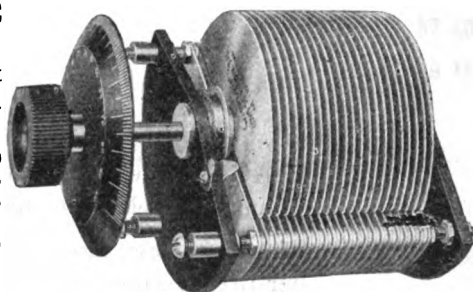
BEST of material and workmanship—

Careful inspection, and NO COMEBACKS. ISN'T THAT WORTH SOMETHING?

### THE "WIRELESS SHOP" LINE INCLUDES EVERY TYPE OF RECEIVING INSTRUMENT

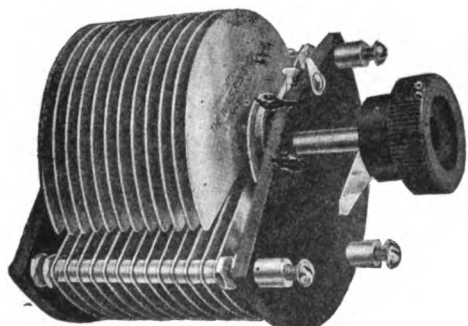
Our "Series T" variable condenser is the IDEAL instrument for your receiving set. Supplied with knob and pointer and mounting screws, either brass or nickle, at the following prices:

- No. 20 2 plate Vernier Condenser .....\$2.00
- No. 70 7 plate, approximately .0001 m. f. maximum capacity ..... 2.35
- No. 130 13 plate, approximately .0002 m. f. maximum capacity ..... 2.75
- No. 170 17 plate, approximately .0003 m. f. maximum capacity ..... 3.15
- No. 230 23 plate, approximately .0005 m. f. maximum capacity ..... 3.60
- No. 310 31 plate, approximately .0007 m. f. maximum capacity ..... 4.30
- No. 430 43 plate, approximately .001 m. f. maximum capacity ..... 5.25
- No. 630 63 plate, approximately .0015 m. f. maximum capacity ..... 7.50



SERIES "L"

IF YOU REQUIRE A HEAVIER MODEL THAN THE "SERIES T"—OUR "SERIES L" WILL FILL THE BILL. Larger plates and heavier construction throughout. Supplied with knob and pointer and mounting screws, brass or nickel.



SERIES "CW"

### PRICES

- No. 2300 23 plate, approximately .00075 m. f. maximum capacity .....\$ 6.00
  - No. 4300 43 plate, approximately .0013 m. f. maximum capacity ..... 8.00
  - No. 6300 63 plate, approximately .002 m. f. maximum capacity ..... 10.00
- Include postage for two pounds on No. 2300 condenser and for three pounds on No. 4300 and No. 6300, and insurance, to your postal zone.

AND—OUR SERIES "CW" IS THE ONLY REAL CONDENSER FOR YOUR PHONE OR "CW" SET.

The plates are amply spaced to prevent spark-over on high plate potentials, and the construction is extremely rigid. With knob and pointer and mounting screws, the prices are:

### SERIES "CW"

- No. 1500 15 plate, approximately .0004 m. f. maximum capacity .....\$6.00
  - No. 2500 25 plate, approximately .0006 m. f. maximum capacity ..... 7.50
  - No. 3500 35 plate, approximately .0008 m. f. maximum capacity ..... 9.00
- Include postage for two pounds on No. 1500 condenser, and for three pounds on No. 2500 and 3500, and insurance, to your postal zone.

IMPORTANT ANNOUNCEMENT—Watch our ad. next month announcing our new VERNIER, which may be attached to any standard "Wireless Shop" Variable. And the price is so low it will surprise you. See it next month.

# THE WIRELESS SHOP

A. J. EDGCOMB

511 WEST WASHINGTON STREET

LOS ANGELES, CAL.

# What Other Receiver Has *These* Features?

In the



## CR-8 Short-Wave Receiver



Licensed  
Under the  
Original  
Armstrong  
Patents.

**E**ACH element is shielded with a grounded, aluminum plate, thus eliminating troublesome change of frequency when tuning on C. W.

There are new, moulded variometers that will last a century. And new, rubber-tired verniers of a kind that make *real* tuning a pleasure.

Wave-change and rheostat control wheels give visual indications of the wave-length range and the resistance in the filament circuit.

Filament and plate battery binding posts are conveniently mounted for connecting through the back of the cabinet. This eliminates unsightly connections.

And—its range is 150 to 1,000 Meters.

The amateur who wants to “be somebody” this Fall will appreciate these features. What is far more important, he will appreciate the *results* this receiver will give him.

Your dealer will gladly order one of these Receivers for your inspection. Ask him for bulletin.

Bunnell & Co., J. H., New York City.  
Central Radio Company Inc., Kansas City, Mo.  
Continental Radio and Electric Corp., New York.  
Detroit Electric Co., Detroit, Mich.  
Doubleday-Hill Electric Co., Pittsburgh, Pa.  
Electrical Specialty Co., Columbus, Ohio.  
Holt Electric Utilities Co., Jacksonville, Fla.  
Hurlburt Still Electrical Co., Houston, Texas.

Hickson Electric Co., Inc., Rochester, N. Y.

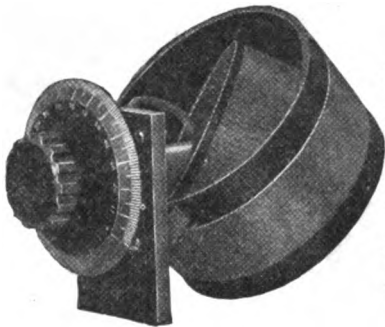
Kelly and Phillips, Brooklyn, N. Y.  
Klaus Radio Company, Eureka, Ill.  
Manhattan Electrical Supply Co., New York, Chicago, St. Louis  
Leo J. Meyberg Co., San Francisco, Cal.  
Newman-Stern Co., Cleveland, Ohio.  
F. D. Pitts Co., Inc., Boston, Mass.  
Philadelphia School of Wireless Telegraphy, Philadelphia, Pa.  
Western Radio Electric Co., Los Angeles, Cal.

**A. H. GREBE & CO., Inc. 73 Van Wyck Blvd., Richmond Hill, N. Y.**



# A NEW KENNEDY VARIOCOUPLER

## Another Mark of Progress



Possesses many outstanding features, among which are:

1. Coupling variable progressively through an arc of 180 degrees.
  2. Pigtailed connection to rotor. No sliding contacts.
  3. Secondary mounted concentrically within primary.
  4. Primary inductance provides for single turn variation.
  5. Light and compact but strong and rugged. (Weight only 12 ounces.)
  6. Highest grade materials. Made of formica, brass and double cotton covered copper wire.
  7. Minimum solid dielectric in electromagnetic field.
8. PRICE ..... \$7.50  
 With Kennedy bakelite knob and dial as illustrated ..... 8.75

**THE COLIN B. KENNEDY COMPANY**  
 INCORPORATED  
 RIALTO BUILDING SAN FRANCISCO

# MAKE A COMPARATIVE TEST

Have your dealer hook up the Radio Magnavox and any other so-called loud speaker in the world: use enough magnification to give good strong signals: use the same horn on both instruments and test them out one against the other. Give them both a fair test, and we know which one will come out ahead.

## The RADIO MAGNAVOX

because of its construction, cannot chatter nor distort signals. It cannot get out of adjustment and it now takes the very small amount of one ampere in its field windings. It must always be remembered that the RADIO MAGNAVOX faithfully reproduces the impulses it receives, and some of the old radio amplifiers distort in their amplification — this, of course, cannot be charged to the MAGNAVOX, but is a characteristic of the amplifier.

**MAKE A COMPARATIVE TEST, AND YOU WILL BUY THE RADIO MAGNAVOX**

**PRICE ONLY FORTY-FIVE DOLLARS**

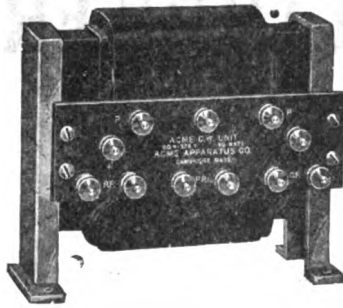
Then you will be one of the 2000 MAGNAVOX fans who have the satisfaction of knowing that they have the best and only true loud speaker for radio work. **"THE WORLD'S STANDARD"**

MANUFACTURED BY

**THE MAGNAVOX COMPANY**

OAKLAND, CALIFORNIA

New York Office: Penn-Terminal Bldg., 370 7th Ave., New York City

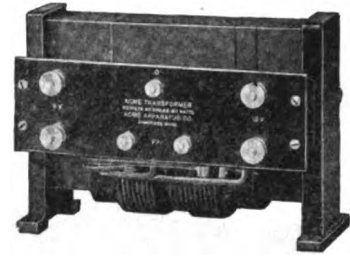


C. W. Power  
Transformer

Before buying any  
**C. W. APPARATUS**

Ask for **ACME** Bulletins

They contain valuable information and will help you to install an efficient C. W. station.



Filament Heating  
Transformer

# ACME C. W. APPARATUS

## ACME Guaranteed APPARATUS

C. W. Power  
transformers

Filament heating  
transformers

Choke Coils

C. W. Plate  
transformers

Modulation  
transformers

Amplifying  
transformers

Amplifiers  
Detectors

**A**NYONE having an alternating current can easily have a radio telephone and telegraph station.

No storage batteries or motor generator required.

Filaments lighted by filament heating transformers.

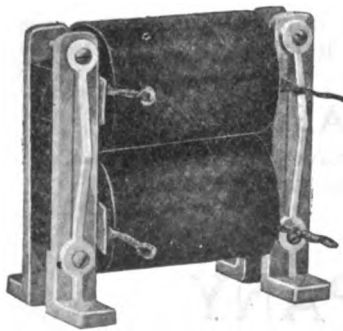
Plate voltage and current supplied by Acme transformers specially designed for that purpose.

High voltage direct current is easily obtained by rectifying the A. C. and smoothing out with Acme choke coils and condensers.

Such a station is entirely satisfactory. No moving parts to require attention. Plenty of power available. No noise.

Acme has the most complete line of C. W. apparatus. There is a specially designed Acme instrument for every special need. Use Acme apparatus thruout for smooth-working, dependable performance and high efficiency.

### THE APPARATUS WITH THE GUARANTEE

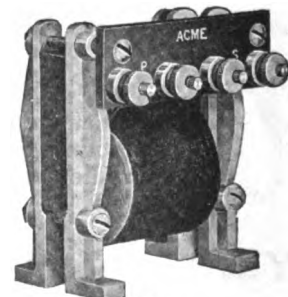


1/2 Henry Choke Coil

## ACME APPARATUS COMPANY

182 Massachusetts Ave.,  
Cambridge, 39, Mass.

Transformer and radio engineers and  
manufacturers.



A2 Amplifying  
Transformer



# KEEPING AMATEUR RADIO HERE

SOME of you men close under the "wings" of the radio inspectors of the various nine districts never realize what is being "got away with" out in the little corners of the United States where radio inspectors are not manifest. Buzz, scratch, squeak; it's the old-time plain aerial spark coil bug on the job without a license. But we are broad-minded; we know this little pest is undoubtedly a young boy "crazy" to talk via radio, and, unable to secure a license, goes ahead without one, little realizing he is breaking the Federal law.

A lot of us are broad-minded, in fact, too much so. We refer to the man who has a nice set, properly tuned, a license and everything, and who communicates by radio with the unlicensed station. But, look here, read this reason: If you are going to talk to an unlicensed amateur, you are encouraging him to operate without a license. Further, you are violating the law in doing so, and it isn't healthy.

But, getting down to the fundamental idea of this RADIOTORIAL, it's KEEPING THE AMATEUR HERE. We don't want legislation that will kill the amateur game; further, we don't want laws any more stringent than the present ones on Amateur Radio. If you agree with our opinion, then DO YOUR SHARE.

At the present date amateur radio is increasing, and stations are being licensed at a tremendous rate. That means that interference is being increased proportionately. The biggest, and almost only argument the legislators can bring against Amateur Radio, is just that one thing—INTERFERENCE. All right, then let's cut INTERFERENCE down. The body of licensed amateurs about the country are to be praised, in general, for their intelligent manipulation of their ap-

## OUR NEW ADDRESS

**"Pacific Radio News" is now being printed in our co-operative plant at 151 Minna Street San Francisco.**

*Please use our new address in your correspondence to us.*

Four additional pages and a better cover, as well as a marked improvement in the nature of reading matter, are the outstanding features of this number. The October issue will be better than ever. Don't miss a single copy of the future numbers. A subscription is your best insurance against missing much valuable and heretofore unpublished data that we have in store for you.

paratus to give pure and sharp waves, which minimize interference.

But, coming back to the spark coil or the unlicensed station, in general, let's weed him out entirely. "Spare the rod and spoil the child" is a slogan for application to unlicensed set operators. Unless he is shown that he must cut out the transmitting he will get unmanageable and will ruin radio for the rest of us—law-abiding citizens that we are.

How to go about it? This way: First of all, don't think of bothering to tell him, over the air, that you will report him to the radio inspector; no, that's like "telling mamma." In the first place you have no business to talk with the unlicensed station, and in the second place the offender, being out of "fist reach," refuses to obey his reprimander. The way to get him is to let him

"rave" on for several nights, or weeks, and try to locate him. The simplest way, but not the most effective, is to go to all your different friends and listen in for this "bug," and by comparing audibility or loudness of his signals, and finding his approximate location, run him down by finally finding his antenna. If you are lucky, you can hear him give his address to some friend offender, and thus have no trouble. Then there is a third method—the most interesting, and one which will be remarkably effective. This is by using a coil or loop antenna, as used in a radio compass station, and by securing the assistance of one other station. A map of the city or country should be procured, the distance between the two stations calculated, or measured, and by securing two angles, observed while receiving from the unlicensed station, the exact position the unlawful "bird" is occupying on the map is found. The rest is easy.

Then, when you've "got" him, what to do with him? Call on him, introduce yourself, tell him why you called and ask him whether he doesn't think he ought to stop taking the law in his own hands. Cases such as these must be handled diplomatically, gentlemanly and not in a spirit of superiority. If the "unlicensee" is a young boy and appears particularly insistent to continuing operation, try explaining to his parents what the boy is really doing—disobeying Federal law.

The last resort should be to report an offender to the government, namely, the radio inspector. If the right kind of treatment is given the last resort will be unnecessary.

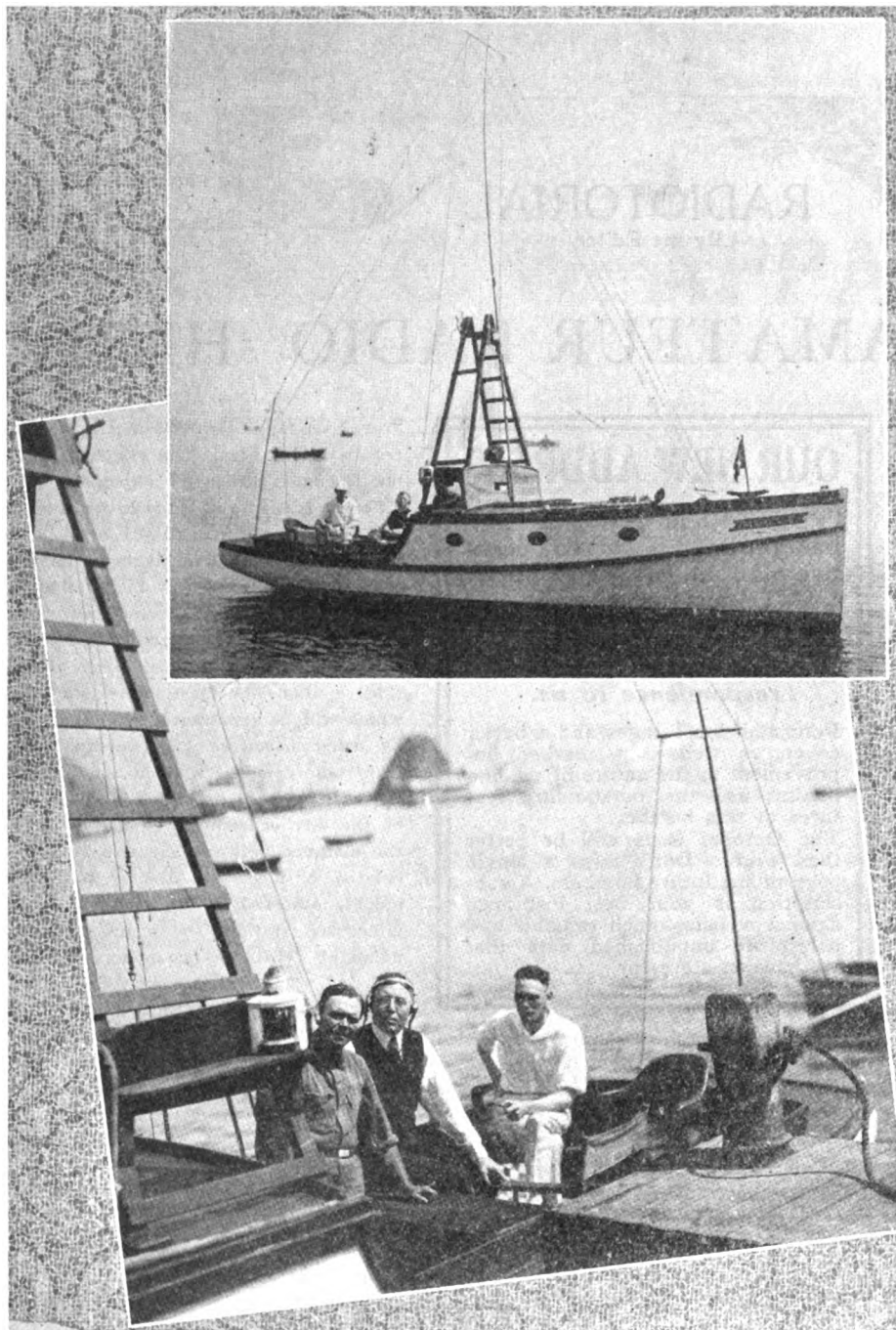
Such work among us of the licensed amateurs will assist the government in keeping radio laws in observance and will be one big block in the building of permanent legislation, allowing amateurs to operate without fear of impending curtailment.

New York Office.....147 Sixth Ave.      Portland Office.....420 Bd. of Trade Bldg.      Seattle Office.....419 Pioneer Bldg.  
Boston Office.....18 Boylston St.      Chicago Office.....1300 Hartford Bldg.      London Office....62 and 8a, The Mall, Ealing

Entered as second class matter January 22, 1920, at the Post Office at San Francisco, Cal., under the Act of March 3, 1879.

## WIRELESS AS AN AID TO PLEASURE

Below we have a photo of Mr. Lawrence Mott's wireless-equipped fishing boat, "Mable F." The equipment has already proven its worth, not only from a standpoint of pleasure but from a practical nature as well. Mr. Mott wears the receivers almost constantly while on a fishing trip. The "folks at home" put in a call for the mainland via the Avalon radio telephone and the message intended for Mr. Mott is spoken to the party on the other end of the line. In the lower photo U. S. Radio Inspector Major J. F. Dillon is seen "listening-in" to the Avalon radio telephone. To the left of the Major is our Associate Editor, Mr. Lawrence Mott.



*Description of set on U. S. Deputy Game Warden, Lawrence Mott's fast fishing cruiser, the "Mable F"—from which he has killed many record swordfish and tuna in Southern waters.*

Antenna: Rigged as shown in photograph—No. 14 soft-drawn copper—50' in length, all told. The receiver consists of a Remler panel amplifier—1 tube—operating in conjunction with very sensitive variometers. By the aid of a separate coil in the antenna he gets up to 600 meters, and has excellent audibility while at sea, fishing, up to dis-

tance of 150 miles—that is unusually good, when the comparative size of the antenna is considered. While after tuna, in the Santa Barbara Channel, Mr. Mott has heard amateur stations in Los Angeles and the surrounding country. The radio telephone between Avalon and the main land is QSA almost everywhere among the Channel Islands—Santa Cruz, San Miguel, San Clemente, etc. An effective ground is obtained by making fast a lead to the frame of the engine—thus connecting, through the shaft, directly to the water.

## CURRENT ILLUSTRATIONS

## S.S. ALASKA'S RADIO BRINGS HELP TO DOOMED VESSEL



*The radio hero of the "Alaska"*

**J**OHAN J. MICHELSON is the radio hero of the ill-fated "Alaska," which went to her doom on Blunt's Reef, August 6th, in a dense fog. The general public has learned little of the radio operators and the manner in which they conduct themselves while the grim reaper of death took with him more than a score of the passengers and crew of the doomed vessel.

Newspaper reports were loud in their praise of the many heroes of the day—but what was said about Michelson? Practically nothing! Were it not for the manly courage of the radio man in the performance of his duties the casualty list would, no doubt, have been swelled.

Michelson was on watch when the ship crashed into the reef. The second officer rushed into the radio cabin with instructions to send distress signals. The captain followed the second officer with similar instructions. SOS calls were intercepted by the S. S. "Anyox" and the S. S. "Wahkeena," as well as by the Radio Corporation station at Bolinas, Cal. The engine room was flooded soon after the vessel struck. Michelson states that power from the emergency radio batteries enabled him to communicate for almost 15 minutes with the "Anyox." So rapidly did the vessel sink that the radio room was soon flooded with water and communication was interrupted.

The radio operator stuck to his post until the last possible moment. Only a handful of the crew and passengers were now aboard. The last life raft was being launched just as Michelson was leaving the radio room. Together with the second operator, A. G. Peery, he boarded the last raft, under instructions from the chief officer, and six hours later the majority of the survivors were safely aboard the "Anyox."

The radio equipment of the "Alaska" was of the Kilbourne and Clark manufacture, controlled by the Ship Owners' Radio Service.



# RADIO NEWS RATED

## RADIO ON SAILING SHIPS

**E**ARLY in the month of June of this year the sailing schooner Zampa arrived in San Francisco with a cargo of copra from the Hawaiian Islands. The Zampa is owned by the Hon. Henry E. Cooper, former Judge of the Federal District Court of Hawaii, and was purchased by him in Honolulu early this year.

On arrival in San Francisco Judge Cooper arranged with the Pacific Radio Supplies Company, local distributors for the De Forest Radio Telephone and Telegraph Company, to have a complete receiving set installed on this ship, the main object being to receive time signals while at sea for checking the ship's chronometers. The necessity for the absolute accuracy of these instruments, in order to find the ship's position, is obvious. The engineers of the Pacific Radio Supplies Company installed a DeForest multi-wave tuner and a combination detector and amplifier panel.

While in San Francisco Judge Cooper became interested in the numerous radio concerts being broadcasted daily, and so added to his installation a loud speaker horn with microphone attachment. With this addition



Sea captains now use radio as a dependable means of checking chronometers. The photo to the right shows Captain Cooper of the Zampa listening to the California Theater radioconcerts. Above is an unusually good photo of the California Theater phone in operation. Lieutenant E. W. Stone and Mr. J. W. A. Leggs-Willis were snapped by the San Francisco Call cameraman while making tests with the Zampa.

It was possible to entertain the crew with concerts from the California Theater in San Francisco for more than half of their return trip to Honolulu. There is no power supply on board this ship, the installation being entirely dependent on the 140-ampere

Exide battery, known as the "Submarine Special." The antenna consists of two wires rigged between the main mast and mizzen, a spread of about 30 feet, with 140-foot lead-in thru the deck into the cabin. Judge Cooper was easily able to operate this set without any previous radio experience and is now considering the installation of complete radio telephone equipment for his ship.

## C. W. STATION AT BIG CREEK

By S. E. HYDE

**W**ITH headquarters at Big Creek, California, 40 miles up in the mountains, from Fresno, Calif., there is going forward a

gees and vicinity at a pressure of 150,000 volts. A third is under construction. Big Creek, at an altitude of 5000 feet, is con-

will bring water from Florence Lake through a 9,000-foot mountain (Kaiser Pass) into Lake Huntington. Half way to Florence Lake on an angle with the tunnel survey lies Camp 61, where an "Adit" is being cut into the mountain side so that work on the tunnel may be pushed forward from both ends and also in the middle, thus expediting its completion.

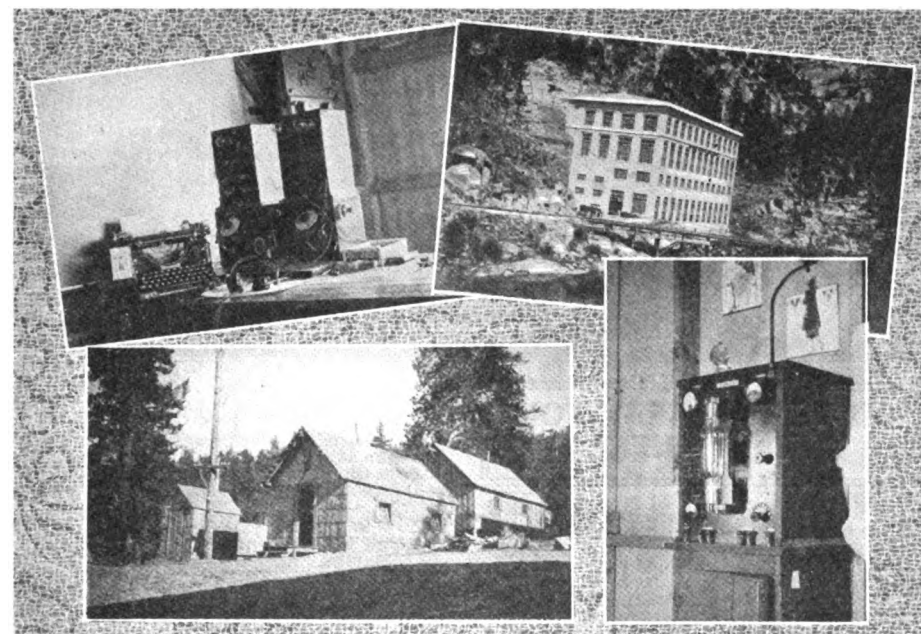
Up in this country winter starts about September, with snow falling, and continues through to April. During this time it was found impossible to keep up telephone lines, due to storms, snow and ice.

The Edison engineers decided that CW transmission was the only thing that would enable reliable communication to be kept up with Big Creek between Camp 60 and Camp 61. In winter the only means of communication with the exception of radio is a dog team, as the roads are buried deep in snow.

The three radio sets are identical at each station. The transmitter consists of a 1/2 KW DeForest Oscillon Transmitter. A 1500 volt DC generator supplies the plate current and a 37 volt DC generator feeds the filament of the Oscillon tube. Voice modulation by telephone transmitter can be employed, but telegraphic operation is much quicker and more reliable.

These sets are supplied with energy from a 30,000 volt transmission line running from Big Creek, which also furnishes energy for

(Continued on Page 71)



hydro-electric project on a large scale by the Southern California Edison Company of Los Angeles. Two large power-houses have already been completed in the Big Creek Gorge and are shooting "juice" to Los An-

ected by telephone and telegraph directly with the Los Angeles offices.

Two thousand feet higher, at the further end of Lake Huntington, lies Camp 60, the lower terminus of a 13-mile tunnel which

## 7JW- PORTLAND, OREGON

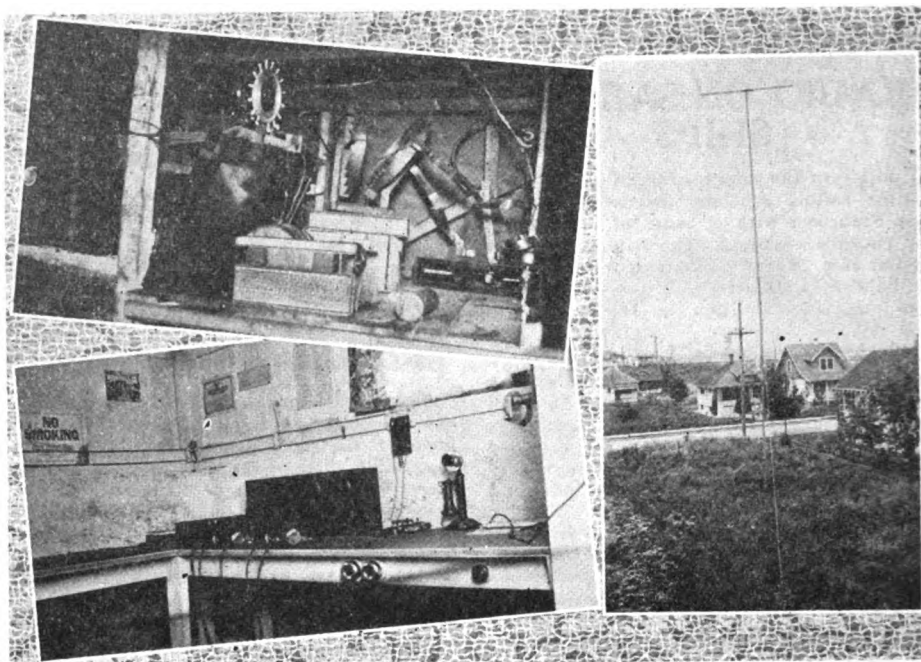
MR. JACK TAIT of Portland, Oregon recently visited many of the Pacific Coast's "star" amateur stations and has discovered, to his surprise, that the stations visited are in no respects as well arranged in reality as the photographs show. The accompanying illustrations of 7JW show what his station looks like when it is in full operation—not when it is "re-vamped" for the camera and sent on its journey to the radio publications.

The receiver is entirely made up of Northwestern Radio Mfg. Co. apparatus, consisting of a regenerative receiver and two steps of amplification. The receiving set and transmitter controls are in a small room, 8x10 ft., while the transmitter is placed at the other end of the house to facilitate short leads and ground connections. The two large push buttons on the edge of the receiver table control the solenoid operated antennae switch, which can be seen at the right of the sending set.

The transmitter consists of a homemade 1 K. W. transformer, pancake O. T., glass plate condenser and non-synchronous rotary. The tone is obtained by a 16-point disc turning up 1750 rpm.

The aerial is 62 feet at the high end and 54 feet at the lead-in end. It is a four-wire L. The lead-in comes directly down into the magnetic switch.

Because his spark is not heard every night, is no sign that he's not on the job.



## THE "WESRAD" RADIO TELEPHONE STATION

### A Powerful Los Angeles Tube Set that radiates two and one-half amps

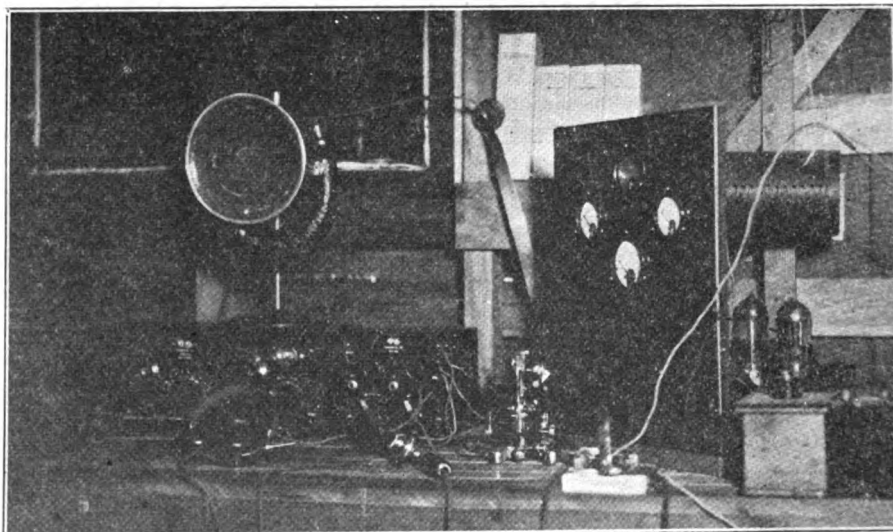
RADIO Station 6XD, operated and controlled by the Western Radio Electric Company, 550 South Flower Street, Los Angeles, Cal., is now transmitting radio telephone concerts every Tuesday and Friday evening between 8 and 9 o'clock.

A specially constructed transmitter is used which employs two Cunningham 50-watt tubes, one as an oscillator and the other as a modulator. The Colpitts oscillator circuit in conjunction with the Helsing system of modulation seems well adapted to this type of transmitter.

At present, with 850 volts on the plate and a total space current of 200 milliamperes the radiation is 2½ amperes on 325 meters. A few changes will probably be made in the power input shortly which should materially increase the radiation.

Arrangements have been made with Richardson's Music Shop in Los Angeles to furnish all the latest Victor Records as soon as they are ready for distribution so the concerts have the added attraction of being of assistance in selecting new records for the listener's own phonograph.

Although the concerts have been held for only two weeks, and practically no announcement has been made of them, the music has been reported very clear in San Diego, Santa Barbara, Walnut Grove (6ZX), Oakland, and also in practically all the nearby towns. This is really excellent work considering the fact that it requires sharp tuning to find that "melodious meter" and much better records are expected as soon as the concerts become generally known.



### HAVE YOU SENT FOR YOUR PRIZE?

Mr. W. H. Kirwan of Davenport, Iowa, who so successfully conducted the Washington Birthday Relay, has informed us that several of the Pacific Coast winners of the contest have not as yet sent for their prizes. The following is a list of winners in the fifth, sixth and seventh districts:

Leander L. Hoyt and friends, Hayward, Cal.; Clegg Eastman ZRF Reg. Receiver.  
Miss Winnie Dow, Tacoma, Wash., one baby carriage, or if she does not need it just yet, she can have the Navy Type Tuner, donated by Sears Roebuck & Co., of Chicago and Philadelphia.  
M. S. Andellin, Richfield, Utah, gets the of Pasadena, Cal., received the same type of Chicago Radio Lab. Zenith Generator.

N. Hood, Casper, Wyo., gets the Grebe CR3A Regenerative receiver.

H. Berringer, Burlingame, Cal., gets the two-step Amplifier from Montgomery Ward Co., of Chicago and Kansas City. This will help him to get even better signals from the east.

F. Mahr, San Francisco, Cal., 1 0-1 HW Eldridge Meter; donated by J. Firth Co.

J. Martin, Amarillo, Texas, 1 0-1 HW Eldridge Meter; donated by J. Firth Co.

R. Willson, Portland, Ore., 1 No. 3 Condenser with dial; donated by Chelsea Radio Co., Chelsea, Mass.

Rev. Father Burns, Marshall, Texas, 1 pair Baldwin-Brownlee type phones.

M. Powell and D. Culbert, both of Warren, Arizona, received each a UV 200 bulb, donated by the Radio Corporation of America. R. Taggart and F. Weyerhauser, both tube, as well as R. Scott, of Douglas, Arizona.

(Continued on Page 62)



# ROBERT GARCIA IS WORLD'S YOUNGEST LICENSED RADIO OPERATOR

let him take the test. Seeing that the boy rally meant business, he made up his mind to coach him and give him a chance. First he made him copy a buzzer, sending words of two or three letters, then increasing speed 'till the boy acquired a speed of twenty words per minute. Then words of greater length, and finally numerals and words were resorted to 'till he could copy 50 or 100 words in succession. In the meantime he would explain to the youngster the theory of both transmitting and receiving sets, using the technical terms and paralleling them with a kindergarten explanation so that the little mind could readily understand. That done, he gave the boy a copy of the regulations regarding the transmission of signals, etc., and laid out a certain amount to memorize so that he would understand the meaning and would be capable of writing it word for word whenever called upon to do it in the future. This he accomplished beyond the father's wildest expectations. Then came the big surprise. He had but five weeks in which to prepare for his examination. When he took the test everyone that saw him smiled and felt that he was there merely to please his father's vanity. Several lads, many years his senior, fell by the wayside, and several men tried in vain to pass the test. He just smiled all through the three solid hours of his examination and if anyone said anything to him he would answer with a broad smile and wink, as if to say "watch me fool them," and he, only a child of seven years, did what very few ever accomplished—PASSED WIT 92 PER CENT.

Since passing the examination two manufacturers have honored him with parts for the set he is going to install. He has filed an application for a station license and is going to put it up himself. He has declined an offer to install the set and begs his father to let him do it all alone.

**TWO A. P. Tubes for same results over 500 miles.**

**THREE A. P. Tubes for same results over 800 miles.**

All replies should be addressed to the Pacific Radio Supplies Company, 638 Mission St., San Francisco, Cal.

## 6XW—PRESIDIO OF SAN FRANCISCO

Concerts: Wednesday evening from 8 to 9 p. m. Sunday evening from 8 to 9:30 p. m. Wave Length: 390 meters.

Operated by: Students of Signal Corps Radio School. Thirty minutes is devoted to the answering of radio queries on Sunday nights by Sgt. Tavers, in charge of the radio telephone station at the Presidio.

## 6XG—FAIRMONT HOTEL, SAN FRANCISCO

Concerts: Monday, Thursday and Saturday evenings from 7:45 to 9 p. m. In these concerts is included the usual press and baseball schedule, as well as weather reports and stock quotations. Afternoon concerts are held daily, except Sunday, from 4:30 to 5:30 p. m. Press, weather reports and stock quotations are also sent on the latter schedule.

Wave Length: 350 meters. Operated by: Léo J. Meyberg Co., 428 Market St., San Francisco.

## 6XAE—RADIO TELEPHONE SHOP

Concerts: Tuesday and Friday evenings, 8 to 9 p. m.

Wave Length: 425 meters. Operated by: Radio Telephone Shop, 175 Steuart St., San Francisco.

## 6XAC—COLIN B. KENNEDY CO.

Concerts: Monday and Thursday evenings, 8 to 9 p. m.

Wave Length: 430 meters. Location: Los Altos, Cal. (about 40 miles south of San Francisco).

Operated by: Colin B. Kennedy Co., Rialto Bldg., San Francisco.

## 6XD—WESTERN RADIO ELECTRIC CO. LOS ANGELES, CAL.

Concerts: Tuesday and Friday evenings, 8 to 9 p. m.

Wave Length: 325 meters. Location: Los Angeles, Cal.

## RADIO DEALERS AND MANUFACTURERS OF SAN FRANCISCO TO ORGANIZE

A meeting of the radio dealers and manufacturers of San Francisco and the bay cities was held at the Engineers' Club on August 19th. A stag dinner, lectures by well known local radio men and many vitally important discussions were the features of the evening. Further details of the organization and its purposes will appear in the next issue of this magazine.

## NORTHWEST RADIO MANUFACTURING COMPANY ISSUES CATALOG

A well illustrated catalog, printed on an excellent grade of paper, and describing in detail the apparatus manufactured by the Northwestern Radio Manufacturing Company, of Portland, Oregon, has recently been brought to our attention.

The catalog contains bulletins Nos. 1 to 8 that deal with the various products of the northern concern.

**ROBERT GARCIA**, 7-year-old son of Allen Garcia, director for Charlie Chaplin, is the youngest licensed radio operator in the world. Official confirmation of his success in passing the amateur operator's examination with a percentage of 92 was recently received from Major J. F. Dillon, U. S. Radio Inspector at San Francisco.

Mr. Allen Garcia has released the following statement for publication in "Pacific Radio News":

From the time that his father took an interest in radio (November, 1920), Robert would read the catalogues and manufacturers' advertisements which most every aspirant to the realm of Radio is inevitably equipped with, he would ask father some then rather embarrassing questions regarding hookups and frequencies, oscillations, amplifications, and such many other things that poor father then could not answer, that made the latter sit up nights and study till early morning so as not to fall in the estimation of his son; for to his son, he, the now erstwhile 6BJ, was Mr. Allan Garcia-Hertz-Marconi-Bellini-Armstrong, et al, and everything that meant anything in the evolution and construction of radio. Along about that time father put away the crystal and loose coupler in favor of vacuum tubes. Robert took an interest in the discard, and while father was away would dissect the coils to see how they were made, and would try to hook them up in every manner conceivable, not even overlooking the electric iron or the vacuum cleaner, fuse blocks on the lighting circuit or the door bell. In fact, he left nothing undone, but he still had a lot to learn. Then he hit upon the idea that if father would let him listen on his set he would learn the code and be able to copy. So father turned the set over to him in the day time with the understanding that he learn the code first by heart in two days. Within 24 hours he accomplished that, and later would sit for hours till he heard someone sign at a speed that he could copy. He was a little sticker, remaining at the set for three or four hours at a stretch. Later, when father took out a license and was assigned a call, Robert's interest was increased 'till he had to be shown the workings of every part of the transmitting set and given a concise explanation of everything, including circuits. For several days the lad went around drawing circuits on the back of everything in the house, and, strange to say, once shown a circuit, no matter how complicated, he could reproduce it by memory, and has several of his original drawings now that can't be improved on for detail. Five weeks before Robert passed his examination he could not copy even at the rate of five words per minute, but he showed sufficient interest that he begged his father to

# NEW RADIO TELEPHONE SCHEDULES

## RADIO TELEPHONE CONCERT AND NEWS SCHEDULES.

### PACIFIC COAST RADIO STATIONS.

California Theatre (DeForest Radiophone) operated by Pacific Radio Supplies Company of San Francisco.

Concerts: Daily, except Sunday, 4 p. m. to 4:30 p. m. and 7:15 p. m. to 7:45 p. m., 9 p. m. to 9:45 p. m. Sunday concerts 11 a. m. to noon.

Press on CW: Daily, except Sunday, 7:45 p. m. to 8 p. m.

Wave length: Tune sharp on 1,250 meters. Power 1-2 K. W. Range 1000 miles.

Nature of Press: Coast League Baseball Scores, National and International News Items.

The Pacific Radio Supplies Company will offer the following prizes to those who report, with correctness, the results of the schedule as stated herewith:

**PRIZES OFFERED:** One A.P. tube for complete list of records played at any concert, heard over 200 miles, said list to be mailed within 24 hours after the close of the schedule.

## FOREWORD

(It affords us a great deal of satisfaction to reproduce verbatim a copy of a letter that Mr. Ira J. Adams—of The Radio Corporation of America—was so polite as to write me, in answer to my query—that is also reproduced herewith.)

The reason for the prominent publication of these communications is that both the editor and I overload our waste paper baskets daily—queries all of: "Where may vacuum tubes be repaired?" And: "If they may not be repaired, WHY not?" And so forth—ad infinitum!

A politely explicit letter from the Eastern Vacuum Tube Laboratories,—whose advertisement to do repair work on tubes was carried in our pages in a previous number—has reached me to the effect that their efforts along these lines had been put a stop to, said efforts being considered an infringement of patent rights—Q. E. D. by the communication from Mr. Adams!

The entire position is now made clear, we think, and I should like to thank our correspondent for the conciseness of his missive.

Mr. Adams is, I believe, the Legal Luminary of The Radio Corporation, and hence pre-eminently in a position to set these matters right!

### MR. MOTT'S LETTER TO MR. BUCHER

TWIN SUNSHINE  
Avalon, Catalina Island  
California

June 26th, '21.

Very Kind Friend Bucher:

It has been suggested to me—NOT by my editor, however!—that I take up the matter in PRN of the repairing of vacuum tubes.

In order to see how affairs stood I sent three of your UV202's to the firm whose letter I enclose, and would ask you to be so good as to return.

The pertinent question that is uppermost in my mind is: HOW can a Company or Corporation order the discontinuance of REPAIRS to their manufacture—when said repairs involve no re-selling under another title, or in any way threaten the original patent?

To the man-in-the-street the conditions—as stated in Hardy's letter—savor muchly of a gentle spirit of "hold up" on the part of the Controlling Manufacturers—in which it would appear that they say: "NO! Our tubes may not be repaired! NEW ones must be procured from us!"

Kindly assimilate the fact that I am NOT criticizing—nor would I venture so far as to suggest the way in which the GE and the Radio Corp should carry on their business—BUT do you not think that were tubes' repair possible—even, shall we say, that the GE company perform such repairs on their own tubes, at a just cost—that the sale would be enhanced, and for the reason that so many amateurs are afraid of going into CW—as matters now stand—their fear consisting in the fact that tubes may not be repaired, and the average amateur pocket-book cannot stand the drain of repurchases, ad libitum! In other words: were the GE to repair their tubes, the original sales would—far from being diminished—be enhanced, as a vast number of amateurs, feeling secure in their ability to have repairs made, would enter the CW field at once!

I am willing to wager—tho' not a "Gambin' Ma-an"—that such a scheme would be effective in BOOSTING sales!

Let me put it in another way: Supposing that the Wisconsin Motor people—three of whose powerful engines I use in slow and fast craft—should say: "Very sorry, Mr. M., but you may not go to a shipyard or ma-

# REPAIR OF VACUUM TUBES ORDERED DISCONTINUED

## RADIO CORPORATION LOGICALLY ANSWERS IMPORTANT QUERY

chine shop to have our engines repaired! You must buy a new one!" The case is directly similar to that of the tubes, as the GE is—to all intents and purposes—the only firm on the market, and controls all patents in sight!!

Hence, ere I dash blithely into print with an article that might produce an entirely erroneous impression—and which, under NO circumstances would I do!—would YOU, my friend, be so charitable as to sit ye doon and let me have the Official Viewpoint—from Ye Powers that Be in the Radio Corp? I—thank—you!!

Hope that you liked the way the article looked in PRN? Questions pour in! I refer 'em all to One EEB!!!

Cheerily and gratefully yours,  
(Signed) LAWRENCE MOTT.

### THE RADIO CORP. ANSWERS AS FOLLOWS:

RADIO CORPORATION OF AMERICA  
233 Broadway,  
New York.

July 11, 1921.

Mr. Lawrence Mott,  
Twin Sunshine,  
Avalon, Catalina Island,  
California.

Dear Sir:

I have your letter of June 26th addressed to Mr. Bucher.

You commence with an erroneous assumption. Under our patent laws a company cannot, and, so far as I know, none attempt to, "order the discontinuance of repairs" when such do not "in any way threaten the original patent."

The reason you can repair your Wisconsin engine, to which you refer, is because you do not "threaten" the patents on the same. You add new bearings, piston rings, gaskets, etc., that are not part of the patent combination on the engine.

Now, in respect to vacuum tubes, the renewal of filaments certainly does "threaten" our patents. The patents to Fleming and DeForest, without mentioning many other patents that we control, claim the filaments as one of the elements of the tubes. The filament is part of the patented combination. Furthermore, the Tungsten filament itself is covered by many patents. The methods of sealing the filaments are patented. Furthermore, to renew the filaments is not a "repair." It is a RECONSTRUCTION under our patent laws, and it is not permissible. The decisions on this point are so in accord that there is no doubt at all in regard to the legal situation.

Laymen are not impressed by the expounding of patent law, so let us examine this matter from a common sense viewpoint. We have spent an enormous amount of money to develop and acquire rights under inventions and will continue to do so. In return we get 17 years' lawful monopoly under our patents on our discoveries and inventions. Often, as was the case with vacuum tubes, a substantial part of the life of the patent expires before there is any market for the patented thing. Therefore, we should not be begrudged the benefits to which we are lawfully entitled.

If we were to refrain from prosecuting infringements due to so-called "repairs," our patents on vacuum tubes would be practically valueless to us. After a few years of supplying the demand there would be enough tubes on the market to take care of the major portion of the needs, and the so-called "repair men" would reconstruct these tubes then on the market and leave us the minor part of the business of supplying new tubes. We could not compete with a little "fly-by-night" "repair man" in renewing the filaments. He would be entirely free of the patent and development expense and his overhead would be a trifle. These "repair men" would not spend any money for research and development and we would not if the profits were to go to them.

Our patent laws benefit the public. They exist for this reason. If the laws were to be made so we could not stop the so-called "repair" of tubes the public might obtain cheaper tubes for a while, but they would not get the super-vacuum tube that is surely coming in the future, if we are given just protection under the present patent laws to assure a reasonable return for the immense amount of money that we are spending and will spend for future development.

You may be correct in your statement that the public and the Radio Corporation would benefit by our renewing the filaments in our tubes. On the other hand there might not be any such benefit. I am inclined to think there would not, or such program would already be under way. However, I am not familiar with manufacturing conditions and I will refer this to the proper department for consideration.

I am glad of this opportunity to give you our viewpoint as the course we are taking is entirely justified under patent laws, and, I believe, also by sound reasoning, and if I have been able to convince you I will have rendered a service to the public. If I have not convinced you I will be glad to discuss the matter further.

Very truly yours,  
(Signed) IRA J. ADAMS.

### Feature Articles in Next Month's Issue

LATTICED  
WIRELESS TOWERS  
By Allan K. Thompson.

"HUMBUG"  
By Volney G. Mathison

THE CONSTRUCTION OF AN  
EFFICIENT C. W. SET  
By O. Schuwendt.

INTERESTING DETAILS ON  
THE C. W. CLUB OF  
CALIFORNIA  
By Lawrence Mott,  
Associate Editor.

AND MANY OTHERS



# THE MAGNETIC AMPLIFIER

A Treatise on its Theory, Design, and Construction

By Jennings B. Dow

Published by Permission of the Secretary of Navy

## PART V.

### THE KEYPORT EXPERIMENTS

THRU the courtesy of Commander H. G. Shoner, U. S. N., District Radio Material Officer, Thirteenth Naval District, and Lieutenant Commander Frank Luckel, U. S. N., District Communication Superintendent, Thirteenth Naval District, the United States Naval Radio Station at Keyport, Washington, was made available for experimental work by the author on May 24, 25 and 26, 1920. Only a 30 K. W. arc was available at the time, for the 60 K. W. arc had not as yet been installed. This limited the tests to the control of but half of the de-

tive electrode to the loading inductance. This key is normally open. "B" breaks in running water and "A" in oil.

The amplifier was first inserted in the circuit at "n" with eight turns in the radio-frequency winding. "B" was held closed and "A" open, and it was found impossible to start the arc, regardless of the saturation of the iron. The current thru the control winding was limited to 1.3 ampere by the applied voltage of 60, which was obtained from storage batteries. It was deemed unadvisable to use the 110 volts D. C. supply from the station's power plant in these experiments because of a possible danger from unforeseen inductive effects in the amplifier.

The radio-frequency winding of the amplifier was next tapped off so as to include only one turn in the arc circuit. The arc could be maintained without difficulty. Following data was obtained:

Control Current	Antenna Current
0 .....	33
1.3 .....	44

Two turns of the radio-frequency winding were next used. Following data was obtained:

Control Current	Antenna Current
0 .....	33
1.3 .....	47

With three turns of radio-frequency winding in use, the following data was obtained:

Control Current	Antenna Current
0 .....	31
1.3 .....	52

At this point the choking effect of the iron was plainly evident, for some difficulty was experienced in maintaining the arc. Unaccounted for changes in the period of oscillation of the circuit were caused by this device. With only one turn of inductance in use, the wave length was changed from 5400 meters to 5660 meters and with either one, two or three turns in use a powerful harmonic existed on 5400 meters. This harmonic was apparently unaffected by the inductance of the device.

THE END.

# CORRESPONDENCE FROM OUR READERS

San Francisco, Cal., August 3rd, 1921.

Editor of "Pacific Radio News,"

151 Minna Street,  
San Francisco, Calif.

My Dear Editor:

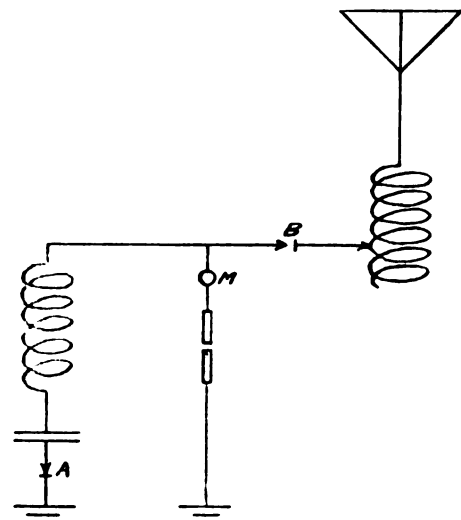
A long time ago, when PRN was a mere baby, I received a copy of the FIRST NUMBER, which asked me to subscribe for a year and help the Pacific Coast to have a magazine devoted to the highest ideals of Radio Amateurs. I read the number from cover to cover and immediately sent in my subscription and a letter congratulating the management for their venture into such a needed periodical, and all through the three years of its publication you have stood for the same standard of "THE BEST IN RADIO" for the "BEST IN RADIO," and permit me to say that it is my belief that PRN has helped to do more for the Pacific Amateur than all the other magazines combined, because it is OF US AND FOR US. Because of this I am going to infringe a little while on your good nature and ask you to help solve a timely nuisance.

We are in the age of Radio telephones now and with such excellent stations as the Fairmont, Presidio, California Theater, and numerous others giving concerts every evening between 8 and 9:30 why is it that a few inconsiderate amateurs insist on making life miserable for those of us who enjoy a few moments of the concerts so ably rendered? It does seem to me that 6— could wait until after 9:30 to ask 9PDQ if his spark was O.K. and augment the agony by calling for a straight 15 minutes and signing off about 99 times, as though we didn't know who the nut was that was causing the disturbance. There is nothing I so fervently despise as a chronic complainer, but this is my night to crab and I am not alone, either, when I crab about the way some fellows of the cigar box variety are butting in on the concerts. These boys who are kind enough to give their time for the few minutes of pleasure they afford for the thousands of listeners should be appreciated and encouraged to the small extent of at least being afforded the freedom of the ether without having our loud speakers knocked off the shelf by some bush-whacking half Kw, who is so selfish as to believe that he is the only one to be considered. I do not believe it is the fellows who are doing the best work that cause the trouble, but, at any rate, something should be done for the good of all in this one respect. I am aware of the fact that there is no law to curb this growing evil, but certainly a fellow who has intelligence enough to delve into radio ought to have decency enough to "pipe down" and respect the right of the majority of us, who enjoy the fruits of our labor. ALL WE ASK IS TO GIVE US A CHANCE.

With best wishes to yourself and PRN,  
Very sincerely,  
(Signed) H. C. MACQUARRIE.)

### ERRATA

On Page 34 of the August issue there appeared an article entitled "New Apparatus Developed." This article should have been run under the head of Northwest Briefs in the Squawk McGuff column, for which it was originally intended.



signed power, and the results were affected accordingly. However, as the reader will find, very encouraging results were obtained and the adaptability of the iron relay to the control of the output of a high-power arc was proved beyond a doubt.

Fig. 15 shows the circuit in use at Keyport.

"A" is a key in the ground lead of the dummy antenna circuit. This key is normally closed.

"B" is a key in the lead from the posi-

# THE ANSWER TO THE BALLOON MYSTERY



"Brownie, the Balloon Man"

IF Mr. H. C. Brown (6CH) will be so good as to call on the editor of this magazine, he will be only too glad to show him the many letters that have been received of late in answer to the big balloon mystery and station 6CH. However, it will not be possible to print the answers received, with but a few exceptions, as most of the answers deal at length with "hot air," "wind," "smoke," etc., etc.

Fellow readers of the PRN, we are ashamed of you for sending us such answers to a really sensible question. Why should "Brownie" and the balloon both be full of "hot air" or "wind"?

After all the time and money that we have spent on this contest we feel that both "Brownie" and ye editor have received a raw deal. We would gladly distribute the five one-dollar bills among the five most sensible answers received to the big question, but we can't do this because the answers are all incorrect. Some of our readers compared 6CH and the balloon to the extent that "they both rise to the ether," "both work in the air," "travel through space forever," "both fly high," and oodles of other modest quotations.

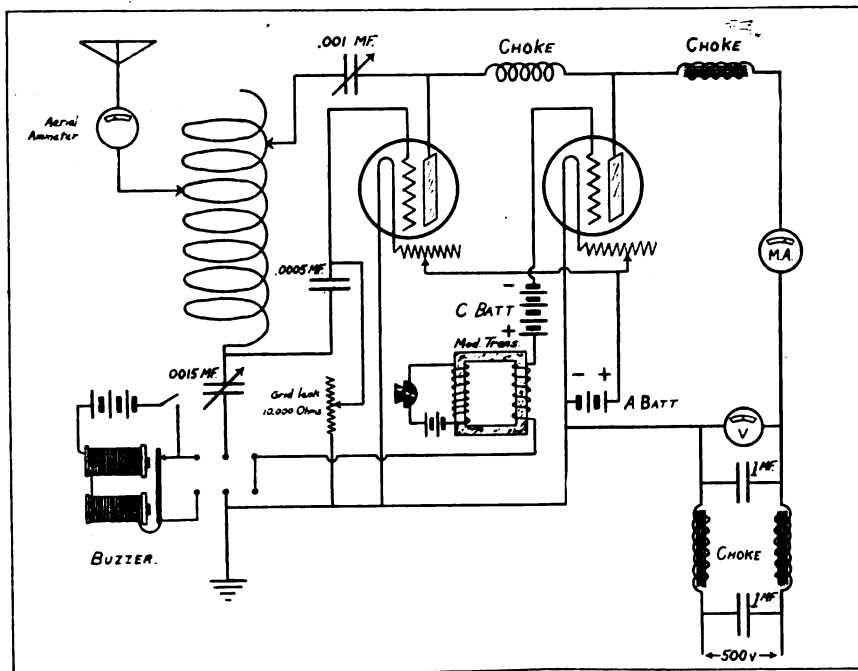
(Continued on Page 76)

# THE PROGRESSIVE C. W. CLUB OF CALIFORNIA

CONDUCTED BY LAWRENCE MOTT, ASSOCIATE EDITOR

## Wiring Diagram of the Fairmont (6XG) Radio Telephone

Herewith is the wiring diagram of the Fairmont Radio Telephone Station in San Francisco. This phone set has just been reported heard 1600 miles west of San Francisco by the radio operator on the S. S. "West Hixon." The various condenser capacities are clearly shown on the diagram. The inductance values and sizes of meters necessary to duplicate the 6XG transmitter were given in our July number.



## REVISED C. W. SCHEDULE

Time (P. M.)	Station	Wave length	Name and Address.
9:00	6XAD	240 & 375	L. Mott, Avalon, Cal.
9:05	6PI	200	B. McGlashan, 2333 W. 21st St., Los Angeles.
9:10	6EN	200	H. Duvall, 4965 Wadsworth, Los Angeles.
9:15	6WU	200	C. Richardson, Los Angeles.
9:20	6JE	200	C. E. Blalack, Los Angeles.
9:25	6MK	200	L. B. Benjamin, Los Angeles.
9:30	6ALE	200	W. W. Lindsay, Los Angeles.
9:35	6KA	200	F. E. Nikirk, Los Angeles.
9:40	6HU	200	H. G. Beck, Wilmington, Cal.
9:45	6ADU	200	R. P. McKenzie, Los Angeles, Cal.
9:50	6EF	200	C. G. Widing, Los Angeles, Cal.
9:55	6IT	200	C. E. Rich, Glendale, Cal.
10:00	6CU	200	C. F. Fltstead, Los Angeles, Cal.
10:05	6XN	375	A. A. Kluge, Los Angeles, Cal.
10:10	6XD	375	Western Radio, Los Angeles, Cal.
10:15	6AQA	200	G. S. Tichenor, Los Angeles, Cal.
10:20	6KP	200	O. S. Garretson, Eagle Rock City, Cal.
10:25	6BA	200	H. Newman, Wesrad, Los Angeles.
10:30	6HK	200	F. Crowell Jr., Los Angeles, Cal.
10:35	6ZE	375	D. B. McGown, San Francisco.
10:40	7XF	375	Northwestern Radio Mfg. Co., Portland, Ore.
10:45	6ZAD	375	J. J. Mahler, Napa, Cal.
10:50	6ZX	375	J. V. Wise, Fresno, Cal.
10:55	6ZA	375	Louis Falconi, Roswell, New Mexico.
11:00	6KH	200	C. Maass, San Francisco.

### IMPORTANT ANNOUNCEMENT

The above schedule will only remain in effect for a limited time. The large number of new applications received for the C.W. Club makes it necessary for Mr. Mott to split up the working nights of C.W. stations in order that the last calling schedule will be no later than 11 p. m. Under the provisions of the new schedule each station will be allotted a ten-minute period for calling and testing every other night instead of a five-minute period every night, as is the present custom. The new schedule will be mailed to all members at an early date, stating the date on which it will become effective.

### THE RADIO TELEPHONE REPORTER

**A**N EASTERN radio corporation recently performed one of the most unique and spectacular news services of modern times. Located at the Delaware and Lackawanna Railroad terminal, Hoboken, N. J., was a powerful radio telephone transmitter and receiver utilizing the big steel tower formerly employed at this station in wireless train dispatching. From this central point was broadcasted every important incident round by round of the big Dempsey-Carpentier fight.

More than 300,000 ear witnesses heard the fateful knockout count while located many miles away. In fact, listening-in stations all over the country caught the words and in turn relayed the news farther on to more remote points, so that the event was heard throughout the United States from the Atlantic to the Pacific coast in the same unique manner. In addition to the amateurs, hundreds of vessels, near and far from New York harbor, had also "tuned in," and passengers and crew alike heard not meaningless telegraphic signals, but the actual voice of the radiophone reporter announcing in the same manner as an eye witness would the essential features of what was going on in the arena.

This scientific feat, which marks a new era for radio telephony, was made possible by the combined efforts of the General Electric Company and the Radio Corporation of America. The first organization, by furnishing the necessary apparatus, and the second by installing and placing the set in operation and performing the multitude of details which this feat involved to make it a success.

The feat was primarily devised to help the Committee for Devastated France as well as our own Navy League. Wireless amateurs within a radius of 200 miles were asked to help by offering their services in erecting suitable receiving equipment at local theaters, halls, sporting clubs, auditoriums, Elk, Masonic and K. C. clubhouses and

(Continued on Page 68)



# WITH THE RADIO INSPECTOR

This department is conducted by the Radio Inspector of the Sixth District. Questions are answered free of charge. Your name will not be published. Initial your letters only.

Send Your Questions to: Radio Inspector's Dept. "Pacific Radio News"

DEPARTMENT OF COMMERCE

Navigation Service  
Office of Radio Inspector  
Custom House  
San Francisco, Cal.

August 1, 1921

The Editor  
Pacific Radio News,  
San Francisco, Cal.  
Dear Sir:

One of the first circular letters issued by me to the amateurs of the 8th Radio District, in 1913, contained the following admonition: "Remember that the law limits your wave length to 200 meters.

"Always listen in carefully, with your receiver well adjusted, before using your transmitter.

"Do not send if it seems probable that your transmission will interfere with the correspondence being conducted by other operators.

"Cease sending immediately when requested to do so by Commercial, Government or other stations having important business to transact.

"Never use your transmitter during the period allotted for transmitting time and weather reports by broadcasting stations. This data is regarded as essential for the public at large and careless interference with the reception of the same will jeopardize the continuance of your license, whether commercial or amateur.

"Endeavor to exercise the same degree of courtesy in the conduct of your radio correspondence that you would use in your personal intercourse with your friends and associates. An observance of this rule will materially aid both you and they in obtaining the optimum results from the operation of your stations."

Experience through the intervening years seems to have demonstrated the wisdom of that advice, hence those who have the true interest in the welfare of amateur radio at heart, will do well to adhere to the same strictly.

Of the faults common to the average amateur operator's, two are the most grievable—the use of unnecessary power and the use of superfluous and senseless chatter through the ether circuit. It is quite usual in listening in during the evening to hear your friend across the street, using full power, sending: "How is my spark?—How do you get me now? and again—I have just chased a fly off my condenser, does it make any difference in my tone? Nuf Sed."

The inspection service of the California district is proud of the amateur organizations in its territory, and particularly of the San Francisco Radio Club, Inc., the Bay Counties Club and the Southern California Radio Association, which is a potent factor in the co-ordination of amateur radio affairs within its sphere of influence and in the enforcement of the radio laws and regulations. In so far as they apply to the government of amateur operation. The spirit of co-operation and progressiveness manifested by the members of these clubs may serve well as an example for other kindred organizations. The members of the Sunset Radio Club have also perfected an excellent organization which, while smaller than some of the others, is equally efficient.

All applicants for amateur radio licenses are advised to join their local radio club, and once admitted to take an active interest in its affairs. The tendency is to "Let George do it," and to that spirit is due the failure of many new organizations, which actually contain splendid material for a high grade club.

(Signed) J. F. DILLON,  
U. S. Radio Inspector.

## Questions Answered BY THE Radio Inspector

Mr. R. M., Berkeley, Cal., writes: "I have moved my station from Los Gatos to Berkeley, Cal., and would like to know if the Radio Inspector of this district should be notified of the change."

Ans.: Yes. It is absolutely unlawful to operate unless the station license is returned, and the address changed thereon.

Q.—Is it against the law to transmit while a radio concert is in progress, or is this only a "friendly agreement" among all concerned? What bearing has this on concerts sent from Government stations? D. F., S. F., Cal.

Ans.: Yes, if any interference is caused. Refers to all stations.

Q.—Under what conditions can I have my call letters changed? At present I have a three-letter call. Can I have it changed to a shorter call of two letters? S. J., Berkeley, Cal.

Ans.: No two-letter calls available, and it will be impossible to make such a change.

Q.—Does the Radio Inspector tune amateur stations the same as he tunes ship stations and can I operate my station lawfully by making a rough guess at my wave length, comparing it with waves used by amateurs in my district? L. C., Fruitvale, Cal.

Ans.: No. It is up to the individual owner to tune the station himself, and he will be responsible for the same. It is not a function of the Radio Inspector's office to tune stations. The wave length adjustments are only checked, in order to ascertain their correctness and compliance with the law.

A certain local station "hogs" the air considerably, and is on the job practically all the time. He makes a considerable disturbance on account of the excessive power he uses, and generally makes it almost impossible for other local stations to work when he is on. Have the other stations any right to complain? K.T. SF, Calif.

Ans.: Yes. It is the purpose of the Department to allow all stations the same privileges, and this station is clearly in the wrong, first for using excessive power, and second for causing unnecessary interference. The offender's license may be suspended or cancelled, if authentic information, including dates, and time, is sent to the Inspector's office, and if it is found that the accused station is at fault.

Q.—Are amateur license examinations held daily in San Francisco? B., S. F., Cal.

Ans.: Amateur license examinations are held at 9 a. m. sharp, on Mondays, Wednes-

days and Fridays only. Commercial examinations are held on Tuesdays and Thursdays at the same time. These are all held at 215 Custom House, in San Francisco, Calif.

Q.—Will my service with the U. S. Coast Guard entitle me to the 20 per cent credit in a commercial examination? C. P., Seattle, Wash.

Ans.: Provided you have had three months' service, or more, actually operating radio apparatus, you will be entitled to 20 per cent experience credit. This must be supported by letters, discharge papers, or other evidence of service.

Q.—Are radio traffic officers or "air policemen" officially recognized by the Department of Commerce or only by radio clubs who appoint them? Must they be commercially licensed? F. P., Pasadena, Cal.

Ans.: They need not be commercially licensed. The appointment is solely up to the individual club appointing them; however, as they are assisting in the enforcement of the radio laws, and aiding in the elimination of unnecessary interference, they are thus recognized by the Department of Commerce, over other stations.

Q.—I reside at Santa Barbara. To whom do I apply for a license in this vicinity? E. R.

Ans.: Apply to Radio Inspector, 215 Custom House, San Francisco, Calif., and the necessary forms will be sent you.

Q.—The law says that only one-half KW shall be used when a station is within five miles of a Government station. Will it be permissible to use two 250-watt tubes, equal to a half KW, in a CW set, or will this be unlawful, due to the fact that CW carries so much further than a spark? C. A., Oakland, Cal.

Ans.: The law states: "One half kilowatt transformer input," therefore, as it would require considerable in excess of 500 watts input (on the plates on the tubes) it would be unlawful.

Q.—Are there any vacancies as radio clerk (male) in the Radio Service of the Department of Commerce? When are examinations held and where? T. S., San Francisco.

Ans.: Apply to Civil Service Secretary, Postoffice, San Francisco, who can give all details of the examinations.

CHANGE OF STATION ADDRESS

6AFX has moved his station from 32 Walnut Ave., Los Gatos, Cal., to 1820 Carleton Street, Berkeley, Cal.



# A STILLY MYSTERY



BY VOLNEY G. MATHISON  
Author of the Samuel Jones Series

WHEN I escaped by the skin of my teeth from the gang of yellin', ravin' six-shooter artists at Unga I thought I was through with Alaska forever. But here I was mistaken. The ornery crowd on the cutter that rescued me dumped me ashore at Kodiak; and there I would've stayed an' starved to death if it hadn't been for Iceberg Olsen, the local agent for the Alaska Codfish Company.

"Ay tank you better go back to Unga," advises Iceberg, when I'd told him how the gun-fightin' codfish snallers shot up the wireless shack an' chased me to sea in a dory in the middle of the night.

"Them didn't mean no harm; them was just tryin' to initialate you. Ven them is finished you are vun of der boonch."

"Yes, one of the bunch up in the cemetery, you mean," I answers.

"Vell, look at Hell-Fire, th' vireless feller vat built das Unga an' Pirate Cove stations—he bane in Alaska five year, an' he swears now he can't live novheres else."

"Yes, but he's a lunatic," I objects.

"Das all right—ven you ha' bane hyar five year you'll be th' same vay," argues Iceberg.

So at last I gives in, and Iceberg takes me back to the westward in a company gas-boat. With the help of the Brainless Swede, the company's Unga agent, he patches up a peace treaty between me an' the Mexican who'd tried to carve me up because his wife smiled at me; an' then I goes to work pluggin' up the bullet-holes in the walls of the little wireless shack, which hangs by its teeth on a granite ledge half way down the face of a rocky bluff overlookin' the bay. By the time I'd plugged the forty-first an' final hole, the boom-in' of the breakers down among the rocks an' the salt spray flyin' up over the shack had got me to feelin' quite at home again. Besides, I had a good many visitors congratulatin' me on my return an' bringin' messages to go out; for with the exception of a mail-boat two or three times a year, K-V-I is the only link between Unga Island and the outside world.

That evenin' I cranks up my old one-lung gasolne mill to shoot my string to N-P-R, but when I shoves on the key she falls to spark. Lookin' over the old junk-ple transmitter out in the power room, I couldn't see nothin' wrong, at first—an' then I makes an amazin' discovery. The big copper spiral primary of the oscillation transformer mounted on the front of the panel had disappeared! I rubs my eyes an' looks again, but there was no gettin' around it—the thing was gone.

Next day I does some inquirin' around town, but, fallin' to dig up any traces of the strayed helix, I finally decides to make a trip over to K-O-X-N an' see if Hell-Fire could give me something to make a new one with. Borrowin' a power dory, I makes the twenty-mile trip up the Straits of Nagai and around Popoff Island to Pirate Cove. Makin' my boat fast alongside the codfish wharf, I breezes up to the station, which consists of two buildings—an engine house an' a operatin' shack.

As I comes up, I observe a big flywheel an' a sooty cylinder-head lyin' out in front of the engine house; an' from the open door is

emenatin' a blaze of cuss-words that would burn the aluminum paint off'n a steam radiator. Lookin' inside, cautious-like, I sees sledge hammers an' cogwheels an' piston rods scattered all over the place; an' lyin' on his back under the remains of the engine, with his legs wrapped around the other flywheel is Hell-Fire tellin' the world what he thought about diesel engines an' the scoundrel that invented 'em. His face was all smeared up with grease an' graphite, an' he was clutchin' a big monkey-wrench in one fist an' a bottle of hooch in the other.

Seein' me, he crawls out from under the wreck an' gets up.

"Nice day," he says, spittin' out a mouthful of soot an' kerosene an' takin' a swig on the bottle, "Have a drink."

"No, thanks," I replies, observin' the embellishment of grease an' grime remainin' on the bottle neck; "I'm lookin' for somethin' to make a helix out of—somebody's stole the primary of my oscillation transformer."

"Why, I took that!" says Hell-Fire, frownin'. "Th' way ya left that night, I didn't think you'd ever come back. I took the spiral tubin' to make a new still out of—my old one's plumb worn out."

"Still!" I exclaims.

"Do I look like a white-robed angel of prohibition?" growls Hell-Fire, wipin' his face on a old grimy engine rag. "C'me an' have a peek at her—it's time to give her a new charge of brew, anyway."

He leads me down the beach to a little boulders an' cracked lava rocks. Followin' boulders an' ovracked lava rocks. Followin' him inside, I sees my copper helix in a salmon barrel full of cold water, the upper end soldered into a five-gallon coal oil can sittin' on a camp stove, an' the other end protrudin' out through the side of the barrel an' curvin' gracefully down into a demijohn. She had steam up an' seemed to be goin' full blast.

"I'll give ya some solid bar to make a new primary with," says Hell-Fire, shiftin' the full demijohn from the copper tube an' settin' up an empty one. "It ain't no use fer you to take the tubin' back—somebody else'll swipe it again fer th' same thing. Wireless sets made fer Alaska all ought'a have solid copper helices."

"An' a conspicuous sign on 'em so statin'," I adds. "But, say, while I think of it, I'm goin' to put you next to somethin'. When the cutter dumped me off at Kodiak there was some queer guys aboard, an' I heard 'em talkin' about plans bein' under way to clean out all the hooch-makers around the Alaska peninsula with a fine-tooth comb shortly. Better look out with this rig."

"Humph! They been tryin' to spot the dynamite fact'ries 'round these islands fer three years, without findin' enough hooch to intoxicate a grasshopper," sniffs Hell-Fire. "Anyway, I got a contract to deliver sixty gallons of triple-strength white lightnin' to Unga fer th' Fourth a July—an' in Alaska ya hafta keep yer word or git shot."

We return to the engine house, an' Hell-Fire digs up a couple lengths of soft copper bar. Then he picks up his wrench an' his

hooch an' crawls back under his engine; an' I gets into my dory an' sets out on the return trip down the Straits.

Two hours later, as I was doublin' Cross Island, where the village of Unga comes to view, nestlin' at the foot of a high, snow-ridged mountain, I espies a low gray top-mast schooner beatin' swiftly out of the bay. She looks like a fur pirate or a seal poacher, but when I makes the landin' at Unga I finds out different.

"It was the mail schooner," says old Dopey Driffeld, combination judge, postmaster, an' everythin' else, who was buzzin' excited like around a pile of packages an' mail sacks. "And, say by Jove, you ought'a seen the female passenger what come ashore off here—a dream, a livin' angel in petticoats!"

"No angel never come off'n that piratical-lookin' fore-an'-after," I tells him. "An' you ain't competent to judge an angel anyway—every codfish snaller in the Shumagin Islands knows you're nuts over everythin' that walks with a skirt on it, black or white."

"Wait till ya see her," returns Dopey, lookin' offended. "She's a young authorette makin' a trip to collect up story-writin' materials. She's gone up to arrange fer lodgin's with Hog-Tooth Wilson's widow. She's a bird—a reg'lar little dove. Why, 'longside her physic, or whatever ya call it, th' best lookin' female in this village's got a shape like a dead codfish!"

"Well, that's what they have, anyway," I retorts. Leavin' Dopey to his mail bags an' several suitcases, which he says belongs to the girl, I starts up to my shack. On the way I notices a tall, nose-lookin' guy with a grip goin' into Soapy Komedal's Bedbug Barracks—the town's only hangout for strangers.

"Who is that guy?" I inquires of Hammar the Head-Cracker, who was standin' alongside the company cook house, with a uneasy look on his face, watchin' the stranger.

"Nobody knows," he answers, fingerin' his Krupp junior uncertain-like. "Tin-Pan Smith asked him, but he told Tin-Pan it wa'n't none of his damn business. I feel like takin' a shot at him on general principles."

"Better wait," I advises him. "I heard Cyanide Simpson say he was expectin' a guy from Treadwell to look over a new quartz vein in his old mine up the bay. Maybe it's him."

The followin' evenin' I had a new helix all made an' was just paintin' a sign on a chunk of cardboard, "Solid Copper; Don't Take," to hang on it, when I espies Dopey's angel strollin' on the hill up above the wireless shack.

Now everybody knows that every time I fool with a female I get roped. The last time it was a pretty baby in a Frisco cafeteria, who jipped me out of four thousand bones I'd worked hard for smugglin' pearls, an' then runs off an' marries a gob. But this girl keeps stickin' around on the hill, an' pretty soon I gets to thinkin' maybe she's lonesome. It bothers my conscience so much that at last I goes an' brings her down to the shack—and she was pretty.



She looked young an' slim an' a trifle tired; her hair was brown an' she had eyes to match, soft, warm brown eyes that looked lonesome an' cuddly, like they wanted to make friends but were a little bit afraid. She certainly looked out of place in such a wild an' woolly layout; an' I tells her so.

"I'm on the way to some friends at Dutch Harbor," she answers. "I really never dreamed of stopping here, but there was a big tall gentleman on the schooner who told me so much about the moonshiners and sourdoughs that live among the Shumagin Islands that I just had to stop. Why, I'd just give the world to see a real honest-to-goodness Alaska moonshiner and his hidin' place."

"Guess I'll have to take you over to visit Hell-Fire," I laughs, and then I tells her about the Pirate Cove brass-pounder and his joint down in the rocks.

"I'd just love to see him!" she exclaims, plumb delighted. "If you really will take me over there some time, I—I don't know how I ever could thank you!"

"I'll take you," I promises her. She stays an' watches me clear N-P-R, an' then I takes her home. It was about 10 o'clock when I leaves her with Hog-Tooth Wilson's widow an' stumbles back through the pitchy darkness out to my shack to grab off the arc press that loops the loop every night from Frisco to Tokio. I reaches the shack an' a bunch of choice file stuff goin' from N-P-M to N-P-O. After press, I stays on, listening in. On a real Alaska night signals come in strong at Unga on a single bulb that would come weak in the States on a two-step amplifier—an' this was a real Alaska night, clear and cold, and not a trickle of static. The grasshopper jabber of J-J-C and the heavy flat of N-S-S, the synchronous note of Mexico City and the flute of Nauen—all the high powers of the world were coming soft an' clear on their tunes—and then there was a scratch an' a click and the signals were gone!

The bulb was still burning, the secondary circuit was still oscillating; I feels all the connections, and nothing was wrong. From eighteen thousand meters I runs the scale down to two thousand; then jumps over to short-wave sparks an' goes on down to six hundred—and not a chirp. The air was dead! Half an hour later I was still there with the cans on, sittin' like a petrified mummy, when click! back comes the signals, soft an' clear as ever.

Next morning I goes up the hill to examine the aerial for a swingin' ground—but there was no possible chance. There wasn't a stay within ten feet of aerial or lead.

Still puzzlin' over the mystery, I makes ready to take Alice Loring for a trip over to Pirate Cove; but just as we were startin' who comes shootin' into the bay in his dory but Hell-Fire himself. His dragged fur cap was hangin' on one side of his head, his corduroys an' mackinaw were full of mud, an' on his grimy face was the glare of a scalp-huntin' savage.

"Revenue cutter raided me two o'clock this mornin'!" he whoops, as he makes the fish wharf. "They landed in their boats an' come straight to the dynamite works an' smashed up everythin'—somebody tipped me off! I was down in the shed gettin' out the Fourth of July order—just got away by the wink of a eyelash!" He starts to spit out a battalion of cuss words, but notices the girl alongside me an' chokes 'em off.

I introduces him to Alice, an' then the Head-Cracker comes down on the wharf with a face on him like a funeral an' calls me aside.

"There's a horrible mystery goin' on 'round here," he says, nervous-like. "Late last night I seen somethin' snoopin' down to th' beach round th' back way behind Hoid-Up Harry's shack—a black figger with a black bundle or somethin'. I sung out at it, but there wa'n't no answer, an' before I could shoot th' thing dis'peared. I looked fer tracks this mornin', but th' ground's froze too hard."

"I had a phony experience last night myself," I starts to answer, but the Head-Cracker cuts me off.

"Wait, I didn't tell you it all yet," he says, peevish-like. "That stranger's gone—clean vanished. Should'a shot him yesterday while I had a chance. An' 'nother thing's dis'peared, too—th' cook house ladder. Greasy Bill couldn't get on th' roof this mornin' t' clean th' chimbley, an' we didn't git no breakfast yet—dammit anyway."

"It's blasted mysterious," I agrees. "I don't make head or tail of it—only I've got a feelin' that that tall stranger tipped the cutter some way about Hell-Fire's joint."

"No, you're wrong!" flares up Hell-Fire, who'd come up with the wide-eyed Alice to listen. "I know who done it, all right; it was Yeast-Cake Johnson's gang over on the mainland. Ol' Yeast-Cake warned me he was goin' to fix me if I didn't lay off cuttin' into his Unga trade—an' he's done it."

"That's a dirty outrage!" busts out the Head-Cracker, forgettin' all about the night's mysteries. "We'll get th' gang together an' go'n shoot Yeast-Cake's outfit off'n th' map—underhanded business dealin's like that don't go 'round these islands!"

"That's what I come fer," replies Hell-Fire. "We hafta go in two boats—one gang to Portage Bay to draw Yeast-Cake's crowd down out of their hangout up in Silver Valley, an' the other bunch to go to Balboa Bay an' foot it over th' mountain to the head of Silver Valley an' come down on Yeast-Cake from behind. We gotta save his plant—it's th' only big one left in commission, an' if we lose it we'll hafta celebrate th' Fourth a July with soda water an' peanuts."

"The Head-Cracker hikes off to round up the codfish snallers, but they was mostly out on the fishin' grounds; so the expedition had to be postponed till the next day.

That night, as I was grabbin' off the press, the queer stoppin' of the signals comes on again. The set was entirely dead for about twenty minutes; then all of a sudden she starts perkin' again, same as ever. Next mornin' I hunts all over the blamed rig, looks at the aerial switch an' wirin', but there was absolutely nothin' wrong.

Meanwhile the codfishers an' Hell-Fire went away in two gas-boats on the thirty-mile trip to the mainland, to do battle with Yeast-Cake—an' that evenin' they comes back hoppin' mad, without havin' fired a shot.

"Th' cutter cleaned 'em out!" howls Hell-Fire. "Landed a gang of hooch-hunters in Balboa Bay early this mornin', an' they sneaked over th' mountain an' come down on Yeast-Cake's outfit while they was all asleep. They nabbed every one 'cept Prune-Juice Pete, who was doin' sentry duty down on the Portage Bay beach—they're a bunch of dirty sneaks, ambushin' honest people that way!"

"I tell ya' there's a dark an' dang'rous mystery campin' in this town!" glooms the Head-Cracker, lugubriously. "I seen that black thing flittin' 'round again last night."

Everybody was upset over the news of the raid, but Alice Loring was even more put out than all the hooch-gulpin' codfishers.

"Oh, dear, I'm so disappointed!" she exclaims when we tell her about it. "Here I've come all this way to see a real Alaska moonshiner at his work, so I could write a story about him, and now that miserable old revenue cutter has got the only outfit left. I always have the meanest old luck, anyway," and her soft brown eyes looks kind'a teary.

"Yes, it's a rotten shame," I agrees, an' I was sincere, for I was thinkin' of the Fourth of July, "but if you'll just stick around, somebody else'll start a new one before long."

In a day or two things had quieted down a little, but I notices that Hell-Fire, instead of going back to Pirate Cove where he belongs, keeps hangin' around Unga. I soon sees that he's dead stuck on Alice, an' I didn't like it much. I went to visit her pretty often, but Hell-Fire does the same. Pretty soon we wasn't on speakin' terms any more, an' our mutual enmity was growin' like a sore boil. Things drags along this way in the kind of smoky calm that goes before the storm until one day I hears that Hell-Fire is buildin' a new still up in Gumboot Hansen's fish shed for Alice's special benefit.

Right then I sees I gotta step fast in this kind of competition; so I gets busy with a piece of pipe an' an old barrel an' a camp stove an' makes a fake still in the engine room of the wireless shack. Hell-Fire had saved one demijohn of choice hooch from the wreck of his joint at Pirate Cove, which he'd stowed in my shack; an' I takes this an' runs it into a can with a valve in the bottom, so I could give a exhibition with it when the proper time comes. When I had it all fixed I goes to see Alice. Hell-Fire was there the first time I come, but at last I finds her alone.

"I'm gonna trust you with a big secret," I tells her, serious as a cemetery. "Nobody knows it, but I'm the biggest moonshine manufacturer in the Shumagin Islands."

"You are!" she exclaims, her brown eyes wide open. "Honest!"

I takes her out to the shack an' shows her the phony outfit, an' she falls for it like a duck.

"Hell-Fire's an' Yeast-Cake's rigs were tin-can toys 'longside of his apparatus," I tells her; "this whole shack is nothin' but a hooch factory—the engine gas tank an' th' coolin' tank an' the radio apparatus cabl nets an' everything else around here is chock full of it." While I gives her this spiel, I makes a fire in the camp stove an' runs Hell-Fire's hooch out of the can back into the bottle. She smells of it, an' was tickled to death.

"Oh, you're just wonderful!" she exclaims, givin' me a pretty sweet look. "I just adore you!"

"So do I you," I answers, all of a sudden, comin' up close to her. "You're too young an' good to be driftin' round this wild an' woolly country alone," I tells her; "what's the use of writin' flub for a bunch of bilious old editors that won't buy it anyway—wouldn't you rather be married to a nice big husky moonshiner—" I tries to put my arm around her, but she blushes an' shoves me away with a strength I'd never imagined she had an' beats it.

That night the signals went out again for the third time. Somehow it made me feel gloomy, an' the next mornin' when the Head-Cracker, wearin' a face like a tombstone, tells me he'd seen the mysterious spook again the night before, I feels still gloomier. I tramps around the shack all day sufferin' with what a high-brow ink-slinger would call a presentiment of impendin' calamity.

(Continued on Page 60)

## SHOULD THE SHIP OPERATOR USE HIS OWN APPARATUS?

The following letter is from a commercial operator who has made a detailed study of the situation.

STANDARD OIL COMPANY  
(Incorporated in California)  
COMPANY CORRESPONDENCE  
San Francisco, Cal., July 19, 1921

Editor, "Pacific Radio News,"

151 Minna Street,  
San Francisco, Cal.

Dear Sir:

There has from time to time been some discussion among commercial radio operators in regards to the custom of many operators having their own receiving equipment on vessels. After thinking the matter over and studying the question I wish to set forth some views on the subject as follows:

In the first place, it is a money investment that brings no returns. Of course, one might argue that if some operators feel like investing their money in something that brings no return, it is their private affair. In this case, however, it ceases to be a wholly private matter, because it does injury to the man that cannot afford or does not feel like furnishing receiving apparatus of his own.

Second, and more important, it is strictly against the rules of the employing or service companies to use other apparatus than the standard furnished by them. Remember, the service companies are paid to furnish all apparatus and they do so. If the steamship company, which pays cold cash is satisfied with the apparatus furnished by the service company, why in the name of Heaven should not this apparatus be satisfactory to the operator? Is it not a fact that years and years before there was such a thing as audions or amplifiers or regenerative circuits that the radio business was conducted just as satisfactory as it is today? I am ready to state that it was conducted more satisfactorily. So the service company has full right to expect the operators of 1921 to be as capable as they were in 1910 or 1912. It takes no ability to receive with an audion, but it is an art to get business through with a crystal detector. You will not usually learn in any school or from any books how to adjust a crystal to its highest efficiency.

Third, it is unlawful—or so they say—to use the amateur audion for commercial work. If it is unlawful for the service or steamship company to make use of the audion, I gather that it is equally unlawful for the operator to use it. Some operators are so very accommodating that in order to get time signals and a few items of press, they violate the injunctions and counterinjunctions of the courts. After all, you must be looked upon, by different interested parties, as a perfect fool! I have heard officials of some companies classify you as such. And what else would you expect?

Fourth, the apparatus put aboard by the service company, for which the steamship company pays money (always remember that), is the only legal apparatus to be used on the ship. Now, mind this, that should something happen and should your private set fail during such a time, you might kiss your license good-bye forever. Besides, the master could also get in trouble for allowing unstandardized apparatus to be used. And another important point, which I got from an insurance attorney, is that the insurance people would have a good case against the steamship company, in case of accidents. The apparatus placed on the vessel is in the records as the ship's equipment and no operator has the right to remove it or to substitute it for any old thing that he thinks is better. No more right than the master has to throw the lifeboats overboard and replace them with something else of his own fancy.

## SIXTH DISTRICT AMATEUR STATIONS

6APT	T. F. Chapman	1601 Oakland Ave., Piedmont, Cal.
6APU	H. Jones	224 Ricardo Ave., Piedmont, Cal.
6APV	L. G. Snell	407 West Ave. 52d., Los Angeles, Cal.
6APW	B. S. Pigg	405 N. Maryland Ave., Glendale, Cal.
6APX	E. D. Barcus	Route. 2, Box 611, Los Angeles, Cal.
6APY	W. Haines	212 W. Lomita Ave., Glendale, Cal.
6APZ	W. Minkler	868 Locust St., Riverside, Cal.
6AQA	G. S. Tichenor	421 West Adams St., Los Angeles, Cal.
6AQB	C. Farnham	Thermalito Street, Oroville, Cal.
6AQC	C. Wilson Jr.	3040 Benvenue Ave., Berkeley, Cal.
6AQD	J. & G. Utschig	1468 9th Ave., San Francisco, Cal.
6AQE	C. R. Wallace	3430 33rd St., San Diego, Cal.
6AQF	E. G. Mahn	Route 1, St. Helena, Cal.
6AQG	R. Williams	3114 Ellis St., Berkeley, Cal.
6AQH	Richmond Union H. S.	Richmond, Cal.
6AQI	D. C. McNeely	1840 62nd St., Berkeley, Cal.
6AQJ	J. H. Knost	90 North Church, Tucson, Ariz.
6AQK	G. Parsons (Portable)	El Cajon, Cal.
6AQL	J. H. Gunning	820 30th Street, Los Angeles, Cal.
6AQM	H. D. Thompson	137 16th Street, Eureka, Cal.
6AQN	J. A. Young	Weaverville, Cal.
6AQO	M. Stefanini	527 Summer Street, Eureka, Cal.
6AQP	H. M. Keith	211 South Orange Street, Brea, Cal.
6AQR	P. L. Toll	Prospect Ave., Arcata, Cal.
6AQS	H. & M. Pitts	510 North Milton Street, Whittier, Cal.
6AQT	M. D. Graham	6784 Hollywood Blvd., Hollywood, Cal.
6AAU	H. Becker	1117 West 45th Street, Los Angeles, Cal.
6AAV	E. Gilbert	2010 41st Street, Los Angeles, Cal.
6AAW	J. A. Betterley	Eureka Camp, Pine Knot P. O., Cal.
6AAQX	J. McNeal	108 Marengo Street, Alhambra, Cal.
6AAQY	N. O. Glover	1073 Lincoln Ave., San Diego, Cal.
6AAQZ	S. G. Estes	Del Mar, Cal.
6ARA	G. F. Zobel	352 Lake Street, San Francisco, Cal.
6ARB	C. Duncan	3029 Baker Street, San Francisco, Cal.
6ARC	R. M. Farnsworth	Colusa, Cal.
6ARD	H. Glidden	Sutter, Cal.
6ARE	D. Van Lennep	Orange Street, Auburn, Cal.
6ARF	J. Dugan	115 Elm Street, Woodland, Cal.
6ARG	E. Gross	614 East Ninth Street, Los Angeles, Cal.
6ARH	G. Stevens	77A Pearl Street, San Francisco, Cal.
6ARI	J. M. Swindt	580 Columbia Ave., Pomona, Cal.
6ARJ	J. W. Cook	Sanger, Cal.
6ARK	G. P. Johnson	731 South State Street, Ukiah, Cal.
6ARL	G. Pittman	854 Cedar Street, Alameda, Cal.
6ARM	C. Van Sickle	100 Gleason Ave., Vallejo, Cal.
6ARN	L. Eaton	390 62d Street, Oakland, Cal.
6ARO	F. A. Rupert	307 North Curtis Avenue, Alhambra, Cal.
6ARP	G. Smith Jr.	729 S. Broadway, Santa Maria, Cal.
6ARQ	J. Spatafore	3131-A Folsom Street, San Francisco, Cal.
6ARR	J. J. Sawyer	1850 Atlantic Avenue, Long Beach, Cal.
6ARS	E. L. Hesse	236 Stewart Street, Reno, Nev.
6ART	F. G. Dunnington	348 Fourth Street, Long Beach, Cal.
6ARU	H. E. Christensen	Manti, Utah.
6ARV	R. F. Austin	210 West Third Street, Riverside, Cal.
6ARW	E. Wyatt	4071 Ibis Street, San Diego, Cal.
6ARX	R. M. Moore	252 1/4 North Main Street, Tucson, Ariz.
6ARY	L. C. Gearcy	1525 I Street, Eureka, Cal.
6ARZ	F. S. Hannah	Puente, Cal.
6ASA	S. McKinley	1241 East Brill Street, Phoenix, Ariz.
6ASB	D. V. Russell	113 West Ash Avenue, Brea, Cal.
6ASC	P. Sano	1107 West 45th Street, Los Angeles, Cal.
6ASD	F. Brininstool	1205 North Stoneman Ave., Alhambra, Cal.
6ASE	Ed Benloff	P. O. Box 477, Claremont, Cal.
6ASF	C. M. Robertson	29 Birch Street, Redwood City, Cal.
6ASG	R. H. Reinhart	60 Rivoli Street, San Francisco, Cal.
6ASH	J. L. Slater Jr.	52 California Street, San Francisco, Cal.
6AST	W. Werner	3039 Adeline Street, Berkeley, Cal.
6AST	Charles Leonard Elvin	929 60th Street, Oakland, Cal.
6AST	B. Knopf	268 Walsworth Avenue, Oakland, Cal.
6AST	Y. C. Anderson	615 Cole Street, San Francisco, Cal.
6ASM	B. R. Hassler	4329 Townsend Avenue, Oakland, Cal.

If the apparatus placed on the vessel is not modern, if you cannot get results from it, then it is your duty by law to notify the master to this effect, explaining to him the why and wherefore, and then it is up to him to see that things are remedied. Do you happen to know that the radio law says that such apparatus and operators are under the control of the master? Don't come and tell me that "the skipper will not listen to you." He will listen to you if you present things in a proper manner and know what you are talking about. Bear this in mind: It is your duty to notify the master, not to make alterations or substitutes without notifying him.

This practice of every operator making up some sort of a "rig," any old way, must be stopped. If it cannot be stopped by appealing to common sense it must be worked through other channels. It may be necessary to have the masters of vessels take action. After all, it is his business to see that proper apparatus is at all times available for use. It is a perfect disgrace to behold what one sees on some ships. Loose wires all over, bare joints and switches, hundreds of holes drilled in tables, bulkheads and ceiling, the whole affair looking like it had just emerged from a typhoon. What are we coming to? Does it mean that every amateur in the land must try his experiments at the ex-

pense of the safety of life and property of the Merchant Marine? Is it possible that you are so overworked with hand sending that you must put in a relay and a "bug" to send one or two messages per day, and chuck the regular sending key under the table?

Have those of you, who have been telegraphing only six months or a year already got the "cramps" so you cannot send without a "bug"? Better see a doctor about it. Is it such a great stunt in these days to hear Germany in the Pacific that it is worth \$300 to \$400 of your money in order to do so? Did you ever see the chief engineer bring a feed pump of his own aboard, because the ship's pumps were not satisfactory? Did you ever see the captain purchase a whistle and install it because the ship's whistle was not loud enough? These apparatus cost no more than a good receiving set. Why should you be the only "mutt" on the vessel? No wonder the ships' officers smile sarcastically at the "Wireless Operator!" Did you get that? If you are an experimenter stay at home and experiment. Bring out something worth while and don't go around and make a mess of every ship station you come to and, incidentally, make a fool of yourself and the rest of us.

(Signed) CARL E. SODERSTORM.

# STATIC STATISTICS

By SQUAK MCGUFF



I was reading in the last issue of this magazine as where a contest was inaugurated in connection with my old brother-in-law 6CH, meaning he was my bitter opponent. Me and him always got along fine

till he beat my record. Us bein' bitter friends now, I think we will be quite more QSA unfriendly when he sees what I got to say about this contest.

So far so good. So further so worse. This here contest, so I read, is limited to 50 words in describing the contents of the balloon or what connection has the balloon to 6CH's station. Now if any of you disciples of Ben Franklin are personally acquainted with Brownie you will perceive as well as I that 50 words is a mythe. Ferthermore, over and above or under the last statement anybody that ever LISTENED to him (I said LISTEN) because I never heard anybody get a chanct to talk when in his company, as he is very polite and entertains with a languish flow of vocabulary that knocks you speechless right from the start, and before you recover from that one he follows with another. About all you get to say is Hello and Goodbye. However, you take your own chances on getting in even that as after my experiences I don't guarantee nuthin whatsoever. Yes, anyone that ever visited him, unless, of course, he is deaf, dumb and lost the sight of both eyes, will know that 50 words has absolutely nothing in common with 6CH's station.

From a numerical standpoint, of course, I have lost the contest right now, as I am particularly and enormously over the 50-word deadline. But the funny part of the whole thing is I could describe it in the briefest of brevity, but nobody would understand it but me and a few of his victims from that barrage from Fort-Under-His-Nose. If you have difficulty in locating the geographical position of that fort, look on Brownie's countenance map. It's plainly marked with a big (O) circle with a graphophone hooked up, with the proper amplification, in back of the spot to attract your attention.

Well, taking everything as a HOLE, and considering very carefully, my answer is that the balloon is obviously and ostensibly full of WIND.

P. S.—If I win the crisp notes I'll give 'em to Brownie to square myself after this.

I have had so many requests to visit my station on acct of its doing such good work I thought it would be a good idea to publish directions of how to get to it. Of course if you ain't interested you don't need to read further, but if you are follow me closely as my spelling is bad and grammar worse and I'll admit it takes close concentration to see what I'm driving at. All right, shoot. Well it's all very simple. Just go to the front office and get a written permit. Now take this permit to the elevator man. He

will give it to a guard on the top floor. The guard will inspect the pass. Here you must be prepared to submit to a physical examination if requested as persons with weak hearts may suffer a shock on sight of such a good set. I have noticed extreme nervousness in many cases, therefore I must be protected. The guard will then give it to the office boy, who in turn will present it to my secretary. He will inform you I am out.

6MX says: "Anyone hearing my station within one block please send a night letter. Anyone hearing it within two blocks please wire me collect. But anyone hearing me over three blocks put in a long distance call collect." He would be so tickled at this remarkable distance he would gladly pay a nickel.

6AR, formerly of San Francisco and Sacramento, has moved his set in the Sierras some 200 miles south and east of Fresno, where he is showing the way to the boys of that section for long distance work. He is piling up some good records, both in distance and messages handled.

6AIW, of Roseville, is in San Francisco for the summer and making considerable noise. He sure has a healthy wallop, that is far-fung, in characteristics at least.

6AS, erstwhile target for humorists and others, is no more an inspiration for comedians. The worm has turned. He struck it so rich that he now works to his entire satisfaction. If he keeps on at the present rate he will be a mark of envy instead of humor. He claims a vertical antenna turned the trick. Which all goes to show that he who laughs last is the most tickled. Heh, Heh.

Hal Shaw, formerly one of the 6BN wizards, who worked from Siberia to Wampazoogas, Alabama, in their palmy days, just returned from a trip to Colusa. He reports that 6AAW is battling around .1000 into that hamlet. In the vernacular of the diamond this would indicate that 6AAW has some station. The Irish would say more power to him, but that would not be appropriate here, as he is using all the law allows now.

5ZA, Louis Falconi, Roswell, New Mexico, whom we all have heard from border to border (and then some), reports things are very slack in his section. The static is so bad that it is almost impossible to keep the fones on at this time of the season. He reports that all the boys in his section are working on their sets and constructing MORE-AMP antennaeas. "Watch 'em smoke this fall," he says.

## TACOMA

Sunday, July 25th, the Radio Club of Tacoma gave a picnic on the shores of American Lake—a famous resort near Camp Lewis. The ceremonies began with a lunch. TED took the lead from the start and furnished the musical entertainment while devouring the watermelon. He sailed in with such relish and gusto that members of the club were fearful lest he finish first, thereby eliminating the music. The best selection was rendered with his tomato soup.

Immediately following the dinner (and musical entertainment)—selection rendered being principally the Soup Spoon Whistling Shimmy—a tug of war was started. Seattle won the silver loving cup in this event.

Following the tug of war a baseball game was next on the program. Portland walked away with the honors. The prize in this case was a "side-swiper" donated by 7BC. It had rubber contacts. Portland has a grudge

against "cooties" and is only awaiting another opportunity to eliminate one more side-swiper.

During the afternoon and evening the time was consumed by swimming, dancing and canoe parties. Airplane rides were also on the program. During the late evening a marshmellow roast was indulged in, during which Mr. Nicholson rendered several vocal spasms. His offerings were very good, only that he did not have the variety of flats and sharps that TED displayed while devouring his soup.

Portland members remained over for the Tacoma club meeting on Tuesday. The picnic program went through very nicely and was enjoyed immensely by everyone.

Seattle at last has a radio club. The title has been announced as THE TOTEM RADIO CLUB. Seattle has been going to have an organization for so long that we had given up all anticipation of such a thing. Now that they have, Tacoma and Portland are waiting and watching—waiting for an invitation to eat. TED has already gone into training and expects to make an opera glass finish.

Bremerton also is getting into the limelight with a club of some 35 members. They were represented at the last meeting of the Tacoma Radio Club, club, where the matter of amalgamation was discussed. The Bremerton plenipotentiaries spoke in favor of the connecting link. Some even going so far as to prophesize the whole Pacific Coast would soon be one huge organization. They followed this with the announcement, however, that they were not running in opposition to any club or clubs, but seek to harmonize and co-operate with them all. The plans will soon be published for the perusal and digestion of the general amateur public.

7BA was at the picnic with his saxophone quartet and the music was so tempting that even "Grandpa Leldigh" almost indulged. Owing to the fact that he had a sore foot he was asked to give a practical demonstration of the latest in the lame-duck step. This he did and got by with it so nicely that he has been limping ever since.

## LOS ANGELES

In Los Angeles we see many things. On a recent visit our Major Dillon and Mr. Dickow were madly enthused not only with Radio but also piscatorial activities. The Major landed such a big one that he consumed some three hours of his time and also his strength to land it.

It's a long story. Mr. Mott of Catalina was the host. Up to the present moment, however, I have been unable to discover as to whether there were hostesses. But where there's hosts there's hostesses. Both men, however, left their happy homes behind.

I met both men upon their arrival home. Their appearance was that of a vimy ridge hero who had been gassed, shell-shocked and humiliated by the Germans. Dickow was bandaged from head to foot, while the Major was in a precarious state. "Sunburn" was what they told me. Poison oak was what it looked like. But what worries my detective instinct is how in the world they could get poison oak fishing from a launch.

Major Dillon and Dickow were enthralled with the picturesque scenery of Catalina. The wonderful beaches, and, above all, the latest in bathing suits. If they could speak French their expressions would be as follows: "Oh, zowee. Ze wonderful sights on ze beeeeeecech. Oo la la, juss like my own Parees."

And again I ask "how could they get poison oak on a launch?" They went fishing, I know. Also it sounds fishy.

# Shucks!

—we sat up all night trying to assemble something new and original for this ad—and failed posilutely.

This morning we were so tired and sleepy we couldn't even get enthused over all the checks we found in the mail!

But—Holy Rheostat—wait till you see next month's ad! LOOK for it, and in the meantime be sure and send for our

## June STOCK BULLETIN and PRICE LIST

Our *Mail Order Service* is surely working hard these hot days—those Bulletins must be handy things to order from.

By the way—the new *Firth Vocaloud* is a winner and *Remler Apparatus* is as popular as the old swimmin' hole.

And—last but not least—have you heard 6XD on 325 meters? Real Radiofone Concerts every Tuesday and Friday nights between 8 and 9 with two 50-watt tubes administering the kick! 6ZX near Sacramento heard us!

# Western Radio Electric Co.

550 South Flower



Los Angeles, Cal.

## NEWLY DEVELOPED APPARATUS

### A NEW DIAL

A non-warping, perfect alignment and smooth-running dial has made its appearance on the radio market. It incorporates the DeForest knob and Condensite dial, and is not effected by heat or exposure to the

sun. It is made in two sizes, three and four-inch diameters, and can be used with either a 1-4 inch or 3-16 inch shaft. It is being distributed by the Radio Telephone Shop of San Francisco.

### HOOK'ER TO YER BULB-TUNERS

A full page ad. could not do justice to our new line of C. W. and phone equipment shown in our new 24 page catalog. Our tuners need no advertising. 10 cents brings catalog full of phone and receiving hook-ups, code and other useful information.

TRESCO, DAVENPORT, IOWA

### CALLS HEARD BY WESTERN AMATEURS

This department has met with such favor that we will devote as much space to same as possible. Unusual Records are Particularly Desirable. Your list should be neatly printed in ink, using one side of paper only. All errors will thereby be avoided.

#### List of Calls Heard By 6ANK I. A. Welhe, Sparks, Nevada July 1 to 28, 1921

6AAW, 6ABM, 6ABN, 6ABU, 6ABW, 6ACR, 6AEO, 6AFH, 6AFN, 6AFU, 6AGH, 6AGN, 6AGV, 6AID, 6AJH, 6AJR, 6AJS, 6AJW, 6AK, 6ALS, 6AMW, 6ANR, 6AOK, 6APH, 6AR, 6ARC, 6ARS, 6ASJ, 6AW, 6CH, 6DA, 6DF, 6DQ, 6DS, 6EB, 6EN, 6FH, 6GK, 6HH, 6HX, 6KA, 6KM, 6KP, 6KS, 6KW, 6LC, 6BC, 6OH, 6OM, 6PJ, 6PP, 6PQ, 6PR, 6TV, 6XZ, 6ZAA, 6ZK, 6ZR, 6ZN, 6ZU, 6ZX, 7BM, 7DA, 7JW, 7YA, 7ZJ.

The following calls were heard in full daylight—sun shining (one tube): 6AFN, 6ABN, 6AGF, 6AGN, 6KW, 6ABW. Also heard Avalon radiophone with sun shining. Signals QSA.

On July 26, at 8:30 p. m. I heard a fone station transmitting music. It was the station of E. A. Portal, of Los Altos. 6XA?

6AR, 6BH, 6HC, 6HD, 6HB, 6IM, 6IV, 6KC, 6MZ, 6NY, 6OD, 6OL, 6PS, 6PR, 6QA, 6TV, 6TX, 6ZB, 6ZN, 6ZU, 6ZX.

6AAG, 6AFP, 6ADK, 6AEW, 6AGF, 6AGN, 6AGS, 6AHL, 6AHU, 6AIB, 6AIC, 6ASH, 6ASK, 6ALK, 6ALP, 6APH, 6APV, 6AQS, 6AQF, 6ARC, 6ASE, 6ASY, 6ASX, 6ATG.

#### CALLS HEARD BY 7MF, EUGENE, ORE.

Canadian 5BA, (6AE), 6AK, 6CH, 6CP, 6DD, 6DM, (6EX), 6FH, (6GF), 6HC, 6IM, 6IY, CW, 6KA, 6KM, 6LR, 6LK, 6MZ, 6PJ, 6QR, 6WQ, 6ZA, 6ZM, 6ZR, 6ZX, (6ABM), (6AIW), (6ARK), (6AMW), (6AIR), (6ALE), 6ALU, CW and phone 72S, 7AY, 7BA, 7BC, (7BK), 7CN, (7CC), (7DA), 7DJ, 7DP, 7EX, 7FL (7GA), 7HC, (7IY), 7JW, (7KB), (7KJ), (7KM), 7KW, 7LR, (7LG), 7LW, (7MW), (7NN), 7OT, 7PK, 7QQ, (7RA), 7WT, cw, (7ZJ), 7ZM, 7ZL and 7ZZ.

#### Calls Heard by 6AS, San Francisco

(6AID), (6ALE cw), (6AFN), (6AFG), 6AR, 6EA, 6EB, (6DP), (6EN), \*HY, (6KP), 6KA, (6OH), 6DA, 6PJ, (6SK), (6TV), 6WH, 6ZU, 7DA, 7IM, 7KJ, 7MF, 7IW, (7ZJ). Anyone hearing 6AS please QSL. Address 3675 20th St., San Francisco.

#### Calls Heard at 6MX, San Francisco, from April 1 to July 22, 1921.

6AR, 6AY, 6DP, 6EA, 6EB, 6EN, 6FI, 6FH, 6FJ, 6FM, 6GP, 6EG, 6IC, 6JC, 6JI, 6KA, 6KC, 6KM, 6KP, 6KS, 6LC, 6LU, 6LX, 6MK, 6MZ, (6OH), (6OW), 6PP, 6PJ, 6QR, 6SK, (6TV), 6TC, 6UO, (6VX), 6WD, 6ZO, 6ZU, 6ZX, 6AAK, (6AAU), 6AAS, 6ABW, (6ABM), 6ABX, 6ACR, 6ACY, 6ADL, 6AEI, 6AEL, 6AEV, 6AFN, (6AGF), 6AID, (6AIW), 6ATH, 6AKW, 6ALM, 6ARS, 7UC, 7CW, 7DA, 7HF, 7HN, 7IW, 7KJ, 7KM, 7MF, 7QQ, 7YA, 7ZJ, 7ZZ.

Anyone hearing 6MX please QSL. All letters answered.

#### Calls Heard By 6AR, Northfort, Cal.

(6AK), 6AS, (6CH), (6DP), (6DS), (6EA), (6EB), (6EN), (6ER), (\*FH), (6FT), (6GF), (6HC), (6KA), and C. W., (6KS), (6KP), (6LC), (6OH), (6PR), (6SK), (6TV), (6VX), (6WH), 6WZ, (6ZN), (6ZU), (6ZX), (6AAW), (6ABW), (6AFN), (6AGF), (6AHU), (6AIW), (6AGM), (6ALU), (CW), (6AMN), (6APH), (6AQU), (6ARC), (6XAD—EW), (7DA), (7OZCW), 7OZCW), 7XFCW, 7XQJ).

#### Calls Heard By 7BH, Salem, Oregon

5ZA, 5IF, (6ZR), 6ZX, 6ZU, 6IZ, 6MC, 6FE, (6RN), (6FH), (6OH), (6QR), 6AE, 6AK, 6EB, 6FJ, 6JD, 6JE, 6JM, 6QM, 6PR, 6OT, (6GF), 6DP, (7AD), (7BH), (7IY), (7BQ), (7LI), (7ED), (7DP), (7JW), (7DA), (7GA), (7XF), (7ZJ), (7KB), 9WU, 9OE, 9YB, 9BW, 9FI.

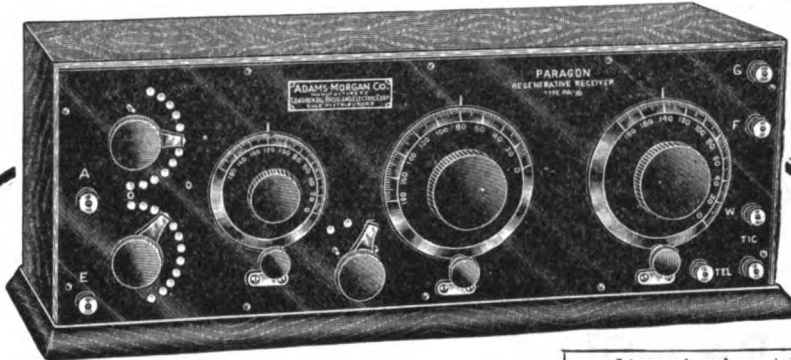
#### Heard During July By 6SU, Stockton, California

6AH, 6AR, 6CU(CW), 6DP, 6EA, 6EB, 6FN, 6EX, 6FH, 6FT, 6FX, 6GF, 6GP, 6GQ, 6IC, 6IF, 6IL, 6IM, 6KA, 6KC, 6KP, 6KS, 6LC, 6MH, 6MZ, 6QA(C.W.), 6PJ, 6PM, 6SK, 6TV, 6XC(fone), 6XG(fone), 6ZK, 6ZN, 6ZU, 6AAW, 6ABM, 6ABW, 6ABX, 6ACR, 6AEI, 6AFN, 6AFT, 6AGF, 6AGM, 6AIN, 6AIW, 6AJE(C.W.), 6AJH, 6ALE(C.W.), 6ALM, 6AOD, 6APH, 6ARC(C.W.), 6ARG, 6ARS, 6ATG, 6XAC(fone), 7BK, 7BQ, 7DA, 7QQ, 7ZJ.



# PARAGON R.A.TEN

*Protection Against Regrets Absolutely Guaranteed by Originator's Name*



Licensed under original  
Marconi & Armstrong patents

## READ 2ZL'S LETTER

This hearty endorsement of Paragon R. A. Ten from so distinguished an amateur as J. O. Smith, of Lynbrook, L. I., deserves your careful attention. Mr. Smith has had ample opportunity for comparisons, and his experience in radio lends weight to this expression of approval.

### *Here is the letter:*

The Paragon R. A. Ten receiving set which has been in use at 2ZL station for the past two months, has proved to be entirely satisfactory in every way, and has done everything you claimed it would do. It is remarkably efficient and selective on all wave-lengths. It has proved especially satisfactory in C. W. work, because of the *entire absence* of capacity effect.

(Signed)

J. O. SMITH.

### *Ask your radio dealer*

Ask your dealer to show you a Paragon R. A. Ten Regenerative Receiver. If he hasn't one in stock, he will quickly get one if you ask him for it.

The Seals have now been broken on all Paragons to let you see the splendid inside construction. Examine the details carefully, and you will see that Paragon is well worth its \$85.00 price. Remember, when you buy a Paragon, you get your money's worth in the splendid materials and workmanship. The marvelous selectivity and unequaled amplification cost no more than you would pay for inferior engineering principles.

**RADIO CLUBS:** Be sure to get the details at once about our special offer to recognized radio clubs. For a short time only you can secure a genuine Paragon for your club house, absolutely FREE.

Exclusive Wholesale Distributors for Paragon R. A. Ten and Phonetron

*Descriptive folders on Paragon R. A. Ten and Phonetron, the improved type of loud speaker, sent free on request. Or send 25 cents for the CRECO catalogue—listing all the worth while equipment in use today.*

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J. Stantley,  
Treas.

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HAS A LARGE STOCK OF  
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Motor Generator Units

"MIDGET" "HYLO" "STANDARD"

6 and 32-Volt "DYNAMOTORS"

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 PHONE RECEPTION

Type V-1 \$5.50  
 Variometers

Type V-1 \$4.25  
 Variocouplers

We pay all postage charges  
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## McGUIRE RADIO LABORATORY

Manufacturers of Radio Apparatus

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San Francisco, Cal.

## "B" BATTERIES

AN  
**EVEREADY**  
 PRODUCT

43V. Batteries, tapped.....\$5.00  
 22½ V. Batteries, Navy Type..... 3.50  
 22½ V. Batteries, Commercial

Type ..... 2.50  
 Latter two types especially adapted to  
 Cunningham and Radiotron Tubes.

Postage Prepaid Anywhere in U. S.  
**ETS-HOKIN & GALVAN**  
 Wireless Engineers  
 10 Mission Street San Francisco

## CORRECTION

In the August advertisement of the Atlantic Radio Company, the prices of the Westinghouse Tuner, and Detector-Amplifier were given as \$85.00. The correct price, as quoted in this month's advertisement, is \$65.00.

## A STILLY MYSTERY

(Continued From Page 55)

That afternoon a Aleute kid brings me a note:

"Meet me on Gold Bluffs at four o'clock and you'll never regret it. ALICE."

Somehow the note didn't cheer me none; but I locks up the shack an' hikes the four miles up the beach to Gold Bluffs, which is up close to Cyanide Simpson's gold mine. When I gets up on the bluffs, who should I find strollin' around up there but Hell-Fire. I sits down on a rock without sayin' nothin' to him, expectin' him to go on, but he just keeps hangin' round. At last, when the hands of my Ingersoll had slipped around to near four o'clock I sees I got to do something. I goes up to Hell-Fire an' invites him to beat it.

"Go to hell!" he answers, an' takes a swipe at me. I pokes him in the snoot, an' then we clinches an' rolls around among the rocks, until at last we goes over the bluff an' falls in the bay.

The water was deep under the bluff an' cold as ice, so it was lucky that old Cyanide comes along just then in his gas-boat an' picks us up. Soon as I'd got my breath an' wits back, who does I see sittin' alongside of Cyanide but the tall stranger from the mail schooner!

"This is Mr. Wendell," says Cyanide, no-ticin' my stare. "He's the su-veyor I was lookin' fer from th' Treadwell Company—bin up to th' mine with me th' last two weeks."

Right there I begins to do some tall thinkin'.

"Say, look here," I says to Hell-Fire, speakin' to him for the first time since the plunge; "did you have a date with Alice up on Gold Bluffs?"

"I did," he says.

"So did I," I tells him. I was beginnin' to see light, but I saw a lot more when we got down abreast of Unga, an' sees the cutter "Unalga" steamin' off down the Straits of Nagai. All the codfish snallers in town was clustered up on the bluff around the wireless shack, an' they was clean wild.

"Where'n hell'n blazes ya been!" howls the Head-Cracker, as we makes the landin'. "Your shack is wrecked from stem t' stern, an' that little angel-eyed vampire's gone off in the hooch hunters' boat!"

Hell-Fire an' I sprints up into the shack—an' talk about a wreck! The walls were bored full of holes, an' planks were ripped up out of the floor; cans of lubricatin' oil were chopped open, an' the engine gas tank was split from top to bottom. There was a big hole punched through the sendin' transformer secondary; the coolin' tank was busted open; a can of yellow house paint had been smashed over the alternator, an' the gizzards of my oil condenser was lyin' in a mess of glass an' tinfoil all over the floor.

"I don't get it," mutters Hell-Fire, dazed-like. "What for?"

"I told that little sweet essence of sulphuric innocence that this was a hooch factory," I groans. "I haven't got the brains of a new-born jackass!"

Just then we hears the Head-Cracker bel-lowin' to us from among the rocks down below the shack, an' we breezes out.

"Here's what th' spook was carryin' 'round in th' dark!" he yells, pointin' to a black suitcase lyin' hid under a boulder. "Looks like little dimply darlin' fergot to

(Continued on Page 64)



# This Name on Wireless Apparatus Spells "Highest Efficiency"

You do not want "amateur" wireless apparatus. You want the *real thing*, built according to best commercial and government standards. And *Signal Wireless Equipment* delights the amateur beginner, because it is built to please the more experienced professional.

## R-80 V. T. Control Cabinet

This is the first V. T. control unit on the market that is wired throughout in accordance with fundamental principles, and that has all binding posts marked correctly, as to use and polarity, so that the experimenter may make use of any circuit he chooses, and get maximum efficiency, as well as accuracy and ease of control.

We use our new V. T. socket in this instrument, which will take any of the standard four-prong tubes on the market either detectors or oscillators.

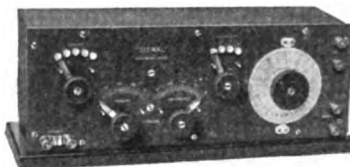


## R-37 Short-Wave Tuner

This instrument is the most efficient, short-wave tuner on the market, being designed on scientifically correct principles.

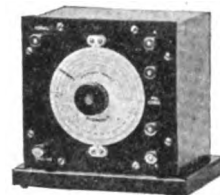
We use special H. C. coils, with taps at the proper points for controlling the wave-length range, and a small condenser with just enough capacity to cover the steps of inductance. This combination is free from the inherent defects of tuners using either inductance, alone for tuning, or capacity alone, and the results obtained with this tuner, as well as its ease of control, are remarkable.

There is more "Radio" value in "Signal" apparatus, than any so far produced for the money.



You should have the *Signal Wireless* catalog. Write for it today; it's free. Address

**Signal Electric Manufacturing Company**  
MENOMINEE, MICHIGAN



## R-44 Primary Series Condenser

For the *best* results, and *real* satisfaction in C. W. work, use our special condensers with our new dial, equipped with wave-length scale, so that your set may be calibrated with your own and aerial and ground system.

This allows close and accurate tuning, as well as the duplication of your settings, and makes your receiver serve as a wave-meter.

*No other apparatus* on the market has this feature to offer.

## CONTEMPLATED DISTRIBUTION OF MISSOURI MARKET NEWS BY RADIO

By Daniel C. Rogers, State Marketing Bureau, Jefferson City, Mo.

THE Missouri State Marketing Bureau of the Board of Agriculture, with headquarters at Jefferson City, Mo., is working out extensive plans for giving Missouri farmers government news by radiophone.

The government market news information will be received at the radio office of the State Marketing Bureau off the leased wire of the United States Bureau of Markets. That wire will connect Jefferson City with the office of the bureau at Washington, as well as with practically all of the large grain, live stock, hay, fruits and vegetables, dairy products, and other markets in the United States.

A powerful transmitting set will be installed at the offices of the State Marketing Bureau at Jefferson City, located in Missouri's beautiful new capitol building whose dome is 280 feet from the ground. From this central point of the state the radiophone should operate at its maximum efficiency to the advantage of Missouri farmers. The services is expected to be begun early in the fall.

The Missouri State Marketing Bureau will organize the wireless amateurs in that state, of which there are several hundred, widely scattered in rural communities, into a state organization for receiving and distributing the market news information. A continued

campaign will be made to install radiophone receiving outfits in every town of any size in the state. Newspapers, banks, rural telephone exchanges, farm bureau offices, live stock shipping associations, elevators and other headquarters interested in receiving and distributing government market news information on farm products will be requested to co-operate in this new undertaking.

During the strawberry shipping season from Southwest Missouri last May the Missouri State Marketing Bureau purchased a radio receiving outfit for receiving strawberry market news at Monett, Mo., which was undoubtedly the first radio equipment ever purchased by a state or national agency for the purpose of receiving and distributing market news information for the farmer.

Similar service is being rendered in the watermelon district of Southeast Missouri, with the big watermelon shipping season opening up in that part of the state the latter part of July.

The purchasing cost of a radio receiving set does not exceed and may be less than the cost of transmitting the market news information for a single season, to market news field stations by the commercial telegraph company. There is no comparison between the swiftness of sending the news information by commercial telegraph com-  
(Continued on Page 66)

### CALLS HEARD BY 6BF, SANTA PAULA, CAL., MONTH OF JUNE—NO AMPLIFICATION

6AAG, 6AAH, 6AAK, 6AAT, 6ABB, 6ABG, 6ABM, 6ABP, 6ABW, 6ACU, 6ADA, 6ADH, 6AE, 6AEI, 6AFN, 6AGF, 6AGL, 6AGP, 6AHW, 6AID, 6AIU, 6AIW, 6AJK, 6AKL, 6ALI, 6ALR, 6ALU, 6ALV, (6AOZ), 6APH, 6AQU, 6AR, 6ARS, 6ATD, 6ATG, 6ATS, 6ATY, 6AX, 6BW, 6DP, 6EF, 6EN, 6EX, 6FJ, 6FT, 6HC, 6HH, 6IY, 6JI, 6KI, 6KM, 6KP, 6KS, 6LC, 6LL, 6MK, 6MZ, 6NG, 6NY, 6OH, 6PR, 6QC, 6SK, (6TG), 6TY, 6VM, 6VX, (6VZ), 6WZ, 6XAD, 6XZ, 6YA, 6ZB, 6ZM, (6ZN), 6ZR, 6ZX, 6ZZ, 7HF.

### STATIONS HEARD DURING DECEMBER, JANUARY AND FEBRUARY, ON A ONE STEP, BY 7ZT, VANCOUVER,

#### WASHINGTON

5FL, 5IF, 5XB, (5ZA), 5ZR, 5ZU, 8ML, 8ZR, 8ZY, 9AE, 9AGN, 9AIG, 9EE, 9EQ, 9HM, 9JN, 9LA, 9LR, 9OE, 9WU, 9XI, 9YI, 9YW, 9ZC, 9ZJ, 9ZL, 9ZN, 9ZQ.

Besides this list of "Calls heard" 7ZJ (ex 7CU) has been reported heard by 9AHG, Conneaut, Ohio; 8ZY, Defiance, Ohio; 9DIL, Milwaukee, Wis.; 9KL, Spring Valley, Ill.; 9AAF, Indianapolis, Ind.; 5AL, Greenville, Texas, and by George Sturley (ex 7BJ), opr. S.S. Reuce, while docked at Chignik, Alaska, a distance of 1600 miles.

### CALLS HEARD AND WORKED DURING THE MONTHS OF MAY AND JUNE BY

#### WITH DUE APOLOGY

One paragraph of our August issue Raditorial states that "Pacific Radio News" is the only radio publication not connected, more or less, with the radio trade. This paragraph should have read: "—not connected with the trade, associations or organization—". It was not the intention of the writer of the Raditorial to cast reflection upon the A.R.R.L. or "QST," as he himself is a member and booster of that organization.

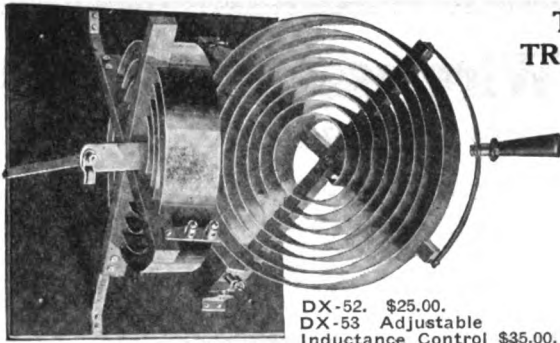
**HAVE YOU SENT FOR YOUR PRIZE?**

(Continued From Page 48)

H. Brewer, Emeryville, Cal.; A. E. Bessey, Sunnyvale, Cal.; T. House, Dublin, Texas; M. Apple, McKinney, Texas, and R. Scott, Douglas, Ariz., also received a UV200 bulb, donated by the Radio Corporation of America. Winners can secure the tubes by writing to the "QST" at Hartford, Conn. L. Peine, of Houston, Texas, received a Cunningham C-300 tube, donated by the Audiotron Mfg. Co. M. Koupal, Eugene, Oregon, received a one-year subscription to "Radio News."

From all indications the West made a grand showing in the Relay, and "Pacific Radio News" herewith extends congratulations to the winners and conductors of this interesting test.

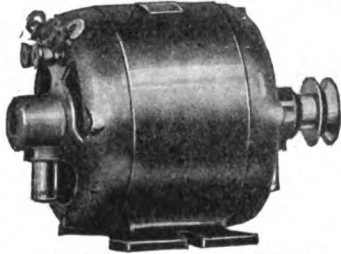
The October issue of "Pacific Radio News" will be out on September 25. Several additional pages of reading matter and a number of generous improvements will tend to make it a most interesting edition. Better subscribe today.—Advt.



**THE ANSWER TO TRANSCONTINENTAL TRANSMISSION**

Use apparatus that has proven best. Ask 6AK and old 6EJ of Walnut Grove, Cal., about 8ZR's signals, or 7ZJ of Vancouver, Wash., and then decide upon the "DX" O. T. and Synchronous motor combination.

DX-52. \$25.00.  
DX-53 Adjustable Inductance Control \$35.00.



Add \$3.50 to list for 25 cycle motors. Prices are F. O. B.

**SYNCHRONOUS MOTORS**

H. P.		H. P.	
1-15.....	\$28.00	1-5.....	\$42.00
1-12.....	30.00	1-4.....	50.00
1-10.....	32.00	3-8.....	58.00
1-8.....	34.00	1-2.....	75.00
1-6.....	39.00	3-4.....	99.00
1-10 H. P. 3400 R. P. M. Non-synchronous Induction Motor \$25.00.			

**THE AMERICAN RADIO SALES AND SERVICE CO.**

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Testing Station 8ZR.

**The Biggest Radio Offer You Ever Heard of!**

By special mutual arrangement between the publishers, the three big radio magazines of the country are made available for a limited time at a special rate when ordered together—

- "Pacific Radio News," pioneer journal of Western radio development;
- "Q S T," devoted wholly to amateur communication, and the official organ of the A. R. R. L.;
- "Radio News," the newsiest and best illustrated radio periodical in the world.

All for One Year For **\$5.00**

Don't miss this opportunity to secure the best contemporary radio literature of America coming to your door every month for a year—at a saving in real money, too. Send in your subscription today!

**PACIFIC RADIO NEWS**

151 Minna St., San Francisco, Cal.

**VARIABLE—ACE "B" BATTERIES—PLAIN**

Insist on Getting THE BEST "Ace" "B" Batteries or Write to Us  
DEALERS—Sell the "Best" and increase demand. Write for Catalog No. 15

Cat. No.		Size	Voltage	Hrs. Ser.	Lbs.	Taps.	Price.
623	Plain	2½ x 2 x 3%	22½	400	1		\$1.50
623	Variable	2½ x 2 x 3%	22½	400	1	5	1.75
625	Plain	3 x 4 x 6%	22½	1400	5		2.50
625	Variable	3 x 4 x 6%	22½	1400	5	5	3.00
626	Plain	3 x 8 x 6%	45	3000	10		5.00
626	Variable	3 x 8 x 6%	45	3000	10	6	6.00

A few of the dealers handling Ace "B" Batteries

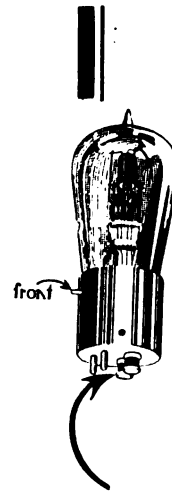
- Am. Elec. Tech. Appliance Co., New York
- Hygrade Elec. Novelty Co., New York
- Continental Radio & Elec. Corp., New York
- Manhattan Elec. Supply Co., New York
- Dreyfuss Corporation, New York
- M. Muller, Boston, Mass.
- W. B. Duck, Toledo, Ohio
- Vimy Supply Co., Toronto, Canada.
- Wilcox Lab., Inc., Lansing, Mich.
- Whitall Elec. Co., Springfield, Mass.

See page 79 for our new Ace type 45 volt variable "B" Battery

**ACE BATTERY MFG. CORP.**

44 COURT STREET Phone Main 8379 BROOKLYN, NEW YORK

**Is there a Crepe On Your Vacuum Tube ?**



Your last vacuum tube would still be "alive" and the money you paid for a new one would be in your pocket if its filament had been protected with a

**RADECO Safety Fuse**

(patent pending)

Because of the insignificant cost, and absolute protection against high amperage, RADECO Safety Fuses are now a standard part of every efficient wireless set.



NOW, while your tube is in perfect condition, pin one dollar to this advertisement and be guarded against all future vacuum tube expense.

Send for list of special prices on all well-known equipment.

**Radio Equipment Co.**

630 WASHINGTON STREET, Boston, Mass.

**New Price**

RADECO Safety Fuses come in ¼, 1, 1¼, 1½, 2, 2½ and 3 amp. sizes. Slip directly on filament terminals of any standard bulb used in any standard socket. Sent postpaid.

**\$1.00**

Four for

When writing to Advertisers Please mention Pacific Radio News



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*Distributors of Reliable Radio Apparatus to Schools, Colleges, Radio Clubs and Experimenters All Over the World!*

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SERVICE REACHES ALL OVER THE WORLD!

WHY NOT LET IT REACH YOU?

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- No. UV-712 Radio Corporation, new type, just out. (For radiotrons) ...\$7.00
- No. 226-W Federal ..... 7.00
- No. 231-A General Radio, new type.. 5.00

**MODULATION TRANSFORMERS**

- No. A-3 Acme, unmounted ..... 4.50
- No. A-3 " semi-mounted ..... 5.00
- No. A-3 " fully mounted ..... 7.00
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**AUDION CONTROL PANELS.**

- No. RORH Grebe, in cabinet with tickler connections .....17.00
- No. 330 Remler, with "A" Battery potentiometer ..... 8.00
- No. P-1 Paragon, moulded type, very small and compact ..... 6.00

**"B" BATTERIES.**

- No. 7623 Standard, small 22.5 volts.. 1.50
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- No. 7650 " variable 22.5 volts 3.50
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- No. 766-A Eveready, large, variable... 3.00
- No. 763 Eveready, small, 22.5 volts.. 2.25
- No. P-1 "Sorsinc", new type, just out! 22.5 volts, extra long life.... 4.00

**AMPLIFIERS.**

- No. RORK Grebe two-step with automatic filament control .....55.00
- No. RORD Grebe Det. and two step with automatic filament control... 75.00
- No. P-1 Amrad Type A, two step.. 39.50
- No. DA Westinghouse, det. and two step, just out! ..... 65.00

**CONDENSERS. (Fixed mica type)**

- No. ROCC Grabe .0002 Mf. .... 1.00
- No. ROCD " .0005 Mf. .... 1.20
- No. ROCE " .001 Mf. .... 1.60
- No. ROCF " .005 Mf. .... 3.80
- No. ROCA " .0002 Mf. and .5 meg. leak ..... 1.20
- No. ROCB " .0002 Mf. and 3 meg. leak ..... 1.20

**GRID LEAKS.**

- No. MW-1 Radio Corporation, .5, 1, 1-5, 2, 3 or 5 megohms complete... 1.25
- Grid leaks only ..... .75
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**LOUD SPEAKING DEVICES**

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- No. CR-2 Grebe 175-680 meters.....\$41.00
- No. CR-3 Grebe 175-680 "Relay-special"; splendid set .....65.00
- No. CR-3A Grebe 175-375 meters, with tube control, complete set .....36.00
- No. CR-5 Grebe 175-3000 meters, "Super-special" with tube control, complete set. Ideal for jewelers....80.00
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- No. CR-7 Grebe 500-20000 meters "Long-wave special" with tube control, complete set. Ideal for arcs 210.00
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- No. 1421-W Federal open circuit .... .70
- No. 1422-W " closed circuit .. .85
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- No. 1435-W " automatic filament control type ..... 1.20
- No. 1438-W Federal Auto filament type ..... 1.50

**MICROPHONES.**

- No. 260-W Federal hand type ..... 7.00
- No. HM-100 DeForest hand-type .... 6.00
- No. 5176-A Conn. with short adjustable arm, ideal for panels ..... 4.25

**RHEOSTATS.**

- No. 214 General Radio 2-5 Ampere type, just right for one UV-202 5-watt radiotron tube ..... 2.50
- No. 132 National Controller type, 6.4 amperes, just right for 1 UV-203 5-watt radiotrons ..... 5.50
- No. P-1 Paragon, very compact .... 1.75

**SOCKETS.**

- No. MW-1 Radio Corporation type... 1.50
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- No. S-2 Radio Service double ..... 2.50
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**RECTIFYING DEVICES.**

- No. P-1DeForest rectifying tubes for radio-phone work ..... 7.00
- No. FF France battery booster, 6 amps, for charging batteries .....15.00

**RECTIFYING DEVICES.**

- No. P-1 Tungar 2 amp. size complete.\$18.00
- No. P-2 Tungar 5 amp. size complete 28.00
- No. UV-216 Radio Corporation 20-watt "Kenotron" Rectifier ..... 7.50

**TELEPHONES**

- Type C Baldwins, Navy type .....\$16.50
- Type E Baldwins, ultra-sensitive ...20.00
- Type F Baldwins small, super-sensitive .....21.00
- Brandes "Superiors" ..... 8.00
- " "Trans-atlantics" .....12.00
- " "Navy type" .....14.00
- " "New headband only ..... 1.50
- " "New double cord ..... .75

**VACUUM TUBE. (Radiotrons)**

- No. UV-200 Radiotron detector ..... 5.00
  - No. UV-201 " amplifier ..... 6.50
  - No. UV-202 " 5 watt transmitter ..... 8.00
  - No. UV-203 Radiotron 50 watt transmitter .....30.00
  - No. UV-204 Radiotron 250 watt transmitter .....110.00
- Note: All radiotrons sent postage and insurance prepaid to any part of U. S. A. Radiotrons always in stock.

**STORAGE BATTERIES.**

- No. BX-3 Harvard 6 volts 40 ampere-hours, complete .....16.50
- No. BX-5 Harvard 6 volts 60 Amp-hours .....18.50
- No. BX-7 Harvard 6 volts 80 Amp-hours .....24.50

**VARIOMETERS.**

- No. 200 Tuska, moulded type ..... 6.25
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- No. 345-G Murdock grid type ..... 7.50
- No. 345-P Murdock plate type ..... 7.50
- No. 346 Murdock Vario-coupler ..... 8.50
- No. ZRV Clapp-Eastham Variometer with dial ..... 6.50
- No. ZRV-A Clapp-Eastham Variometer only ..... 5.75
- No. P-1 Turney's spider web inductance; ideal on radio-phones ..... 5.50

**POTENTIOMETERS.**

- No. 214-C General Radio "A" Battery type, 400 ohms, ideal with radiotrons ..... 4.00
- No. 93 Remler "A" Battery type... .75
- No. F-743 Clapp-Eastham "B" Battery type, 5000 ohms, fully mounted For panel mounting ..... 3.00
- No. PR-536 Radio Corporation "A" Battery type ..... 2.00

**RESISTANCES. (Phone work)**

- No. 1 Ward Leonard 5000 ohms ..... 2.25
- No. 2 Ward Leonard 1000 ohms..... 3.50

"Let 'PITTSO' products, super-service and delivery solve your Radio problems"

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Send ten cents in stamps for Catalog No. 22. Over 100 pages, over 150 illustrations, over 600 items. Our Foreign Department is especially qualified for handling orders from customers in Alaska, Hawaiian Islands, Australia and the Orient!

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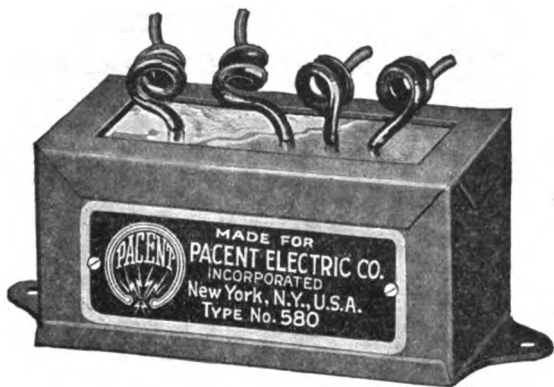
Boston, Mass., U. S. A.

Another Achievement



**TYPE 580 DUBILIER C. W. CONDENSER**

Especially designed for C.W. For Antenna Series Use.



Triple Capacity  
0.0003 mfd.  
0.0004 mfd.  
0.0005 mfd.  
5000 volts  
4 amperes

Catalog No. 310

Price \$4.50

This latest addition to the already complete line of the Dubilier Condenser Co., will meet a long felt want of all amateurs interested in CW transmission. It was primarily designed for antenna series use and will achieve renown for the following superiorities:

Extreme Compactness      Constant Capacity      Infinitesimal Losses  
Rugged Construction      Built of Ruby Mica      Easily Mounted

The Dubilier 580 Condensers are also made in the following necessary single capacities:

Cat. No.	Type No.	Capacity	Price
311	580	5000	\$4.00
312	580	5000	4.00
313	580	2500	4.00
314	580	2500	4.00
315	580	2500	4.00

Further information is contained in Bulletin D3, which will be sent you on receipt of five cents in stamps.

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DEALERS—Write For Our Proposition at Once**

**PACENT ELECTRIC COMPANY, Inc.**

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The Complete Line of Wicony "Eventual" Apparatus  
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Special Distributors of Brandes Phones

150 NASSAU STREET      TELEPHONE Beekman 5810      NEW YORK CITY

**A STILLY MYSTERY**

(Continued From Page 60)

tell her hooch huntin' pals t' pack it away."

I recognizes the suitcase as one of those of Alice Loring's that I'd seen the day she came. We opens the thing—an' then we stares. Neatly stowed inside was six dry batteries and a spark coil, about a one-inch, with a key an' a little enclosed micrometer spark gap screw on top. Besides this there was two coils of thick silk cord, a small electrose strain insulator with a hook at each end, a sharp-pointed brass rod, an' two wrenches. There was no receivin' gear.

"Sufferin' damnation!" howls Hell-Fire, doublin' up like he was shot. "I'm a fish—I'm a salmon!" an' he starts eruptin' a blaze of profanity that makes the rocks smoke.

"One of the gobs at N-P-R give me a complete line on this dame a couple years ago," he snarls. "She's Soft-Eyed Sadie, th' slickest female gumshoer in th' Alaska dry squad. She used to get next to the hooch plants by lovin' up some simp an' then she'd shoot the dope out to the cutter in code—but the ops used to suspect th' code an' tip off th' boys, so she got up this rig. When she has her dope lined up she chooses a dark night, unfastens the lead-in an' hangs it off on that electrose insulator, an' clips that longest flexible cord onto the lead-in. The other cord an' the rod is for the ground—she must'a put it down in the water here. The cutter coples her on a three-step.

"She pulled the same stunt on th' gobs at N-P-Q once—she packed a ladder half a mile to get up to the lead-in, an' when she couldn't get th' lug off she got into the station with a passkey durin' the night an' opened the aerial swich—course she'd had the simps to show her around the place beforehand. Nobody ever saw her rig, but an op on the cutter spilled the details to one of the captured gobs when he was brought aboard prisoner by the hooch hunters. She must'a left it hid here last night, intendin' to take it off in the boat today, an' forgot it."

"I guess that's how Greasy Bill's ladder disappeared," I says; an' then we observes that we're all standin' on that very thing."

"I s'pose my bottle of hooch went, too," glooms Hell-Fire, when we were alone, a little later. "It was in your shack."

"No; it's saved," I announces. "I had a hunch this mornin' an' put it down in the fish shed."

And that night we drinks it all. Next mornin' I recovers consciousness lyin' on my chest over the top end of one of my hundred an' thirty foot wireless masts. Lookin' around, I observes Hell-Fire droopin' similar over the end of the other one.

"Good mornin' to you," I hollers across to him. "How's your busted heart?"

"All healed," Hell-Fire hollers back. "To hell with women!"

"Hell with 'em," I agrees, an' then we climbs down an' shakes hands.

THE END

**Something New**



Type 126, Tube Socket

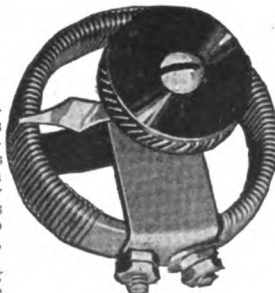
Price 75c Postpaid

Made to Please You and Priced to please your pocketbook

By departing from conventional design in audion sockets we have combined the advantages of all, the disadvantages of none and a price lower than any. Think of it—a sturdy easily mounted socket that is heat proof, has bakelite-dilecto insulation, handy binding posts, etc., all for 75c.

And here's a smooth running rheostat that takes panel space 2 inches in diameter, needs one hole to mount, has six ohm resistance, all off and all on positions and a brass panel bushing. Priced at 90c.

The Wilcox Laboratories  
LANSING, DEPT. J., MICHIGAN



Type 122 Rheostat

Price 90c Postpaid

**FRESNO AMATEURS**

Mr. Mason Ports announces to the amateurs of Fresno and vicinity that he has opened a radio supply store. A complete line of parts and many standard pieces of radio apparatus will be stocked.

**QST RADIO SHOP**

3265 Belmont Ave.      Fresno, Cal.

**RADISCO**

"Your Assurance of Satisfactory Performance"

RADISCO COUPLERS, COILS, "B" BATTERIES, AND OTHER GOOD INSTRUMENTS ARE FOR SALE AT 28 RADISCO AGENCIES ALL OVER THE U. S. SEE RADISCO SPREAD IN SEPTEMBER RADIO NEWS.

**Consider your Battery:**

**EVEREADY**

The best wireless B battery is none too good for you.

Unusual results in range and clearness are being secured by the users of Eveready wireless batteries, because they are built especially for radio uses and with a full knowledge of radio requirements.

Eveready wireless batteries are made by the world's largest manufacturers of dry cell batteries and are members of a family holding a long and honored record of achievement.

The Eveready label is a guarantee of a superior battery—and results.

For sale by electrical dealers everywhere.

**National Carbon Company, Inc.**

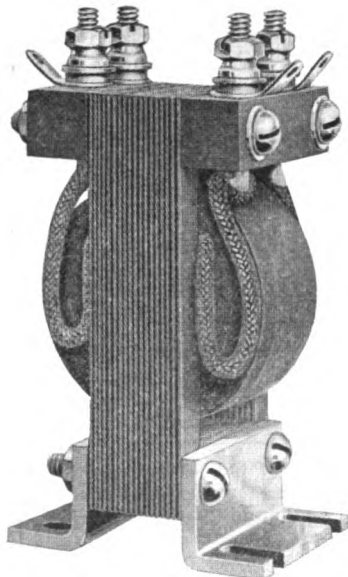
599 Eighth St., San Francisco, Cal.



No. 774

Number 774 B Battery is made up of 27 cells connected in series. The wooden case containing this battery is impregnated with melted paraffine and solidly packed and sealed in paraffine with a half-inch of sealing wax added after the cells are in place, making of the whole a unit impervious to moisture. One negative and six positive terminals have heavy brass screws and nuts. This battery allows a range of 18 to 43 volts in steps of 4½ volts. Dimensions over all, 9 inches by 3 7-16 inches by 3 ⅛ inches deep. Price \$5.00.

**Federal Standard Radio Accessories**



No. 226-W—Type A  
Audio Frequency Transformer

**ANNOUNCING**  
**A Material Price Reduction**  
**on the Famous Federal**  
**Amplifying Transformer**  
**Reduced Price \$7.00**

Federal 226-W Transformer will give Maximum Amplification with all types of Standard Tubes on the market

*Write for Bulletin 102-WB and C Circular describing New C-W Accessories*

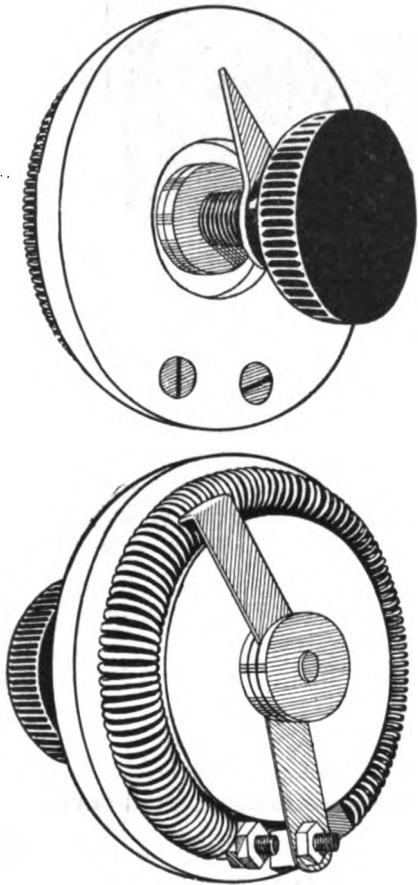
Ask Your Dealer for Federal Products. If he does not have them, tell us his name

**Federal Telephone & Telegraph Company**

**BUFFALO, NEW YORK, U. S. A.**

**MANUFACTURERS OF STANDARD RADIO ACCESSORIES**

# SHRAMCO -- REO --



## For your power tube--

New type Shramco Reo, No. 90P.  
1.5 ohm Nichrome resistance.  
Current capacity 6 amperes.  
Price \$2.00, 1 lb. postage.

**A** BACK MOUNTED panel rheostat, specially designed for the Radiotron U.V. 202 and other transmitting tubes. Resistance element (1.5 ohm) is "Nichrome" wire, mounted on a solid block of asbestos. Allows unusually accurate and delicate variation of the filament current. All metal parts brass. Spring phosphor bronze blade. Base 3 in. Overall height 2½ in. Handsomely finished and accompanied by an unconditional guarantee of complete satisfaction. Get the most out of your expensive power tube by using a good rheostat. Order a Shramco Reo today! Now ready for immediate shipment.

### For your vt. Detector

and amplifier, use the original Shramco Reo, type 90. "Nichrome" resistance of 6 ohms. Price \$2.00 plus postage for 1 lb. We also make the "Midget" Shramco Reo, 5 ohms resistance, 2½ in. base.

## SHOTTON RADIO MFG. COMPANY

P. O. BOX 3, SCRANTON, PA.

Catalogue "K," listing a complete line of high grade parts at reasonable prices, sent to any reader of Pacific Radio News for five cents in stamps.

## CONTEMPLATED DISTRIBUTION OF RADIO MARKET NEWS BY THE MISSOURI STATE BOARD OF AGRICULTURE.

(Continued From Page 61)

panels and radio to a field station from either St. Louis or Kansas City.

A radio receiving set is now being operated by the State Marketing Bureau at Jefferson City to receive government market news information now broadcasted daily from the KDEL office operated by the Post Office Department at St. Louis, Mo. This information is being given to local newspapers and the Associated Press.

The plans for putting into operation this most elaborate system of distributing market news information to farmers ever undertaken by any state, or even the Federal Government, has been generally pronounced feasible by the majority of the larger manu-

facturers and jobbers of radio equipment.

At first no attempt will be made to expand the work in Missouri further than installing receiving sets at some important office in each of the several important towns of every one of the 114 counties in Missouri.

Sufficient interest has already been expressed in the project to warrant the belief that farmers, bankers, county agents, newspapers, rural telephone exchanges, dealers in farm products, merchants and others, will liberally subscribe to the purchase and maintenance of one of these radiophone outfits in their respective communities, which cost would be only trivial when thus apportioned between the leading citizens of a given community. In fact, the cost for maintaining such a service by individuals is not expected to be prohibitive within the near future. In view of which fact, the State

(Continued on Page 79)



# Westinghouse Radio Equipment

Westinghouse Radio Equipment embodies the latest ideas in receiving equipment, providing a most efficient set for telegraph and telephone reception over the amateur and normal ship wave-length ranges. Type R. A. Short Wave tuner, Style 307189, responds to a wave-length of 180 to 700 meters and is especially selective. Type D. A. detector-amplifier, Style 307190, combines a vacuum tube detector with a two-stage amplifier. Both units are mounted on Micarta panels attached to a polished mahogany cabinet. Simple in design—easy to operate—single-tuning circuit. Highly efficient.

"Radio in a New Role," the Westinghouse folder, gladly sent on request.

### PRICES:

Type R. A. Tuner \$65.00. Type D. A. Detector-Amplifier, \$65.00.

Type R. C. Combination of first two units mounted on single cabinet, \$125.00.

Bulletin 14 sent on request to any reader of the Pacific Radio News.

## ANNOUNCEMENT

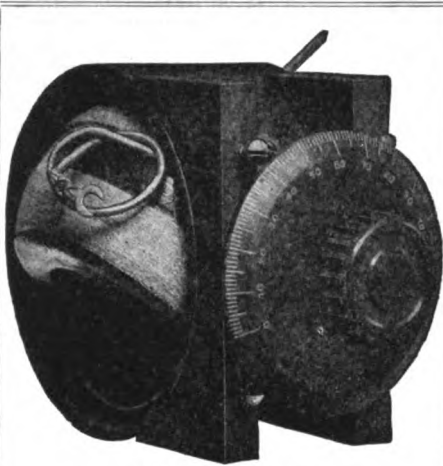
**W**E take pleasure in announcing a change of location of our Boston store—we are now situated at 727 Boylston Street, in the heart of the Back Bay business section, quickly reached by train or trolley. Additional floor space and an additional sales force enable us to give every customer prompt attention. This applies to mail orders as well as over-the-counter purchases. We cordially invite you to inspect our new store.

# ATLANTIC RADIO COMPANY

Incorporated

727 BOYLSTON ST.,  
BOSTON, MASS.

Branch, 15 TEMPLE ST.,  
PORTLAND, ME.

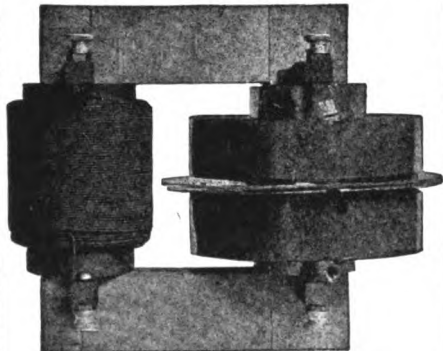


TYPE Z. R. V.

Variometer has unit construction with bakelite shell and hardwood ball. Has low dielectric losses and a range of inductance of 1.25 mil henry maxim to .1 mil henry minimum. Is readily used on table or mounted on panels.

Completed with 3-inch dial and knob ..... \$6.50

Without dial or knob..... \$5.75



TYPE Z, R. L.

Transformer for use with rotary spark gap has two section secondary, bakelite terminal supports and high grade construction, 400 watts power rating highly efficient at 200 meters.

Price ..... \$14.00

Apparatus which excels in those qualities which for 13 years of continuous manufacture have maintained its enviable reputation for reliability will be found pre-eminent in the display rooms of discriminating dealers and is manufactured by

CLAPP-EASTHAM COMPANY

140 Main St., Cambridge, Mass.

Catalogs mailed for 6c stamps

Receive Wireless Telephone Concerts in Your Own Home

PICK up radio phone concerts, time signals, ship, shore and amateur stations, right in your own home—with an ABC receiving UNIT. Simple to operate—no license, battery or special knowledge needed. Price of Unit alone, \$24.50. Phones, aerial, all equipment to complete station included in ABC "Completion Package" for \$75.00.

Send 10 cents for our 16-page booklet, "How I Put Up a Complete Radio Station in 2 Hours," an actual story that you can duplicate. Request Booklet X9

Wireless Equipment Co. Inc.  
Newark, New Jersey

ABC UNITS  
Standardized Radio Sectional Receiving

## STATIC ELIMINATION

By Hubert E. DeBen

ALL attempts at static elimination have failed. It is a universally known fact. Practically every one of us has tried, at some time or other, a contrivance of our own design, in an attempt to do away with static. As usual, the result is a complete failure. And why all this failure? Simply this: Heretofore nearly every experimenter has tried to eliminate static by trying to keep it out of the receptor circuit; naturally the audibility of radio signals were reduced in proportion to the static audibility. It is impossible to eliminate static altogether, but IS possible to reduce its intensity so that radio signals can be read through it.

Let us determine what static is, what it is caused by, and how. The following theorization of static is based on the popular theory of electricity and may be accepted as substantial. All clouds contain two electric fluids, called negative and positive electricity; in any uncharged cloud these fluids exist in equal amounts; the fluids are separated from each other by friction, so that one of the two clouds, which rubbed together, retains a surplus of one fluid, while the other cloud has a surplus of the other fluid; each cloud is thus charged oppositely; clouds carrying opposite charges, when coming in contact with one another, in an effort to re-attain their normalcy, discharge to each other their surplus of either fluid; this electrical discharge causes the atmospheric disturbance which is commonly termed static.

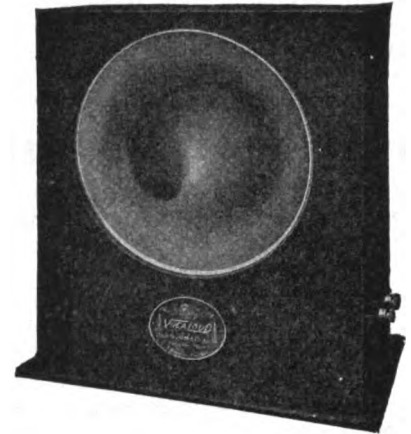
The striking electrical similarity of radio and static disturbances is that they are both etheric disturbances caused by discharges of an electrostatic nature. They are both alike electrically; it is, therefore, logical that one

(Continued on Page 72)

**To all SUNKIST RADI-O-ITES**

Finding that the express charges on the heavier goods from the East are so high as to eat up the profits, I withdraw my offer to deliver in California free of transportation charges.

Paul F. Johnson,  
ALTADENA RADIO LABORATORY,  
Altadena, California.



THE—

## Vocaloud

THE IDEAL loud-speaker. Requires no batteries, no adjustments, no extra equipment whatever. Just hook Vocaloud on to your receiving apparatus and get your signals QSA all over your house! Your order shipped at once.

Station Type, \$30.00  
(In mahogany cabinet, as shown)  
Laboratory Type, \$25.00  
(Mounted on solid metal base)



### CORWIN'S Improved SWITCH

MANY SWITCHES give their manufacturers more profit,—none give their users more satisfaction. Try a Corwin Switch. As good as it looks!

Brass shaft is moulded right into the moulded knob. It can never come loose. All metal parts nickel-plated brass. Contact radius 1 3-4 inches. 90 cents—5c Postage.

### NEW R-DISCO VARIO-COUPLER

Accurate to the .002 part of an inch. Moulded base, Formica tube, all metal parts brass.

\$7.50 Postpaid

Corwin's 1921 catalog contains 32 pages of Corwin, Radisco, and other good instruments. You'll find it lists a good instrument for every part of your station at prices that don't "take the joy out of life." Send for your copy today. 10 cents.

**A. H. CORWIN & COMPANY**  
Dept. G8, 4 West Park St.,  
NEWARK, N. J.



## THE RADIO TELEPHONE REPORTER

(Continued From Page 52)

other public gathering places; nearly 100 in all. A nominal admission fee was charged on the day of the fight, and the voice bulletins sent by the big station at Hoboken

### \$5 \$3 WIN A PRIZE \$5 \$3 \$2 \$1

For the man writing the best true story of how he stopped an unlicensed amateur from operating, with satisfaction to both parties, we will give a prize of **\$5.00** Second best story **\$3.00**, third best **\$2.00**, and fourth best **\$1.00**. The winning story will be published in **PACIFIC RADIO NEWS** and will be paid for at usual space rates in addition to the prize of **\$5.00**.

were heard by the crowds almost simultaneously with the time of their actual happening at Jersey City. The returns from these sources were turned over to the two organizations mentioned above.

#### Apparatus Employed

The apparatus consisted of a 1500-watt radiophone transmitter employing six 250-watt radiotron vacuum tubes. These vacuum tubes, by the way, are the lamps which have well nigh revolutionized the radio field and which directly make radio telephony possible today.

A special motor-generator was erected near the set which furnished a potential of 2000 volts necessary for the plate excitation of these vacuum tubes. The filaments of the tubes were heated by means of a separate low voltage winding arranged on the machine. The vacuum tubes and all other auxiliaries are contained in one unit, as shown in one of the above photographs, the panel of which contains all necessary

switches for power control and wave lengths. The set was built by the General Electric Company expressly for the Radio Corporation.

The antenna, which is clearly shown in the second photograph, was stretched between the skeleton steel radio tower shown and the clock tower of the D. L. & W. terminal. It is of the "T" type and consists of four No. 14 stranded phosphor-bronze wires, 450 feet long with a 250-foot lead-in. It has a natural period of 740 meters and spreads about 250 feet above the ground. This antenna was energized by a current of 15 amperes furnished by the transmitter which in radiophone circuits is considered a great deal of current to radiate in the air. The wave length to which it was necessary for radiophone receivers to tune up to was 1600 meters.

#### Reporting the Fight

The actual reporting was done in the following manner: Mr. D. Sarnoff, general manager of the Radio Corporation of America, and Mr. J. A. White, editor of *Wireless Age*, were located at the ringside in the press stand and took turns at reporting the most important features over a private telephone wire furnished for the occasion through the courtesy of the American Telegraph and Telephone Company, leading direct to the radio room at the Lackawanna terminal. The news was given round by round and incident by incident, and at the other end were typed directly from the telephone and handed to the radiophone operator, Mr. J. O. Smith, a well-known radio amateur, in the form of bulletins. The latter immediately spoke into the regular mouthpiece shown on the radiophone panel, so that hardly a minute was lost between the actual incident and the spoken voice in the air.

Several thousand letters have since been received by the Radio Corporation from amateurs located up to distances of 500 miles from the scene of action remarking upon the unusually clear voice of the speaker and enthusiastically voicing their approval at the success of the experiment, for it was the first time in the history of radio that the results of a boxing match were broadcasted by radio telephone.

Robert Garcia, youngest amateur in the world, was the main feature of attraction at a recent meeting of the Southern California Radio Association at Los Angeles. Radio Inspector Dillon was one of the distinguished persons present. Young Mr. Garcia made a very nice little talk in which he thanked Major Dillon for his license. The young lightning-shaker is just 7 years of age and holds an amateur first grade ticket. He took a great liking to the radio inspector and sat upon his lap during the session.

Master Garcia was presented with sufficient apparatus by the various manufacturers of Los Angeles to complete a set he is installing.



## The Last Word in "B" Batteries

Introducing the  
New Ace 627-45 Volt Variable "B"  
Battery at \$3.50

Made of the same high grade material and workmanship as all our Ace types. This Battery will absolutely fulfill any B Battery requirements. The special size cell construction guarantees from 75 to 100 per cent more service than any small size "B" Battery. Thirty voltage readings from 1½ to 45 volts obtained. Size .....; Weight .....

Another important feature is the shelf-like depreciation, which is guaranteed against more than 10 per cent in 6 months.

For other type "B" Batteries and Dealers, see our ad on page 62

44 Court St., Brooklyn ACE BATTERY MFG. CORP. Phone Main 8379

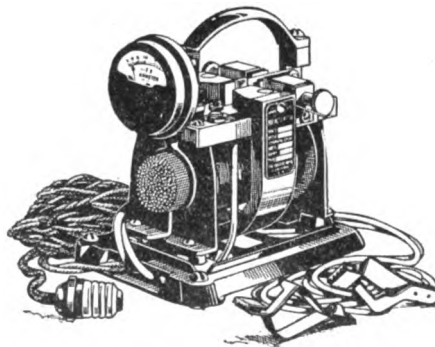
## 10c CHARGES YOUR BATTERY AT HOME WITH AN F-F BATTERY BOOSTER

and your Wireless Station will never be closed because of a discharged battery. Is it not gratifying to feel that your filament battery will always be ready when you want it and that you will never have to give up in disgust when working a distant station? A Storage Battery kept fully charged lasts longer and everything depending upon it works better, which is the secret of perfect battery service, and a Booster insures this. Do not run the risk of ruining an expensive battery, for it costs less to buy a BOOSTER than to be without one. The F-F Battery Booster is a Charging Apparatus, unerring in its ability to deliver service day and night, is rugged and foolproof and requires no skill to operate. They charge automatically and operate unattended. Screw the Plug into a lamp socket, snap clips on battery terminals and watch the gravity come up. The Ammeter shows you just the amount of current flowing. Easily renewable and adjustable carbon electrodes rectify the current and last for thousands of hours. Everything is complete in one compact, self-contained and portable unit. The F-F Battery Booster is a Magnetic Rectifier for 105 to 125 Volt 60 Cycle Alternating Current. New models now at PRE-WAR prices:

Bantam Type 6 charges 6 Volt Battery, at 6 Amperes .....	\$15
Type 16 charges 6 Volt Battery, at 8 Amperes .....	\$24
Type 166 charges 6 volt Battery, at 12 Amperes .....	\$32
Bantam Type 12 charges 12 Volt Battery at 5 Amperes .....	\$15
Type 112 charges 12 Volt Battery, at 6 Amperes .....	\$24
Type 1612 charges 12 Volt Battery, at 7 Amperes .....	\$32
Type 1626 Combination Type charges both 6 Volt and 12 Volt Batteries at 12 and 7 Amperes .....	\$48

The larger ampere capacity Types are recommended for the larger batteries, or where time is limited. Shipping Weights Complete with AMMETER & BATTERY CLIPS, 11 to 15 lbs. Order from your Dealer, or send check for prompt express shipment. If via parcel post, have remittance include postage & insurance charges, or have us ship C. O. D. ORDER NOW, or WRITE for FREE Descriptive BOOSTER BULLETIN No. 33.

## WIRELESS OPERATORS, EXPERIMENTERS, CAR OWNERS, STORAGE BATTERIES USERS



### SERVICE STATION CHARGING SERVICE AT ANY LAMP SOCKET

Other F-F Battery Boosters charge Batteries from Farm Lighting Plants, Direct Current Circuits and Direct Current Generators. It actually costs you less to buy an F-F BATTERY BOOSTER than to be without one. It fills your battery with life.

BATTERY CHARGING STATIONS and GARAGES Use Our Large F-F ROTARY RECTIFIERS for Group Charging. Real Economy in first cost and in service. Charges up to 36 cells. Full Wave, Automatic, Dependable. It will also Rectify High Voltage. If the 110 Volt Primary of a high voltage transformer is connected to the Direct Current side of the F-F Rotary Rectifier, the secondary will deliver high voltage Uni-directional Current, suitable for Radio Work. Write immediately for New Free Descriptive ROTARY BULLETIN No. 33A, which gives complete information.

## THE FRANCE MFG. Co.

Gen. Offices & Works, Cleveland, Ohio, U.S.A.  
Canadian Representative: Battery Service & Sales Company, Hamilton, Ontario, Canada.

## AUDIOTRONS

Double Filament, Detector,  
Amplifier, Oscillator—

With Adapter ..... \$6.00  
Without Adapter ..... \$5.00

DREYFUSS SALES CORP.

179 Greenwich St., New York City

## BRASS SWITCH CONTACT POINTS

Price with ½-inch screw.....\$0.20 doz.  
Price with shank and brass nut .30 doz.  
Price of extra nuts for same... .10 doz.  
Add Postage

Order from Ad. Satisfaction guaranteed.  
Immediate Delivery—Try us

STRATTON ELECTRIC COMPANY  
215 Federal St. GREENFIELD, MASS.

# MEYBERG

The Largest Radio Stock on the Pacific Coast

**San Francisco**

Send for 32 Page Remler  
Catalogue—Just off Press



**Los Angeles**

Everything the  
Amateur Wants

Stocks Guaranteed—Prompt Service from either address

**VACUUM TUBES**

C300 Cunningham Detector	5.00
C301 Cunningham Amplifier	6.50
C302 Cunningham 5-Watt Power	8.00
C303 Cunningham 50-Watt Power	30.00
UV200 Radiotron Detector	5.00
UV201 Radiotron Amplifier	6.50
UV202 Radiotron 5-Watt Power	8.00
UV203 Radiotron 50-Watt Power	30.00
Moorhead Electron Relay	5.00
Moorhead VT Amplifier	6.50
Moorhead VT Transmitter	7.50
Moorhead Rectifier Tube	9.75

All tubes postage prepaid.

**AMPLIFYING TRANSFORMERS**

231A General Radio	5.00
228W-Federal	7.00
A2 Acme, Unmounted	4.50
A2 Acme Semi-Mounted	5.00
A2 Fully Mounted	7.00
UV712 Radiotron	7.00

**EVEREADY BATTERIES**

765 Small 22½ Volt B	2.50
766 Large 22½ Volt B	3.50
774 Variable 43 Volt B	5.00
746 Special 108 Volt Amp. B	16.80
6 Volt 40 Amp. hr. Storage	18.20
6 Volt 60 Amp. hr. Storage	20.80
6 Volt 80 Amp. hr. Storage	24.05

**REMLER APPARATUS**

500 Moulded Bakelite Variometers	6.00
503 Moulded Bakelite Variocouplers	5.40
100 3-in. Bakelite Dial and Knob, 3-16 in. or 1-4 in.	1.00
330 Detector Panel Moulded Bakelite	8.00
331 Amplifier Panel Less Transformer	6.00
333 Amplifier Panel Less Transformer (With cam switch.)	9.00
810 Jr. Rheostat	1.00

**REMLER APPARATUS**

813 3 Amp. Panel Type Rheostat	1.75
94 A Battery Potentiometer Unit	.75
94 Knob and lever for above	.45
96 Variable Grid Leak	.60
97 Fixed Grid Condenser	.35
400 3 Coil Mounting on base	6.50
3 Coil Mountings for Panel Mtg.	3.60

**JEWELL METERS**

0-100 Milliamps Flush Mtg.	8.00
0-250 Milliamps Flush Mtg.	8.00
0-500 Milliamps Flush Mtg.	8.00
0-15 Milliamps Panel Mtg. back-con.	15.00
0-500 Volt Meter	16.00
0-1000 Volt Meter	23.00
0-1500 Volt Meter	29.00
0-1, 0-2, 0-2½, 0-5, Thermo coupled Radiation Meter Flush Mtd.	12.00

**MOTOR GENERATORS**

Westinghouse 100 Watt 110 Volt 60 Cycle AC 500 Volt DC	85.00
Westinghouse 250 Watt 110 Volt 60 Cycle AC 1000 Volt DC with 87 Volt Grid Bias Tap.	145.00

**CW APPARATUS**

Pacent Universal CW Condensers, any capacity	2.00
CW Tuning Inductance	8.00
Variable Grid Leak 8000 ohm.	3.00
Wireless Shop Condenser, 0008.	9.00
231M Modulation Transformer	5.00
Kellogg Transmitter	3.50
Kellogg Transmitter, adjustable arm	4.75

**TELEPHONES**

Brandes Superior	8.00
Brandes Trans-Atlantic	12.00
Brandes Navy	14.00
Baldwin Type C Navy	13.75
Baldwin Type E	15.00
Baldwin Type F	16.25
Murdock No. 55 2000 ohm	4.50
Murdock No. 55 3000 ohm	5.50

**JACKS AND PLUGS**

Federal 1421 open Circuit Jack	.70
Federal 1422 single Circuit Jack	.85
Federal 1423 double Circuit Jack	1.00
Federal 1435 automatic Filament Control Jack	1.20
Federal 1438 automatic Filament Control Jack	1.55
Western Electric Jack	1.30
Federal Plugs	2.00
Pacent Universal	2.00

**SOCKETS**

92 Remler Socket	1.50
156 General Radio	1.50
550 Murdock	1.00
R300 DeForest	1.60
DeForest Moulded Bakelite	1.40

**VARIABLE CONDENSERS**

230 Wireless Shop Panel Mtg. .0005	3.60
430 Wireless Shop Panel Mtg. .001	5.25
630 Wireless Shop Panel Mtg. .0015	7.50
1 Chelsea Mtd. .0011	5.00
2 Chelsea Mtd. .0006	4.50
3 Chelsea Unmtd. .0011	4.50
4 Chelsea Unmtd. .0006	4.00

**REGENERATIVE RECEIVERS**

Myco D12 175 to 25000 meters Detector 2-step Amp. less Coils and Tubes	165.00
CR3 Grebe Relay Special	68.00
CR3A Grebe Tube Control self-contained	47.50
CR5 Grebe 175-3000 meters tube control	85.00
CR6 Grebe 175-680 meters Det. 2-step	210.00
CR7 Grebe 5000-20000 Long wave Special	220.00

Every Wireless Experimenter should have a copy of our 200-page catalogue. 35 cents in stamps will bring it to your door, or it will be sent upon the receipt of an order covering \$1.50 purchase.

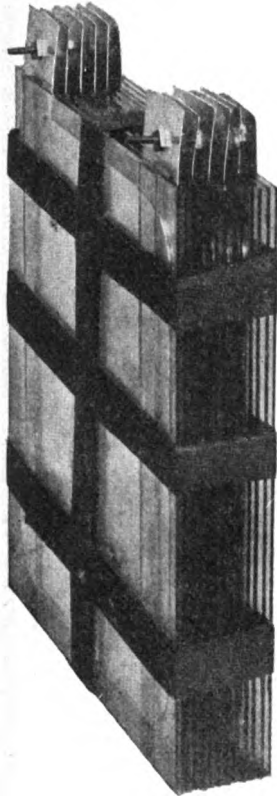
## LEO J. MEYBERG CO.

428 Market St.,  
San Francisco, Cal.

Operating the Fairmont Hotel Radio Station 6XG.  
Send for Our Concert Schedule

752 So. Los Angeles St.,  
Los Angeles, Cal.

# THE "BROWNIE" CONDENSER



**An Oil-Immersed Condenser that will increase your radiation—**

This is the type of condenser used by 8CH in his long distance work. Will not blow on a full K.W. Absolutely guaranteed to hold up or we will at once return your money. Constructed of a good grade of glass and aluminum plates. Glass insulating separators used. Capacity .006 mf. Container is made of hard oak and is leak-proof. Two large terminal bushings and binding posts, as well as a safety gap, are mounted on top of the case. Large can of castor oil supplied with each condenser. Will increase your radiation considerably. Brush discharge reduced to a bed-rock minimum. If you want to be a "DX" man this season, you must use a reliable condenser.

**PRICE ONLY \$17.50**

**Break-in Keys**

Dozens of Break-in-keys were sold last month. Have you heard 'em work on the air? Just listen to the fellow stop sending when someone else "butts in." Send and receive at the same time with this key. It handles 1 K.W. and is the simplest thing in the world to install. Breaks the transformer circuit, shorts the receiving set and shorts the phones,—all in one operation. Press the key and you send. Release the key and you receive. Works on three volts. No aerial switch or key needed if you use this system. No switches to throw—the relay does all. Ask your dealer to show it to you.

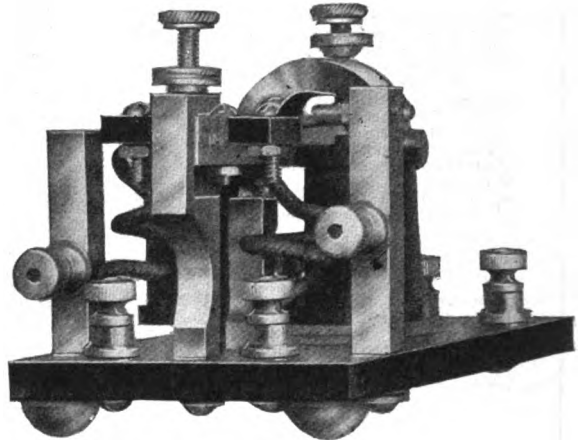
**\$9.75** Prepaid to any part of the U. S. Full directions for operating and complete wiring diagram given with each instrument. All orders filled immediately—No delays.

**Rheostat and Dial Combined**

The latest invention of the Parkin Mfg. Co. is the new dial-rheostat. Both in one unit. Can be easily mounted on your panel. Has 3-inch dial, brilliant white enamel engraving. Off position for the rheostat. 360 degree rotation. Brass bearings. Bakelite knob. Rheostat will carry 2 amps. Resistance 5 ohms. Brass parts all nickel plated. The rheostat is secured in a groove under the dial. True running—smooth action. Send for one today. You will be pleased with it. The workmanship and design are perfect. And the price will knock you dead.

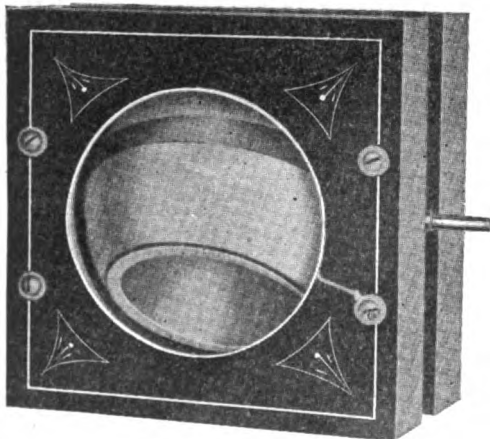


**\$1.75 POSTPAID**



The peace-maker of the air

**VARIOMETERS \$4.50 VARIOCOUPERS \$3.50 FOR SEPTEMBER**



These instruments are ideal for radio telephone concert reception. A complete regenerative set of two variometers and one variocoupler can be constructed at small cost. Think of it—only \$12.50 for the three of 'em. This special price offer is for the month of September ONLY! All orders must reach us before September 30th. IMMEDIATE DELIVERY—ORDERS SHIPPED ON THE DAY WE RECEIVE THEM. The variometer is constructed of high-grade material and the workmanship is of the best possible. We will refund your money, without question, if these instruments are not all we claim. 25c must be added for postage on each instrument.

Remember—your order must be in by Sept. 30th

**Another New One Bakelite Encased Amplifying Transformer**

Just out! This new transformer is a dandy. Well made. Enclosed in a BAKELITE CASE—no metal used in the transformer, except the core. Has composition binding posts—another good feature. If it don't work as good as any transformer you have ever tried, send it back to us and we will return your money. Can be mounted in any position. The price is unusually low for a good transformer. Try one of them—a test will mean that you will use them exclusively for your amplifier. Mailing charges 15 cents.

**ONLY \$3.75**

**WESTERN WIRELESS WORKS**  
5534 EDGERLY ST. OAKLAND CALIF.

The following dealers carry our Break-in-keys:

RADIO TELEPHONE SHOP, SAN FRANCISCO.  
BENWOOD CO., ST. LOUIS, MO.  
AMER. ELECTR. TECH. APPLIANCE CO., N. Y.

LEO J. MEYBERG CO., SAN FRANCISCO.  
AM. RADIO SALES & SERVICE CO., MANSFIELD, OHIO  
MESCO, ST. LOUIS, MO.

**C.W. STATION AT BIG CREEK**

(Continued From Page 47)

the mining machinery, lighting, etc. It was the constant breaking of this transmission line in winter that resulted in the use of CW for communication purposes.

At Big Creek Radio a relay may be connected with any of the Edison offices, so that the operator in Los Angeles can, if necessary, operate the radio key; this constituting "Distant Control." By connecting the same relay to Western Union lines time signals are daily sent out at noon, for the operators at 60 and 61 to get the "tick." The receiver consists of one DeForest Audion Control Panel, Type P-100, used in connection with two Vernier variable condensers of the same make, Honeycomb Inductances and one Two Step Audion Amplifier, type P-200.

The antenna in the case of the three stations utilizes 150 foot pine trees (with branches partly stripped off) for masts, suspending 5 wires (T type) 200 feet long and approximately 140 foot high. These stations have "Limited Commercial" licenses and are authorized to communicate only the company business. Two operators are employed at each station, but a continuous watch is not maintained.

It might be interesting to note that the International Morse Code is used exclusively on the Edison system, both radio and wire. For the latter a tone wheel is employed to give a musical hum to the signals on the wire. Telephone receivers are used.

These CW stations are delivering the "goods," as they are handling (each station daily) an average of 2,000 words, not including about 1,000 words of press matter for the benefit of the employees.

**MEYBERG PHONE HEARD 1600 MILES**

6XG, the radio telephone station of the Leo J. Meyberg Company, was reported QSA at a distance of 1600 miles west of San Francisco by the radio operator of the S. S. "West Hixton."

**SPECIAL PROCESS PANELS**

OF NATURAL OAK BLACK FINISH. Are Meeting With Wonderful Success. Treated with a special process made by us. Will not Warp or Shrink and is not effected by Temperature changes. Waterproof and possesses High Dielectric properties. Easily machined and will not Crack or BREAK. Looks much better on your set than Formica or Bakelite and costs considerable less.

We are prepared to ship promptly and without delay the following standard sizes.

5x.5x1/4"thick \$.35	6x12x1/4"thick \$.95
6x 6x1/4"thick. .50	9x12x1/4"thick. 1.10
6x 8x1/4"thick. .60	12x12x1/4"thick. 1.50
6x 9x1/4"thick. .70	12x18x1/4"thick. 2.00
6x10x1/4"thick. .80	18x24x1/4"thick. 3.50

Strips 3/2x6, 3/2x8; 3/2x10. . . . \$.40 each  
3/2x12; 3/2x18, \$.60 each. All 1/4" thick.  
Add postage for 1 lb. for Panels up to 12x12x1/4". Larger sizes sent by express. We will be pleased to quote prices on these panels cut to a different size on receipt of your specifications.

We also carry Tenso C.W. Inductance, Unmounted, \$4.50.

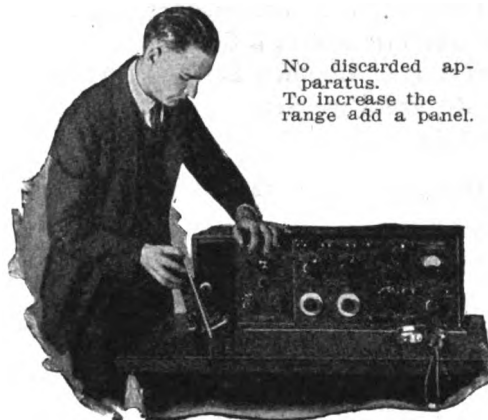
In purchasing your Panels and Radio equipment of us of which we have all standard makes and our prices are the same as advertised we will mount it on any of the above panels you purchase according to your specifications FREE OF CHARGE.

Progressive dealers stock these panels.  
**TENSO MFG. CO. Marshall, Minn.**  
Specializing in the construction of Radio sets to your specifications.

**If It's a RADIOPHONE**

*It's a DEFOREST Invention*

**Get the "Interpanel" Idea  
—It's Cheaper in the End**



No discarded apparatus. To increase the range add a panel.

Besides—it's more efficient—in fact, the most efficient system of wireless made.

The DeForest "Interpanel Radiophone System is built on the unit idea, like a sectional bookcase. To lengthen your range, you merely add another unit.

Each panel is surprisingly small and compact, and a four-panel station occupies but relatively little space (see illustration at left).

The "Interpanel" System is for both amateur and commercial CW telephone and telegraph radio stations.

It is the only system that absolutely assures full efficiency in CW transmission.

Before deciding on your wireless outfit, carefully investigate the De Forest "Interpanel."

**FOUR PANEL STATION**

Complete set of four units, mounted horizontally:

- (1) Complete radio "Midget" transmitter. Phone sending range 30 miles (OT-3).
- (2) Complete short wave tuner, 150 to 600 meters (MT-100).
- (3) Complete audion control, especially for gaseous tubes (MP-100).
- (4) Complete one-step amplifier (MP-200).
- (5) Any additional step of amplification may be added.

Address Dept. 98 for Catalogue

**DeForest Radio Tel. & Tel. Co.**

1415 Sedgwick Ave., New York City

Pacific Coast Distributors:

Henry M. Shaw, Pacific Radio Supplies Co., 638 Mission Street, San Francisco, Cal.

Inventors, Licensors and Manufacturers of Highest Grade Radio Apparatus

**PRICE REDUCTION OF TYPE 156  
VACUUM TUBE SOCKET**



Our universal vacuum tube sockets are now available at the new reduced price. These sockets are adapted to any of the American standard four-prong tubes, receiving or transmitting, old or new style.

**POSITIVE CONTACT SPRINGS**  
**RUGGED — ATTRACTIVE — RELIABLE**  
PRICE \$1.50. Send for Bulletin 809C.

**GENERAL RADIO CO.**

Cambridge 39, Mass.

STANDARDIZE ON GENERAL RADIO EQUIPMENT THROUGHOUT

When writing to Advertisers Please mention Pacific Radio News

# Announcement

We are pleased to announce to our many satisfied customers that in addition to continuing our Mail Order Service which has made a wonderful record for SPEED, we have recently put on the market the "PUGET" products, a combination of the best engineering, designing and high-grade workmanship. This line includes:

Puget High Voltage Transformer, Puget Variometers  
Puget Vacuum Tube Panels, Puget Transmitting Condenser,  
Puget Protective Devices, Puget Amplifier Sets  
Puget Short Wave Regenerative Sets  
and Others

Nothing but High-Grade Apparatus Carries the name "PUGET"

Send for price list. Order anything from our list and receive it by return mail.

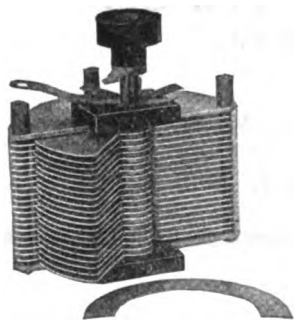
## Northwest Radio Service Co.

609 Fourth Avenue

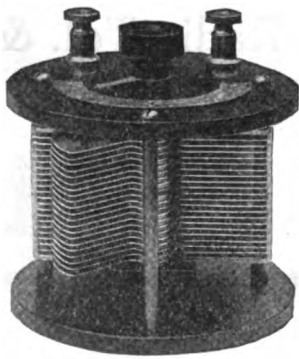
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## "ILLINOIS" THE RELIABLE MADE RIGHT - STAYS RIGHT



STYLE No. 1.

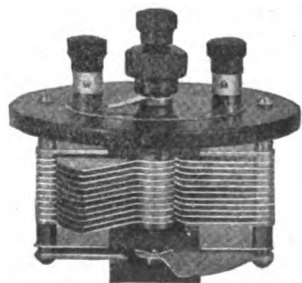


STYLE No. 2.

Three Styles; No. 1, Panel; No. 2, Open Type as shown; No. 3, Fully Encased. Anti Profiteer. Less than pre-war prices. Fully assembled and tested.

	Style No.1	No.2	No.3
67 Plates,	\$7.00	\$8.00	\$8.50
43 "	3.50	4.50	4.75
23 "	2.75	3.75	4.00
13 "	2.25	3.25	3.50

Money back if not satisfied. Just return condenser within 10 days by insured Parcel Post.



VERNIER

With Style No. 1, we will, if desired, furnish 3-inch Metal Dial with large Knob, instead of Scale and Pointer. Extra Price 75 cents. Or we will, if desired, supply the Condenser with smooth 3-16 inch center staff, without Scale, Knob and Pointer, at 15 cents off the list to those who prefer to supply their own dial. Vernier with single movable plate applied to 13, 23 or 43 plate condenser, \$3.00 extra.

We allow no discounts except 5 per cent on orders of 6 or more.

Sent Prepaid on Receipt of Price

Except: Pacific States, Alaska, Hawaii, Philippines and Canal Zone add 10c. Canada add 25c. Foreign Orders other than Canada not solicited.

G. F. JOHNSON, 625 Black Ave.

Springfield, Illinois

## STATIC ELIMINATION

(Continued From Page 67)

cannot be eliminated from an electrical circuit without the proportional elimination of the other.

The elimination of static by treatment of radio wave-decrement, has been tried and failed utterly because of the greater audibility of static on all waves, caused by the more powerful electrical discharges.

The physical difference between radio and static lies mainly in their sounds. There are two kinds of sounds, viz: music and noise. Musical sounds are produced by regular vibrations, and excite a sensation which lasts a perceptible time without noticeable change. Sounds which are produced by irregular vibrations, and which possesses none of the above characteristics are called noise. The steady high-pitched tones of radio transmitters may readily be distinguished as musical. The low, irregular sound of static is classed as noise. An instrument capable of separating these two sounds solves the static interference problem.

It was found, by experiment, that the most complete way of separating composite sounds was by the use of resonators. The writer constructed a form of resonator consisting of two brass half-spheres—a small brass tube projected from the center of one sphere, to which was attached a stethoscope; a watch-case receiver was mounted in the other. These spheres were mounted on a base with their openings facing each other,—the adjustment allowing separation and turning of the spheres.

Very encouraging results were obtained with the watch-case receiver connected to an ordinary regenerative circuit, minus amplification. A point is reached in the adjustment of the resonator where static audibility is considerably reduced, and radio signals can easily be read through it. The static is NOT totally eliminated by this process; its audibility is simply reduced to a point where it ceases to seriously interfere with the reception of radio signals. A microphone was tried in place of the stethoscope with slightly better results.

The operation of the resonator may be explained thusly: In the adjustment of the resonator for loudest radio signals we tune it to the same mode of vibration as the radio-signal tone; thus tuned, it is insensitive to the different static mode of vibration.

Elimination of static by the "sound treatment" method offers much room for development and experimentation. It is hoped that this article will serve as a source of encouragement to experimenters.

Editor's Note: This principle is employed in the "Nostat," perfected by Mr. Arthur H. Lynch.

## AUDIOTRONS

Genuine hand-made, two-filament  
Audiotrons. Excellent Amplifier,

Detector, Oscillator—

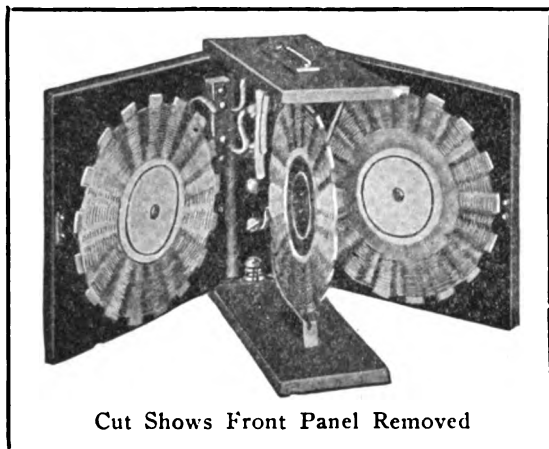
**\$6.00** postpaid.

Send your order at once and be sure of  
receiving yours.

EMPIRE RADIO EQUIPMENT Co.  
271 West 125th St., New York City



# SPIDER WEBS-



Cut Shows Front Panel Removed

Exclusive Westinghouse Agents for our Territory

are now manufactured on a large enough scale to have the price

## REDUCED TO

lower than originally.. A complete regenerative set, the equal of any, for only

**\$5.50**  
Plus 30c Postage

The New 3000 Meter Set Will Be Out Soon

Distributed Exclusively in the West through

## HERROLD LABORATORIES

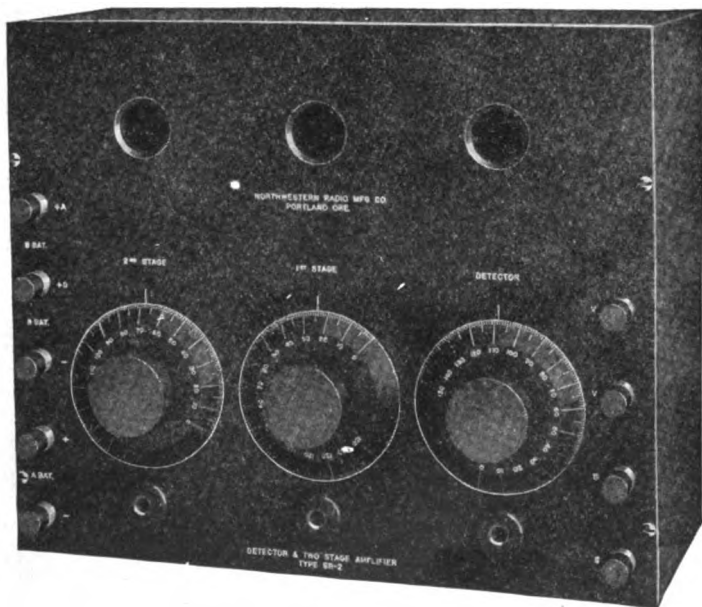
"Everything for the Amateur"

467 SO. FIRST STREET

SAN JOSE, CALIF.

# NORTHWESTERN RADIO

*A Superior Line of Receiving Apparatus*



Detector and two stage amplifier Type SR-2.  
Size of panel 10 1-2x12 3-4. Complete less tubes and battery \$70 f.o.b., Portland.

A detector and two stage amplifier that will give you results. This instrument is in use in many stations in the Northwest and its performance is a proven fact. You must see this set to appreciate its value. Material and workmanship are the best.

Specifications — Panel quarter inch grade XX bakelite dilecto. Gorton pantograph engraving. Oak Cabinet finished in flemish oak.

Knobs and dials are machined from sheet bakelite and turn TRUE. All socket supports are constructed of bakelite and cast aluminum.

Write for Catalog

## NORTHWESTERN RADIO MANUFACTURING CO.

1556 East Taylor Street

Portland, Oregon

When writing to Advertisers Please mention Pacific Radio News

# BAKELITE-DILECTO

The standard insulating material for all radio work. Water-proof, permanent, strong, used by all important manufacturers of wireless apparatus and others requiring the utmost in insulation. Furnished in sheets, rods and tubes.

We also manufacture VULCANIZED FIBRE in sheets, rods and tubes and CONITE, a special insulation, in sheets or rolls, from .005" to .020" thick.

Let us show how our standard products can be made to solve your insulation problems. Pacific Coast dealers carry a full stock of Bakelite-Dilecto, Vulcanized Fibre, Continental-Bakelite and Conite.

## THE CONTINENTAL FIBRE CO.

NEWARK, DELAWARE

DUCOMMUN HARDWARE CO., 219 Central Ave., Los Angeles, Cal.  
 CALIFORNIA ELECTRIC SUPPLY CO., 643 Mission St., San Francisco  
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 301 Fifth Ave., Pittsburg, Pa.

## CHELSEA Variable Condensers

Condenser No. 3



(Die-Cast Type)

No.	Capacity	Type	Size	Lbs.	Price
2	.0011 m. f.	Mounted	4 1/4 x 4 1/4 x 3 1/4	1 1/4	\$5.00
2	.0006 m. f.	Mounted	4 1/4 x 4 1/4 x 2 3/4	1 1/4	4.50
3	.0011 m. f.	With Dial	4 1/4 x 3 x 4	2	4.75
3	.0011 m. f.	Without Dial	4 1/4 x 3 x 4	2	4.35
4	.0006 m. f.	With Dial	4 1/4 x 3 x 3 1/4	1 1/4	4.25
4	.0006 m. f.	Without Dial	4 1/4 x 3 x 3 1/4	1 1/4	3.85

Top, bottom and knob are genuine bakelite, shaft of steel running in bronze bearings, adjustable tension on movable plates, large bakelite dial reading in hundredths, high capacity, amply separated and accurately spaced plates. Unmounted types will fit any panel and are equipped with counterweight.

Purchase from your dealer; if he does not carry it, send to us.

Bulletin upon request.

### CHELSEA RADIO COMPANY

13 FIFTH STREET CHELSEA, MASS.  
 Manufacturers of Radio Apparatus and Moulders of Bakelite

## One Step RADIO FREQUENCY Amplification

(To Bring Up the Weak Signals)

Then:—

## A Supersensitive Detector Tube

(To Detect and Amplify Them)

Then:—

## One Step AUDIO FREQUENCY Amplification!

(To Make Them Roar in the Phones!)

This is the **NORTHRAD THREE-TUBE ULTRIFIER**, the most sensitive Detector-Amplifier unit ever developed. Our Laboratory tests were amazing in results

We gladly send complete information to all who are interested. If you want to get results that will astound your radio friends, get on our mail order list. Our customers everywhere are record breakers and record makers, and our prices are right. Our CW Catalogue is now ready for distribution. Send for your copy.

## NORTHERN RADIO COMPANY

418 UNION ST., SEATTLE, WASH.

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## Classified Advertisements

ADVERTISEMENTS IN THIS SECTION ARE THREE CENTS PER WORD NET. REMITTANCE, IN FORM OF CURRENCY, MONEY ORDER OR STAMPS, MUST ACCOMPANY ORDER.

RADIO CABINETS—Mahogany or oak finished or unfinished, to your design. Send rough sketch for quotation. Prompt service Formica cut to size. Radio supplies, parts, etc. Pacific Radio Exchange, 439 Call Bldg., San Francisco, Calif.

"LEARN THE CODE, THE EASIEST WAY. Key and buzzer practice sets with lever key code and instructions. Price \$1.75 post-paid. Hytone adjustable buzzers 60c. Ajax Electric Co., 8 Palmer St., Cambridge 38 Mass."

FOR SALE—Hawkins Guides complete; Year Book 1914 and 1915; Wavemeter by Maubourgne; Engineering Principles by Lauer & Brown; Wireless Instruction by Hawkhead; Vacuum Tubes by Bucher; Wireless Telegraphy by Stanley; Storage Batteries by Niblett; Wireless Pocket Book by Fleming; 175 copies Experimenter, Wireless Age and Radio News 1914 to 1921. Excellent care has been taken of these books. What cash offer for the lot, F. O. B. Charleston. PEARCE, box 618, Charleston, Washington.

\$3 brings you a Roller-Smith panel type hot-wire Ammeter, new, tested and in perfect condition. Regular price \$13. Range, 0-2.5 Amp. Ideal for small C. W. transmitters. Unusual opportunity. Send prepaid or parcel post, C. O. D., for \$3. Better act today, as the quantity is limited. C. J. GOETTE, 2JU, 1624 Hamilton Ave., Woodhaven, N. Y.

UNIT RECEIVING INDUCTANCES assure satisfactory, efficient and unparalleled long-distance reception of all forms of radio transmission. For long wave work our BI-LATTICE COILS (duo-lateral) need no introduction. For short wave reception a set of SINGLE LAYER COILS compares favorably with the best regeneratives; and the cost is but a fraction of the regular regenerative receiver. Send 3c for bulletin. Our prices and service will surprise you. P. J. Stockwell, Box 157-D, Reading, Massachusetts.

PUT YOUR STATION IN THE DX CLASS. Use a real synchronous gap. We can also furnish you with a Oscillation Transformer to match. Write for particulars and photographs. Let us quote you on parts for your CW set. Radio Supply and Mfg. Co. 23 Merriam Place, St. Paul, Minn.

CABINETS: Quartered Oak and Mahogany Cabinets made to your specifications. Finished or unfinished. Only the best material, workmanship and design used. Our cabinets contain no nails. Radio Telephone Shop, 175 Steuart St., San Francisco.

YOU should have a copy of Lieut. E. W. Stone's "Elements of Radio-telegraphy," 400 pages of data on all sorts of radio equipment. A valuable book. The price is only \$2.50 per copy, postpaid. Pacific Radio Pub. Co., San Francisco, Cal.

ARC RADIO MANUALS, compiled by the Federal Telegraph engineers of San Francisco. Tells you all you need to know about the 2 and 5 KW arc sets for ship and shore use. Send to any address for \$2.50 per copy, postpaid. Pacific Radio Pub. Co., San Francisco.

HOME MADE RECEIVING SET COMPLETE. Large bakelite panel and ase with rheostat and switches. Double filament tube. Eveready Storage Battery and Franco B Battery. Mica Grid Condenser and Fixed Condenser. Three large Murdock Variable Condensers with oil case. Twelve Honeycomb coils on plugs. Two Honeycomb coil adapters. This entire set for \$40. Mesco radio buzzer, \$1.50; Mesco Key, \$1.50; Federal Amplifying Transformer, \$5; Porcelain Base Rheostat, 50c; DeForest Tube, never used, \$4.50; General Radio Base, \$1.25; Common Base, 40c; two Spark Coils, \$1 each; three Western Radio Unit Loads in case, Seven Point Switch, \$1.25 each. Everything for \$55. Martyn Cooney, 475 30th St., San Francisco, Cal.

A CLERGYMAN, wishing to dispose of his wireless outfit, offers some attractive bargains, viz: Remler panel, complete with bulb and B battery, \$10.00; Paragon V.T. control, with B battery, \$6.00; Universal receiving transformer, 2500 meters, \$8.00; France battery charger, with ammeter, \$10.00, and many others. For particulars address "PRESBYTER," this office.

**A AIR HOG**

By Squawk McGuff

I have been wondering all along  
 Just when I'm doing right or wrong.  
 Am I ever going to get in good  
 With this fighting amateur brotherhood?  
 If you have your set tuned to the minute,  
 And you give her all you can get in it;  
 Cut through static, rain, wind and fog  
 You go in the class of a air hog.  
 So often do I hear this phrase  
 That I never heard in bygone days.  
 They say I make considerable noise  
 And get the goat of all the boys.  
 In the good old days of nineteen ten  
 You could always talk, no matter when,  
 But now-a-days there's too many in  
 It takes some spark to get thru the din.  
 How about the fellow who doesn't use N. A.?  
 Gets his party, then don't know what to  
 say

Except "73" o.m. how do you get me?  
 I am just wondering, what is he?  
 How about the guy that sits on his key  
 Just to take his spite on somebody.  
 And is always reporting to satisfy a whim  
 Ah, I am wondering, what do you call him!  
 How about the pest with a glass arm?  
 Makes a noise like a Frisco fire alarm!  
 Who continually motions to close so and so  
 Does he hook up with principles of radio?



**AMATEURS EVERYWHERE**  
 are reading this national radio journal.  
 It is interesting and different.  
 Each copy is worth the price of  
 a year's subscription—One Dollar.  
 Write today for Sample Copy  
**RADIO TOPICS**  
 4533 N. Sawyer Ave., Chicago, Ill.

**CORWIN DIALS**

It is not particularly to Corwin's credit that Corwin Dials are the best on the market. With their experience and volume of sales, it would be to their shame if Corwin Dials were any less Perfect.

3" Dial, 75c—with knob, \$1.30  
 3 3/4" Dial, \$1.00—with knob, \$1.70  
*At all Radisco agencies, and other reliable dealers, or sent postpaid anywhere*

**A. H. CORWIN & CO.**  
 4 West Park St., Newark, N. J.

**PORTLAND AMATEURS**  
 VISIT THE  
  
**RETAIL STORE**  
 622 WORCESTER BLDG.  
**PORTLAND, ORE.**  
 COMPARE OUR PRICES  
*Call or write for Price List. Reliable Mail Service*

**FORMICA**  
 SHEETS - TUBES - RODS  
 Made from Anhydrous Redmanol Resins

Formica is a homogeneous waterproof insulation with exceptionally high dielectric properties. It is readily machined and does not warp or shrink.

Formica is the ideal material for panels and other insulation parts of Radio Apparatus, on account of its superior electrical and mechanical properties, as well as its splendid appearance.

**THE FORMICA INSULATION CO.**  
 Cincinnati, Ohio

Pacific Coast Representatives:  
 Hermans-Griffith Co., Sheldon Bldg., San Francisco  
 Jobbers: Leo J. Meyberg Co., 428 Market St., San Francisco; Wireless Shop, 511 W. Washington St., Los Angeles; Northwest Radio Service Co., Seattle, Washington.

**An Important Message to the Radio Public!**

A PROMINENT RADIO ENGINEER SAID: "I have been using the SORSINC 'B' BATTERY in the development of 5 and 6 step Audio Frequency Amplifying Receivers, and find no noise on normal battery depreciation. After continued use there was no gas discharge noise in the phones when the battery was low. Two of the units are sufficient for the plate potential on all the steps."

**\$4.** F. O. B. our U. S. OFFICES—add P.P. CHARGES. SHIPPING WEIGHT 14 POUNDS. WRITE FOR FOLDER.

**The Largest "B-Known"**  
 The sealing compound permeates the entire unit. The unit weighs 12 pounds. The cells are 4" long by 1 1/2" in diameter. The action is QUIET. The capacity is 6400 milliamperes hours. On shelf life the Unit is guaranteed not to depreciate more than 10 per cent in voltage in 6 months.

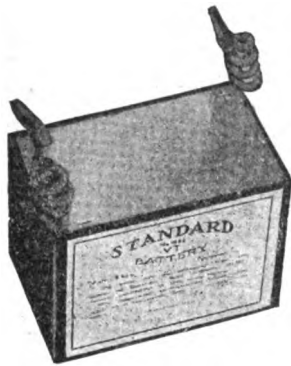
IF YOUR DEALER CANNOT SUPPLY YOU, ORDER DIRECT.

**SHIP OWNERS RADIO SERVICE, Inc.**

OFFICES:  
 NEW YORK, 80 WASHINGTON STREET.  
 Boston, 175 Commercial St. Galveston, 313 American  
 Philadelphia, 201 Parkway Bldg. National Ins. Bldg.  
 \*BALTIMORE, 407 LOBE BLDG.  
 \*NORFOLK, 26 HADDINGTON BLDG.  
 \*SAVANNAH, 409 MENDEL BLDG.  
 \*NEW ORLEANS, 710 MAISON BLANCHE ANNEX  
 San Pedro, 432 Palos Verdes St.  
 San Francisco, 24 California St.  
 \*PORTLAND, ORE., 622 WORCESTER BLDG.  
 Seattle, 3451 E. Marginal Way.  
 \*Honolulu, 408 Boston Bldg.  
 London, 50A Cambridge St., Belgravia, S. W. I.

\*A complete line of Amateur Apparatus is carried at these Offices  
 Our Branch Managers will be pleased to give you expert advice on your Radio problems.

# SATISFACTION!



That's what the STANDARD VT BATTERY is built to give. But to get it you must insist on the genuine STANDARD VT BATTERY, without modification of the name. Refuse and return the substitute.

Type	List Price
No. 7623—Small size .....	\$1.50
No. 7625—Large size .....	2.65
No. 7650—Large size Plug— Variable .....	3.50

Does Your Dealer Sell the Real Standard VT Battery?  
**RICHTER-SCHOTTLER CO., MFRS.**

293 CHURCH STREET

NEW YORK, N. Y.

Pacent Electric Co., Sole Agents

150 Nassau St., New York City

Phone Kearny 2778

## PACIFIC RADIO SCHOOL

ARC & SPARK SYSTEMS

Hours:

1 to 5 P. M.  
7 to 9 P. M.

433 Call Bldg.,  
San Francisco, Cal.

Send for descriptive circular.

## "The Radio Telegrapher"

Official Organ  
UNITED RADIO TELEGRAPHERS' ASSOCIATION  
Room 303  
24-26 Stone Street

Read about what's going on among the Commercial, Navy and Army operators

ON SHIPBOARD  
AT SHORE STATIONS  
AT HOME AND ABROAD

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## —RADIO INSTITUTE— OF AMERICA

Conducted by the greatest and most experienced radio telegraph organization in the world.

Thorough training given in radio operating, traffic, and in damped and undamped systems.

Tuition ten dollars a month for either the day or evening sessions or both combined.

RADIO CORPORATION OF AMERICA  
Phone Douglas 3030 331 New Call Bldg., San Francisco

## THE ANSWER TO THE BALLOON MYSTERY

(Continued From Page 51)

Only one man has the correct answer. He is 6AS—and he happens to be Brownie's brother. Step forward, please, 6AS, and collect your debt from us. Almost everybody knows that many years ago 6CH gambled with death and eternity in the performance of his duties of a "Balloon Daredevil." He has told you this story on the air many times and his radio shack is decorated with several photographs of the "Balloon Man." Many a time you have seen him hanging to the parachute ring with only the help of his toes. And, after all that he has told you, the many replies that we get to the question deal with nothing but "wind." So here's the answer:

"The relation of Brownie to the balloon, or vice versa, is that "the air is their hang-out."

### ERRATA

On page 15 of the August issue there appeared an article by Mr. Frank E. Summers, entitled "Interrupters in Vacuum for Modulation in Transmission and Reception." The word DIELECTRIC is frequently used and the attention of our readers is called to the fact that this word should read DIAMAGNETIC throughout the article.

Don't forget to read the Classified Ads on Page 74.

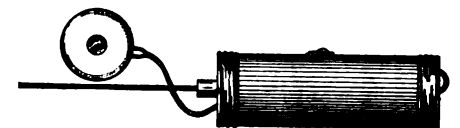
## SKINDERVIKEN TRANSMITTER BUTTON



This famous button made in several styles for experimenters and wireless men. Super-sensitive style for detectiphone work. Sends piano, violin and victrola music thruout the house. Common battery style for wireless telephone and amplifier use. Capable of passing a greater amperage than most transmitters. Price with complete instructions for use, \$1.00.

complete instructions for use, \$1.00.

## The Wonderful Mechanical Stethoscope



enables you to detect instantly any knock, loose parts or other trouble which causes destruction and heavy expense, unless attended to at once. Auto Mechanics everywhere depend upon the Stethoscope for *inside information*. The mechanical Stethoscope with authoritative Sound Chart offered to you on a money-back guarantee for only

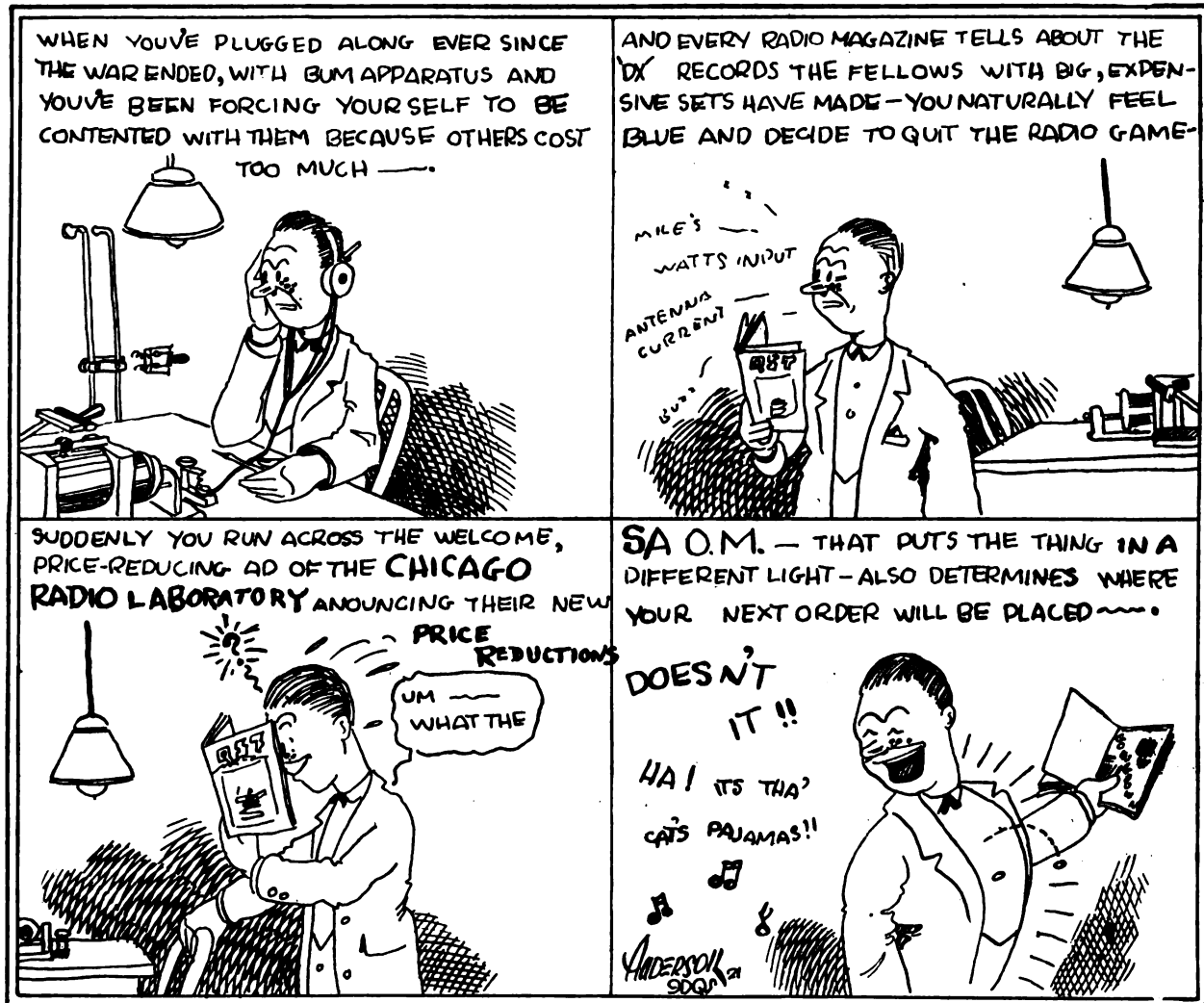
\$7.50 by mail, postpaid. Send for literature and letters of approval without obligation.

### EXPERT TESTIMONY

"IN my 18 years of using broom handles, screw drivers and other handy things to locate sounds with, I have never had anything that could beat the Stethoscope. If I could not get another, \$100.00 would not buy mine."  
(From an automobile expert, name on request)

General Sound Transmission Corporation  
114 LIBERTY ST., NEW YORK.  
Dealers and Agents Wanted. Write for Literature.

# Don't Feel Blue—Let the Tubes on your C. W. Set do that!



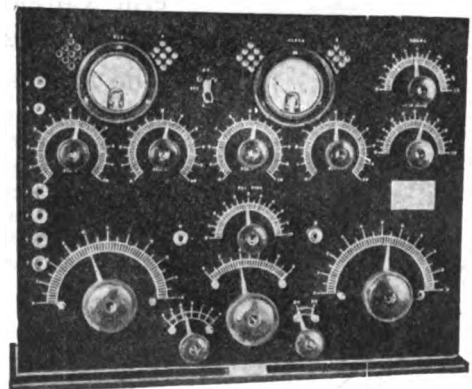
"OUR LATEST"

## "Z-NITH" RADIO APPARATUS

Has Been Reduced in Price Approximately  
15 Per Cent on Each Instrument.

These prices represent our contribution toward the reduction of the "High Cost of Radio."

Instrument	Old Price	New Price
Z-Nith Regenerator .....	\$ 65.00	\$ 55.00
Amplifigon AGN-1 .....	75.00	64.00
Amplifigon AGN-2 .....	105.00	89.25
Amplifigon AGN-3 .....	135.00	115.00
Hyrad Disc .....	12.00	10.50
Hyrad Non.-Syn. Gap .....	65.00	49.00
Hyrad Syn. Gap .....	125.00	105.00
Jeweler's Time Rec. ....	75.00	69.50
Multiceiver MC-3 .....	265.00	236.00
Altaceiver CW-3 .....	300.00	254.00
C. R. L. Regenerette .....	12.75	12.75
One-Step Amp. AM-1 .....	33.50	28.50
Two-Step Amp. AM-2 .....	65.00	55.00
Detector AD .....	20.00	17.00
Detector ADP .....	30.00	25.00



Z-NITH MULTICEIVER MC-3

The most complete, efficient and flexible receiver ever designed. Described in detail in our Catalog F-21. Write for it.

## CHICAGO RADIO LABORATORY

Office and Factory, 6433 Ravenswood Ave.

Testing Station 9ZN—5525 Sheridan Road

CHICAGO, ILLINOIS



**RADIO APPARATUS**  
*For*  
**Amateur and Experimental Use**  
*With*  
**INSTRUCTIONS FOR CONTINUOUS WAVE OPERATIONS**



**Radio Corporation**  
*of America*

Sales Division, Woolworth Building, New York City

# C.W. INSTRUCTION

*The most needed book of the hour*

The Radio Corporation of America takes pleasure in announcing the publication of its new combination C. W. Instruction Book and General Catalogue of experimental radio accessories.

The first section covers:

- A. The Use of Radiotrons in C. W. Work.
- B. General Operating Instructions for Tube Sets.
- C. Nine Practical C. W. Radio Telegraph and Telephone Circuits and their Constants.
- D. Precautions in Using Transmitting Tubes.
- E. Radiotron Power Tubes.
- F. Kenotron Rectification.

The second section consists of a catalogue embracing a complete

line of radio telegraph and telephone apparatus for amateur and experimental use.

The first edition of this important book is limited. In order to insure *your* copy, sign the coupon on this page and return it to us promptly. Copies will be ready for distribution September 1, which will give you ample time to prepare for fall and winter C. W. experiments.

**DEALERS:**

You will need copies of this book and you will want to handle the new line of R. C. products. *Prepare for the fall trade.* Write direct to:

**Radio Corporation**  
*of America*

Sales Division, Commercial Department, Suite 1804  
 233 Broadway, New York City

**DO IT TODAY**  
 Sales Division, Commercial Department, Suite 1804  
 Radio Corporation of America  
 Woolworth Building, New York City  
 Gentlemen: Enclosed please find 25c in stamps for which  
 please enclose the first mailing list to receive the new  
 catalogue on C. W. transmission and radio apparatus  
 Delivery on or about September 1, 1921.

Name.....  
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**CONTEMPLATED DISTRIBUTION OF RADIO MARKET NEWS**

Continued from page 68

Marketing Bureau of Missouri is looking forward to encouraging the installation of inexpensive radiophone equipment in thousands of farm homes throughout Missouri.

If this ambitious program is worked out to a success, there will be a new version in Missouri of the old poem entitled "Why Boys Leave the Farm." In addition to receiving valuable market information on wheat, live stock, cotton, fruits and vegetables and other farm products farmer boys and girls in Missouri will be able to sit in their homes and entertain their friends by listening to a concert given by the Minneapolis Symphony Orchestra at Minneapolis, or to Galli-Curci in Chicago or New York. Hundreds of other events of intense interest are witnessed daily by boys all over the United States who have installed radio outfits at their homes.

Alfred Tennyson in his poem entitled "Locksley Hall," written in 1842, said:

"For I dilt into the future, far as human eye could see  
Saw the Vision of the world, and all the wonders that would be;

"Saw the heavens fill with commerce, argosies of magic sails,  
Pilots of the purple twilight, dropping down with costly bales;

"Heard the heavens fill with shouting, and there rain'd a ghastly dew  
From the nation's airy navies grappling in the central blue;

"Till the war-drum throbb'd no longer, and the battle-flags were fur'd,  
In the Parliament of man, the Federation of the World."

Truly, it does not seem to be such a "dip" into the future as far as Tennyson prophesied concerning commerce and naval engagements by air craft to the realization of the wonderful possibilities of the wireless telephone and telegraph. By "dipping into the future" only a few years, however, the Missouri State Board of Agriculture believes that thousands of Missouri citizens may be able to sit in their homes and hear the delegates in the legislative halls at Jefferson City relative to the "farmers' monopoly on food products," the question of "regulating air-ship traffic," and other important future topics for legislative consideration.

The first really big step in the Missouri program will be a radio exhibit at the Centennial State Fair to be held in Sedalla, August 8-20, 1921. This new idea in connection with a market exhibit at an agricultural state fair will certainly fit into the Centennial program,—Missouri's celebration of her 100th birthday. One does not have to go back into Missouri history or the history of the nation 100 years to make a comparison of the slow means of communication of



## SOMETHING NEW

### THE PARKIN DIAL TYPE RHEOSTAT

(Patent Pending)

Consists of a 3-in. molded Bakelite dial, in the back of which is a circular groove containing the resistance element. This groove, being recessed, allows the dial to clear the panel by the usual distance of 1-16 in. An off position is provided, and a stop on the dial engages the stationary contact at the extreme positions. The 360 degree rotation insures fine adjustment. A brass bearing insures a true running dial and smooth action.

All figures and graduations are filled with brilliant white enamel. All brass parts nickel plated. Bakelite knob. Resistance is 5 ohms, carrying capacity 2 amps.

No. 77 Parkin Dial Type Rheostat. Postpaid \$1.75

**FOR SALE BY ALL LEADING DEALERS**

Send for free Catalog No. 4 describing our complete line. Dealers: Write for proposition.

## PARKIN MFG. CO.

SAN RAFAEL, CALIFORNIA

former years to that of the wireless telephone as it has been so excellently perfected within recent years. This and other comparisons between modes of travel, communication, and living in Missouri in 1821, when that empire state was admitted into the Union, and 1921, will be made by hundreds of other exhibits at this great mid-western Centennial State Fair.

Doubtless, the radio market news furnished to the farmers attending the Missouri State Fair will remind them that marketing problems in the state in 1821 were quite different from those of today. Most any kind of news in that day in Missouri was more of a curiosity than an every day occurrence or necessity. Certainly market news of any kind for the farmer was unheard of in 1821. If it had been available, the crop of the next season would have been ready for market before the market news concerning the preceding crop could be received.

Who will venture to picture the state of affairs that will exist, not only in agriculture but in every activity of life, when the wheels of evolution shall have brought Missouri farmers back to Sedalla in 2021 to celebrate the state's second anniversary?

After the State Fair has ended commences the circuit of county fairs which last until the middle of October. While it may be impossible to get into each of the 114 counties of that big state, the Missouri Board of Agriculture intends that its State Marketing Bureau shall establish radio connections with many of the county fairs and its offices at the State Capitol at Jefferson City. This work will bring the feasibility of distributing government market news from the offices of the State Marketing Bureau at Jefferson City to the farmers in every county of Missouri in an intensive and practical manner. The installation of many radio outfits to connect the various counties with market news headquarters of the State Mar-

keting Bureau will undoubtedly follow in the wake of this means of demonstrating the practicability of connecting the smaller towns and even the farm homes with the outside world by radiophone.

No let-up in this demonstration work is anticipated by those in charge of the work in Missouri. Connections will be made from time to time between the State Marketing Bureau offices at Jefferson City and various meetings of farmers and farm organizations, such as Farmers' Week, held at Columbia annually, various agricultural conventions held in St. Louis and Kansas City, meetings of Farm Bureaus, Farm Clubs, Granges and Unions.

Both manufacturers and jobbers of radio equipment are taking a keen and active interest in the Missouri program and will assist it by very substantial and effective means. It offers the first opportunity in the history of the radio for the promoters of the science of wireless communication to assist in a big program of showing the people of any state the value of the wireless telephone and telegraph.

Led by the State Marketing Bureau within the borders of their own state, Missourians, the "show you" folks, are going to be "shown" one of the most remarkable advantages offered by modern science. Other states will undoubtedly follow the example set by that great agricultural state.

Arrangements will be made to invite President Harding to speak from Washington to the Missouri State Fair folks during the two weeks' fair. Governor Arthur M. Hyde also will address the Missouri crowds by radiophone several times during the Centennial State Fair. Daily market news will be distributed through the crowds, and radio concerts will be given during the period of the great Centennial State Fair.

The equipment is being furnished by the Benwood Co.

**SECOND-HAND STOCK AT UNHEARD-OF PRICES**

We have a number of pieces of apparatus left here by our customers for sale. These, as is the custom of TRTS, are fairly priced and are to be sold to the first comer.

- 1 Radio Craft Detector and 2-step amplifier... \$30.00
- 1 PB Detector, and 2-step amplifier, a snap... 45.00
- 1 PB Detector and 2-step amplifier... 55.00
- 1 DeForest Tuner, P200 type, with extra condenser for phones... 40.00
- 1 Magnavox, \$45 type, almost new... 35.00
- 1 Magnavox, \$45 type, first model... 30.00
- 1 Cabinet with 2 DeForest condensers, one .0015 MF with Vernier, other .001 MF... 28.00

(Above has Formica Panel and Oak Cabinet)

**THE RADIO TELEPHONE SHOP**

- 1 partly complete 4-tube phone set, wired up with 2 DeForest condensers, Acme modulation transformer, inductance, switches, General Radio Buzzer, etc. .... 45.00
- 2 6-volt 150-ampere hour Edison batteries, just overhauled, A-1 condition, each... 35.00
- 1 pair Stromberg-Carlson phones, good condition... 2.50
- 1 pair Wireless Specialty Adj. Magnet phones... 3.50
- 1 pair Brandes Old Navy Type phones, A-1 condition... 4.00
- 1 0-5 AC Ammeter... 4.75

A number of used Cunningham and Radiotron tubes at \$4.25 each. These tubes have been used very little in demonstrating purposes with shop sets.

**175 Steuart Street, San Francisco, Calif.**

When writing to Advertisers Please mention Pacific Radio News

# Do Amateurs Realize the Wireless Opportunities that Await Them?

*How the President of the National Radio Institute Answered this Question when it was Put up to Him. What would You have Said? Is the World's Fastest-Growing Field actually going to slip away from those best able to Cash in Big on it? These are Questions which will Interest Every Radio Amateur.*

THAT was one of the questions recently put up to me by a well-known authority visiting Washington. "In your opinion," he said, "do amateurs realize the wireless opportunities that await them?" For a moment I was stunned! Then I replied, "Yes, with just one 'but.' I think that amateurs are well aware of the tremendous expansion of wireless that is dally going on. They realize that it is sweeping the world like wildfire. BUT I do not think that they realize what this means to them—they do not realize that they can easily get the 'plums' that the field offers. They have the 'jump' on everyone else, and they should realize now that

'the fastest-growing field in the world' besides being a fascinating hobby is a wonderful, opportunity-filled field offering splendid present advantages—and growing so rapidly that the future is beyond estimation!"

I wonder if many amateurs have ever considered the fact that what is to them a fascinating hobby is also a fascinating profession, filled with big opportunities that they can easily share whenever they are ready to do so. It's only a short step for them now to a splendid field that they can put their hearts into—and offering a bigger future than older businesses which are overcrowded.



Mr. James E. Smith, President, National Radio Institute

## Big Opportunities Are Knocking—Are Some of Us Saying "Please Go 'Away and Let Me Sleep?"

After the caller who started me thinking about this matter had left, I jotted down on my pad some of the items which I had recently noted regarding wireless expansion. On land and on sea big opportunities are opening, and even greater uses for wireless are being found every day. No doubt you, too, have read these items, but I am going to have them printed here because I want to impress upon you what this tremendous expansion can mean to you.

When I read every day how wireless expansion is sweeping over the world I often say to myself, "Big opportunities are knocking—I wonder if amateurs realize that they can cash in big on this growing field. While opportunities knock, I wonder if some aren't saying, 'Please go 'way and let me sleep.'" Of course, they aren't sleeping by any means, but I want all of them to know just how easy it is to fully qualify for a field which is undeniably filled with greater advantages than most others in the world today.

### EASY TO QUALIFY IN SPARE TIME—AT HOME

I want to tell you—without obligation to yourself in any way—more about wireless opportunities and how you can take advantage of them. I would like to tell you about our Institute, which is officially recognized by the United States Department of Commerce and whose name heads the list of the schools recommended by the U. S. Shipping Board. This National Radio Institute was the original and is today the oldest and largest school in America teaching wireless by mail. The government allows our graduates five to ten points credit when taking First Grade Government License examinations. We have graduates in almost every part of the world who have quickly qualified through the special method through which we make Wireless amazingly easy for anyone to learn completely at home in spare time.

These are some of the main points about this Institute and I am sorry I haven't room

to tell you all of them. I should like to tell you more about our wonderful new methods of teaching, about our remarkable new invention, the "Natrometer," which each student gets free, and which almost cuts in half the time necessary to learn Wireless thoroughly. Then, too, I'd like to tell you about our free Post-Graduate Course and about "Dots and Dashes," about our Diploma, our Relay League, Employment Service, and about our special easy-payment plan. But there is not enough room here to tell you about all these things so I am going to ask you to write me for a new interesting booklet we have gotten up.

### WRITE ME FOR BOOKLET

A little coupon is being put here so that you can save yourself trouble in sending for this illustrated booklet, "Wireless the Opportunity of Today." By mailing this coupon you will not be obligating yourself in any way and no solicitor will call upon you. But the coupon will bring you some mighty interesting facts about Wireless Opportunities and about how you can quickly and easily qualify for them—at home and in your spare

time. Won't you mail this little coupon at once? Whether you are a junior Radio Amateur and want to learn all about Wireless or whether you are anxious to fully qualify so as to enter the wireless profession now in one of the fine opportunities open on land or on sea—write me for this booklet. All that I ask is that you write as soon as possible. And—since there is no obligation—why not write me today?

P. S.—By the way, we are making a special short-time offer, for a strictly limited time, in which we are giving all new students, our complete new course in Wireless Telephony FREE. Mail the coupon direct to me, today, and let me tell you about it by return mail. Mr. James E. Smith, President, The National Radio Institute, Dept. 299, Washington, D. C.

Residence schools in Washington and Baltimore.

### MAIL THIS COUPON TODAY—

Mr. James E. Smith, President, National Radio Institute, Dept. 299, Washington, D. C.

Send me your FREE book, "Wireless, the Opportunity of Today." Tell me about your Institute and your special short-time offer.

Name .....

Age ..... Occupation .....

Address .....

City ..... State .....

I am interested in a sea position.

I am interested in a land position.

### What I Jotted Down

Here are the items I jotted down on my pad, showing how Wireless is growing by leaps and bounds all over the world. Let me tell you what this world-wide sweep of wireless expansion means to you and to your future.

A \$20,000,000 American corporation has been formed to establish wireless stations in every part of the globe.

The U. S. Merchant Marine operates over 30,000 vessels. Wireless is now a necessity on ships.

The Chicago Tribune now receives foreign news by wireless. Other papers are calling upon Wireless too.

Huge wireless stations are springing up all over the world. Saint Assise, France; Bordeaux, Ville Juif, and Lyons, France; Peking, China; Geneva, Switzerland; Shanghai, China; Fiji Islands; Warsaw, Poland—and these are but a few.

Many railroads are calling upon wireless to dispatch trains and carry on communication. The Lackawanna, The Louisville & Nashville, The Canadian-Pacific, The Nashville, Chattanooga & St. Louis, are some of them.—New York, Cleveland, Chicago and Detroit are connected by an inter-city wireless service. Criminals are being intercepted by wireless through the Police Department of New York, Dallas, Chicago, and other cities.

Brokers, Bankers, Merchants, Manufacturers and other business concerns are calling upon wireless. John Wanamaker, Goodyear Rubber Co., Standard Oil Co., New York Stock Exchange, are only a few.

Farmers are getting Market and Weather reports daily by wireless in all sections of the country.

New wireless stations are springing up in every part of America. Belfast, Maine; Cape May, N. J.; East Pittsburgh, Pa.; San Francisco, Cal.; Helena, Montana; Seattle, Washington; Mobile, Alabama—these are but a few.

The Aerial Mail Service of the Post Office Department already has 12 radio stations in operation.

The Japanese are constructing a powerful station in the Orient.

A big new wireless service is being established between England and France.

The Federal Telegraph Co. is establishing a complete chain of stations on the Pacific Coast.

Messages are sent from the Philippine Islands to Washington (10,000 miles) in 3 minutes.

Daily wireless service between the United States and Japan is in full operation.—St. Johns, Newfoundland, is operating a large service.

Danzig, in Europe, is carrying on large wireless operations.

Three tremendous stations are operating on Long Island at Easthampton, Port Jefferson, and East Moriches.

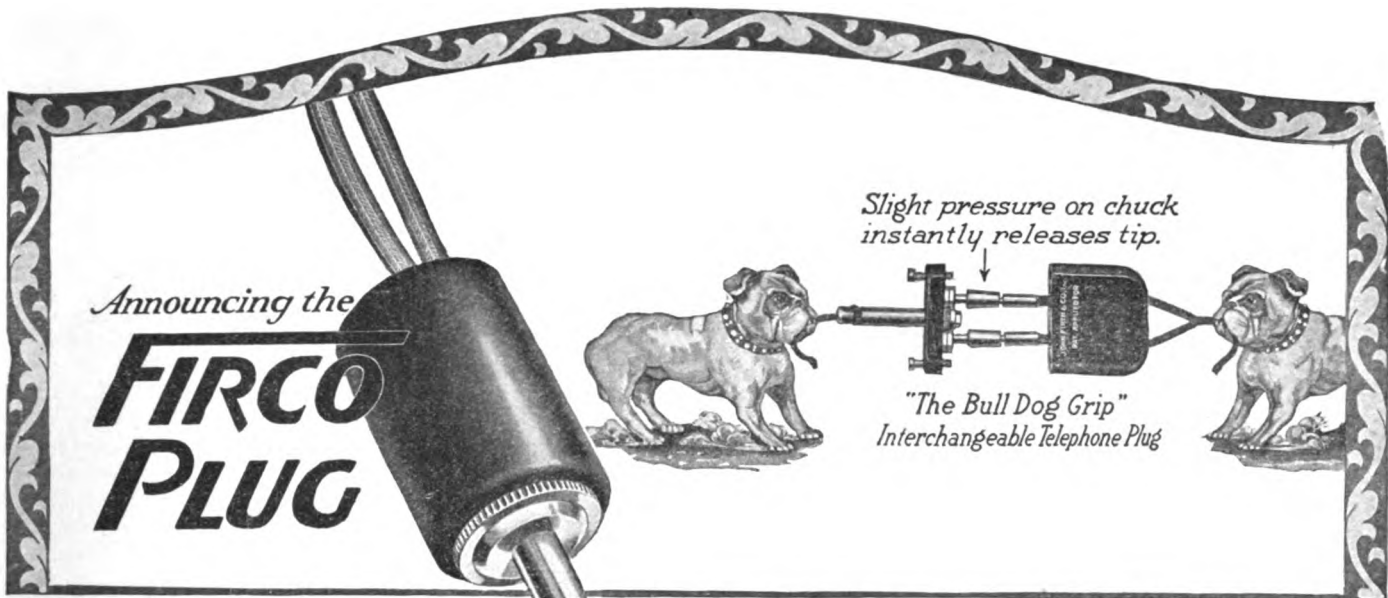
South America is planning to establish a chain of stations at Rio de Janeiro, Asuncion, Buenos Aires and Montevideo.

One single American concern offers wireless communication between the United States and France, England, Germany, Norway, Denmark, Sweden, Finland, Poland, Honolulu and Japan.

And these are only a few of the examples showing how Wireless expansion is spreading over the whole earth. It brings you amazing opportunities—and you can now easily grasp them.



When writing to Advertisers Please mention Pacific Radio News



Announcing the  
**FIRCO  
PLUG**

Slight pressure on chuck  
instantly releases tip.



"The Bull Dog Grip"  
Interchangeable telephone Plug



## Grips like a Bull Dog

### PRICES

#### FIRCO PLUG

(Patent applied for)

- No. 34A, Flat type.....\$2.00
- No. 34B, Round type... 2.50

#### VOCALLOUD

Station type .....\$30.00  
(In solid mahogany cabinet)

Laboratory type .....\$25.00  
(Mounted on adjustable metal base)

SACO-CLADS .....\$5.00  
(In individual cartons)

Press the chucks outward, insert any standard telephone cord tip, and then,—“The harder you pull, the tighter it grips.” The same slight pressure instantly releases the tips, so that you can use the plug for another instrument.

You can change from one pair of tips to another in less than 10 seconds. No forcing, no filing, no soldering.

The “Bull-Dog-Grip” makes a perfect electrical connection. Other exclusive Firco improvements reduce the capacity effect and dielectric loss to a minimum.

The Firco Radio Plug is provided in two styles, flat, and a new round type, similar to the U. S. Signal Corps standard.

With the round type, all that is necessary to get at the chucks is a few turns of the outer insulating sleeve. No screws to remove, no tools needed.

The flat type is made small and compact for use in small space and corners. A few turns of a screw driver releases the insulating sleeve.

Bring your station up-to-date. Use plugs and jacks thruout. Insist on Firco Plugs in individual cartons from your radio dealer. They fit all standard jacks and cost no more than other plugs without these exclusive improvements.



#### VOCALLOUD

This clear-toned loud speaker is proving the sensation of 1921 radio. No batteries, no adjustments, no extra equipment. Just hook a Vocaloud in and get your signals QSA—all over your house.

#### SACO-CLADS

The 100% shielded amplifying transformer. No magnetic leakage and no howling. Six steps are entirely practical without howling or squealing. Provides the correct ratio of impedance for modern VTs.



Patent applied for

If there is any Firco product your dealer does not carry, send two cents for illustrated leaflet. Ask your radio dealer to show you the new Firco loose-leaf catalogue. Mailed direct for 25 cents.

John Firth & Company, Inc., 18 Broadway, New York



- FIRCO Audion Detectors and Amplifiers
- Radio Frequency Amplifiers
- High Voltage Units (any primary voltage)
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**FIRCO RADIO**  
**EQUIPMENT**  
“Pioneers—since 1901”



**Introducing**

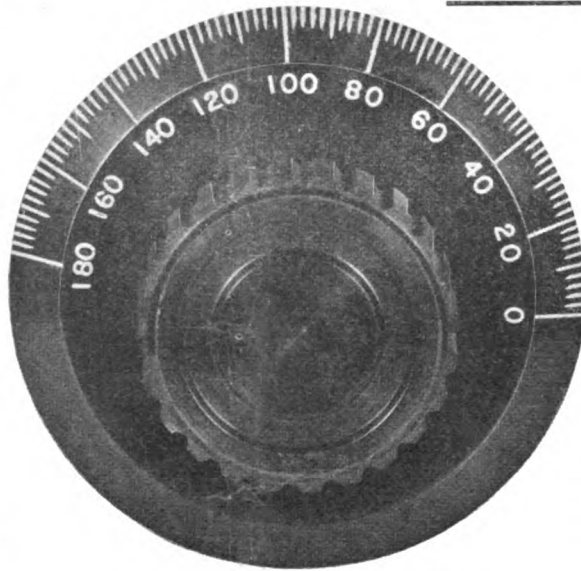
# THE PEN BRAND DIAL

A three inch  
**CONDENSITE  
DIAL**

(Unbreakable)  
with a large

**DeForest  
Knob**

**3-in. diameter - \$1.30**  
**4-in. diameter - 1.75**



**At Last**

A dial with a REAL knob. This dial is, without doubt, the prettiest instrument of its kind that has yet appeared on the market. It affords the user a very close adjustment on condensers or variometers on account of its generous sized knob. It fits harmoniously with the knobs used on DeForest instruments. This instrument is made of CONDENSITE and is indestructible. And it is lined straight. Specify PEN BRAND dials on the set you are constructing.

3-in. diameter. Price... \$1.30  
4-in. diameter. Price... 1.75

**FORMICA PANELS**

3-16th thick. 2½c per square inch.

Cut to exact sizes, with edges smoothed off. To find the exact cost of a Formica Panel (3-16th thick) multiply the height by the length to get the square inches, and multiply the square inches by .02 1-4, which gives the exact price of the panel in dollars and cents.

For polishing panels to a high gloss finish, add 75c per square foot. 75c minimum charge.

Marking out panels for drilling, \$2.00 per hour.

For drilling panels bought from us, we charge \$1.00 when panel is "center-punched."

**CABINETS**

made to your specifications. Quartered oak or mahogany, finished or unfinished. Hinged top cabinets cost but a few cents more. Come in and see the ones we offer. They are the best obtainable.

**THE PEN BRAND 3 IN. DIAL**

**NEW-B BATTERIES**

REAL 45-volt B Batteries, at last. The Battery is made up of 33 cells, instead of the usual 30 cells as found in other batteries. Has seven positive terminals, starting with approximately 18 volts and the last tap is 45 volts. This Battery made especially for amplifier sets and for Electron Relay tubes. Price \$5.00.

**COME TO US WITH YOUR PANEL TROUBLES AND SAVE MONEY**

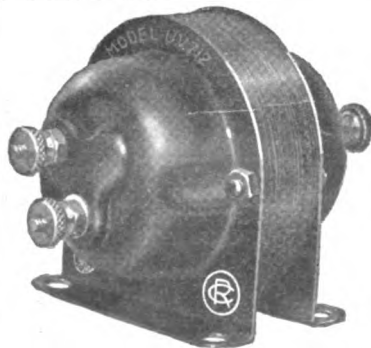
**PEN BRAND PRODUCTS**

- Pen Brand Series — Parallel Switches, now ..... \$1.00
- Pen Brand Grid Condensers, now ..... .65
- Pen Brand Small Switch, DeForest knob ..... .45
- Radio Corporation Grid Leaks ..... 1.25
- Murdock No. 55 2000-ohm phones ..... 4.50
- Murdock No. 55 3000-ohm phones ..... 5.50
- DeForest f-500 Rheostat, new ..... 1.75
- DeForest all bakelite socket, new ..... 1.50

**AERIAL WIRE—SPECIAL**

No. 14 hard drawn copper wire, 50c per pound (about 80 feet to pound). This offer expires September 25th. All orders must be in by that time. Here is your chance to get a new aerial at a reasonable price.

**When in need of apparatus get TRTS (the Real Time Savers) service. Orders shipped the same day as received on nearly all standard makes of instruments. All materials sent parcel-post prepaid.**

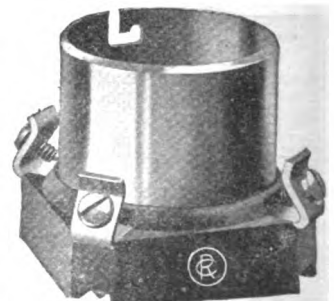


**AMPLIFYING TRANSFORMER**  
Model U.V. 712  
Price, \$7.00

A new inter-tube tone frequency amplifying transformer designed to make Radiotron Detector, U.V. 200 and Radiotron Amplifier Tube, U.V. 201, the most effective vacuum tubes on the market today. Tests have proved this conclusively.

Special bulletin containing detailed data and circuit diagrams for the use of U. V. 712 will be sent upon request.

Thousands of these sockets are now in use throughout the amateur field. They will fit the Radiotrons U. V. 200, 201, and 202 insuring reliable contact under all operating conditions. Moulded unit made to fit and last, and backed by the R C stamp of quality.



**STANDARD BAKELITE SOCKET**  
for Radiotrons U. V. 200,  
U. V. 201, U. V. 202  
Price, \$1.50

## THE RADIO TELEPHONE SHOP

Agents for Radiotron Apparatus in Utah, Nevada, New Mexico, Arizona, California, Oregon, Washington.

175 STEUART ST.

SAN FRANCISCO, CAL.