VOLUME 1 NUMBER 12

PACIFIC RADIO NEWS

JULY, 1920 FIFTEEN CENTS

IN THIS ISSUE:

First and Only Pacific Coast Publication Devoted to Radio Communication

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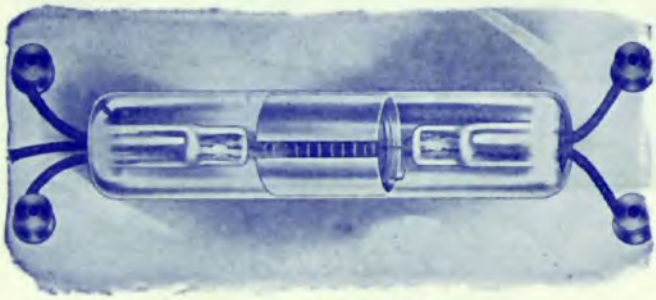

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Pacific Radio News

50 MAIN ST., SAN FRANCISCO

Vol. I JULY, 1920 No. 12.

PAUL R. FENNER, Editor H. W. DICKOW, Advertising Manager

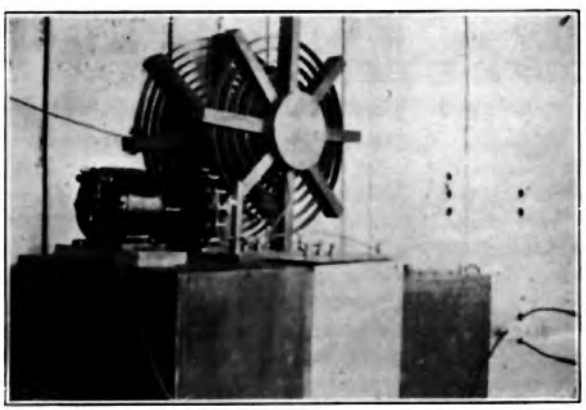
GUY R. ENTWISTLE, New England Representative, Boston office, 18 Boylston st.

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

PACIFIC RADIO NEWS is published monthly. Subscription rate is $1.50 per year in the U. S. and possessions; $2.00 in Canada and foreign countries. Single copies, 15 cents. For sale at news stands.

Address all communications to PACIFIC RADIO NEWS, 50 Main St., San Francisco, Cal. Contributions should be marked for the attention of the editor.

Forms close on the tenth of the month preceding date of magazine.



CALIFORNIA AMATEUR STATION IS HEARD IN HAWAII

THE Seefred Brothers, of Los Angeles, have established another long distance communication. For the first time in the history of amateur radio on the Pacific Coast an amateur station has been heard in Honolulu. The distance from Los Angeles to the Hawaiian Islands is approximately 2,100 miles.

The accompanying half-tone shows the transmitting apparatus of station 6EA that has been successful in bridging the gap between California and Hawaii on 200 meters.

6EA has been copied on many occasions, with an audibility of seven, by Mr. T. Hall in Honolulu. Hall uses an eigh step amplifier and has an up-to-date radio installation in the Young Hotel in Honolulu. 6EA radiates six amperes and uses a coupling six inches between the coils of

his oscillation transformer. The antenna is only forty-five feet long with a fifty-one foot lead-in, making the total length of his antenna ninety-six feet. Four wires of seven strands of number twoentytwo copper wire are used in the antenna. The The transformer input is only 500 watts; an oil-immersed condenser, laminated copper ribbon oscillation transformer and a sixteen stud rotary gap running at a speed of 1,700 r.p.m. comprises the transmitting equipment.

The Seefred Brothers have recently worked 5ZA (Roswell, New Mexico), 7CC (Moscow, Idaho), and 7ZB as well as 7DK in Portland, Oregon. Stations in Indiana, Illinois, St. Louis, Missouri and Seattle working on 200 meters, are regularly heard by 6EA.

Radio Sets on Army Plane Achieve Remarkable Success

Remarkable success has attended the operation of radio sets installed on military airplanes engaged in patrol of the international boundary line between San Diego and Quitavaquita, Ariz., according to announcement made by Lieut. Herbert Metcalf, radio officer of the 91st aero squadron at Rockwell field.

In a report made public Lieutenant Metcalf said that during the last two months 47 radio patrols were made, during which only one mechanical defect was noted. This was in a burned-out bearing. Forty-five of the total number of radio patrols were characterized as excellent in the official government reports. Radio messages in the remaining two patrols were noted as poor, but the messages flashed from the airplanes were readable. This was attributed to inexperienced operators handling the radio equipment in the patrolling ships.

Lieutenant Metcalf's report showed that the military mobile radio station at El Centro frequently has communicated with border patrol planes checking out from the home station at Rockwell field. This is considered a remarkable achievement considering the distance, 125 miles over high mountains, and the power of the airplane sets, which are only of one-quarter kilowatt sending capacity.

Every border patrol pilot on flight duty is required to flash the minutes. The radio stations at Campo, El Centro and Andrade, operated by the signal corps, keep a log on the ships and their position is known to at least two of these stations at the same time. Radio checking in this manner makes it extremely unlikely, Lieutenant Metcalf says in his report, that any of the border patrol planes could be lost. Lieutenant Metcalf, who has charge of the installation, operation and repair of the radio apparatus on the border airplanes, declares that with modern apparatus such as used at present on ships of the 91st squadron, coupled with the thorough system of checking the progress of each plane in flight, makes it highly improbable that a repetition of the unfortunate Waterhouse-Connolly incident could occur.

Lieutenants Waterhouse and Connolly were killed by Mexicans on the shores of the Gulf of California after the two border patrol pilots lost their way over Campo and flew 350 miles south of the border.—San Diego "Union."

RADIO NEWS IN BRIEF

DEFOREST INSTALLS RADIO TELEPHONE IN SAN FRANCISCO

Lee DeForest, Inc., the Pacific Coast branch of the DeForest Radio Telephone Company, have recently installed a 1 K.W. Oscillion Radio Telephone transmitter in the California Theater in San Francisco. The apparatus is in charge of Mr. C. V. Logwood, formerly of the Federal Telegraph Co.

The Oscillion Transmitter employs two ½ K.W. DeForest tubes, made of Pyrex glass, operating on 1,500 volts D.C. and radiates about six amperes. Several wavelengths have been used, the first experiments being carried out on 1,050 meters, which has later been increased to 1,450 meters. Music from the organ of the theater, as well as the music from Hermann Heller's Symphony Orchestra, is transmitted into the air by means of several transmitters placed at various points about the stage and theater.

The DeForest people contemplate the installation of a receiving equipment using amplifiers and loud speakers at various hospitals in the vicinity of San Francisco in order to afford the sick and injured the privilege of hearing the music from the theater while they are confined to the hospital. The first equipment will probably be installed at the Letterman General Hospital at the Presidio, San Francisco, where convalescent soldiers will be entertained by the music.

The DeForest office at 451 Third street, San Francisco, will appreciate communications from operators regarding the distance at which the phone has been heard, either ashore or afloat.

WILSON SIGNS RADIO BILL

On June fifth, President Wilson signed a bill permitting U. S. Naval Radio Stations to handle commercial and press traffic.

RADIO PHONE EXCHANGE FOR AVALON ISLAND

LOS ANGELES, May 28.—(The Associated Press.) — The first commercially operated wireless telephone exchange in the world, according to officials of the Pacific Telephone & Telegraph Company, will soon be operated from Avalon, Catalina Island, to the mainland here, a distance of about thirty miles.

The city of Avalon yesterday granted the telephone company's petition for leave to establish a local service on the island, with wireless connection to Los Angeles and other points. The telephone company's announcement said that an ordinary exchange would be installed at Avalon, and that messages from that point to the mainland would be handled by wireless, without relaying.

A subscriber in Los Angeles, they said, would call central in the usual way, and the person he talked with in Avalon would answer an ordinary telephone, but the distance between the island and the shore would be bridged by the use of wireless. Heretofore Catalina Island has been dependent on a wireless telegraph station and airplane and boat mails.—S. F. Bulletin.

IT'S HARD TO TELL

what our readers like best but it will be easy to tell as soon as we receive your questionaire, properly filled in.

Radio Telephony vs. Radio Telegraphy

By B. Neal

GREAT advancement was made in the radio telephone field during the war. The Navy radio experts devoted much attention to it. All the large transports. warships and colliers were equipped with the apparatus. For close-up work it seems to be fairly satisfactory. I have listened in to the Navy radiophone work many times and the impression that I get is that the system does not work reliably at a distance greater than 50 miles; that is, on the average. tI is but fair to say that progress in radio telephony has been marvelous, particularly in the simplification of the apparatus. The utilization of vacuum tubes has assisted the art greatly, but I think it will be a long time before radio telephony becomes a serious competitor of radio telegraphy. However, I believe a good field is open for the radiophones for short distance work. The Navy colliers find it of great advantage during unloading, as it has proven advantageous in the dispatch of barges. No doubt it possesses great value in naval maneuver drills. When a large number of warships are in one harbor it would have many advantages. The 'phone work could be done on short waves, thereby cutting down the congestion in the ether; this feature is worthy of attention.

About ten years ago it was predicted that the wire telephone would make the land telegraph obsolete. A lot of people, including telegraph men, believed it. But today we find that traffic on the telegraph lines is heavier than ever. At the time that the prediction was made the railroad telegraphers felt somewhat gloomy about the future of telegraphy, yet we find the key and sounder still doing business. It was even prophesied that the voice would replace the dots and dashes in the submarine cables, but the cables of today are so congested that they are having great difficulty in handling all the traffic that is offered them. And the transocean wireless telegraph systems are doing an enormous amount of business. Since that prediction was made both the telephone and telegraph have enjoyed a tremendous growth; except on very short distance work the telegraph has not suffered from telephone competition at all.

If you are in New York and want to communicate with a person in St. Louis, what do you do? Do you try to talk there or do you send your message via telegraph? In a case of that kind I use the telegraph and so would 99 per cent or more of the wire-users. In the first place, it's much cheaper—very much so!—and, secondly, it gives you far less bother and annoyance. The telephone rate from New York to St. Louis is enormous and it takes a long time to get in touch with the person with whom you wish to communicate; whereas, if you use the telegraph, all you've got to do is write out the message, pay the small charge and go about your business. The message will be rushed through to its destination and will be delivered by a special messenger. The telegraph companies have direct wires between New York and St. Louis—no switching is necessary. It's my opinion that you can telegraph from New York to St. Louis much quicker than you can telephone.

Suppose that telegraph service between Chicago and New York was

suspended for a day. Do you think the telephones could handle the traffic? Hardly. Imagine the confusion that would result!

Now we will suppose that radio telephony has reached the stage where it is as reliable and efficient as radio telegraphy. In the case of passenger boats the law requires that a continuous watch must be maintained. The same number of operators will be necessary as when the radio telegraph was used. In the case of freighters where the law does not require a continuous watch, we will suppose that the captain uses the 'phone whenever he has any business to handle; he would, of course, use it only a few times each day—to send a mesage and inquire if the coast station has anything for him. That, to my knowledge, would have a great disadvantage; a ship might send out an SOS and there would be no one at the receiving apparatus to pick it up. Now, if this ship had the radio telegraph aboard there is quite a likelihood that the operator would be at the receiver and get the signals; if he wasn't on the job, no doubt other radio telegraph operators in the vicinity would get the call. The operators on cargo ships are usually on duty from eight to ten hours a day; as they do not all stand the same watches, it is safe to say that you can raise at least one at any time of the day or night. Therefore, even if radio telephone apparatus replaces the radio telegraph on cargo ships an operator will be necessary. In the case of cargo ships having more than 50 persons in the crew, two operators will be required.

Radio telephone apparatus may be installed aboard merchant ships, but it will be a long time before it replaces the telegraph equipment.

Several years ago people were astounded at the report that the radio station at Arlington talked to Pearl Harbor, Hawaii, a distance of over 5,000 miles. It certainly was a remarkable feat, but why have we heard no more about long distance work of that kind? Why haven't wireless telephone stations replaced the radio telegraph stations that are handling traffic between America and Europe? The distance between America and Europe is about 2,000 miles less, too. The answer seems to be that the radio telephone cannot deliver the goods. It is progressing, but it has a long way to go to reach the efficient and reliable radio telegraph stage.

I am as progressive and forward-looking as the next one. I feel that in science nothing is impossible, but I believe I am safe in saying that there is no immediate possibility of the radio telephone replacing the radio telegraph. And, in conclusion, don't forget that the radio telegraph is progressing, too.

RADIO FIRE PATROL IS SUSPENDED

On account of defects in the radio station at Santa Barbara, the station that receives radiograms from the aeroplane fire patrol, the service has been temporarily suspended. Forest officials have stated that the station will be in operation very shortly and are very sanguine as to the complete success of the air patrol service.

THE DIFFERENCE

"When will this radiogram be delivered?"

"About two o'clock," answered the operator.

"Yes. But what day?"

Time Changed for Sending Radiograms to Amateurs

Southern radio amateurs who have been receiving messages sent out by naval authorities every Saturday night especially for the instruction of the amateurs were notified by radiogram that hereafter the messages will be sent out every Sunday night at 9.30.

The change in time was made to accommodate many enthusiasts who are compelled to work Saturday night and are unable to receive the messages. The work of the amateurs over the country is watched by the naval authorities and when desired is examined and graded. As a result the naval officers have a list of civilian radio operators with a record of their ability and in time of national emergency can call upon these men for service. During the last war it was discovered that many of the amateur operators were better qualified than the professionals. The reason advanced for this is that the amateurs have more chance to experiment and at the same time depend more upon themselves for the making of their instruments.

A copy of the radiogram which was received by a local radio club follows:

To Amateurs: In the future these messages will be broadcasted every Sunday night at 9:30 p. m. using 300 meter wave. Amateurs copying this please give it widespread publicity so that as many as possible may know of the change. It is hoped this change will meet with the wishes of the majority and that a great deal of interest will be shown in this work. This is to begin Sunday, June 6th. No radio message will be taken up tomorrow.

(Signed) S. D. M'CAUGHEY,
Lt. Comdr., U. S. N.
District Communication
Superintendent.

—Santa Barbara "Press."

The Biggest Wireless Plant

The United States is soon to have the biggest wireless station in the world. Six thousand acres of ground have been purchased on Long Island, N. Y., and construction is to begin at once. The estimated cost of the plant is $10,000,000.

The new station is to have a diameter of more than three miles, with 72 towers, each 400 feet high, supporting the antennae strung from the central power house, a mile and a half away. There are to be five units, one for Argentina, one for France, one for Scandinavia, one for Germany and one for Italy and Poland.

The most powerful station now in operation is that at Nauen, Germany, famous for the misinformation it disseminated as part of the German war propaganda. Near Bordeaux, France, is another station, built by the American forces but taken over by the French and being remodeled. This one will exceed that at Nauen when it begins operations, but the big American station will dwarf them both.

There is something inspiring to the imagination in these great towers which soar upward into space and communicate with distant lands with no connecting medium save ether. It is no wonder that an age which has seen such wonders should be touched with madness to pierce the occult. Who that has seen all this developed in a few short years would pretend to say what is the limit of man's mastery of space.—Berkeley Gazette.

The Construction of Modern Radio Apparatus

By William Williamson

PART III

(Continued from June Issue)

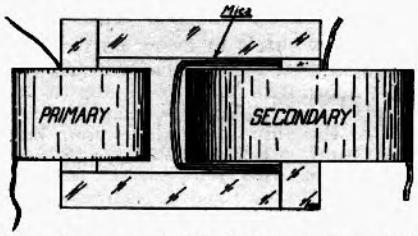
Note:—All apparatus described by the writer has been thoroughly tested and if the constructional details are closely followed the completed apparatus will work to a righ degree of efficiency. A complete series of constructional articles on transmitting and receiving apparatus will be published in this magazine.

THE SECONDARY WINDING

Reassemble the winding form, rewind the string and we are ready to wind the secondary coil. In general the secondary is wound in the same manner as the primary. Wind ten or twelve layers of insulating paper over the string. This will serve to insulate the secondary from the core. Now take a strip of thin brass or copper, about a quarter of inch wide, and about a foot long. Carefully clean one end of the strip and tin with solder, using resin only as the soldering flux. Carefully clean the end of the wire that is to be used for the secondary winding with a piece of No. 00 sandpaper in order to remove th enamel insulation from the wire. Solder the end of the wire to the copper or brass strip and "tack" the strip to the layers of insulating paper with a drop of resin. Then lay a piece of mica over the strip in order to completely cover same an insulate the strip from the succeeding layers of the secondary.

Wind one layer of secondary wire over the mica insulating strip. This will serve to hold the tap firmly in place. The mica strip should be about two inches square. This strip is used primarily to protect the lower lead of the secondary from breaking as it is manifestly impossible to run out a small wire for a secondary lead that will have sufficient mechanical strength to withstand handling.

The first layer of the secondary winding is then covered with four or



five layers of insulating paper and the second layer is then wound. Continue this process until the entire secondary has been wound. Two layers of insulating paper between all layers of wire excepting the last few top layers, should be used. No layer of wir eshould be allowed to come within more than ¼ inch from the edge of the paper layers. When the entire secondary has been wound it should be covered with a few layers of plain, smooth paper to make a nact looking job of the coil. Either cook the entire coil in a wax compound or soak it in some good baking varnish, such as "armlac," and be careful to bake the coil until the varnish has thoroughly dried.

A good insulating compound for soaking can be made of 60% paraffin, 20% beeswax and 20% resin.

The beeswax may be omitted from the compound with no serious effect to the insulating qualities of the coil but care should be exercised in every case not to heat the coils to such an extent that the paper insulation will be charred. The primary winding

The Radio Dictionary

SURPRISE — An operator paying you the dollar you loaned him two years ago.

EXPECTATION—Hoping that the pretty jane you saw coming aboard the ship will visit the wireless cabin.

CAMOUFLAGE — A two-day-trip ship operator's suit case, containing his other collar, tooth brush and shirt, profusely adorned with labels of various hotels in every part of the world.

LAZINESS—Waiting for the next roll of the ship to produce your box of matches from under the condenser rack.

HARD WORK—Getting the second operator out of bed for the night watch.

RELIEF—The arrival aboard ship at 2 A. M.

AMBITION—An operator rolling his own "fags."

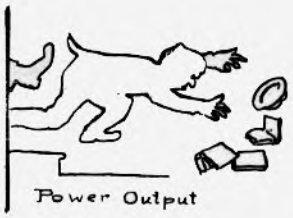
SPEED—Operators bound for the bank with their pay checks.

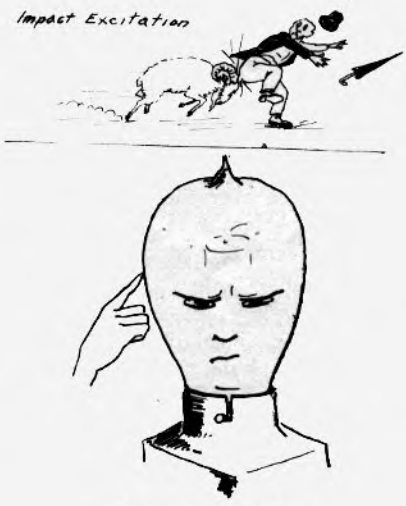
EMBARRASSMENT—As you are telling your lady friend with perfect ease that you can work a thousand miles, the skipper comes to the wireless cabin and tells you that if you can't get his message off soon he will magaphone it ashore.

—E. R. Schindler in "The RADIO TELEGRAPHER."

A—I hear Bilkins, senior radio officer on the Patience, went nutty. Is that so?

B—Yes, poor fellow; he made a trip to Europe and the interference and insane radio work on the Atlantic snapped his nerves and mentality. He keeps repeating to himself in a despairing way: "QRM, nothing QRM; how will I ever get these messages through?"





Herold—You say he isn't an up-to-date radio man? How do you know?

Gerald—Because he doesn't read the PACIFIC RADIO NEWS.

may be treated in the same manner, although it is not absolutely necessary.

Figure 4 shows the general lay-out of the complete transformer after the coils have been slipped over the core. In order to prevent the coils from grounding, several layers of empire cloths should be wound over the core before slipping the coils inot place. The total thickness of the insulation should be about a quarter of an inch. The secondary can be still further protected by a mica shield, or sheath, which surrounds the winding. No sparks will jump between the primary and secondary coils if this method is used. It is desirable to make this sheet of mica but several layers of empire cloth may be used with good results in the event that no mica can be had.

A suitable cabinet for mounting the completed transformer can be constructed of mahogany or oak but the design of the cabinet is left to the builder.

The transformer, if made as described above, will operate directly on a 110 volt, 60 cycle supply without the use of any controlling device, provided that the proper condenser and other apparatus that will be described in future issues is used in conjunction with same. A resistance may be used in series with the primary for reducing the power input. The secondary voltage for the various sizes of this transformer is approximately as follows: ¼K.W.—20,000 volts; ½K.W.—25,000 volts; 1 K.W. —30,000 volts. It is impossible to give the exact secondary voltage due to the variations in the windings that may result.

The transformer described above possesses the following advantage over any other transformer:

(1) It contains sufficient wire and iron for operation at the highest degree of efficiency.

(2) The best materials are used throughout.

(3) The voltage of the secondary is much higher than usual and high voltage is necessary if considerable work is to be done on the short wavelengths for amateur use.

NAVY STATIONS CHANGE WAVES

The following wavelength changes of Navy stations on the Pacific Coast became effective on May 18, 1920:

Eureka	585 Meters
Hillcrest, S. F. ...	630 Meters
Pt. Arguello	600 Meters
Inglewood	570 Meters
San Diego	516 Meters

A general feeling amongst naval intelligence operators was the desire to meet the one operator who controlled the German Zeppelins and warships.

They imagined it was one particular man who was a super-operator. On several occasions, with nine or ten Zeppelins in a raid, all practically trying to communicate with home for bearings or otherwise, wireless occasionally got into a horrible tangle. At that moment the superman would arrive, take control, and in a twinkling all would be in order.

In the Mediterranean, direction finding stations were discovered to use a system of wireless inter-communication, and the story was told of an Austrian submarine which required her position. "The submarine came to the surface, sent signals and waited for us to give her the position. She thanked us and again submerged." That indicated the danger of linking up direction-finding stations by wireless telegraphy.

RADIO CLUB NEWS

THE MILWAUKEE AMATEURS' RADIO CLUB

The business-like manner in which the amateurs of Milwaukee, Wisconsin, conduct a radio club is shown in the accompanying photograph. Meetings are held every Thursday evening in the trustees' room of the Milwaukee Public Museum.

Lectures on radion are delivered at every business meeting. Visitors are always welcome.

All communications should be addressed to Executive Headquarters, 2319-2329 Wells Street, Milwaukee, Wisconsin.

S. F. RADIO CLUB RAFFLE IS BIG SUCCESS.

The third radio raffle held by the San Francisco Radio Club, Inc., in the past ten months has proved to be morally as well as financially successful. The success of the raffle is attributed to the donations of radio apparatus received from local dealers, and the zealous work of the various committees in charge of the affair.

The club rooms at 355 Presidio avenue were jammed with members and visitors. Addresses were delivered by Mr. A. E. Bessey, Mr. T. Lambert and Mr. D. B. McGown, U. S. Assistant Radio Inspector. Mr. McGown has done much for the club of late. The heartiest applause of the audience was extended him.

The following donations were received and raffled: Two Moorhead tubes, donated by Mr. E. W. Stone; Acme amplifying transformer and vacuum tube, donated by the Leo J. Meyberg Co.; vacuum tube, donated by the Electric Supply and Repair Co.; "Radio Shop" variometer, donated by Mr. T. Lambert; variometer, donated by the Colin B. Kennedy Co. and a cam switch, donated by the Pacific Radio Exchange. Besides the donations of radio apparatus, Mr. E. W. Stone donated one of his books, "Elements of Radio Telegraphy," and

Mr. A. E. Bessey donated ten dollars for the purchase of new apparatus for the club's station.

The sum of $89.17 was realized from the raffle. "Hot dogs" were served by the yard. Cakes, "Radio Punch," cigarettes and music were plentiful. Six applications for membership were received from visitors.

Forty dollars has been appropriated for the purchase of radio apparatus and a like sum for the purchase of furniture for the club room. An eight foot aerial loop has been purchased and will shortly be ready for use.

THE BAY COUNTIES RADIO CLUB

A new radio club has recently been organized in Oakland, Cal., and held its first meeting on May 7th. The meeting was called to order by temporary chairman, G. V. Tudhope at the home of Mr. R. W. Carroll, 354 Perry street.

The purpose of the club is to further the interests of radio communication. The charter will remain open until June fourth. An initiation fee of $1.25 will become effective upon the closing of the charter. Dues have been set at twenty-five cents per month.

Fifty members have already been admitted to the club. Meetings are held on Friday evenings at 354 Perry street, Oakland, Cal.

MAKING IT WORTH WHILE

Every radio club that sends us a photograph of the members for publication in P. R. N. will receive the copper half tone free of charge as soon as the magazine is off the press.

RADIO CLUB MEMBERS PROTEST TO NAVY DEPARTMENT

A committee has been appointed by the San Francisco Radio Club, Inc., to call on the local naval authorities and endeavor to have the NPG station re-tuned in order that amateurs of the city and bay districts will no longer be hampered by the interference received on 200 meters from the local navy station.

It has been impossible to accomplish any distance work on the amateur wavelength of late due to the serious interference received from the Mare Island station. No interference on 200 meters has been received from the Hillcrest station in San Francisco.

PORTLAND HAS LARGE RADIO CLUB

The Northwestern Radio Association of Portland, formerly the Northwestern Audion Association, has been reorganized and is growing rapidly.

Charles L. Austin, U. S. Radio Inspector, is president of the organization; John D. Hertz is first vice-president; Ralph T. Galyeean, secretary; George W. Cameron, treasurer; John M. Farlow, sergeant-at-arms, and Charles L. Austin, chief inspector.

Recently the association has organized a junior membership open to amateurs under 15 years of age who may attend meetings without payment of dues and assessments and may take part in discussions but who are not privileged to vote.

From the ranks of the association the forest service hopes to draw its recruits for radio operation in connection with the increased use of radio in fire protection.

FRESNQ RADIO CLUB

Mr. R. C. Denny, owner of one of the best radio stations on the Pacific Coast, has organized the Fresno Radio Club and has selected the Fresno High School as a meeting place.

Instruction in code work is given every Tuesday night. No tuition charge is made for this service and any man is eligible.

NAPA HAS RADIO CLUB

The Napa Amateur Radio Club was organized on March 23, and already 22 members have joined the organization. Meetings are held every Tuesday night. One social meeting is held monthly. Mr. M. L. Webb is president of the club. Webb was a former signal corps radio man and is well known among amateurs of the bay districts

Mr. E. Swift is vice-president; Mr. E. Roper is secretary-treasurer; Mr. M. Lander is the radio instructor and Mr. R. Davis is master-at-arms.

A wavemeter will be purchased in order to tune transmitters owned by club members. Radio amateurs in and around Napa are requested to communicate with secretary, 115 Seminary street, or call 6JQ by radio.

AMATEUR STATIONS TO BE TUNED

—The Tuning Committee of the local radio club has announced that all amateur stations of San Francisco and vicinity will be tuned, regardless of whether or not the owner of the station is a member of the club. Application for tuning of stations should be sent to the Tuning Committee, 355 Presidio avenue, San Francisco.

A STATIC PHENOMENA

By John Parkin, A. M., I. R. E.*
Manager Parkin Manufacturing Co.

A peculiar phenomena was noticed by the writer recently while installing a radio set on a steamer.

While working on the loading coil the steamer's whistle was blown and quite a shock was received; since the motor generator was not running at the time, it was impossible for the current to be coming from the transmitting set, and for a time the source of the high potential was a mystery. When, however, the whistle was again blown a spark was noticed a tthe aerial switch, which was open about a quarter of an inch, the mystery began to clear-up. The switch was opened to five-eights of an inch, the largest gap that the potential would break down, and a spark jumped across about every three seconds during the time that the whistle was blowing. Upon going outside of the operating room, it was noted that te steam from the whistle passed through the aerial.

The only explanation that the writer can offer is that the action is due to electrification by the splashing of liquids. It is a well known fact that at the bottom of waterfalls, when there is much spray present, the air is charged negatively. Laboratory experiments have shown that when drops of water splash against a metal plate, a positive charge is imparted to the water and a negative charge to the surrounding air.

The explanation of this phenomena is that each drop has a double spherical layer of electrification, the inner one being charged positively and the outer one negatively. Upon the drop being dashed to pieces, the positive layer remains with the water, and the outside negative layer and its attendant charge go into the air.

* Manager Parkin Manufacturing Co.

In the case of the aerial becoming charged when the whistle was blown, probably small drops of water were carried up with the steam and gave up their charge to the aerial when they came into contact with it. It is to be regretted tha no insruments were at hand to test the polarity of the charge.

EFFICIENT RHEOSTATS AND POTENTIOMETERS AT ABOUT HALF PRICE

By R. U. Clark 3rd.

The average rheostat or potentiometer is not a very high priced instrument, but when several are used it is possible to save considerable money by taking advantage of the means outlined here for getting both of these instruments at the usual cost of the potentiometer alone.

To accomplish the above feat a porcelain base battery rheostat of about 8 ohms resistance should be procured, and the coil removed from this and mounted in the taped groove of an iron pulley wheel, which can be fitted up with a switch arm and knob. The complete instrument is set on a disk record base, making a very attractive piece of apparatus.

The circular groove which originally held the coil of wire in the porcelain rheostat base can now be filled with pieces of graphite from a soft lead pencil, or, if desired, a paste of carbon dust, powdered graphite, lampblack or similar substance and plaster of paris. This can be made up, packed into the groove and allowed to harden.

This instrument can now be put on another disk record base and a heavy knob fitted to the shaft in the center to which the rheostat arm is still connected. Connections can be made to the binding posts which came with the original device and any desired resistance can be had by turning the knob previously mentioned .

Suitable scales, or dials, which can be cut from catalogues or pictures of apparatus of this type, can be fitted so as to make the instruments assume a more commercial aspect. Both pieces of apparatus can be mounted on any type of panel set.

THIS HAS FREQUENTLY HAPPENED

The big liner which had rescued more than a thousand passengers from a burning vessel in mid-Atlantic had just tied up at her berth in the North River, New York. The dock was crowded with people, many of them friends of the rescued passengers. As soon as the gangway was lowered a score of newspaper reporters rushed aboard and surrounded the first ship's officer whom they saw. He happened to be the radio operator.

"Tell us about the disaster," said one of the press men.

"I don't know much about it, see the Captain; I'm the radio man and the only thing I did was pick up the distress signals from the burning vessel."

The next day the papers, in their account of the rescue, gave all credit to the Captain. No mention was made of the radio man who received the SOS.

DON'T FORGET

to send us the questionaire on page 432. We want to give you the kind of reading matter that you like most. You will be well repaid by mailing the blank at once.

SAVE MANY STEPS

by subscribing to P. R. N. instead of walking from one news stand to another, trying to buy a copy.

FAREWELL

FOREVER TO THE LITTLE "PACIFIC RADIO NEWS"

THIS IS THE LAST ISSUE OF OUR PRESENT SMALL SIZE. THE NEXT ISSUE WILL BE OF THE LARGE MAGAZINE PAGE SIZE. THE NAME REMAINS UNCHANGED, BUT A NEW COVER DESIGN HAS BEEN ADOPTED.

OUR SLOGAN

Pioneer Journal of Western Radio News *and* Development

READY FOR DISTRIBUTION ON JULY 20, 1920

THERE WILL BE NO INCREASE IN SUBSCRIPTION RATES

WHAT THE BIG ISSUES WILL CONTAIN

CURRENT RADIO NEWS
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AMATEUR CALL LETTERS
SEMI-TECHNICAL ARTICLES
COMMERCIAL DEVELOPMENTS
HOW-TO-MAKE-IT ARTICLES
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CARTOONS
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Don't take a chance on getting a copy from your News Dealer. He may be sold out before you get there.

PACIFIC RADIO PUB. CO.,
50 MAIN ST.,
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Herewith is $1.50. Please enter my subscription to PACIFIC RADIO NEWS for one year.

Name .....

Street and No. .....

City and State .....

Fill This Out
AND
Send It In

Non-subscribers are invited to also send this in, filled out.

USE PENCIL. WRITE PLAINLY

(Answer First Six Questions with "Yes" or "No.")

1. Are you an amateur radio operator? yes
2. Are you an experimenter in radio? yes
3. Are you now a commercial radio operator? No
4. If so, do you expect to make it your profession?
5. Have you a radio receiving set of your own? yes
6. Have you a transmitting set of your own? No
7. What occupation or profession do you intend to follow, or in what direction does your ambition lie?
8. What is your age? 16
9. How many radio magazines do you read? 3
10. What is the nature of reading matter on radio that you desire most? The construction of radio apparatus and new tubes = ups
11. Do you like to read radio fiction? yes
12. Do you like humorous matter on radio, such as cartoons and humorous articles? No
13. Do you like technical articles? Yes
14. Are you interested in current radio news and development, and news about what the big companies are doing? No
15. State briefly what you want most in the coming big issues of "Pacific Radio News" Construction of a simple short wave set for receiving between 150 - 650 meters.

Regarding Post Cards

AMATEUR RADIO STATION 6ZZ

Street and No. City and State.

Owner J. B.

2 Heard you working / calling me at 12 06 P.M. A. M. / P. M.

Gaby 1920

Audibility fine Tone rough Signals loud Gap

Interference none Wave 200 Atmospherics bad

Receiver Please listen for

Remarks

Please QSL Operator.

Post cards received by local amateurs, regarding the operation and general details of station with which they have communicated, are lacking a good deal of important data. A suggested form of post card which we believe contains all that is desirable and useful for our fellow amateurs is shown below. It has become a custom among amateurs to send a postal to all stations heard in order to tell him how he "comes in." This is indeed a very desirable and advantageous practice but considerable benefit will be derived by having the post cards printed in hundred lots.

A few of the above terms will be explained in order to avoid confusion. Under "Audibility" it is best to state either "loud," "weak,", "easily readable," "good typewriter signals" or "fading," instead of merely saying "QSA" or "QRZ," as is the usual custom. Under "Tone" it is well to state "high," "medium" or "low" as the case may be. It is also well to state the characteristics of the wavelength as compared to other amateur stations that have accomplished long distance communication.

WIRELESS HELPS CUPID WIN CASE ABOARD VESSEL

San Francisco Radio Zone "Disturbed" by Love Messages

SAN FRANCISCO, May 29.—For several days wireless operators in the shore stations and aboard ships at sea in the vicinity of San Francisco were interested listeners to some of the sweetest messages ever flashed through the ether. The explanations of Cupid's monopoly of the air lanes came with the arrival here aboard the liner Shinyo Maru of Miss Helen E. Edmonds, recipient of two score aerograms from her fiance, Grafton B. Perkins, of New York.

The aerial "disturbance" began as soon as the Shinyo came within the San Francisco zone. Messages—with Cupid's code words of "sweetie-peach,"

(Continued on page 436)

Sixth District Amateur Stations

Note:—The Radio Inspector of San Francisco will mail a complete list of all Sixth District Amateur Call Letters upon request. The first list issued contains all call letters up to and including 6TB.—Ed.

6RD	D. L. Snow	3700 4th Av.	Sacramento, Cal.
6RE	R. Flygare	2421 Jefferson Av.	Ogden, Utah.
6RF	Richard White	435 Oakland Av.	Pasadena, Cal.
6RG	A. H. Brolly	R. F. D. Box 42	Saratoga, Cal.
6RH	H. Lander	5 Ord Court	San Francisco, Cal.
6RJ	F. Mangelsdorf	248 15th Av.	San Francisco, Cal.
6RK	L. Bradshaw	1601 Hyde St.	San Francisco, Cal.
6RL	H. Bryant		Redwood City, Cal.
6RM	D. B. McKae	2730 13th St.	Salt Lake City, Utah.
6RN	J. B. Henry	1199 Oak Knoll Av.	Pasadena, Cal.
6RO	R. G. Neifert	Box 26	Orange, Cal.
6RP	F. W. Sloan	1145 K St.	San Diego, Cal.
6RQ	C. F. Concannon	520 6th St.	Richmond, Cal.
6RR	F. S. Barton	118 So. Gates St.	Los Angeles, Cal.
6RS	K. Polson	208 N. Bright Av.	Whittier, Cal.
6RT	C. E. Larson	1909 Filbert St.	Oakland, Cal.
6RU	E. E. Espinosa	3124 Moore St.	San Diego, Cal.
6RV	D. B. Hubbard	6386 Hillegass Av.	Oakland, Cal.
6RW	R. W. Wiley	1230 26th Av.	San Francisco, Cal.
6RX	H. O. Holte	2302 Dwight Way	Berkeley, Cal.
6RY	W. L. Swanson	1044 18th St.	Oakland, Cal.
6RZ	G. Marden	3340 No. Chicago Av.	Los Angeles, Cal.
6SA	Fred P. Stone	1513 I St.	Arcata, Cal.
6SB	Thos. Greene, Jr.		Forestville, Cal.
6SC	E. M. Sargent	2235 Lake St.	San Francisco, Cal.
6SD	L. Eaheart	2607 Merced St.	Los Angeles, Cal.
6SE	E. W. DeHall	642 Sierra St.	Los Angeles, Cal.
6SF	C. A. Sneider	8363 Weber Av.	Stockton, Cal.
6SG	R. M. Dinsdale	Rt. 1, Box 30	Woodland, Cal.
6SH	J. W. Bowers	932 14th St.	Oakland, Cal.
6SI	Louis Robers	644 4th St.	Richmond, Cal.
6SJ	S. E. Saville	1387 Stratford St.	Salt Lake City, Utah.
6SK	I. I. Aufdekamp	Forest Av.	Laguna Beach, Cal.
6SL	A. Pauli	753 Laguna St.	San Francisco, Cal.
6SM	S. Mitchell	629 Sycamore St.	Oakland, Cal.
6SN	H. W. Dickow	50 Main St.	San Francisco, Cal.
6SP	J. Szulaski	5608 Mission St.	San Francisco, Cal.
6SQ	C. Lutgen	2520 Webster St.	Berkeley, Cal.
6SR	J. Franklin		Stanford University, Cal.
6SS	H. Christensen	707 Palm Av.	Burbank, Cal.
6ST	Frank Flowers	214 McHenry St.	Modesto, Cal.
6SU	F. Fitch	Sharps Lane, R.F.D.No. 6	Stockton, Cal.
6SV	C. A. Adams	1376 12th St.	Oakland, Cal.
6SW	C. S. Heizer	3412 Kansas Av.	Los Angeles, Cal.
6SX	Lee Nickels	1318 12th St.	Oakland, Cal.
6SY	D. Larnach	2005 Kalia Road	Honolulu, T. H.
6SZ	E. E. Young	744 Grand Av.	Oakland, Cal.
6TA	A. H. Babcock	Elec. Eng. S. P. Bldg.	San Francisco, Cal.
6TB	William Burger	741 E. 25th St	Los Angeles, Cal.
6TC	E. Stephens		Colusa, Cal.
6TD	M. Martin	1815 Virginia Av.	Berkeley, Cal.
6TE	R. Rhoades	2812 Piedmont Av.	Berkeley, Cal.
6TF	E. M. Berg	306 W. E St.	Ontario, Cal.
6TG	R. D. Stott		Ojai, Cal.
6TH	J. M. Gleason	2637½ Piedmont Av.	Berkeley, Cal.
6TI	H. R. Greer	251 Adams St.	Oakland, Cal.

Sixth District Amateur Stations---Continued

6TJ	R. B. Ayres	292 Jayne Av.	Oakland, Cal.
6TK	B. Greensfelder	106 3rd Av.	San Francisco, Cal.
6TL	J. M. Bolwes	415 N. Mott St.	Los Angeles, Cal.
6TM	W. Mayo	1015 Clayton St.	San Francisco, Cal.
6TN	C. A. Cushing	Pioneer Av.	Sandy, Utah.
6TO	W. F. Davis	3045 McKenzie Av.	Fresno, Cal.
6TP	W. Lacabanne	54 Carl St.	San Francisco, Cal.
6TQ	K. A. Cantin	1592 Piioki St.	Honolulu, T. H.
6TR	C. H. Cannon	367 4th Av.	San Francisco, Cal.
6TS	W. Paladini	540 Clay St.	San Francisco, Cal.
6TT	As. Radio Am'trs.	2960 Linden Av.	Berkeley, Cal.
6TU	B. R. Cole	16 Ellenwood Av.	Los Gatos, Cal.
6TV	C. C. Whysall	Hernandez & Ellenw'd Sts.	Los Gatos, Cal.
6TW	E. P. Merritt	1705 2nd St.	San Diego, Cal.
6TX	R. M. Thacker	931 Concord St.	Los Angeles, Cal.
6TY	L. A. Gabin	845 Crenshaw Blvd.	Los Angeles, Cal.
6TZ	E. A. Greenquist	516 W. San Carlos St.	San Jose, Cal.
6UA	M. H. Jones		Dewey, Utah.
6UB	C. V. Welch	209 Elm St.	Hanford, Cal.
6UC	L. C. Beckman	522 E. 11th St.	Hanford, Cal.
6UD	A. A. Heer	1400 Jones St.	San Francisco, Cal.
6UE	Alvin McBurney	37 Greenbank Av.	Piedmont, Cal.
6UF	S. R. Cook	College of the Pacific	San Jose, Cal.
6UG	R. H. Grunbaum	336 Olive St.	Piedmont, Cal.
6UH	L. Merrill	3126 Elm St.	Oakland, Cal.
6UI	St. George Pope	835 Walker Av.	Oakland, Cal.
6UJ	F. Howard	4103 Emerald St.	Oakland, Cal.
6UK	J. Huston	5675 Ash Av.	Los Angeles, Cal.
6UL	The Radio Shop		Burlingame, Cal.
6UM	W. H. Yeaw	R.F.D. No. 4, Box 1025	Sacramento, Cal.

Subscription Contest Returns

Our subscription contest was brought to a close on June first. Following is the full result of the contest:

Name—	Credits
Gilbert Earle	7
A. S. Keller	2
M. L. Jones	1
J. V. Husen	1
Oliver Wright	3
C. F. Filstead	1
E. W. Leeper	1
L. J. Hall	4
E. H. Andreen	2
J. Prendergast	10
T. K. Teeter	1
E. L. Chaix	1
P. Byrne	1
I. H. Baum	3
C. Harris	3
L. Aufdenkamp	1

WIRELESS HELPS CUPID WIN CASE ABOARD VESSEL

(Continued from page 434)

"honey," "snookums," and the like—started to flash through space between the Shinyo and the shore. In other words, the ship's sparker sent and received some real sparkling messages, with a result that Miss Edmonds, who is a daughter of Mrs. F. E. Edmonds of Grand Rapids, Mich., on the ship's arrival announced her engagement to wed Perkins.

The romance of the young couple started several months ago aboard the army transport Thomas, when Miss Edmonds went from here as a nurse and Perkins sailed as a major of artillery.—Dayton "Journal."

Review of Latest Radio Books

RADIO HANDBOOK

Mr. R. U. Clark, 3rd, of Newton, Mass., has published a book entitled "The Radio Buyer's and Builder's Handbook." This book is, without a doubt, one of the best on the market for the radio experimenter who contemplates constructing his own apparatus.

It contains 158 pages of constructional data, half-tones and diagrams. Many new and novel devices are exhaustively treated by the author.

WIRELESS SHOP ISSUES CATALOG

Mr. A. J. Edgcomb, manager of the Wireless Shop in Los Angeles, has recently issued a catalog on radio apparatus that he manufactures and distributes.

OARD SYSTEM IS EXPLAINED IN NEW PAMPHLET

The Oard System of Wireless Instruction is fully explained in a sixteen page pamphlet that has recently been issued by Mr. Paul Oard, of Stockton, Cal., founder of the Oard System.

SOME SPECIAL FEATURES OF OUR BIG ISSUE

HOW TO MAKE THE BEST REGENERATIVE RECEIVER

THE "AUDION OSCILLATOR" SERIES

THE ELABORATE RADIO EQUIPMENT INSTALLED ON OUR DESTROYERS

NOVEL HOOK-UPS

COMMON-SENSE EDITORIALS

Classified Advertisements

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

BACK NUMBERS of "Pacific Radio News" are now available. We have a few copies of the March, 1920, and May, 1920 issues on hand. Ten cents takes a copy of either issue. PACIFIC RADIO PUB. CO., 50 Main St., S. F. Cal.

PROGRESSIVE AMATEURS! Send us your name on a postal card and we will place you on our mailing list and send you our "live-wire" radio circular that will be ready soon. RADIO SALES CO., 251 Duboce Ave., San Francisco, Cal.

REMINGTON TYPEWRITER in good condition. Sell for $45.00. See Mr. Unger at Pacific Radio Pub Co., San Francisco.

FOR SALE—One of the famous IP76 Navy receiving sets with VT control panel. Reasonable. Also French 3 step amplifier and Marconi VT panel. H. A. Green, Jr., 313 Lighthouse Ave., Monterey, Cal.

BARGAINS in new and used radio goods. Mignon short wave set, new, selling for $15. All kinds of parts, contacts, binding posts, Murdock plumes, switch knobs, scales, pointers, Remler and Parkin panels and couplers. Everything needed going below market price. THE RADIO EXCHANGE, 354 Perry St., Oakland, Cal.

LEARN to transmit and receive messages by my direct method No instrument or key needed—no instructor or assistant required. Train the fingers and learn in half the time and with less effort. More accurate than any other system. None other like it—entire revolutionizing. Complete instructions for Continental Code. One dollar postpaid. C. K. Dodge, Box 299, Mamaroneck, N. Y.

VACUUM TUBE SETS! I have the following for sale: Control panel with two DeForest condensers, "B" battery and beautifully finished panel, $45. One home-made control panel for $7.50. Hard rubber front receiving set in mahogany case containing 2 DeForest adapters for coils, 2 large DeForest variable condensers, 1 phone switch and connection posts, $55. Will sell all three sets for $95. Call at 1403 9th St., Oakland, Cal.

Turn to page 433, fill in the blank and mail it to us to day. It's to your own advantage.

Every amateur should use the classified advertising section of this publication if he desires to dispose of any radio or electrical apparatus. It pays—try it and be convinced.

9ZN ISSUES RADIO BULLETINS

The Chicago Radio Laboratory of Chicago, Ills., has a 32 page bulletin ready for distribution. Many types of novel receiving cabinets are illustrated between the four covers of the bulletin.

Alaskan Radio Service is Suspended

Long Daylight Hours make Communication Difficult

In accordance with orders from the director of naval communications, Lieut. Com. Frank Luskel, district communication superintendent at the Navy Yard at Bremerton, has suspended handling any commercial traffic over the Keyport, Cordova, St. Paul Island, Vladivostock circuit, the Chamber of Commerce was advised yesterday.

"Traffic has only been handled over this circuit with difficulty and considerable congestion has been experienced at St. Paul Island. Recently the long hours of daylight have prevented any traffic, either government or commercial, being moved. It is probable that this circuit will not be reopened to commercial traffic until next autumn, when atmospheric conditions will be more favorable. Increase of power may be a factor in making earlier communication possible," was the information received by the chamber.—Seattle "Times."

CHANGE OF CALL LETTERS

The official call of 6BS has been assigned to the California Institute of Technology, Pasadena, California.

Our subscription offer to radio club members has proved itself very popular as well as beneficial. Every radio club secretary should write for full details of this plan.

INSURANCE

against missing some valuable information is had by subscribing for one year to P. R. N. Get that $1.50 in the mail today.

THE A-P ELECTRON RELAY

THIS Atlantic and Pacific

ELECTRON RELAY

OF ALL VACUUM TUBES IS THE MOST EFFICIENT

SPARK RECEPTOR

The A-P Electron Relay is the original tubular vacuum valve brought out by our laboratories in 1915, now supplied with the SHAW standard four prong base for convenience. This tube has the familiar "hissing" point and low B battery potential characteristic of the perfect vacuum detector; and of all vacuum tubes is the **most efficient spark receptor.**

Used in conjunction with the Electron Relay is our VT Amplifier-Oscillator shown by recent Navy tests to have the highest amplification constant of any vacuum tube known to the radio art. A combination of two or more VT tubes as amplifiers with an Electron Relay as the initial detector or oscillator is the **ideal receiving combination** for long distance amateur or long wave reception. In ordering ask for—

THE A-P PERFECT VACUUM TUBE COMBINATION

DEALERS		AMATEURS
write for prices and particulars	The A-P Electron Relay—price $6 each The A-P VT Amplifier Oscillator, $7 each	*write for descriptive literature*

Both tubes licensed under the De Forest Audion and Fleming Patents.

ORDER FROM YOUR DEALER
OR WRITE DIRECT TO

PACIFIC RADIO SUPPLIES CO.

638 MISSION STREET SAN FRANCISCO, CAL. PHONE DOUGLAS 1840

ATLANTIC RADIO SUPPLIES CO.

8 KIRK PLACE NEWARK, N. J. PHONE MARKET 1575

Reference: The American National Bank, San Francisco, Calif.

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