The RADIO AMATEUR NEWS

Volume I MAY, 1937 Number 2

Poem 17 Page 27

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The Radio Amateur News

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.We invite all Radio Amateurs and Radio Clubs to contribute articles to this magazine, although we reserve the right to censure articles unfit for publication. .

.This magazine is printed entirely for the benefit of Radio Amateurs and "the more dope, the better," however this magazine is not responsible for statements made by contributors and do not guarantee any statements or circuits published to be correct; we will endeavor to check the authenticy of same.

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A Receiver for Don Lee Television Transmissions

By the Don Lee Television Staff

HARRY R. LUBCKE, Director

Thousands Witness Newest Don Lee Television Achievement in Demonstration at California Institute of Technology Exhibit

Images and Sound Successfully Span Distance of 10 Miles

With demonstrations of ultra high voltage, X-ray development and the famed 200-inch reflector for the Palomar Telescope claiming due attention, it remained for the Television Division of the Don Lee Broadcasting system, piloted by Harry R. Lubcke, to all but "steal the show" Friday, April 9, at the Annual Exhibit held under the auspices of the California Institute of Technology.

Witnessed by celebrated scientists, among them Nobel Prize Winner Dr. Robert A. Millikan, and layment alike, television programs . . . both "sight and sound" were successfully transmitted over a distance of 10 miles. It was done, not merely once, but many times during the day, at 15-minute intervals.

These repeated demonstrations, were performed via the Don Lee owned and operated experimental television station, W6XAO, which carried the images, and an auxiliary, ultra-short wave channel which conveyed the sound.

They marked the first time that high-definition (300 lines to the image, repeated at the rate of 24 images per second had been broadcast so great a distance. Transmitters were located on the Don Lee Building at 7th and Bixel streets, Los Angeles, while the television receiver was located in the Physics Exhibit at the California Institute of Tecnology in Pasadena, a distance of slightly more than 10 miles.

A receiver for the Don Lee television transmission in Southern California is shown and described in the accompanying photographs and diagrams. This receiver is constructed of standard parts and represents a simple combination that can be put together by an experienced amateur or short-wave listener. This receiver has been built and tested on the regular Don Lee transmissions.

The Don Lee television transmitter W6XAO is located at 7th and Bixel streets in downtown Los Angeles, and operates on the ultra-high frequency of 45,000 kilocycles (which corresponds to 6⅔ meters). Image transmissions are made daily except Sunday. The evening schedule starts at 6:30 P. M. and continues to 7:15 P. M. or later. The day-time programs observe the following schedule: Monday, 9-10 A. M., Tuesday, 10-11 A. M.; Wednesday, 11-12 A. M.; Thursday, 12-1 P. M.; Friday, 1-2 P. M.; Saturday, 2-3 P. M. The Don Lee station KHJ, on 900 kilocycles carries the sound portion of the W6XAO programs at specified times. These transmissions are scheduled in advance and can be noted by consulting local newspapers.

The images broadcast are composed of 300 lines repeated 24 times per second. In common with all high definition television transmissions, the receiver for displaying the images must tune very broadly as compared to the usual communications type receiver as used for receiving voice and music transmissions. A high intermediate frequency must be employed and band-pass transformers used to provide sufficient band width. In the "audio" section of the receiver, abnormally low values of plate resistors must be used and great care exercised to keep the stray capacitance of wiring components to a minimum.

The diagram of the receiver is shown in figure 1. It is of the usual superheterodyne type

EDITOR'S NOTE—This latest news on television shows the degree of success the art has advanced to and should arouse the amateur to take good care of the rich virgin field of the ultra-high frequencies for QSO's.

With television advancement so hot, some day it is sure to burst into flame on both sides of the 5 meter band. It would not be a bit strange if history repeats itself and the 5 meter band shrinks as things do that are in the way of the march of progress not capably reinforced to hold their own.

In future issues this magazine will carry articles on high frequency equipment although this television receiver of the super heterodyne type tunes very broad for reception of pictures, the problems worked out by the Don Lee television staff should put ideas in the minds of the amateurs interested in the high frequency field; that they may pave the way to fine crystal frequency stability in their transmitters so they will not wander into television frequencies and sharp super heterodyne receivers that can make use of the ultra-high frequency bands—the amateur's by birth right.

Again! Why not try televsion on your own hook, the FCC says its ok and all that is needed is money and a little time thrown in.

receiver embracing the design features set forth above. The antenna is indicated by the tubing at the upper left, separated in the center and connected to L-1 The separate lengths of the tubing should be 63 inches long and ¼ inch or more in diameter. They should be joined mechanically by an insulator two or three inches long. The leads running from the antenna to L-1 indicate a length of 70-ohm cable, known as "EO-1." It is desirable that the feeder should extend perpendicularly from the antenna for 5 feet or more. The antenna end of the feeder is "fanned out" for 6 inches and one conductor attached to each 63-inch length of the antenna. The receiver end is brought in through insulating bushings to the end to two turn coil, L1.

The first resonant circuit, L-2 C-1, should be of "high-loss" construction, that is, no effort should be made, as is usually done, to keep the coil away from shielding, or use the best quality variable condenser. The radio frequency resistance of this circuit must be considerable to insure that the high frequency components of the wide image sideband will not be attenuated. This can be accomplished by using components of ordinary quality or by shunting a fixed resistor across the circuit. The components should be mechanically excellent, but the use of bakelite coil forms, bakelite pieces for coil support and condenser end plates is definitely allowable. This circuit, with vacuum tube VT-1, comprises the super-heterodyne first detector or converter. This is housed in the first dark shield can shown in the front left of Fig. 3. The porcelain lead-through insulator at the left supports coil L-1 and provides external binding posts for the incoming feeders. The upper of the two knobs is the tuning control and comprises the shaft and variable condensers C-1. This is one of the front panel knobs. The knob directly below it is the volume control, comprising resistor C-7 in the circuit of Fig. 1. Behind the first shield is the oscillator shield, and condenser C-15 of this circuit is ganged with condenser C-1. This is accomplished by an ordinary shaft coupling. These two shields are preferably made of copper with as few joints as possible to give good shielding at ultra-high frequencies. They may be chromium, but not cadmium plated, if desirable. Cadimium plating is satisfactory for the chassis in general, and aluminum shield cans may be used elsewhere. Copper shield cans with chromium plating are an extra refinement. The remainder of the circuits of the converter VT-1 and oscillator VT-7 are more or less standard. Oscillator coil L-2 is placed over (surrounding) the grounded end of coil L-11. No difficulty should be encountered in securing ultra-high frequency oscillation with this circuit.

Coil condenser combinations C-3, L-3 and C-4, L-4 comprise the band pass intermediate frequency transformers. These should also be of "high-loss" construction. Bakelite coil forms

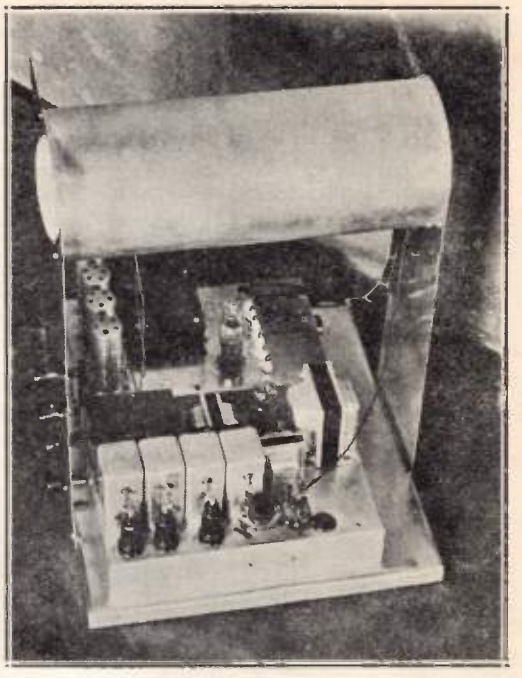

FIGURE 2
The Complete Don Lee Receiver
The super heterodyne and low voltage power supply are in the foreground, the sweep circuits and high voltage power supply in the background. The Cathode ray tube is shielded by a 7-inch cadmium plated metal pipe

and small wire are specified, while the condensers may have bakelite end insulators and may be of the mica compression type. The intermediate frequency transformers are shown as the row of rectangular shield cans down the center of the chassis in Fig. 3. The three 6K7 intermediate frequency vacuum tubes are shown to the right of the several stages. It is not necessary that the arrangement shown be adhered to. Increasing the space between shield cans and placing a tube between each one, or a staggered arrangement of shield cans and tubes is satisfactory. The diagram shows three stages of intermediate frequency amplification indicated by tubes VT-2, VT-3 and VT-4, with the associated equipment. This amount of amplification is satisfactory where a moderate or strong signal is available, such as a hill-side or unobstructed line of sight location or level ground using antenna 25 or more feet above surrounding objects. Where these conditions cannot be met, an additional stage of intermediate frequency amplification is recommended. The addition is accomplished by merely constructing and installing another tube VT-3, another intermediate frequency transformer C-3, L-3, C-4, L-4; a socket, shield can, two isolating resistors, R-37, and two by-pass condensers C-2. The adjustment of the several condensers, C-3,, C-4, of each stage should be avail-

able from the outside, and they should be adjusted to give the best detail while looking at an image.

VT-5 is a diode second detector, the output of which appears at the right-hand end of resistor R-2. It will be noted that this resistor has a value of only 15,000 ohms. This resistor in the usual communications type receiver would have a value of perhaps one-half megohm. The low value here used is necessary in order to nullify the reactance of the unavoidable capacitance of the "high" side of the components and the "high" wiring to ground. It will be noted that the lead from R-2 to the grid of VT-6 is shown as a solid line with a dotted line adjacent to it. This is to indicate that this lead, as well as others to follow, should be run in a direct manner, and as far away from the chassis as possible, so that its capacitance to ground will be small. The short metal tube in front of the last intermediate frequency transformer shield can is the diode, and it will be noted that it is above the chassis by 1¼ inches. This is for the purpose of reducing the capacitance of the wire to ground.

Similarly, the acorn triode VT-6 is elevated above the chassis. In this circuit the plate lead to the high end of resistors R-4 and R-40 and the associated components must all be located as far from grounded objects as possible. Condenser C-12 and resistor R-5, coupling condenser and grid leak for the cathode ray tube respectively, can be best located adjacent to the grid terminal of the cathode ray tube rather than immediately adjacent to VT-6. The lead from the junction of the resistors R-4 and R-40 to the synchronizing circuit condensers C-30 and C-31 and resistor R-33 which comprise the synchronizing circuit, and the leads to the grids of the vacuum tubes VT-11, VT-12 of the scanning sources should be of low capacitance by being short and by being removed from ground as far as convenient.

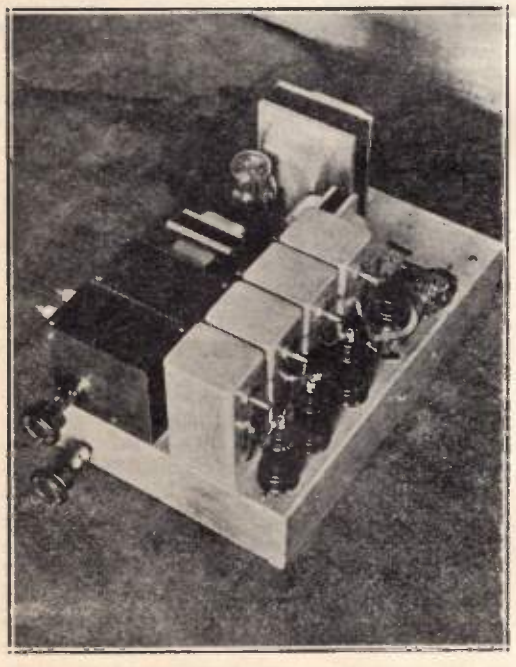

FIGURE 3

The super heterodyne receiver and low frequency power supply of the Don Lee television receiver. The high-frequency circuits are housed in the dark copper shield cans and the intermediate frequency in the aluminum shield cans.

The glass tube in the rear of the chassis of Fig. 3 is the 83-V full wave rectifier. Directly behind it is the power transformer TR-2 and the choke L-13, associated with the low voltage power supply shown in the lower left hand corner of Fig. 1. This power supply operates the television receiver and the two scanning sources.

The simple type of gas triode sweep circuit oscillator with a constant current pentode as a plate resistor has been used in the interests of simplicity. The high frequency and low frequency sweep circuits are alike, except for the value of condensers C-22, C-25, C-23, and C-26. Resistors R-18 in each circuit serves to vary the frequency. These two controls are front panel controls, for adjusting the lock-in of both the low and high frequency sweep circuits.

The components C-30, C-31, and R-33 convey energy from the output of the receiver amplifier through circuits particularly suited to synchronize the low and high frequency sources.

Transformer TR-1, rectifier tube VT-8, condensers C-28 and C-29 and resistors chain R-8, R-9, R-10, R-11 comprise the high voltage power supply for the cathode ray tube. This is essentially standard cathode ray tube practice. However it is notably different from ordinary receiver tube practice in that the PLATE of the cathode ray tube is grounded and the heater cathode and grid of the cathode ray tube are HIGH VOLTAGE leads of the device. These must be treated with respect, in installation, and not touched when in operation. These leads are some 2,000 volts "below ground," but whether or not such a lead is "above" or "below" ground potential by a large amount makes no difference in its ability to give a severe shock. It is improbable that there is sufficient energy in the equipment to produce fatal results unless the subject should die of fright. Consequently, if the circuits are accidently touched, attempt to minimize the effect in the mind, which should tend to put the person in the best condition. It is to be understood that the Don Lee organization incurs no liability of any kind in connection with such accidents or in any other matter because of the information furnished herewith. Such information is furnished free for

non-commercial use, and no patent or other license is granted or may be inferred.

Fig. 4 shows the sweep circuit high power supply chassis, with gas triodes and accompanying pentode resistor tubes shown in alignment at the front end of the chassis. Behind them is transformer TR-1, rectifier VT-8 and porcelain lead-through insulators which carry the high voltage to the cathode ray tube. Condensers C-28 and C-29 are below the chassis. Resistor R-18 is shown on the small panel at the front right of the chassis. On the rear of the chassis are located controls R-9 and R-11, which control the focus and intensity of the cathode ray tube respectively.

Figure 2 shows the completed receiver. The curving black lead in the foreground from receiver to the rear of the cathode ray tube shield is the output "high" lead which goes to the grid of the cathode ray tube. The cable leads in the rear which also enter the rear of the cathode ray tube shield are the cathode ray voltage supply leads. It is desirable that the cathode ray tube be mechanically, electro-magneticaly and electrostaticaly shielded. To accomplish this, a piece of 6 or 7 inch diameter stove pipe is suitable for a 5-inch diameter tube. In the receiver constructed, this shield, the two supporting panels and the bottom shelf were cadmium plated. This presents a pleasing appearance, regardless of the lowly origin of the stove-pipe.

The mechanical arrangements shown in the photographs do not have to be rigidly followed. Several rules of construction must be observed however, and these are given herewith. Most important, power transformers and chokes should not be located closer than one foot from the cathode ray tube, particularly if near the rear end thereof. If located closer, the stray magnetic field from these devices deflects the electron beam directly by the mechanism of the electro-magnet deflection, and an irregular vertical margin is found on both sides of the blank field of view of the cathode ray tube even if all signal circuit leads are disconnected therefrom. If it is desired that the tube and chasis be close together, the transformers must be located at the front of the tube near the fluorescent screen. All components may be located on one large chassis if these precautions are followed. Another allowable arrangement consists of locating the receiver and scanning sources on one (an upper) chassis and the two power supplies on another, (a lower), the latter being placed below the former in the cabinet.

Also it is not necessary that metal vacuum tubes be employed. The corresponding glass types are suitable. It is important that an acorn triode be used for VT-6 however. Another acorn triode connected as a diode may be used for VT-5.

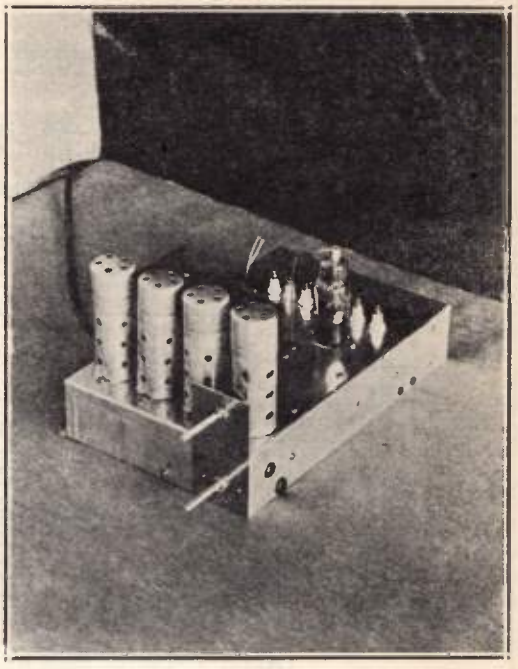

FIGURE 4

The sweep circuits and high voltage power supply. The shafts shown are for front of panel control of low and high frequency scanning sources. Cathode ray tube adjustments are located on the rear of this chassis.

In connecting the cathode ray tube deflection plates, the numbers on the diagram when viewed from the front of the cabinet are: (1) right rear (2) lower front; (3) upper front; (4) left rear. When this arrangement is observed the pictures will appear right side up and printing will read from left to right.

The receiver is put into operation in the following manner:

All connections having been made and checked, the power circuit is turned on by SW-1. After about a one-minute warm-up period, a rectangle of light should appear on the cathode ray tube screen. This should be adjusted by resistor R-11 until it is of average brilliancy. If the resistor R-11 is adjusted too much in one direction the rectangle of light will be extinguished: if too far the other direction it will be very bright and unsuited for displaying the television image. The neutral or blank screen should be of half-brilliancy so that the black portions of the pictures will extinguish the cathode ray spot, and the bright portions carry it to full brilliancy. The resistor R-9 controls the focus of the tube; and this should be adjusted until the scanning lines are most clearly seen.

FIGURE 1—Circuit Diagram for Modern Don Lee Television Receiver

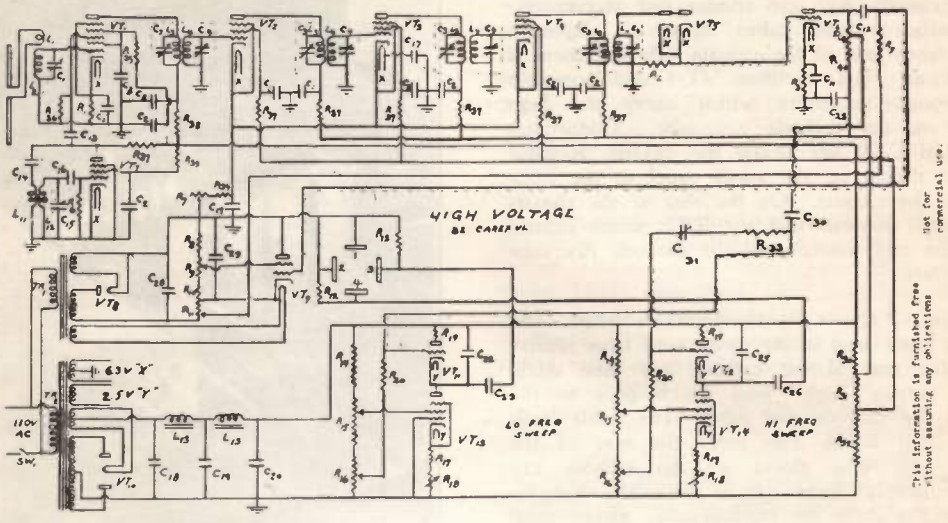

TABLE 1—List of parts for the Don Lee Television Receiver

R-1 500 ohm 1 watt Morrill or equal.
R-2 15,000 ohm 1 watt Morrill or equal.
R-3 1000 ohm 1 watt carbon.
R-4 5,000 ohm 1 watt Morrill or equal.
R-5 1 megohm 1 watt Morrill or equal.
R-6 50,000 ohm 1 watt carbon.
R-7 5,000 ohm 4 watt pot. wirewound.
R-8 1 megohm 3 watt carbon.
R-9 0.5 megohm 1 watt potentiometer.
R-10 150,000 ohm 2 watt carbon.
R-11 0.1 megohm 1 watt potentiometer.
R-12 4 megohm 1 watt carbon.
R-14 40,000 ohm 3 watt (2 needed).
R-16 7500 ohm 1 watt carbon (2 needed).
R-17 1500 ohm 1 watt carbon (2 needed).
R-18 50,000 ohm 1 watt pot. (2 needed).
R-19 1000 ohm 1 watt carbon (2 needed).
R-20 300,000 ohm 1 watt carbon (2 needed).
R-30 2500 ohm 10 watt wirewound.
R-31 (15,000 ohm 25 watt vitreous
R-32 (enamel adjustable.
R-33 10,000 ohm 1 watt carbon.
R-34 100 ohm 1 watt carbon.
R-35 20,000 ohm 2 watt carbon.
R-36 50,000 ohm 1 watt carbon.
R-37 10,000 ohm 1watt Morrill or equal (7 needed).
R-38 25,000 ohm 1 watt Morrill or equal.
R-39 25,000 ohm 1 watt Morrill or equal.
R-40 10,000 ohm 1 watt.
L-1 1 turn No. 14 enamel 1 in. diameter.
L-2 6 turns No. 14 enamel 1 in. diameter. spaced to make coil 1 in. long.
L-3 L-4 23 turns No. 30 enamel per coil wound solid on ½ in. bakelite form (outside diameter) coils ¼ in. long spaced 1-16 in. apart
L-11 5 turns No. 14 enamel ¾ in. diameter, ¾ in. long.
L-12 3 turns No. 14 enamel 1 in. diameter spaced to make coil ½ in. long.
L-13 Inca D-22 or equal 20 h. choke (2 needed or 1 double choke).

C-1 25 mmfd. isolantite insulation.
C-2 .01 mfd. 400 volt paper (12 needed).
C-3 50 mmfd. midget variable (bakelite ends satisfactory or mica compression type may be used).
C-4 Ditto
C-11 25 mfd. electrolytic cond. 25 w. v.
C-12 .01 mfd. mica 2500 volt.
C-13 50 mmfd. mica 500 volt.
C-14 100 mmfd. 500 volt mica.
C-15 25 mmfd. var. isolantite insulation.
C-16 50 mmfd. mica 500 volt.
C-17 0.1 mfd. paper 400 volt (2 needed).
C-18 (
C-19 (3-section electrolytic 8 mfd. per section
C-20 (525 volt peak.
C-22 0.1 mfd. paper 400 w. v.
C-23 1 mfd paper 400 w. v. (2 needed).
C-25 .00045 mfd. including stray wiring capacity mica condenser.
C-26 0.1 mfd. paper 400 w. v.
C-28 1 mfd. 2000 w. v. Pyranol or equal.
C-29 0.5 mfd. 2000 w. v. Pyranol or equal
C-30 .004 mfd. 500 volt mica.
C-31 50 mmfd. midget set at 20 mmfd.
SW-1 SPST toggle switch 110 volt.
VT-1 6L7 first detector.
VT-2 6K7 first i. f. amplifier.
VT-3 6K7 second i. f. amplifier.
VT-4 6K7 third i. f. amplifier.
VT-5 6H6 diode second detector
VT-6 955 acorn television ("audio") amp.
VT-7 6J7 oscillator.
VT-8 879 half-wave rectifier hi-voltage.
VT-9 905 cathode ray tube 5 in. screen.
VT-10 83-V full wave rectifier.
VT-11 885.
VT-12 885
VT-13 58
VT-14 58
TR-1 Inca B-7 or equal, sec. 1200 rms.
TR-2 Inca C-66 or equal, sec. 750 rms.

With no signal being received, there should be no variation of intensity over the screen, except for a slight darkening at the top thereof, which is permissable. Any traveling or stationary variations of intensity having several dark and light horizontal portions, indicate the presence of alternating current hum. This may come from inproper circuit connections or conditions in the high-voltage rectifier for the cathode ray tube; hum in the output of the radio receiver or improper connection of the cathode and heater of the cathode ray tube. It is usually found that connecting the cathode to one side of the heater gives less hum in the field than connecting to the other side. Whether or not the hum comes from the television receiver can be checked by removing the connection to condensed C-12. If the horizontal variations of intensity disappear, the hum is in the receiver. As previously mentioned, irregularity of the vertical sides of the beam usually indicates deflection of the cathode ray beam directly by transformers or mechanical field. This must be cured by further separation between these units and the cathode ray tube. This type of interference may occasionally produce residual intensity variations of the field of view and give rise to the horizontal variations of intensity which are characteristic of power supply hum. A slight amount of such variation can be tolerated since the incoming signal is much stronger and the variation is not seen when an image is being received. When the receiver is properly constructed and adjusted, however, all hum will be removed.

After making the above adjustments without a television signal, the next step is to tune in the test signal of W6XAO. When this is properly received it appears as 38 parallel horizontal bars in the field of view. In order to receive the signal the several condensers C-3, C-4 of the intermediate frequency transformers must be aligned. If necessary at the start, headphones with a series blocking condenser can be shunted from the plate of VT-6 to ground and the weak signal which will probably be received in any event, brought to maximum intensity by such adjustment, and the separate tuning of condensers C-1 and C-15, which are best left free of each other in this preliminary adjustment. The intermediate frequency is 8,000 kilocycles and the oscillater operates 8,000 kilocycles above the incoming frequency. Its condenser, C-15 will consequently be at a smaller capacitance than condenser C-1 to bring this about. The set screws of the coupling between C-1 and C-15 may be tightened when maximum signal is secured.

If fewer bars than 38 are received, the low frequency scanning source is operating at too high a frequency, and if more than 38 are received, it is operating at too low a frequency. The proper frequency is 24 cycles per second. The high frequency source must operate at 7200 cycles per second. With the low frequency source properly adjusted this is the point where the individual scanning lines just begin to merge into a solid field for the typical of 5-inch cathode ray tube.

The next step is to receive an image. With the high frequency source off frequency as it probably will be in this first adjustment, a great number of small black and white dots and dashes will undoubtedly be received. Vary the high frequency adjusting knob R-18 until this closes up to a single image. This is identified by a black bar at the right of the field of view, and a single orderly representation of an image across the field of view. Preliminary to securing this adjustment one or more images may appear slanting one way or the other, depending upon whether the source is adjusted to too high are too low a frequency. After proper high frequency adjustment, it is possible that the image will be moving up or down. This is remedied by adjusting the low frequency resistor, R-18, until the image becomes stationary. Proper adjustment of both of these knobs should now make the image lock in step and continue to be displayed without further interruptions. It will be found with these simple types of sweep circuits that the natural frequency of the sources may trend to vary during the first few moments of receiver operation. Consequently a few moments warm-up period is needed. If the receiver signal is not sufficient to fully modulate the cathode ray tube, the synchronization may not be secure, and steps should be taken to increase the signal strength.

To bring the detail in the image to a maximum the several intermediate frequency condensers, C-3 C-4, should now be adjusted while examining the picture. The condensers C-1 and C-15 should also be checked as to over-all tuning adjustment and relation between the two as determined by the setting of the coupling.

If unsufficient signal is secured the addition of one or even two more intermediate frequency stages is indicated. This is not difficult because these stages are of low gain compared to the usual communications type intermediate frequency stage. For instance, the gain of the three stages when properly constructed and adjusted for wide band pass may not be more than one of two high gain stages as used in usual short-wave or broadcast reception. The use of a directional antenna is an excellent way to increase the signal strength and decrease the interference from automobiles or other sources, if this is required. This is accomplished by placing a parasitic reflector, consisting of one piece of ¼-inch diameter copper tubing, 11 feet long, 4 feet away from the antenna and on the side directly opposite to the television station from which

desired to receive. This reflector is not connected to the antenna or any other metallic object in any way. It does not attenuate signals in a range of about 160 degrees in the direction toward the station to which it is aimed, but do reduce signals coming from the rear 200 degrees.

The ordinary 5-inch size cathode ray has been shown for this receiver because of its low cost and availability. It is possible to employ any size tube with the receiver. The 1 inch or 3 inch sizes are not recommended, however ,because the focus of the spot is not sufficiently fine to secure the proper detail in the present high definition television images. For a larger cathode ray tube, symmetrical push-pull amplifiers should be added to the scanning sources, if a plated type anode on the conical side of the tube is employed in its construction. It is understood that large size tubes without this feature are available, and that mercury vapor gas triode tubes can be used to give large scanning source outputs without amplification. (Du Mont).

The confidential Don Lee television receivers as used for demonstrations differ materially from the design of this receiver. However, this unit has been constructed and adjusted according to the above directions by the Don Lee organization and also by a number of individual constructors in Southern California, who already have receivers in operation. It is felt that such constructors as can assemble a receiver of this type will not have difficulty in modifying or improving it to keep pace with the forward march of the art.

Mutterings of an XYL

By V. MORGAN (XYL of W6NOF)

Though the phrase—a transmitter hunt—has all the earmarks of adventure and high gayety, it is only fair on my part to warn all XYL's that it's a lot of propaganda cleverly publicised by mad men.

Spring has the usual tendencies of bringing out the worst in everyone and to the 'ham" it makes the usual midly insane into maniacs.

Against my better judgement I consented to go on one of these transmitter hunts. The great day arrived with a bang—which I discovered as I opened one eye, was the bedroom door. Waving one hand full of wires and tubes and the other delving into each cluttered drawer of his, leaving tid-bits draped over each side, the O. M. breathlessly exclaimed, "Come on honey, let's get going. We have to be there to register at least by nine o'clock."

We finally arrived at the given destination to start the hunt with batteries at my feet, speakers at my neck, and wired coils in my lap. Then to make things cozy we included an amateur to help run the rig. From then on it was just a matter of—hang on to your hats!

Riding wildly up and down streets, in and out alleys were mere pleasantries compared to the jogging through fields, over back fences, and down river beds. Then to top it all, they would stop every half mile, one of them would jump out, grab a tall stick, wave it up and down on all sides of the car, motion strenuously and then both would start screaming radio gibberish. Once in a while I was able to satisfy curious onlookers with a facial expression of "They are perfectly harmless, really. You know, boys will be boys." But most of the time the crowd would stare a minute and then hastily walk away shaking their heads and muttering, "Too bad, and so very young, too."

Four hours later with my feet asleep, my head spinning and my cescum-takum-tally quite numb, they announced the location of the hidden transmitter. As only two fellows had located the transmitter, the next three cars to reach them would receive prizes.

The following few minutes would cause anyone to break into a cold sweat. We flew past three boulevard stops, rounded corners on one and a half wheels, nearly got two cats and a crippled man as we steamed into the vital spot.

The fellows claimed their prize, the car belched smoke, and I collapsed.

I can put this episode down in my log as the YL said after she had her first sunrise tequillacocktail, "I darn near died."

FRESNO HAMFEST
April 3, 1937

Fresno certainly lived up to their name when they put on a banquet for they do things in fine style. The crowd started to gather early that Saturday afternoon and toward evening the main lobby of the Fresno Hotel was turned into a dining room; and was none too large with over three hundred in attendance. Tickets sold at $1.25 with corsages for each lady. Fresno is a great town to go to and the entertainment that they put on was very good indeed. Grand pap with his back woods musical insterments was a work of art; nor would the gang let the hungry German band stop when once they started to go to town.

Just One of the Many Reasons for the Success of the Fresno Banquet.

From the above picture you should begin to see why Fresno is liked by the boys. When YL's like Dorothy De Jarnett, the junor op from amateur station ~~W6NHO~~ plays and sings she certainly pulls on ones heart strings. Oh, boy you should have been there. Even the Local Broadcast station opened a line from the studio so the whole San Joaquin Valley could hear the after dinner speaker. The assistant director of the Pacific Division who lives in the bay area was a guest. Stockton Radio Club came 40 strong. Nine members of the Bell Club were there from Southern California.

Other amateurs could take a lesson from the northern boys for when they have a good shin dig they go after their local newspaper for the front page to advertise what the amateurs are doing, and do they get cooperation—and how! Why the newspaper comes out with a cut of a ham station that takes up half the front page with inset pictures of the officers of the Fresno Club and head lines in code biding the out of towners welcome. These papers were given free to all those at the banquet and to go in heavier, the Stockton Club brought along a special edition for all present with headlines just as big telling the crowd about their big convention in the fall.

Officially the evening ended around 12:30 p. m. when all the 100 or more door prizes had been given away. Over one third of those present went home with some kind of equipment. After things quited down at the hotel all one could see on the streets of the city unitl close to dawn was strings of cars going from shack to shack of the local hams who held open house. Moral of this story is take a tip and don't miss any other Fresno Hamfest.

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Important F. C. C. Rules

Through the co-operation of Mr. Rowe and Mr. Linden, Radio Inspectors of the Los Angeles office, we will attempt to keep the amateurs posted on the various law changes, etc.

Excerpts from the Rules governing amateur transmissions printed here are of the utmost importance and it has been called to our attention to stress the following:

"371. Amateur stations not to be used for broadcasting.—Amateur stations shall not be used for broadcasting any form of entertainment, nor for the simultaneous retransmission by automatic means of programs or signals emanating from any class of station other than amateur."

"372. Radiotelephone tests.—Amateur stations may be used for the transmission of music for test purposes **OF SHORT DURATION** in connection with the development of experimental radiotelephone equipment."

"384. Transmission of call.—An operator of an amateur station shall transmit its assigned call **at least once during each 15 minutes of operation** and at the end of each transmission. In addition, an operator of an amateur portable or portable-mobile radiotelegraph station shall transmit immediately after the call of the station the break sign (BT) followed by the number of the amateur call area in which the portable or portable-mobile amateur station is then operating."

For examples see Rules and Regulations.

If telephony is used, the call sign of the station shall be followed by an announcement of

(Continued on page 32)

By Ray Harmon, W6GHU

"In the springtime a young man's thoughts turn to romance." The guy that wrote those lines sure must have known what he was talking about because the local sigs seem to be fewer and fewer each day. Still again conditions may be the cause but that is doubtful as the Europeans and the Africans come thru with such nice sig strength that after one listen to them all thoughts of spring should disappear. Still some of the boys think conditions are every erratic this year because of the way the European stations come through. Some nights they all come thru and the next night none come thru at all.

In spite of all this that new Ball and Chainer W6QD managed to snaffle off a WAC record for CW in the fine time of 22 minutes. Herb says he could have made it in 18 minutes if he hadn't had such a hard time raising a North American contact. The antenna used for the work was a Johnson "Q" about 9 ft. off the roof of the house.

Speaking of the married men, Ralphie Heiges is out of the doghouse and on the air quite consistently these days. Ralph has a new location in Southwest Los Angeles that is supposed to be the berries. He popped his 150T the other day so decided that some sort of a celebration was in order. As a result the neighborhood was all invited to come over and help him put up a pair of 72 ft. sticks. (How is it that W6HEW always manages to get to these pole raising parties just as the last guy wire is being fastened?) Anyhow Ralph is getting a new tube and with his new antenna should block all the bloopers in Europe.

There is no stopping this guy W6GRX. Not satisfied with making 66,000 points in the CW-DX contest, he rushed up and took his Class "A" exam and got his ticket back about a day before the fone contest; then proceeded to make 109 contacts—worked 11 "G's," three new countries, VP9, YV, HI, WAC twice, 13,000 points and all he used was a Gammatron modulated by a pair of 6L6's with 100 watts input. His multiplier came from working 26 countries on 14 mc., 13 on 28 mc., and 1 on 3.5 mc. for a multiplier of 40.

Never hear W6CXW because as Henry puts it, the Celery patch got a ten day lead on him during the contest, so he is out getting it back so he can pay off the light bill for the contest. Henry's score will run around 110 to 114 grand points. The final score will depend on whether GM (Scotland) is counted or not.

And talk about your rare ones, old W6KBD sure picked some honies outa air. The choicest one he worked was VQ8AH whose QRA is given as being in the CHAGOS ARCHIPELAGO Islands about half way between Mauritius and India. His frequency is 14255 with a badly creeping chirpy T6 note. The next was FY8B (French Guiana) 14430 kc .and also I1IR, 14400 kc. These three bring Art's total to 86 countries and 36 zones! Art's rig ends up with a lil 35T in the final and never over 250 watts input. Nice going, feller.

W6LYM, who is the president of the Orange County Radio Association invites all the boys to drop over to the club. If you are interested in DX so much the better because all the boys at that club are DX hounds, and there is supposed to be a DX Bull Fest that leaves the floor sagging after each meeting.

The general opinion of the Orange County boys is that OZ9Q is the loudest and most consistent European station heard these days. He is followed closely by (Diathermy note) OZ3X. LYM says that on some nights the European stations are as plentiful as the ZL and VK gang, then again on other nights the band is very, very dead. In the mornings the South African gang are quite active with ZS4U the loudest of them all. The best African sigs heard are from ZS4U, ZS1AH, ZT5Y, ZS5B, ZS4E, ZE1JG, ZU1D, ZU1T and ZS1AU. ZU1T, who was confined to the hospital for a while due to a bad case of Tuberculosis is now up again and active, putting in one of the best African sigs here. Some others from LYM are HS1BJ (14100 kc. T9) VS1AI, 14100 kc T9) and CR7GF (14370 kc. T6). Also a new south American country is being heard and worked these days, namely FY8A (14425 kc. T5-6). CR7MB is to be found on the same freq. as FY8A. CN8MI is found on 14290 kc with a

T5 note. LYM has a pair of 354-C's in the final with 1 kw, a pair of 5 wave vee beams and is now planning on a beam for each continent so watch out fellers.

With W6BAM, KBD, KRI, LYM, BVX, LHN, BFE, BXI and MTC all in a bunch and all on 14 mc. who should move in to largen their happy little group but one of the best DX men in the 7th District, W7BYW. He has a small rig on now but will be on shortly with pp 250TH's to make the boys al very happy. Sure ?:!**¼%$.

People still detour W6HEW's QRA because they just can't get used to that mess of wires towering over the house. Mort has 5 antennas up now and planning on more. Soon it will look like an overgrown spider web around there. He is another guy that has fallen lure to spring fever.

W6GK and W6JWL never get on the air animore either. They, like others, lack ambition, JWL to pound brass and GK to rebuild the rig. (Hope they both keep off the air because it's the strangest thing, it seems that everybody I call comes back either one of them).

W6KIP after working G6LK, F8EQ, FA8 BG, LU1FP, ZU6P and others on three bands (10, 20, 40), is building a new rig of 6L6 osc. and an 860 in the final for 80 meters to try for a fourth band contact with those fellows. Still trying for something different, he has an xtl rig on "5" with 500 watts. He says DX not so good on 56 mc. as the only guy he has worked there is W6DOB.

W6MHH, Fred (there aint no Easter buny) Warner finds life very miserable indeed as his power leak is still on and as vigorous as ever.

W6GAL, after finally finishing the book, "The Memoirs of a Russian Princess" now has more time to himself, so he can be found on the air nightly. He was quite astounded to find some DX he hasn't worked before.

W6GHU has a nice new baseball bat handy to use on the guy that mentioned that he ought to rebuild. After a solid month of hard diligent work the osc. is finally finished and at the rate he's progressing, the rig ought to be done just when the Europeans disappear for the year.

No news from the 20-40 club this month as it is pretty evident that spring is here and besides the DX contest is over.

Well fellows, sure sorry that there were no more news items but hope it will pick up next month. Remember the 7 year cycle is on the downgrade and DX is getting poorer as we go along, but spring comes every year, so let's get some of these rigs on the air, then send all the news you can to us. 73.

HOW TO RECOGNIZE A HAM

By His Knibbs
W6IVG

If some nice day you're walking down the street and someone stops you with the query "Have you got a match please?" that's not a ham. But if instead he asks "Are my plates red?" then it's a good bet your talking to that species of human being known as a "Ham." Notice the far away look in his eyes, the little splatters of solder on his shoes and trousers, the little round burns on his finger tips, the screw driver (or maybe a wrench) in his vest pocket, the label on the package he's carrying in one hand, and the roll of wire in th eother. Notice how quickly he turns the conversation to oscillators and modulators, etc.

Should his wife be with him, notice the perpetual frown she carries, (that comes from knowing he's always slipping new radio parts in the back way when she's not looking), notice the callouses on her hands from doing the chores around the house, notice how carefully she first feels that post before laying her hand on it, notice the nudges and kicks she gives him, and her valient effort to swing the conversation away from radio. That permanent wave she hasn't got, bought a new filter condenser; and that coat she's wearing, that should have been made over for the kids two years ago, has done more than its share to help the old man go high power.

And that thing they just got out of is not just a mass of rusty metal, that's their car, and that thing on the rear bumper is not just a hunk of wire the maker forgot to cut off, that's his antenna, and if you'll glance inside the driver's compartment, you'll wonder how there can be room for a driver alongside all those batteries, speakers and such, and where the wife finds room to ride is just another of the mysteries of radio.

And if a car honks its horn in a peculiar way as it passes, and your friend turns his head suddenly and lets out a peculiar chirpy whistle at it, don't be alarmed, he hasn't gone crazy, altho nine chances out of ten he has no more idea who it was in the car than you have, that's just the ham's way of greeting each other.

In case you are still in doubt, visit his home (if you can find it among the maze of towers and antenna wires) and after you've visited his shack and heard his jargon over the air, got yourself all tangled up in a mess of wires, been called mike shy, read his QSL cards and had him smoke up all your cigarettes, then you can truthfully say, "He's a Ham."

SPRING BANQUET
Glendale, Calif.
April 17, 1937

The Federation of Radio Club sponsored this affair with the Glendale Club in charge, held in the afternoon and evening at Stepper's Auditorium, Glendale, California. All parts of the Southwest Division were well represented.

In the afternoon, Karl Pierson, W6BGH of the Patterson Radio, and W. Smith, W6BCX Editor of the Radio Magazine each gave technical talks and the local supply housese displayed merchandise while the ladies of the Glendale Amateur Radio Clubs Auxiliary sold refreshments.

The crowd started to gather and as evening closed in, there were near three hundred by the time the food was about to be brought in. While the banquet was being served a P. A. System entertained with popular music.

The first and main entertainer of the evening was a charming auburn haired maiden, Miss Dorothy Beck who gave her interpretation of tap dancing which went over big with boys.

Director Charles Blalack, W6GG of the Southwestern Division, gave details of what he planned to do when he goes east to the directors meeting.

Mr. Rowe of the R. I. office spoke for a short time on how the F. C. C. is now changing the laws over monorting of the amateurs to fill the present day needs of the short wave spectrum. As the evening went along, Jack Parrants Swing Choir off and on played a modern orchestra number.

Chas. Perrine, W6CUH, had his 20 meter rig on display in the back of the Auditorium. This layout is truly a work of art, in other words efficiency at its highest degree.

After the door prize a Challenger receiver was given away, the raffle was held, to which tickets were sold all evening, was run with 55 prizes. Again Miss Beck danced and the evening ended with the tables being removed and the floor cleared for dancing.

Walt Matney, W6EQM, Chairman of the Federation Publicity Committee, acted as Master of Ceremonies and displayed his usual gift of wit.

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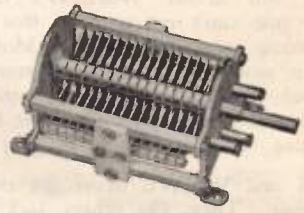
NEWS FLASH!

W6OB of Southern California was heard on 160 meter fone by a KAYL, a boat off the coast of the Philippine Islands. W6OB's final has a pair of 6L6G's running 90 watts input.

Popular Priced Compact Transmitting Condensers Developed By Hammarlund

A new popular series of transmitting condensers for high frequency and ultra-high frequency medium and low powered units, has just been developed in the laboratories of the Hammarlund Manufacturing Company, 424 West 33rd Street, New York City. Though low in price, these condensers include all the constructional features required in quality transmitters of all types.



Known as the MTC series, they are available in both single and split stator styles in 19 different sizes with capacities ranging from 20 to 530 $\mu\mu$f. and breakdown voltages from 1000 to 6000 volts. The end frames are of heavy aluminum sheet, while the rotor and stator plates are of heavy aluminum, firmly anchored in place by wedging into deep slots and then by further staking. An accurately ground stainless steel shaft is carefully fitted to a long bronze front bearing mounted on a Beryllium cushion disc. The free floating action thus afforded ,provides for a perfect bearing and consequently smooth operation. The rear bearing is of the steel ball and cup type. Thorough Isolantite insulation and a silver plated Beryllium contact wiper assures lowest losses, lowest series resistance and noisless operation.

The condensers are designed for either panel or base mounting and range in size from 4" long to 6¼" long including a 1" long shaft. Plates are either round edged or standard type varying in thickness from .025" to .040" and from .031" plate spacing to .171" plate spacing, dependent upon voltage breakdown required.

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BOOK REVIEW

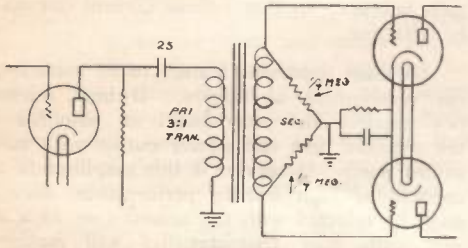
Frank Jones' 1937 "Amateur Radiotelephony" a new Handbook, is not only one of the most modern but it is also one of the best explained books on the present market. The transmitters in this book gives all the newest angles of the Radio art. The Hints and Kinks of radiophone such as reverse phase feedback to clear forms of distortion, hum and room echo; also improved simplified 913 oscilloscopes, etc.

Don't forget, any of you hams with Class B tickets that wish a Class A should read the questions and answers covering this examination in the back of this book as they are, without a doubt, the simplified and best worded in print.

HINTS And KINKS

Making a Push-Pull Input Transformer

Just an old service man's trick but it does the work very well. By using an old 3 to 1 audio transformer it can easily be made to take the place of a good interstage transformer. Maybe a technical man would say that with an oscil-



loscope he would show how this hookup murders the audio peaks. It sounds OK on voice and they say that amateurs should only make tests of music once in a while, and not much of that.

By using resistance coupling to the transformer, the response is improved and there is no D. C. in the primary winding. The output side or secondary goes to the grids of the next stage in the speech amplifier that are in push pull. The ground or center tap is made to each grid through ¼ meg. resistors. There you are with a push pull interstage transformer out of any radio junk box and a few 1 watt carbon resistors plus a coupling condenser.

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W6MZX SENDS THIS ONE

If a .01 Condenser is placed across the milliameter terminals it will keep the r. f. out of the meter and (as he has found out too late) prevent r. f from ruining the meter.

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Here's Some Dope by W6KTY

Bert wants me to tell you about the selective coil I have on my antenna, but as that matter was covered fully by the May, 1936 QST, I will only say that instead of making the coil vertical, and having a cord and pulleys to adjust the pickup coil to the best place, I wound the 870 turns of No. 20 enameled on a one inch pasteboard tube that table oil cloth comes on, which you can get any store to save for you. My pickup coil was one of the old large sized bakelite tube bases, I hacksawed the bottom off of it; and then it was just right to wind 35 turns of No. 30 enameled on, dope the windings with coil dope, and with some heavy litz wire connected to each end of the pickup coil; bring these leads to the primary of Ant., Gnd. connections of the receiver. The long coil I suspend HORIZONTALLY on the wall over the set and it is only necessary to move the pickup coil along this until you find the place where the signal is the loudest, or a voltage node on the long coil. No pulleys or strings needed as the coil is horizontal and seems to work just as good as a vertical one.

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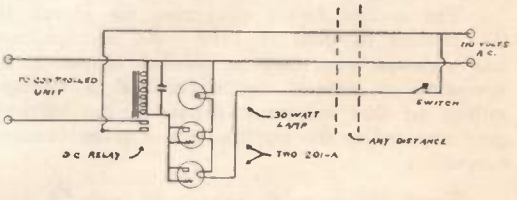
A. C. Remote Control With a D. C. Relay

Transmitters of any electrical apparatus can be controlled at some remote spot with the parts that any respectable junk box should hold. The relay is any low current D. C. that is well enough built to carry some current through its contacts. If the old contacts look rather small new points of silver (dime size) can be soldered in place. To make the relay so that it will not talk a paper condenser can be or should be placed across the coil of at least 2 or 4 mf.



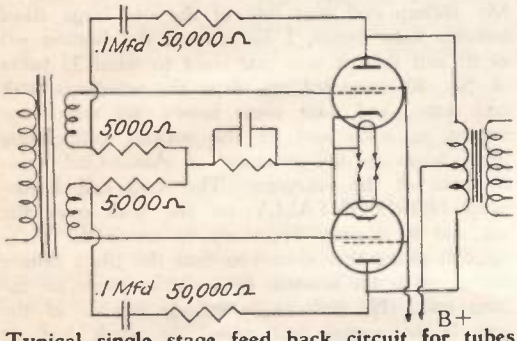
A filament transformer can be used to replace the 30 watt lamp to supply filament current to the two 201-A's which act as a half wave rectifier.

The best part is that only one wire need be run to the opperating point in this remote control system while the 110 volt line does the rest.

Speech Amplifier Design and Construction

*By Glenn Weaver

All amateurs at some time in their active careers have been deeply concerned with the design and construction of speech equipment. In order to realize satisfactory performance it is well to give some serious thought to the fundamental principles which must be religiously followed in order to guarantee such success. Design and construction, equally important in obtaining results, should be considered separately.



Typical single stage feed back circuit for tubes such as 6L6's, 6V6's, or 6F6's with 100% feed back

In choosing a circuit for a proposed amplifier, first consideration is for the amount of power output required. This is determined by the size of the room to be covered by a speaker or by the amount of r. f. power to be modulated in phone service. In general, it is very difficult to predict indoor speaker performance because of the many variable acoustical factors which are encountered, but fairly accurate information on carrying power may be secured from various speaker manufacturers. At any rate, the maximum amount of power output should be governed by the capacity of the speaker system so that the speakers will not be overloaded. For 100% modulation purposes, from 35 to 50% of the r. f. power output will be required.

The second factor governing the circuit is the amount of gain required. As microphones and pick-ups are rated in decibel output it is necessary to convert decibel ratings to voltage ratings so that one may determine the voltage gain required in the amplifier for a given voltage output.

$$\text{Power ration in decibels} = 10 \log \frac{P_1}{P_2}$$

$$= 10 \log \frac{\frac{E_2}{Z}}{.006}$$

(since zero db level is taken as .006 watts.) where E = voltage across pickup or transformer winding and Z = impedance of pickup or transformer winding.

To calculate voltage amplification per stage, the following convenient formulae may be used.

$$\text{voltage amplification} = \frac{\text{amplification factor} \times \text{plate load resistance}}{\text{plate load resistance} + \text{plate resistance}}$$

This equation will give factors for triode of approximately 60% of the amplification factor and for pentodes of approximately 10% of the amplification factor. Voltage amplification of transformers may be taken as the voltage ratios.

The amplifier should be designed with extra gain tolerance so that volume control circuits will be effective.

A most important feature to be considered is the requirement of fidelity. If high fidelity is not required one may build an amplifier with the required gain and power output with medium priced parts. However, if this amplifier is to be capable of high fidelity performance, each part must be selected with the utmost care as a single unit with poor characteristics will make high fidelity impossible.

There are a number of other features which must be considered which are of a more detailed nature. In output stages single ended tubes may be used where high fidelity or large power outputs are not required. However, push pull operation is found to be more satisfactory as harmonic distortion is reduced, especially when it is necessary to drive the tubes at high power levels such as Class AB and Class B operation which would have extremely high distortion in single ended connection. The problem of whether to use transformers or resistance coupled stages is usually governed by cost limitations. In general, the best practice is to use resistance coupled stages in the low level high gain section of the amplifier in order to reduce trouble which might arise from hum pickup, and to use transformer coupling in higher level stages where regulation is of extreme importance as in a driving transformer for push pull output stages.

There is much discussion regarding the choice of Triode or Pentode operation, and the following may be of help in determining which will be more desirable in a given position. Pentode stages in general have high plate impedances and high gain characteristics. Pentode output stages have somewhat higher harmonic distortion than Triodes and should not be used where more than 5% distortion will be objectional. Triode

*Chief Engineer, Robert M. Hadley Co.

tubes are more suitable to transformer coupling because of their low impedance characteristics. For pre-amplifier service or any other service where a high gain low level tube is required, the best practice is to use a Pentode type tube with a Triode connection. The two advantages so obtained are the higher amplification factors obtainable at lower plate impedances and the lower plate impedances and the advantage of having the grid connection in the top of the tube rather than at the base. The capacity between grid and filament connections is sufficient to cause considerable hum pickup in low level high gain stages.

The problem of bias is one which must not be passed over lightly. In general, self-bias is satisfactory when harmonic distortion is not critica. However lower distortion is always obtained in output stages with fixed bias since no degeneration is possible.

In laying out an amplifier it is well to consider what will be the input and output impedances desired as only by properly matching impedances can maximum output and any degree of fidelity be obtained. Miss-matching of transformers is quite common, but experimental tests will show that the extra cost required to secure properly matched transformers is well justified.

No discussion of desirable features in amplifier construction would be complete without the mention of the many advantages obtained by using some type of feed back or degeneration circuits. The advantages of feed back circuits are briefly as follows: (a) Frequency fidelity may be obtained with the use of low priced parts which do not necessarily have high fidelity characteristics. (b) Harmonic distortion may be reduced to a negligible level. (c) Reasonant peaks introduced by improperly designed circuits or by reasonance of speaker systems may be almost completely removed. (d) Push pull Triode characteristics may be obtained with Pentodes if degeneration is employed. (e) Self bias may be used without introductory distortion. The one large disadvantage of the feed back circuit is the loss in gain and in the feedback circuit. In general, it is very easy to achieve satisfactory feed back operation over a single stage, but difficulties will arise if feed back is attempted over more than one stage, and it is necessary to be sure that one properly understands this type of circuit before attempting to use it if satisfactory results are to be obtained. Reference is made to ELECTRONICS and QST for detailed feedback circuits.

No amplifier is any better than the parts which are used in the construction thereof. The most important thing to consider in choosing any part should be that of conservative ratings. No wise amateur will purchase any part without allowing a certain extra margin of safety above that used by manufacturers in their design. Particularly, condensors and transformers should be purchased with an extra margin of safety to allow for guaranteed operation under surges and overload conditions which are bound to occur in all sound equipment. Transformers should be selected with conservative ratings from reputable manufacturers who are known to enjoy an enviable reputation. In purchasing condensors and resistors for amplifier use, one should avoid low quality parts which will be sure to give trouble after short periods of operations. Especially should one be sure that pick-ups, microphones, and speakers are of a quality which is in accordance with the standards set for other parts if uniform results are expected.

See the next issue for valuable information on chassis layout, wiring, adjustment and elimination of hum and oscillation in speech equipment.

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HAM SHACK SOUVENIRS

By W6LQX

A hundrded museums for us will track,
We've inventoried our ham-shack! !

We've crystal mikes and amplifiers,
Fishing poles and worn out tires.
Single O signal, super-supers,
Autodynes and antique "bloopers,"

Fifty-watters (less electronics)
Peanut tubes (with microphonics)
A collins coupler, not our own.
Couplers, loose, date unkown.

Here's a relic, a variometer!
A battery case, an old hydrometer,
A dozen different current relays,
For starting arcs and time-delays.

Thermo-coupled ampere-meters.
Nichrome wire for crystal heaters.
A helix and an old spark coil.
Condensers merged in tanks of oil.

Rotarty gaps with high speed rotors.
M-G. Sets with wash-machine motors,
Infradynes and ultradynes.
"Men at work," "High voltage" signs.

A monitor, micro-calibrated,
A phase invertor, "Syncopated,"
A D. C. filter one thousand volts.
A cigar box filled with nuts and bolts.

Binding-posts and Fehnstock clips.
Circuit jacks and phone-cord tips.
That lamp-cord's bad, might start a fire.
Say OM, can you spare some wire?

A RESOLUTION

By the Helix Amateur Radio Club

Sponsoring the opening of the 10 meter band for radiotelephone operation.

TO: Charlie Blalack, W6GG:—

WHEREAS: The Federal Communication has by regulation assigned to regularly licensed amateurs, in addition to other frequencies, that part of the spectrum between 28000 and 30000 kc. and—

WHEREAS: The Federal Communication Commission by regulation has limited radiotelephone operation in the ten meter band to any frequency between 28000 and 29000 kc. and—

WHEREAS: Due to successful operation in this band the low frequency portion thereof has become congested with both radiotelephone and cw signals and—

WHEREAS: Amateur radio operators, operating on cw, are not taking advantage of that part of the band between 29000 and 30000 kc. which under existing regulations is closed to radiotelephone operation and—

THEREFORE BE IT RESOLVED: That the Helix Amateur Radio Club of San Diego County, California, in regular meeting this 1st day of April, 1937, does hereby respectfully request that you, as Director of the Southwestern Division, A. R. R. L., do all within your power to have entire 10 meter band made available for both radiotelephone and cw operation.

BE IT FURTHER RESOLVED: That copies of this resolution be sent to the following:

The Radio Amateur News.
Radio Magazine
QST
73

▼

Resolutions Sponsored by the Bell Radio Club

President Charles Feay, W6EJZ asked the club at the regular meeting of the Southwest Radio Experimental Assn. on evening of April 20, 1937 if there were any instructions members thought the Directors of the Southwestern Division be asked to place before the directors of the A. R. R. L. at their coming meeting. Five points came to the top of the list as the main problems.

One week later at the next meeting of the club on April 27, 1937 after discussion on the subject these changes were made into resolution form and each when made, was voted upon separately. As the Bell Club has an equal number of CW and Fone amateurs working over the complete radio spectrum given to amateurs, the secretary of the club was instructed to write to the Director of the Southwestern Division of the A. R. R. L., Charles Blalack, W6GG and request of him to do what so ever was within his power to do for us in putting over the views of the Club.

1. Resolved that the entire 10 meter band be opened to both CW and Radiotelephone.

2. Resolved that the radiotelephone signals of Class A ticket holders in the 20 meter band have their present band moved to the twenty meter band limits; therefore leaving the CW men a band that is not split into two parts giving both the CW and Phone stations a better chance with the fact in view that modern transmitters can be made to stay within band limits.

3. Resolved that the 40 meter band be left as is, in view of the news that the South Americans plan adding radiotelephone between 7000-7100kc. at the international meeting at Havana, Cuba in Nov.

4. Resolved that the 80 meter Class A Radiotelephones have their band enlarged to extend from 3750kc. to 4000kc. because of the heavy use of the present phone band and the limited use of CW at the high frequency end of the present 80 meter CW part of the band.

5. Resolved that the 160 meter band be opened entirely to radiotelephones with 30 kc. at the low frequency end of the band (whether in the present limits of 1715-2000kc. or the expected changed limits of 1750-2050kc.) to be used by operators when using CW in this band.

▼

Salesman: You pay a small deposit, then you make no more payments for six months.

Lady of the house, W6IOA: Who told you about us?

▼

Doctor: The best thing you can do it give up cigarettes, liquor and women.

W6III: What's the next best thing?

▼

W6OEF: Which way was I walking when I met you?

W6MQS: Why, Harold, you were going north.

Ah, said W6OEF, Then I've had lunch.

5 METER Activities

By W6OEF

It appears that the 5 meter band is coming to life by the looks of the reports this month. Portable mobile stations in the vicinity of Lake Arrowhead and Big Bear have been putting fb signals here in Los Angeles, also some nice ones from Pasadena, Burbank, Santa Monica, Long Beach and Altadena.

W6MYT of Hollydale has been on steady and W6NFR, who lives in Laural Canyon puts in a 5-9 signal and the boys seem to enjoy his fb QSO's.

Mr. Arden L. Gonzales, W6FMH has a rig any of us would be proud to own. The rf section starts with a 6A6 crystal oscillator, 807 doubler to 5 meters, 35T amplifier and buffer, with two 50T's in the final, the input is 150 watts. Speech equipment is 6C5 first speech, two 76's in push pull, second speech, a pair of 2A3's push pull drivers and push pull parallel 210's as modulators. The receiver is a super regenerative using a 955 as a detector, while a 76 and a 42 furnish the audio.

A Johnson Q is used for both transmitting and receiving and will be elevated in the very near future to 90 feet. I don't think many of the fellows are using this type of antenna on 5 meters, but it seems to work out very well according to all reports and Arden is doing alright by himself.

SCOUP!

W6CNE reported as heard on the Empire State Building in New York on 5 meters using a Beam Antenna with 50 watts in put, crystal controlled. And here's another one for you fellows who are lucky enough to be using supers, J3FJ of Naiwa-ku, Osaka and J3DC of Kawabe-gun, Hyogo-ken; Japan are burning up the ether with push pull 35T's crystal control. Beam antennas are being used by both of these stations and although they have not been reported as heard here, be on the lookout for them. Although this information came from a reliable source we are mailing for confirmation, if anyone of our readers know anything of this we will appreciate more on these particular stations.

How many of you fellows have tried to work across bands between 5 and 10 meters? While listening across the 10 meter band a San Francisco station was heard calling CQ to any 5 meter station. There was a good chance for the boys running high power to do a little experimenting and who knows but someone will get a DX record for himself.

This column is open to criticisms and suggestions, so just send your ideas to W6OEF.

THE HAM SHACK

By His Knibbs—W6IVG

It is just a hut as houses go,
With squeaky doors, and even tho
The roof is tight and doesn't leak,
The floors and wall have many a creak.

And towering up to the starlit sky
A tower rears it's head nearby.
And atop the tower, miriad wires
Stretching out like tongues of fire.

Within the hut a small appliance
Brought about through human science,
A switch is flipped, the antenna tied,
The hut is connected with the world outside.

In a rickety chair a young man sits
Listening, as thru his receiver flits
Strange voices in tongues of very land,
Ever changing at the touch of his hand.

Though not a scholar or rich man's son,
He's mighty proud of what he's done
With lots of study and experiment
And the weary hours in research spent.

He's called a Ham, an Amateur,
And tho in years he's not mature
He's traveled much both near and far,
From way down east to Zanzibar.

A man apart from the common herd
Listening and looking for a chance for a word
With some other ham, in a tongue that's new,
A half hour spent in a good rag chew.

The hours pass, the light burns low,
As through the heavens his signals go
To other huts in the dark of night,
Passing even time in their flight.

The hut is his castle—he calls it his shack,
Its entrance, tho way round in the back
Is the doorway to Eden, the gate to the world
The draperies of his hobby unfurled.

WITH The CLUBS

Los Angeles Radio Club

By Bill Parker, W6KSY

Here tiz boys—that much needed and object of procrastination, a radio club for Los Angeles. It started March 10th with an attendance of 150 and has been clicking ever since. Oh yes, the officers of this now club are: Al Thielman, W6NCE, President, El Arrowsmith, W6BIV, Vice-President, Bill Parker, W6KSY, Secretary, Al Troup, W6GDS, Treasurer, and members of the Board.

The featured programs to date have been:

Mr. Chas. Hansen of the Jensen Radio Mfg. Co., gave some very fb dope on speakers and bablles. Mr. Herb Blasier, of Monitor Crystals, wonder what he talked about? hi! Mr. Chas. Perrine, W6CUH, who told us about his trip back east plus a few details about Minsky's, hi! Dr. John F. Blackburn, W6LJX of the Electronics Club of the I. R. E. gave a lecture and demonstration of the Electronics High Fidelity receiver which has an acoustical frequency output of 50 to 9000 cycles flat within 2 D. B. (you should have seen the boys lift the speaker, each weighing over 300 lbs, thru the back window 10 ft. above the floor—umph!

Mr. Don Wallace, W6AM told us how those directional antennas of his work and why his 5 meter sigs rode in on our P. A. system.

Mr. T. Howard of the Inca Company told us how to make Class B audio do its stuff.

Mr. Vern Ruth, W6CJQ of W. Bert Knight Co. gave a demonstration of how oscillographs can be used to analyse the ham rig.

Mr. Bob Reid of W. Bert Knight Co. mystified the fellows with some fb magical stunts (produced everything but a 250TH, darn it).

Why not cum up es meet the gang as we have some fb features lined up for the future. Our new meeting place is The Elk's Temple at 607 South Park View Ave., opposite Westlake Park. Don't for get the picnic on May 16th at Griffith Park.

Orange County Amateur Radio Club

The Orange County Amateur Radio Club was organized in Jan. 15, 1936 with a handful of amateurs. The club has steadily grown unti now it is one of the outstanding groups in Southern California with a membership of fifty, thirty-one of which are active. Active membership is confined to those amateurs living in Orange County, but any ham may belong. A recent survey including nineteen stations in the club disclosed that we have a total of 3046 watts of power or an average of 160 watts per station. Out of this group three were 160 meter, eight were 80 meter, fifteen were 40 meter, fourteen were 20 meter and ten were 10 meter Most of the stations were capable of going on several or all of the bands at will. This is a pretty fair representation in the amateur spectrum. The CW men were about three to one in numbers against the fone men, a fact that proved CW men are better base ball players than fone men at our picnic last year. We have members actively engaged in all phases of amateur activity including traffic men, experimentors, and DX hounds. Speaking of the latter our club seems to be winning the reputation of being very DX minded group. Your reporter is very sorry but this edition will not include a full survey of the DX situation due to the short time available for the composition of this data, but he promises to get the works by next issue. The club meets every two weeks in the YMCA building in Santa Ana, the last meeting being held the twenty sixth of April. A cordial invitation is extended to all those that can get around to one of our FB meetings, and we are pretty sure you will go home full of groceries, inspirations, and an exalted feeling of good will toward fellow ham. The meetings usually start around eight P. M., remarks by NSA to the contrary not with standing.

Club Gossip, Highlight, and Personalities

Our president, Noral Evans, W6LYM has just plunged and procured a couple of the new Gamatrons that has the grid trickling out of the side of the bottle instead of the base as the old 354 used to have. He is very enthusiastic

about them and has nothing but praise to offer for the excellent way in which these babys can take it. He, on the other hand, has his ups and downs. It seems that when you drag one of these California Kilowatts out of the power line something has to give and what it gave him was an abundance of good old 50 cycle Qrm in his HRO. Woe is me. The last electric storm that we experienced down this way took a nose dive down one of his Vee beams and tried to make its getaway through the side of his shack, with the consequence that he now has a new black charred effect on the wall about two feet square.

Our Secretary, Roy Compston, W6IBN proves himself to be a very highly deversified personality by the following contribution. His inspiration comes out of one of the least thought of spots that exists in every ham shack.

It is rumored that LXM has taken his second class fone commercial examination and is now waiting to see how he made out. Another good man gone wrong. Plans joining the BCL servers.

Nobody can ever accuse JMA of not being a kind hearted lover of nature. It seems as though a bird has built a nest in his five meter feed line and is very buisy raising a family. So, JMA has not been on five meters for a long time and now spends his time looking through the window at that last egg which hasn't hatched yet. Incidently if you want to see how a 913 scope should be built up and you should drop in on him and take a look at the excellent job he has done. At the present time The scope is on display in a radio exhibit at the high school where he teaches.

There has apparently been a rush on 35T tubes lately. JMA, MQF, CIG, LPK, BVX, and LQX all have this tube in use or building up around it.

BAM had his station photo printed in a 1933 Argentine magazine called "Revista Telegrafica." And, speaking of pictures, if you want to see a swell collection of station photos from all over the world, you should see BAM's album. It contains over fifty pictures, dating back as far as 1927.

Who has got the oldest unmoved antenna mast? BAM claims that his has not been down for twelve years!

BVX has his station located on the top floor right under a hugh water tank. When it rains his tubes are water cooled, he says. He has a BCL receiver on the operating table and listens to music with one ear while he listens to R9's from Europe in the other.

LDJ, LHN, LVB, MNV, and INV are inseperable and their shacks are eternally being shadowed by weird new sky wires. We wonder where they get their inspirations for all those experimental antennas.

Frank Wiggins Trade School Amateur Radio Club

by Ruby Thompson, W6OJC

Edie Simon, W6ESN, and Albert Bottalico, W6FST are now in San Diego looking for ship operating jobs. They are both holders of Second Class Radiotelegraph and First Class Radiotelephone licenses. This leaves the F. W. T. S. Radio Club minus a couple of officers. Eddie was Communications Mgr., and Al was Pres. The presiding officer now is Arthur Arroyo, W6LDO.

The radio inspector at the Monitor Station said they were watching 5 meters very closely. So I think all you bottleggers had better take a warning.

Dan Haskell, W6CPM, crime, poison, murder. Don is not on the air very much, he's mostly at his girl's house. He is strictly a family man. He sometimes breaks away and goes on 40-80-160. At the Glendale Banquet Don was in charge of the P. A. system. It sure did sound louzy, but we'll forgive him this time.

Oscar Shelly, N6NXT. Traffic handling seems to be his idea of a good time. He is Pres. of the Long Beach Radio Club, acting Communication officer of Unit 3, Section 1 of the Naval Com. Reserve.

Jim Lowe, W6JVK, is an active gabber on 75 and 160 meter fone. He's got one of those voices that are very seldom heard on fone. Very much f. b. Walter Winchell would like to know who the YL is that JVK took to the banquet with him. O, well she's an amateur anyway. Jim has been an amateur for 4 years and just found out he was bootlegging. (BCL told him).

Dick Walsed, W6NTM, tries to expand the English vocabulary. He fills the ether with the worst grammer known on 160 and 5 meter fone. Dick is also known as John Barrymore.

Verner Weiler, W7CJX—6, Doc. is at school, but no one knows why.

Ed Soltesz, W6NQK, is a cw bug on 80. Gonna make a fine radio operator someday.

A couple of fella's are going to build a ½ meter fone job. Wonder what for.

We have a fellow in our club who does all the heavy work. He is never too tired to help the other fellows. We all hope Charles Steele will soon join the ranks of Amateur Radio Operators, although he just wants to be a Commercial Operator.

Dave, our instructor, is the leading "sparks" of our club.

That's all for now. I'll have some more news for you next time.

Stockton Daily Evening Record EXTRA

TODAY'S MARKET AND FINANCIAL REVIEW — NEW YORK AND SAN FRANCISCO QUOTATIONS

Forty-Second Year — 0 XXXX — STOCKTON, SAN JOAQUIN COUNTY, CALIFORNIA — SATURDAY, APRIL 3, 1937 — Thirty Pages — NO. 311

Amateur Radio Group at Meet

Thirty members of the Stockton Amateur Radio Club left this afternoon for Fresno, where tonight they will attend the "hamfest" sponsored by the San Joaquin Valley Radio Club of that city.

Headed by President Arthur C. Aulwurm and Convention Chairman George R. Scott, the members of the local club are prepared to boost the State convention of the Amateur Radio Relay League, which will be held in Stockton September 4, 5 and 6.

Members of the party included Mr. and Mrs. Arthur C. Aulwurm, Mr. and Mrs. E. H. Noack, [illegible]

AID CONVENTION

Bakers Put Off Decision

[illegible]

Kansas City Plant Scene of Quiet Possession by Men

More Than 1000 Entrenched, Demanding Increased Pay; S. F. Trouble Flares

KANSAS CITY, Mo., April 3.—(UP)—Sit-down strikers of the United Automobile Workers occupied the Ford assembly plant here today.

It was the union's first overt action against the industry of Henry Ford, second largest automobile producer in the world, although union leaders often threatened eventually to "move in on Ford."

Above is a reproduction of the Stockton Record that was distributed at the Fresno Hamfest on Saturday, April 3, 1937. Photos show (top) Arthur C. Aulwurm, Club President and (lower) George R. Scott, Convention Chairman.

▼

Stockton, a city of 56,525 people lies in the great San Joaquin Valley in the heart of the State of California. Here has been built one of the most modern and progressive inland seaports in the world. Ships of the seven seas carry a wealth of cargo to every corner of the globe from the fertile farm areas of this Golden State. Providentially situated to be the industrial and distributing point for interior California, Stockton is also the center of a vast recreational paradise including 1000 miles of navigable fresh waterways. At Stockton there is a convergence of a master transportation system, combining rail, highway and water travel. Stockton is becoming known as interior California's convention city. Hotels, restaurants and other accomodations in addition to the many points of interest, as well as the numerous and varied recreational attractions, play a large part in the enjoyment and pleasure of delegates who attend conventions in this city.

STOCKTON INVITES

YOU TO ATTEND

THE

A. R. R. L.

CONVENTION

THREE BIG DAYS

SEPTEMBER

4 - 5 - 6

Everything That Goes To Make A Real Convention Is On The Program

THE BELL CLUB

The Bell Club is getting bigger and better all the time but President Feay, W6EJZ is slipping from the straight and narrow for he has added a new hobby to his collection and it is that of taking motion pictures. Here's hoping Charlie lands some good footage to add to the present reels of the club.

The ladies who have calls of their own and are XYL's are quite noticeable, with six active ladies at one meeting this month.

W6LAK, new publicity chairman of official broadcasts; lets the gang know over the air who the speaker of the next meeting is, or other activities. Reports show he is really putting it over.

W6IGO hasn't any time for play as the club has been keeping him busy drumming up contests the latest being an inter-club contest and a tough hiding place for the 5 meter hunt.

All the members were glad to see Andy, W6MQS, back with us. He thinks (or hopes) he will stay here permanently.

W6CL has been very busy lately with one eye on the stork and the other on the magazine but he is slowly coming down to earth since he waved goodby to the stork—but who can blame him for being puffed now that he is the proud father of a second Jr. op.

W6NAT is not only on the entertainment committee of the club but when he was at the Fresno Hamfest they called upon him twice to pound the ivories.

W6HCF from Wilmington, walked off with the prize for the best looking QRP transmitter. The prize was a T20. The Eimac 35T for the farthest DX with one of the entered rigs will be given when the QSL's come in, also a T20 will go to the ham with the most stations worked.

W6CJQ, as one of the technical speakers of late held the attention of members so well that they even forgot to talk when he displayed a transmitter in connection with two oscilloscopes to show the input and output signal. His friend Mr. Reid, held the gang spellbound with his acts of magic, which ended with much applause.

W6CNJ won in the wind up of some contests previously run and only beat Chase in the last spelling contest by a close margin—believe it or not.

W6HCF is now the proud papa of a sweet little girl to be the new jr. op. around his QRA.

W6MOS has gone to sea and is now what is called sparks on a private yacht—some fun!

W6FHN now in the east at an army radio school is having his fun; such as being thrown from a horse; and sending and receiving code going 45 miles an hour in one of those army tanks over rough country. What a man!

Ray Lightfoot has lost his charm on the raffles. He used to click quite consistently but it seems as though the worm has turned.

KMO now building transmitting condensers for hams.

The "500" gang upstairs gradually increasing in rank but always get through in time to brew up the coffee.

Every meeting seems to bring about 2 new members. The membership to date is 321.

The Bell Bowling Team is now being organized and will be open to competition in the near future.

As summer is now here we will probably be having an occasional meeting on Thursday nights at the Redondo plunge.

Ten members were present at the Orange County Radio Association on Monday, April 26. After a social meeting the Bell members managed to run away with most of the prizes!

W6GXM, Don Draper has been working nights of late and when he gets off the front page of the newspaper he will be back to the club.

Who has seen the 5 meter portable bicycle (not tricycle) running around in the streets of Los Angeles.

W6OEF going high fidelity with 180 degree out of phase audio rectifier to kill all forms of hum distortion and room echo.

W6LIZ gave the gang a break and come to club bringing along that charming XYL. What a break for the boys.

Too bad W6LFC has had to work so much at nights of late. Better luck in the future.

On Sunday, April 25 the Club held is annual picnic at Houghton Park, Long Beach. The day started with a Transmitter Hun. This was perhaps the most spectacular hunt ever staged by the club as it took three and a half hours before the transmitter was located. IGO and George Young did a marvelous job of hiding the transmitter; in fact there are still a lot of us who don't know where it was. With about 20 entered MQS was the WINNA' The Pie eating contest was also won by MQS — a two year champ. It seemed that time went extremely fast and the day was over before we knew it! FDO had a lot of fun with his Foreigners Wheel.

LONG BEACH

By W6MEN es Stooge

We've been sitting here for an hour trying to think of sumthing for a lead, so we'll just go rambling without one.

The attendance at the last meeting was so large that one of the large HALLS of the City Hall had to be opened to accommodate all.

FXI es EZL always present and conspicuous MYD wishes to state at this time that "5" meters is as dead as a door nail these days.

GAL, BXE, OEH, W7FJO es urs truly erected a fb "H" beam for LER. LER was also present. HZB es Ricardo (what is ham radio) Brock, LXC came to watch but left when they found there was work for them too.

Fred (rapid QSY) Warner, MHH works FA8IA es writes him a touching three page plea for a QSL. NXZ snags AR8MO for first QSO in a month. HHU now operating one of the signal towers at the Muicipal Airport.

A touch of sorrow comes to our hearts when we learned of the degeneration of one of our brothers, W6IVT, 15 watts, 160 fone.

The current DX contest which started around the first of December and was to have lasted for two weeks is still going strong with two active participants left. LEE realizes a life long ambition. After saving his pennies for two years he finally accumulated enough to buy Class B transformers so if any of you fellows in the near future hear strange gurglings all over the twenty meter fone band which resemble someone modulating a diathermy machine, you'll know who and what it is. We can't figure out how the boys like NRQ have the ambition to sit around on forty and knock 'em off, twenty's none too gud, let alone forty.

MND doing a fb lot of tfc work on eigthy lately. Incidently, we wish to retract the statement made last month concerning MND's 35T. After weeks of foolin' around, it now, definitely, (with all due respect to Eitel es McCullough) puts out more than his ten. Three quarters of an inch of fire wid an honest pencil, an inch and a half wid a carpenters pencil, and with one that he borrowed from one of the "210 Club Boys" he got the amazing sum of five inches. Darn clever these 210 boys.

Quite a bit of DX has been dropping in at the club of late. A couple of meetings ago one of the ops from NY2AE found his way in and then there was Ex KA1US-cm., and last but not least, one of the original B4UP-H2o lads.

Twenty Grand Lorenzo, MPY, coming along fine with his new rig. Incidently, it's rumored that since he started rebuilding that "Butch" of "Butches' Jip Joint" has made enuf to pay off the mortgage on his quaint little store and also buys a new car. Don't place too much faith in this statement as it is only hearsay and therefore subject to change.

CYS still going to U. S. C. in the spare time he finds after servicing bc. sets and smoking his hod.

It was gud kicks listening to MHH es OEH battling away in the DX contest with both of the a gud two kcs outside. Oh yes! They were both using conversion exciters. (A bottle of India ink and a couple of playing cards). Someone here in the background just remarked that they were pikers, only 2 kcs out, (no reflections on anyone in particular).

Well fellows, the mill here is beginning to fall to pieces so we'll QRT until next month. CU then.

▼

Ultra High Frequency Club of Southern California

The Ultra High Frequency Club of S. C. wishes to extend its congratulations to the "Radio Amateur News" on the fb Magazine it has entered into the amateur field and sure wishes it a very successful career.

Warm weather is about to appear soon and with it comes "Static." So all those interested in 5 meters had better dust off the rigs and get ready for summer preparations as prospects of an eventful season of 5 meter tests will be going full blast, also it's a good idea to keep the band active so the amateur fraternity don't lose any more than they have lost in the past years.

W6JLX in Sierra Madre, where he is confined, would like to contact all the "bunch" and sure would appreciate a call.

Meetings are held on the first and third Mondays of each month.

At the last April meeting there was a round table to find out what members are using on the air at the present time. Paul Langrick, PT, discussed the advantages and disadvantages of Bi-Push exciters as compared to other equipment now in the field.

On the first monday in May, W6BPM will give details of rubber oscillators for receivers.

The U.H.F.C. wishes it to be known that they extend a general invitation to all to visit their club and there is an office open on the Board of Directors for an Activities Manager. The club is on the look out for a man capable of this work.

Helix Amateur Radio Club

President, Bernard F. Boyd, W6LYY, San Diego
Vice Pres., Kenneth Hallett, W6GNP, Nat. City
Sergt. at Arms, Carl Boltz, W6FTT, Chula Vista
Secy and Treas., Henry Haenke, W6NWY, S.D.

The Helix Amateur Radio Club of San Diego was organized during May, 1931, and about six months later became affiliated with ARRL. The club started out with six members, with Vern Milton, W6EPW, as its first Secretary and Treasurer. The meetings at that time rotated among the members, the host acting as Chairman. Paul Weinstock, W6ACJ, became the club's first president. During 1933 and 1934 a slight depression hit the club but it was revitalized in late 1934 and has been going along in splendid shape ever since. Meetings are held the 1st and 3rd Thursdays of each month, the former being a business meeting and the latter an open meeting to which all are invited. The business meetings are held in the shack of W6ANU and the open meetings with W6JRM. Due to limited quarters the membership, in accordance with the constitution, is restricted to twenty.

Les Green hopes to receive his ticket pretty soon. Les is a shut-in and gets a world of pleasure out of radio. His transmitter will have a couple of RK 28's in parallel in the final, suppressor grid modulated. Lots of luck, Les.

W6NZT expects to have his rig in operation soon. It will have a 35 T in the final, operating on 40 and 80 meter cw.

W6LYP (Webb) was a recent visitor to our city. He same down for a perfect fishing trip. If you think it was perfect just ask him. Anyway, Webb, better luck next time.

Several days ago the club received a spendid letter from Hugh Sherman, W9JST (exW6LEC) of La Mesa. Hugh served as president of the Helix Amateur Radio Club during 1935, later moving to Cloverdale, Indiana.

W6JRM (Howard) reports that he made contact on 10 meters with Hugh. Was Howard surprised when Hugh told him that this was his first contact on 10 meter fone?

A special meeting of the club will be held Saturday, April 24th, in honor of Charlie Blalack W6GG, Director of the Southwestern Division of the ARRL.

Rebuilding seems to be the order of the day. The club's emergency portable equipment is being revamped. The transmitter will have about 50 watts input, consisting of a 6L6 oscillator and a T20 final ,operating on cw. The power supply is a ½ h. p. 4 cycle Briggs-Stratton gasoline engine driving a converted Dodge Generator.

We were happily surprised this afternoon when Norrol Evans (W6LYM), President of the Orange County Radio Club, dropped in. If Come again Norrol, but bring Gerry next time.

The Bureau of Vtial Statistics reported that two of our members, Carl Boltz, W6FTT, Chula Vista, and Vern Milton, W6EPW, San Diego, have taken the final leap into matrimony. Congratulations Vern and Carl and the best of luck.

The latest additions to the club membership are: Oscar Erickson, W6NDD, John Amos, W6IWK and Herb Peck (Associate member).

▼

VALLEY RADIO SOCIETY

President, Rudy Jepson, W6KEI
Vice-President, Leo Shepard, W6LS
Secretary-Treasurer, Walter Parkhurst, W6EIU

We rotate all mettings between members' going to a different member each Friday night in the month. All meetings are social except the second and fourth Fridays, at which time a short Business meeting is held. Coffee and sandwiches, etc. is served by the host for the evening. All members are 21 years or older and all are licensed operators.

W6EIU gets back on the air on 160 after being off the air for two years. He says he is not going to tear down again but will make any changes in small steps from now on.

W6CAH is going to be very busy for the next few Sundays building a new shack. So keep away unless you want to be put to work

W6LS so busy with his new job running KNX's transmitter we see very little of him. He only gets home about half hour at times now and then, says his XYL.

W6LNM won the 35T attendance prize that was raffled off the other nite, you get one ticket for every night you are there, this prize is put in a hat and the lucky number pulled out, hi.

W6DAA driving around 5 meter mobile and having some fb contacts.

W6JJH still building one transmitter after another, looks like a Radio Supply Store when you go down to his place—with all the cupboard and drawers full of nice new parts. His brother W6JJG also lands job with the Southern Col. Telephone Co. More power to you Jack.

W6IBS just completed his shack and we had a house warming there the other nite. Sure fb Von.

W6HDC gets to town and club meetings once a month. He works at the Boulder Dam Power House making juice for the City of L. A. and our transmitters. Hi.

W6CKR and W6KEI brounght newly built 5 meter supers and transmitters to VRS Picnic held Sunday. April 25th at Dexter Park, near Sunland. The whole Gang turned out. We had a good game of Barn Yard Golf. Horse shoes were pitched all over the country, and a good time was had by the combined hams and their families—what with more than enough eats to

THE UNITED RADIO AMATEUR CLUB

OUT OF THE AIR FROM ABOVE THE HARBOR

President A. D. Sayer, W6IVG; Vice Pres., A. Goldschmidt, W6MED; Sec.-Treas., F. Eaton, W6KCX; Act. Mgr., W. Bradford, W6HCF.

Meetings held every other Friday night at the Banning Home, Banning Park, Wilmington, California.

Next meeting, Friday, May 14th at 8:00 p. m.

Every meeting a real hamfest with movies, speakers and FB raffle, darn little business and lots of Do-nuts and Chocolate. All licensed Amateurs cordially invited to attend.

A thrill that comes once in a lifetime. Vol. 1, No. 1 of our own Radio Amateur News being delivered to us late one evening, hot off the press, the ink still wet. Such co-operation, such a good magazine; all we can say is thanks, pals, may your press never run dry and your copies number in the thousands.

Sandy, W6GST hooked KCX's receiver to the gas pipe the other nite and heard more DX than KCX ever has using a FB antenna. Maybe this should be in the Hints and Kinks department. While listening on 20 Meters he heard a K6 in Honolulu putting out the good dope that our former RI, Mr. Chappelle is being transferred back to the coast—Three cheers! Sandy also heard a W9 working a G and complimenting the G profusley on his FB signal. On second comeback the G said he was using Taylor tubes, and come to find out the W9 was the manufacturer of Taylor tubes. Looks like a framed up plug to us.

Our friend Dope, W6DIS has a carload or more of 860's for sale cheap or will swap for an engagement ring or a baby carriage, or would even consider some good blanks without too much wadding that will fit a 12 Ga. shotgun.

Ed Hughes, W6IZT has quit fixing ice boxes and is now manufacturing liquid stuff that you keep in them. OK Ed, we're looking to you to supply us with free liquid refreshments at our hamfests this summer.

Cecil Wingate, for a change came to the last meeting sober. What a shame.

Jim Bailey is going to work for a change or maybe for a minute or two. He and Dope are planning a trip to Denver and will make some Five Meter tests from top of Pike's Peak. We know about Jim, but what the heck is Dope running away from, we wonder?

Al Goldschmidt, W6MED has gone into ham hibernation and has lost the CQ habit. However, he'll be visiting someones ham shack one of these days and then will be back with us again.

Elmer Hayes, W6MDX says all hams who have been on the air for some time should learn to take at least 7 words per minute. We wonder if he means fone or CW? Elmer the man is waiting. MDX was heard the other night on ten trying to trade some would be ham instructions in code for a typewriter. Wonder if it wouldn't be cheaper to buy the typewriter, Elmer than to hire a code instructor. Elmer says he wants another contest so he can work another V-Kai. He is working on a new Rotary Beam antenna that willl rotate in the Wilmington mud. Must have been watching one of those rotary oil well drills that are springing up in his back yard.

Dope offers to bring back the clubs crystal holder. However we can't hold the transmitter on frequency with a promise.

Our friend Crystal must have had a bad case of BCL trouble in his neighborhood. He's not only changing his QRA but is also rebuilding. Tough luck, OM.

More QRM on Wilmington ham bands. We welcome a newcomer W6AZO and hope he works lots of DX from our town. Stand up and take a bow mister, and lets get acquainted.

Cliff Pugh will soon be heard on the air again with his "Calling See Pugh, See Pugh, hello See Pugh." He has been re-building as has also our friend Ponzo, W6CMK.

W6ERT, W6MDX and W6IVG on five meters again after about a years absence, all portable mobile.

Al Sayer, W6IVG just installed crystal control ten meter mobile job in his car after visiting Arcadia's policeman and has just worked his first VK on ten meters, all in the same week. Good going OM.

Bill Bradford, W6HCF sure finds time for lots of things (wish I were a longshoreman). Last week he not only finished the club Xmitter, and a very FB job it is too, but also announced the coming of a new baby girl at his house—all the same day. Congratulations, Bill and to the XYL, and may the newcomer hold her own ticket in the days to come. Bill says tough luck sure comes to him in streaks. First, his mother-in-law gets her hand caught in the wringer, then his dog bit W6KCX and died (the dog, not KCX), his daughter fell on a milk bottle and had 11 stitches taken in her arm, and now a baby girl. Better watch your rig, Bill, it'll be blowing up next and that'll be a real calamity. We heard Brad tried to swap

the baby girl at the hospital for a boy that was born at the same time and the swap would probably been consumated, only Bill held out for a Gammatron to boot.

Fred Eaton, W6KCX just bought a new T-155 and blew his rig up trying to use it. Be careful Fred, you can't use a 300 watts on RF on the filament of that tube and you have to tame those California Kilowatts before you can let them run around loose in the shack.

Dick Hall, W6DBF got his ears cleaned out with a new Super-Skyrider.

The United Radio Amateurs Club has always entered into friendly competition with neighboring clubs and is always ready and willing to lend the fullest co-operation to other clubs in inter-club events.

Another glorious summer is approaching rapidly and we are looking forward to many pleasurable picnics, five meter hunts, hamfests and conventions, and what one club can do and get a measure of pleasure out of, a group of clubs can do better and get more pleasure out of. What do you say, you fellows over in Pasadena, Los Angeles, Bell, Glendale and the rest of this territory. Let's all get together and make the summer of 1937 a memorable one in Southern California ham history. Let's all throw some parties together and get acquainted with each other. It will make our contacts more interesting, more competition in our contests, bigger raffles and prizes, more heads to think up and carry out interesting events, and last, but not least, give us all more enjoyment out of our hobby.

To this end, the URAC invites all officers of radio clubs in this territory to our next regular meeting, Friday, May 14 at 8 p. m. to talk over local coming events with a view of cementing closer together our inter-club relations.

The URAC is going to town—are you coming along?

It is with the deepest regret that we announce the death of two of our prominent California Amateurs.

On Saturday, April 3rd, Merle W. Estey, W6BFP, and his wife, were killed in Arizona aboard the new giant Douglass airliner that was taking its trial flight across the country.

W6LID, Al Swisher, age 21, 1210 Hall Avenue, Corcoran, Calif., was drowned at Lake Tulare on Sunday, April 11, when a motor boat in which he was riding overturned. There was nine in the boat and four were drowned.

YOU ARE INVITED TO ATTEND A GALA

HAM PICNIC

SPONSORED BY

LOS ANGELES AMATEUR RADIO CLUB

SUNDAY, MAY 16th

10:30 A. M. UNTIL ?

VERMONT AVE. CANYON GRIFFITH PARK

FEATURES:

5 METER TRANSCEIVER HUNT
PHONE vs. CW BASEBALL GAME
TRIP TO PLANETARIUM
LOTS OF FB CONTESTS
RESERVATION PRIZE

RESERVATIONS 25c

FREE BEER

AND REFRESHMENTS BUT BRING YOUR OWN LUNCH

A southern parson was speaking to his flock: Brudders an sisters, he shouted, Ah warn yo' against de heinious crime of stealin' watermelions.

At this point an old Ham got up, snapped his fingers and sat down again.

Wharfo', brudder, does yo' rise and snap yo' fingers when ah speaks of watermelion stealin'?

Yo' jes reminds me, Parson, whah ah don lef's mah knife.

It seems an Irishman, a Scotchman and a Hebrew, all hams, were having lunch. When they had finished the Irishman said: And who'll pay the check?

Hoot, mon! I will, said the Scotchman.

Well, next day the Irishman was reading his newspaper and his eye stopped at this headline: "Jewish Ventriloquist slain by Scotchman!"

By Bill Driml
W6NAT

I took time out this month and went up to the Fresno Banquet on April 3rd (taking CL with me). The Hamfest was successful and evryone had a wonderful time. We managed to have a few visits to the ham stations around the town. Those boys know what to put in their rigs and how to construct substantial jobs that will put out the well known RF.

Talk about their antennas, they sure are pips. Make my 35 ft look like a clothes line without the trimmings hanging on.

Fresno really has a nice receiving location. not all the local QRM we have here. From what I gathered they can get the old DX even on 160.

After visiting the stations we had time for CL and I managed to get up Sunday morning, to have breakfast at W6MMU, and talk about a breakfast, MMU's XYL sure can cook, we want to thank her again right here.

After that we climbed in the old iron horse and rolled a few miles under us to Bakerfield. Here we had an invitation to stop at Howard Stoddard's ham shack—Station W6NFW.

There we saw his rig on the operating as you can see in the picture. Being on the table makes it very handy for Howard to watch and adjuts his rig when necessary. The rig is a rack and panel job, 4ft by 18 in. by 18 in. His transmitter consists of a 6L6G crystal oscillator, capacity coupled to an 802 buffer, link coupled to a pair of 20T's push pull final. His power input ranges about 145 watts. Separate power supplies for all stages including his pre-amp to the mike.

On the top section of the rig is an automatic relay for his transmit and receive antenna , this relay is operated by a small battery with a switch at the table.

Howard had a pair 802's in parallel in the buffer stage and that supplied him more than enought push for his final amp. So he took one tube out and that gives him the proper grid mills of the T20's.

The receiver is a Breting 12 with the speaker mounted in the wall of his shack, on a small cupboard door. That type of mounting makes an ideal baffle for the speaker.

Now for the antenna system. W6NFW has one of the best types I have seen in a long time. To make it more impressive is the fact that he is located on a hill. He has a self supporting pole in front of his house with a heighth of 63 feet. The flat top is 250 feet long. The pole is one of the electric power line poles with lattice work on the top, all constructed of metal. That length of the pole is about 20 ft. The other pole is about 40 feet high and is located on a hill in the back of his home. What an antenna system. The antennan is an end fed Hertz link coupled to the final.

The speech he has consists of an American Electro-static microphone with a single stage of pre-amplifier driving the speech section of the Breting receiver and in turn it drives a pair of 801 class B modulators with sufficient audio power to drive his T20's.

He gave me a very good tip for a phone monitor on the Breting 12. Some fellows need a monitor and have to get separate parts for it, but if they happen to have a Breting 12 receiver all that is needed is a pair of phones and put clips on each tip and connect to one side of the V-1 meter, the otherside to ground on chassis or cabinet. No matter what side of the meter you connect your phone clips to, it will work beautifully as a monitor for your station. Tnx for this kink Howard, I know some of the fellows will try the tip. I have made steps to put a jack on the front panel for just that purpose.

Howard is also working for 10 meter operations. He should have good luck for that band. The location is a suitable one for 10 meter DX.

The rig can also be used as a CW transmitter on 40 or 80 meters; for a fact he was my first DX on 80 CW, hi. Remember, Howard I finally got my QSL from him the Sunday I was there. I would of received it sooner but he did not have my QRA. He really had it

Operating Table at W6NFW

all written out and kept it in his table, hi.

The DX W6NFW piled up for himself on 160 is very good, he had contacted a K6MZK, W4EM, W5FPC, W7DYT, W8NVX, W9TP and quite a few more real catches. The shack is tacked down with a number of good cards.

On April 10, 1937, I had a chance to have a QSO with Howard, no wonder he can get them DX stations, he sure packs a wallop down here, R 8-9. If any of you fellows hear W6-NFW give him a buzz, and you will not regret calling him. I can readily say that he has a fb. outfit way up there in them thar mountains, hi.

Howard also has FB 160 meter portable phone rig. The tube line up in that is a 47 xtal capacity coupled to 45 and that drives an 830 in the final, with a simplified Collins network for his antenna coupling. This solves the problem for any length of antenna wire.

Sure enjoyed the visit, Howard and I hope many FB DX contacts in the near future, hope to hear you on the ether waves soon "73."

▼

It seems that I have my best luck in "Looking 'Em Over" as you might say, after some big shindig or hamfest of some kind. I happened to be invited to W6BGH after the Glendale hamfest on April 17th. I have seen Carl's layout before but never realized then I would be able to write about the rig and his shack.

First of all, he has one of those extra bedrooms in his home just for a ham station. Some fellows are lucky, I must say. The rig sure puts out the fire and to prove it, he ran across the 20 meter band and PK3GD was having a QSO with an XU. So Carl says calmly, "I'll just give him a buzz when he gets through and see what happens." So he gives him a short call and turned over to the PK, the fellow came right back with an R9 report. We had a fine QSO for about an hour solid.

We'll get down to business now — first of all we'll look into his transmitter. The crystal oscillator is a 6L6 tri-tet circuit with the cathode coil, tuning condenser, chokes, bypass condensers and the 6L6 — a very good design for a crystal oscillator. This drives a 210T, capacity coupled to a 242A, and link coupled to a pair of 852's in the final.

The rig is constructed in a rack and panel form, it stands about 5 ft. x12x15 inches. The first two shelves are the power supplies with the next shelf holding the crystal oscillator. The fourth shelf carries the 210T, 242A and the top shelf the 852's for the final.

The speech equipment is a condense mike into a 57, 59, driving a pair of 46 push pull Class B modulators. The chassis is mounted on top of a small table with control switches for the 110 volt A. C. line and the transmitter is along the side of his operating table—that makes it very handy for operation.

The 852's in the final are run as a Class B linear stage with the 46's modulating the 242 buffer stage. His power input hits around 800 watts.

The power supplies are neatly arranged, connected with bus bar, the very efficient way, and not the way NAT's job is wired. Oh, boy! Carl's work is very neat and I really mean that is the only way Carl can assemble any of his jobs, from power supplies to receivers.

Carl also has a vertical rotary beam antenna—and what an antenna. There are quite a few antennas on his place, one of them is a 200 ft. Zepp, east, west direction—he uses this for the 20 meter band.

Talk about his neat jobs—he is the designer of the PR-15 receiver. It's a wow! He gave us a demonstration catching a few good DX stations, although there was a terrific power leak at his place, it died down about 3:00 a. m. and from then on all was rosy.

W6BGH AT HIS RECEIVER

THE OLD TIMERS DIARY

By G. Y.

By way of introduction to this humble contribution of ours to our Magazine we wish to state that it will be our endeavor each month to dig down into the musty files which we have kept since 1909, and try in our dumb way to bring back to you some of the outstanding achievments of some of those grand "Old Timers" who have paved the way and made Ham Radio what it is today—real pioneers who fought many a hard battle with frequencies, mills and mathematics—all of which we now find nicely worked out for us in the Hand Book.

We will endeavor to review some of the old circuits, circuits that were considered "Trick Circuits" then but are now standard practice and who knows, maybe we will be the means of planting a seed in some fertile brain that will be of help. As for ourselves, we have been messing around with Ham Radio, or "Wireless" as it was called then, ever since 1909 at which time "Modern Electrics" was the ham bible and we were cluttering up the ether wit a two-inch spark coil and if you had asked us what our frequency was we would have thought you wanted to know how frequently we transmitted. But we had a lot of fun and sure used to get in the Garage Man's hair hounding him for a lot of old dry cells he had taken out of cars and we have been kicked out of several photographers' studios trying to get some old glass photo plates to use in making transmitting condensers.

The rule in those days was that the amateurs worked for thirty minutes and then the commercials had it for thirty minutes and woe be it to the ham who over stepped. We had the edge on most of the boys in that connection as we were also pounding brass for the commercials so all we had to do was slip the old clip down a turn or two on the "Helix" and blast away with the other call. Speaking of calls—we all picked our own and sent them in to Mr. H. Gernsback, editor of "Modern Electrics" and if no one else had beaten us to our selection a record was made of our choice and listed in the call book—then called the "Blue Book." The first issue of which came out twenty eight years ago this month. "The Blue Book" cost two bits including registration fee, and in addition to your name, call and address, also gave the approximate wave length you thought you were on, and also the length in inches your spark coil was rated at.

The leading Radio Club in 1909 was "The Wireless Association of America" and every good ham was a member—perhaps because it did not cost anything to join and there were no dues. The following is one of the bulletins sent out by the Association in May, 1909:

> "Government controle of the air, so far as wireless telegraphy is concerned, is not improbable. The agitation for such controle is likely to be taken up in the coming Congress and pushed, for the clashes between different wireless stations and the confusion resulting from a commingling of messages have convinced the wireless experts of the Government that some action must be taken. Controle of Wireless operations is expected by practically all of the European Governments, but nothing has been done in this direction by the United States. The growth in number and in the importance of the wireless stations established here, and especially along the coast, makes the need of supervision more and more urgent."

So much for our introduction and 1909. Next month we are going to QSY up to 1924 and tell you about an outstanding achievement of a well known California Amateur—so until

▼

AN XYL's LAMENT

By His Knibbs

Why do I hire a radio service man to fix my broadcast set while my OM rebuilds his transmitter?

Why do I cut the lawn while the OM is working Timbuctoo?

Why do I take the floor lamp to the electricians to be fixed or call him to repair the door bell, while the OM is on top of the tower fixing his antenna?

Why don't I take a peaceful ride in the car without a super-regenerative receiver hissing in my ears?

Why do I let my early morning beauty naps be disturbed by "CQ DX" call emanating under my bedroom window?

Why do I take electric shocks from my clothesline while hanging up clothes, and like it?

Why is my living room always cluttered up with technical magazines that I dare not touch?

Why, Oh why do I give and give and live under these conditions without complaint?

You've guessed the answer, my husband is a ham, an Amateur whose love I share only with an inanimate hobby, who I know never has time for another woman, who would give his very soul for me (or a new radio tube), who is so near being crazy he's amusing, who would rather be intoxicated by funny sounds emanating from a loud speaker than from the best licquor made, who would rather meet a man on the air than be introduced to Mae West in person, whose friends are in all parts of the world; a man whose family will never be annoyed by an eternal triangle, all night poker parties, inebriation or hunger, for he is his wife's man, an Amateur.

Patterson PR-15 Communication Receiver

By Patterson Radio Co.

Again we are a step ahead in the communication field. Brand new—this PR-15. A low-priced fine communication receiver. New from stem to stern. Quality radio, fine radio, because Patterson wouldn't compromise one inch with the quality of a radio bearing his name. What our engineer did was create an amazing new chassis with the highest quality parts the world has yet seen. Quiet, far-reaching performance which simply cannot be duplicated without this high quality and standard of parts—then they created a new style cabinet and all this at a sensationally low price. You will thrill to this great new radio and why shouldn't you?—this brilliant, buoyant velvety feel of perfect performance of the PR-15. It's plain truth you have never tuned a radio like it before—more power—more sensitivity—selectivity—tone—and more beauty. These are brief outlines of the glorious difference between it and the radios you have known. It's the newest of all communication receivers—new in every feautre, both proven, and dependable. We now offer it as a brilliant successor to the PR-16 and the PR-10. It's beauty commands the eye—the sweeping grace of the streamlined cabinet is pleasing—it has a large 8" dial with the easy reading scale which commands the world, and last but not least a marvelous new Magna-Vision band spread which gives you the good features of the electrical and the relogging features with accuracy of the mechanical spread. Everything you want is in it and if you want the finest communication receiver on the market today the PR-15 is your radio.

The PR-15 is custom built and not mass production on a movable belt. Each set is individually built and tested so when you receive it you are truly getting a custom built radio that has received individual attention right straight down the line.

OUTSTANDING FEATURES OF THE PR-15

Beat Oscillator Pitch Control—May be varied from the front panel 5,000 cycles either side of zero beat and is calibrated. It is especially helpful in the crowded amateur CW bands.

Crystal Filter—Band pass type or Crystal filter series parallel.

Automatic Silencer Circuit perfected—The new Silencer incorporates three tubes and should not beconfused with the usual silencer circuits in general use. While the basic principles are the same, many improvements have been made in performance. The usual silencer circuit feeds back not only the noise for cancellation but also rectified carrier if the threshold control is advanced too far. In the Silencer only the noise is fed back, whereas it is impossible for the returned carrier to be returned to the AVC circuit with the usual resultant blocking. It is impossible to make this silencer block or motor boat under any conditions. In the case of the usual silencer circuit it is necessary, when receiving a phone station, to keep the threshold set just above the level of modulation regardless of signal strength fading or when switching from station to station. The silencer automatically goes on full when tuning between stations and while searching for weak stations, and rises just above modulation peak level when the carrier is tuned in, and remains thus without any adjustment whatsoever. This is controlled by a three-position switch on the front panel. Left position is for CW reception, which cuts out the automatic threshold control and leaves silencer on full at all times. This removes practically all noises of intermittant nature as well as modulation on a modulated carrier, but it does not in any way affect the strength of the CW signal or carrier, or the sensitivity of the receiver, due to the fact that the rectified carrier or RF carrier is never fed back. It is a condition heretofore impossible to obtain. The center position of switch is off while the right hand position is automatic for phone or voice. When in this position the silencer does not in any way affect the performance of the receiver as to sensitivity or signal strength, but does very effectively eliminate all noises of an intermittant nature, as well as many noises which are of an almost continuous nature. In many extremely noisy locations it is possible to receive signals of R3 to R5 strength with silencer in operation, and 100% understandability that would otherwise be totally unreadable. The circuit is so arranged as to feed the noise through at a slightly different frequency than the IF frequency, thus permitting a much higher degree of noise rejection without demodulation of the carrier.

Magnavision Band Spread—The band spread offers the combined advantages of mechanical and optical principals, an entirely new and exclusive design. The reduction gears are of the scissor-action type, which eliminate all play or back-lash and automatically take up any wear. This system further utilizes an especially ground lens, which gives the optical equivalent of a band spread dial of over 10 inches in diameter and is so focused as to give straight line tuning to the band spread dial instead of the usual curved line of figures, thus affording the greatest possible ease of logging or reading. The indicator itself is a black hair line engraved on back of the lens.

IMPORTANT F. C. C. RULES

(Continued from page 11)

the amateur call area in which the portable or portable-mobile station is operating.

a. In the case of an amateur licensee whose station is licensed to a regularly commissioned or enlisted member of the United States Naval Reserve, the commandant of the naval district in which such reservist resides may authorize in his discretion the use of the call-letter prefix N in lieu of the prefix W or K, assigned in the license issued by the Commission, provided that such N prefix shall be used only when operating in the frequency bands 1,715-2,000 kilocycles and 3,500-4,000 kilocycles in accordance with instructions to be issued by the Navy Department."

"381. Prevention of interference.—Spurious radiations from an amateur transmitter operating on a frequency below 30,000 kilocycles shall be reduced or eliminated in accordance with good engineering practice and shall not be of sufficient intensity to cause interference on receiving sets of modern design which are tuned outside the frequency band of emission normally required for the type of emission employed. In the case of A-3 emission, the transmitter shall not be modulated in excess of its modulation capability to the extent that interfering spurious radiations occur, and in no case shall the emitted carrier be amplitude-modulated in excess of 100 percent. Means shall be employed to insure that the transmitter is not modulated in excess of its modulation capability. A spurious radiation is any radiation from a transmitter which is outside the frequency band of emission normal for the type of transmission employed, including any component whose frequency is an integral multiple or submultiple of the carrier frequency (harmonics and subharmonics), spurious modulation products, key clicks and other transient effects, and parasitic oscillations."

"Class C—The requirements for Class C amateur operators' privileges shall be the same as for the Class B except the examination will be given by mail. Applicants for Class C privileges must reside more than 125 miles airline from the nearest office of the Commission and the nearest point named in Rule 30-a (1), or in a camp of the Civilian Conservation Corps, or be in the regular military or naval service of the United States at a military post or naval station; or be shown by physician's certificate to be unable to appear for examination due to protracted disability."

RULE 384-A

"This rule was amended to apply to the frequency bands 56000 to 60000 and 400000 to 401000 kc. in addition to the 1715 - 2000 and 3500 - 4000 kc. bands."

"The present treaty is the International Telecommunications Convention adopted at Madrid in 1932, which may be referred to in various libraries or copy may be purchased from the Superintendent of Documents, at a price of 20 cents (Treaty Series No. 867)."

Stuff and Nonsense

By W6LZC

MASSACRE—Stuff that girls put on their face.
PAUPER—Back east way of saying papa.
POACH—A small dog.
MACAROON—A light colored negro.
QUORUM—A place where stone is dug out of.
SALVAGE—A wild person.
SARCOPHAGUS—Part of the throat.
SEDIMENT—A nerve-quieting drug.
SERF—The ocean waves like down at the beach.
SIMIAN—Pertaining to the movies.
CYST—An effeminate man, a pansy.
TENURE—A radio crooner.
TORTILLO—A turtle-like animal.
VALIANT—Like a valley.
WICKET—Sinful.
ATROPHY—A medal or prize for something.
DURESS—To put on your clothes.
BRAZIER—A girl's undershirt.

▼

W6LAK: My wife has been gone a month.
W6KTY: What, a month?
W6LAK: Yeah, what a month!

Lots of times the average amateur becomes perplexed in his knowledge of radio and needs a little assistance, we will endeavor to help the amateur all we can.

Starting in the next issue

LARRY SORENSEN, JWQ

will answer your technical questions

Just drop a line to NGQ and he will get your question answered.

Ham Advertising Department

This department is maintained for the amateur, however commercial ads of same nature printed at double rate. Material not pertaining to radio accepted but placed separately. Rates, 20 words for 25c, additional words 3c each. Closing date 15th of month. This magazine does not guarantee quality of merchandise and used material should be so described. Send money and copy to W6CL, 1315 East 58th. Place, Los Angeles. We reserve the right to reject part or all of any ad. Money refunded if ad not accepted.

BARGAIN—Breting 14 receiver for sale cheap. Perfect condition. Call or write W6NNR, 1195 Crenshaw Blvd., Los Angeles. Phone WY-4767.

A REAL SACRIFICE in new and slightly used transmitting tubes. 4 new RCA 804's $8.00 each, 2 for $15.00; 2 new WE 261A's $7.00 each, 2 for $13.00; 1 new WE 212E $15.00; 1 new WE 282A screen grid 50 watter $8.00. Used tubes: 1 WE 282A $7.00; 1 WE 212D $15.00; 1 WE 251A 1-kw triode $20.00; 1 RCA 203A $5.00; 2 matched RCA 211's $5.00 each. Will accept cash only. J. J. Le Borgne, W6LZV, 2600 Lower Azusa Road, El Monte. Phone El Monte 396.

SALE OR TRADE—WE 276A slightly used, Make offer. W6NXJ, 133 N. Tenth Street, Montebello. Phone Montebello 969-W.

MAKE OFFER on used 211E. Drop a line to W6NGQ. 617 West 80th Street, Los Angeles, Calif.

FOR SALE—Weston Milliameters, while they last $4.00 each. Noral Evans, W6LYM, R. D. 1. Orange, Calif.

FOR SALE—Brand new RK20 $12.00. 1500 volt, 350 watt Dynamotor $15.00. W6HCF, 1211 Ronan Avenue, Wilmington, Calif.

FOR SALE OR TRADE—One pair FBXA coils 1.7 to 2.0 mc. Also transmitting condensers built to your specifications. W6KMO, A. E. Greeno. 417 West 66th Street, Los Angeles, Calif.

EXPERT STOVE REPAIR SHOP on wheels. Service at your home. Repairing and welding. Springs, catches, parts for all stoves. E. W. Spratt, 6917 Santa Fe Avenue, LAfayette 2809. Member of the Bell Radio Club.

Teacher, instructing a class of would-be hams: If the U. S. is 3000 miles across and 2000 miles wide, and if Columbus crossed the Ocean in 1492 how old am I?

Little Frankie: You are 44.

Teacher: Remarkable! Tell us how you made that fast deduction.

Frankie: My brother is 22 and he is only half cracked.

▼

Police Chief, W6GXM: Can you give me a description of your missing cashier?

Banker: He's about five-feet-five inches tall and about $25,000 short.