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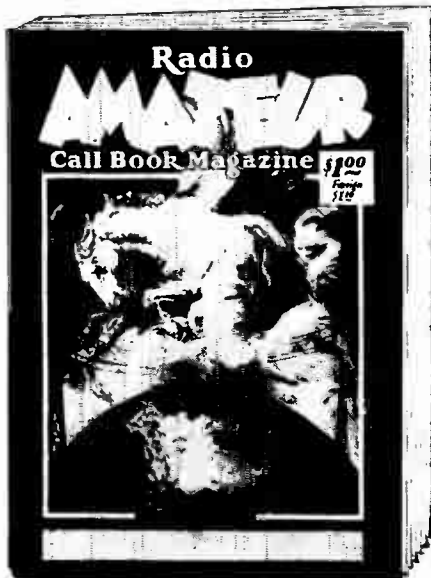
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DEDICADO ESPECIALMENTE
A LOS INTERESES DE LOS
AFICIONADOS AL RADIO

October
1932
Octubre
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No. 38
Núm.
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20c in U. S. A.

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HOLLYWOOD

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No. 38, October, 1932

Octubre de 1932, Núm. 38

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WITH THE EDITOR

No!

We knew it would happen; no sooner had the first *R9* appeared than an inquiry was received wishing to know if we would sponsor, if we would become the official organ of, an organization of amateurs to become nation-wide in scope and "secure justice for the phone-man".

The answer is "NO"—with capital letters, and the same answer will be forthcoming to all similar organizations. We express no opinion as to whether or not the phone-man is being unjustly treated, bearing in mind Foster's remark (*R9*, Sept., 1932) that there will be no solution of this problem until somebody finds a way to pack ten bushels of corn in a one bushel basket.

The American Radio Relay League, like all institutions run by human beings, has its faults, but it is the best bulwark of amateur radio that we have. A schism in amateur ranks such as would be bound to follow rivalry of two amateur organizations of nation-wide scope would be more likely to sound the death-knell of amateur radio than almost anything else of which we can think.

Let dissatisfied amateurs join the League if not already members, work within its representative government to change such conditions as cause dissatisfaction. Most League Directors welcome suggestions from constituents and if definitely indicated to them, are willing to follow the wishes of the majority even when in conflict with their own opinions. Directors not so willing should be given "the ax" at the next election, as has already

happened in certain divisions. If your Director will not do as you wish, exercise your right and duty under a representative government of working for the election of someone more suitable to you. Representative government is slow, cumbersome, and sometimes fails to represent true majority opinion; its faults are legion; but it is the best we have, and can be made to work.

R9 will not support "outside" organizations tending to undermine the League, but in certain circumstances it will support or allow space to proponents of changes in League policies or structure, believing that such action will help to formulate amateur opinion on the subject in question; opponents of the proposed change will, of course, be given equal opportunity. Destructive criticism should be accompanied by constructive suggestions for improvement

Cover Operator

Let critics who will insist on noting that our cover-operator's hand is in an unnatural position, note also that the tubes are larger than the world, that the microphone is larger than continents.

Articles Welcomed

We have received a number of inquiries from would-be authors, wishing to know if *R9* accepts material for publication from persons not on its staff, and to whom no special request has been made. Yes, we are glad to consider carefully all material submitted covering any subject of interest to amateurs (e.g., policies of amateur radio, A.R.R.L. politics, shorts, technical, constructional, and the like.) We cannot, however, undertake to return unsolicited manuscripts which are not accompanied by a self-addressed envelope with sufficient postage.



"EL BORRACHO" EXPLAINS:

About Microphones, and gives a hint how to make one*

While talking to a friend of mine on the air recently I understood him to say he wanted to borrow a good "microbe".

Now what could he want with a microbe? If he meant a germ, I was certain that he had plenty of them himself, and what could he mean by a "good" microbe. I had never heard of any "good" microbes. They were like motorcycle policemen, burned-out power tubes, etc., plenty of them around, but few of them "good". After some over-exertion of my thinking faculties it dawned on me that he meant "microphone".

But on second thought, it was all right for him to call the microphone a "microbe" when you think of it. Microbes and money are the roots of all evils. Microbes cause disease. Radio being a disease, a complication of this disease in amateur circles known as *speecharrhea* is caused by microphones (four out of five have it). *Speecharrhea* is defined as, "the morbid, frequent, and fluent flow of semi-intelligent words thru a radio transmitter into the ether."

Some of the effects of this dread malady are observed when one listens in on the amateur bands and hears, "Horwrr tdoo ahrrr ssaournd, auoldd maaanrr?" with the inevitable answer, "Fahrn bbiiizness, aurold maanrr, wqqqhrtr arrr yeurr eusinrrr?" Which when translated into intelligible United States, means, "How do I sound, old man?" "Fine business, old man, what are you using?"

Of course, the second conspirator doesn't care a rap what the first one is using, but that is the method the *speecharrhea* virus has of keeping the flow morbidly frequent and fluent.

Now to the second part of the puzzle. What constitutes a "good" micro-

phone? The simplest is the single carbon button transmitter borrowed, with or without permission, from the house telephone. The level is high, but the quality and frequency response is only fair.

In the double button microphone, a button on each side of the diaphragm is so arranged that when the button on the front side compresses, the button on the rear decompresses and *vice versa*, thus giving a push-pull effect; the quality is much higher. This is because the current flow thru the carbon button is not directly proportional to the pressure exerted by the diaphragm. The distortion caused in one button by the compression is cancelled out by the decompression of the other button. Also as it is necessary to energize the carbon button or buttons of this type of microphone, the magnetic flux generated by the current thru one button and one side of the microphone transformer is cancelled out in the primary of the microphone transformer by the flux generated by the current through the other button and the other side of the transformer primary. The speech current from the two buttons is cumulative across both sections of the microphone transformer. The distortion caused by the hysteresis of the iron core is greatly reduced.

The human ear does not respond to all sound vibrations equally and the diaphragm of the microphone will have a particular frequency at which it will respond more readily than others, so the high-quality double button microphone has a very thin diaphragm which is stretched so that its resonance point will be around 8000 cycles. This helps the higher frequencies, because it makes the diaphragm

*Communications (first-class mail) to "El Borracho" will be forward by R9's office.

respond better to those frequencies and as the human ear is less sensitive at those frequencies than it is at several thousand cycles lower, hearing is aided. The diaphragm is also damped by placing it close to the back wall of the microphone frame. The air in the space between the diaphragm and frame compresses and decompresses with the motion of the diaphragm.

All carbon button microphones emit a hiss which is objectionable when the output is highly amplified. This hiss will also blanket some of the sensitiveness of the microphone, so for better quality the condenser microphone may be resorted to.

The condenser microphone generates its speech current by varying the distance between two plates of a charged condenser. The diaphragm is one plate and the back wall of the microphone frame is the other. This microphone also employs the stretched diaphragm with air or gas damping. Nitrogen gas is sealed up in the back of the diaphragm for the dampening effect in a microphone made by one of the large manufacturers. On account of the low level of the condenser microphone a one or two stage vacuum tube amplifier is usually mounted very close to the condenser head, or frame carrying the diaphragm, this being necessary because the transmission losses of the higher frequencies would be prohibitive without it.

The condenser microphone has its disadvantages: low level; necessity of a bulky amplifier close by; effects of barometric and temperature changes; etc. Just recently a really good microphone has been perfected which is known as the "moving coil" microphone. Another type known as the "ribbon" microphone can also be called a "good" microphone, but will

not be discussed because the principle is somewhat the same as the "moving coil" microphone.

The housing of the moving coil microphone is made of neatly lacquered metal and is shaped like a cup placed on its side, but without a handle. The diaphragm on the front, flat side is protected with a wire grill and silk cloth. On the back is a jack with three connections, two of which connect the moving coil to the amplifier's grid circuit, and the third connects the metal parts of the microphone to ground.

The diaphragm is of "duralumin" but is not stretched; the response curve is improved by slots provided for the control of the equalization of air pressure between the space just behind the diaphragm and the space in the back part of the whole microphone housing. Experiments have shown that a tube connecting the back part of the housing with the atmosphere in front of the diaphragm not only aids the response especially at low frequencies, but also compensates for changes in barometric pressure, temperature, and the like.

The moving coil is made of aluminum ribbon wound edgewise and attached to a projection just behind the raised dome center of the diaphragm which is just under the wire grill and silk. This moving coil operates as does a piston and moves back and forth in the magnetic field of a cobalt steel permanent magnet, thus generating its e.m.f. from the movement of the diaphragm caused by the speech impressed upon it.

The moving coil microphone has a wider frequency response than others, response being practically uniform from 35 to 10,000 cycles per second. The impedance is lower, the level higher, and the efficiency great.

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56 mc. FIELD OBSERVATIONS

By CHARLES A. HILL, Associate Editor

Recognizing the trend of amateur radio toward the higher frequencies, the Southeast Radio Experimental Association,* under the leadership of President Charles M. Feay, W6EJZ, has undertaken the sponsorship of a series of three motor trips to sparsely populated locations in Southern California for the purpose of conducting tests employing transmitters and receivers tuned within the 56 to 60 megacycle amateur band.

By way of explaining the lack of precise technical data herein, it might be said that observations had to be made without the use of field strength measuring equipment or reflective antenna systems, as these were not procurable for the tests.

The dry lakes near Muroc, in the Mojave Desert, were chosen as the destination of the first motor caravan, as it was desired to conduct the experiments under conditions prevailing in open, desert country. The first tests were run during the night of June 18, using transmitters with a power input of approximately 15 watts. The base station was fixed in location, being situated at the edge of a dry lake bed. The other two stations were transported from place to place in automobiles, a transmitter and receiver in each. Voice modulation was used for all communication between stations.

In no way could the automobile transmitters be considered as being mobile, for they were in operation only when the vehicle was stationary. The receivers, however, were in operation continuously.

While the base station transmitted at frequent intervals, the two cars

bearing portable stations were driven out upon the dry lake bed, their directions of travel making an angle of approximately 50 degrees with each other. The observers in both cars recorded a steady decline in the strength of the base station's signals up to a distance of approximately three miles, beyond which distance reception was not reliable.

Returning to a point well within the range of the base station, the radio-equipped cars were stopped, and car-to-car communication was established. Considering the R8 audibility of the base station's signals, the R4 audibility of the signals from each car was difficult to explain, until further experiments revealed the secret, which lay in the directional effects of the cars' antenna systems.

In observing the audible strength of signals received at various points about, and at a given distance from, a horizontal antenna of the Zeppelin ("Zepp") type, it was found that the strongest signals were received at positions in the direction of the feeder end of the antenna, while the weakest signals were received at positions opposite the free end. Signals received at points in other directions from the antenna were of only fair intensity.

Directional effects were only slightly noticeable with current-fed transmitting antenna systems.

One of the most surprising results was obtained by driving one of the radio-equipped cars in a straight line and at varying speeds away from the fixed station as the latter transmitted continuously at a given power. At speeds above thirty miles per hour no abrupt changes in signal strength were

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*Care Chamber of Commerce, Bell, California



QUARTZ CRYSTAL RESONATORS

By H. E. BLASIER*

The use of quartz crystals for controlling the frequency of radio transmitters has in recent years become almost a universal practice. Quartz crystal resonators are also used as high precision frequency standards and, according to good authority, some quartz crystal oscillators are maintaining an accuracy of one part in 10,000,000.

The following article is not intended as a close technical treatise on quartz oscillators but rather as a very simple explanation of piezo-electric action devoid of complication.

Quartz is a natural crystal often used in jewelry. Agate, flint and amethyst all have the same composition, except for the coloring material present.

If a section of quartz crystal is strained by mechanical pressure, an electric field is set up in its neighborhood inducing charges or electric potentials on conductors within the field. From this action of straining or pressing a crystal to produce an electric field comes the term "piezo-electric", derived from the Greek expression, "piezein" which means "to press."

Conversely, if the crystal is placed in an electric field, it will change its shape slightly. This phenomenon was first demonstrated by the Curies using a crystal of Rochelle Salts placed between two pieces of metal with a potential applied to the metal plates. The Curies also in 1880 demonstrated that quartz possessed the same quality. These dimensional changes of the crystal are very minute, but nevertheless actual. When the strain is removed, the crystal returns to its original

size, not instantly but expanding and contracting beyond its original shape many times. In other words, it oscillates. This is a *mechanical* movement of the quartz itself, not to be confused with electric oscillation.

A quartz crystal, when once started, may continue to vibrate many thousand times before coming to rest, due to the low internal friction of quartz and this persistence of vibration (usually known as low damping) is one quality that makes quartz especially suitable for resonators. (Note: think of the term *resonator* in the sense of the crystal's possessing the quality of vibrating at a particular frequency much stronger than at other frequencies, that is, of being "in tune" to a particular pitch.)

If a suitable piece of quartz crystal is mounted between electrodes so that an electric field between them will cause a deformation of the crystal, the combination will behave in many respects like an electrical network containing a very, very sharply tuned or "resonant" circuit. This is due to the piezo-electric influence which couples some of the mechanical vibrating qualities of the quartz crystal into the electric circuit of which the electrodes about the crystal are a part.

The piezo-electric resonator thus formed can be substituted in many ways for the more familiar tuned circuit consisting of a coil and condenser. However, in the case of the crystal the "tuning" is accomplished by altering the dimensions of the crystal. The use of tuned circuits in radio transmitters, frequency meters, and receivers is well known, and for some specific purposes where constant very sharply tuned circuits are required, crystals may be substituted.

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*B.S. in E.E., 2802 West Avenue 32, Los Angeles, Calif.



THE TRUTH ABOUT COMMERCIAL OPERATING

By MERVYN R. RATHBORNE*

[Mr. Rathborne, Editor of *CQ*, and President of the American Radio Telegraphists' Association, is an authority on commercial operating. In this article, he warns the amateur against false impressions of present opportunities disseminated by "ballyhoo" type schools.—EDITOR]

The phenomenal growth of the radio industry has been one of the outstanding developments of this century—a period marked by scientific achievements which make the legendary *Black Magic* of the ancients appear childish by comparison. Science has performed so many wonders that the miraculous is now accepted as commonplace; the present generation has adopted the dictum "nothing is impossible," and not only accepts each new discovery, no matter how startling and revolutionary it may be, with equanimity and complacency, but is constantly demanding bigger and better miracles. This public adoption of Science and the period of unparalleled prosperity just ended are the principal reasons for the remarkable growth of radio. Twenty-five years ago there were less than twenty American "wireless" stations, six of these being on ships. The total number of persons employed in this infant radio industry was less than 100. Today, radio ranks among the ten largest industries of the nation; more than 200,000 persons are employed in the manufacture, distribution, operation, and repair of various radio devices. On June 30, 1931, there were 3,918 commercial radio stations and 10,761 licensed professional operators.

Practically all this growth has taken place since the end of the first post-war depression in 1911, the year in which broadcasting first became popular. During this period of development

there has been a growing demand for trained men to design, construct, operate, and repair the various and complicated devices which have been flowing from inventors' workshops in an increasing stream. To supply the demand for expert radio operators and technicians a large number of radio schools have been established. Many of these institutions have made a sincere effort to turn out properly trained and efficient men, while others have been nothing more or less than "rackets"—operated with a view of producing maximum profit for their owners. By exaggerating the opportunities—"rich rewards"—"adventure"—"thrills" to be found in radio in lurid, full-page advertisements, published in leading radio periodicals and fiction magazines of the cheaper type, these institutions have led prospective students to believe that there are "hundreds of new radio jobs, paying from \$50, \$75, \$100 to \$125 per week" going begging from a lack of trained men to fill them. One institution offers—to quote its advertisement—"a complete course in radio instruction, NO BOOKS, NO LESSONS, All Practical Work," which its founder claims the average student can complete in from six weeks to three months. Upon completion of such a course a student is given an impressive diploma, large enough to paper the wall of an average size room, informing "To Whom it May Concern" that he has completed the prescribed course of study in the so-and-so Institute in a satisfactory manner and is now a "Certified" Radio-ician, technician, obstetrician, or what have you, and is capable of holding any position from designing vacuum tubes to sweeping broadcasting studios. It is

*203 Pashgian Bldg., Pasadena, Calif.

impossible for any school or college, no matter how specialized its courses may be, to transform the "average" student—a person with a high school education—into a radio "expert" in three months' time. It usually takes a beginner at least four months to master the fundamental principles of radio, to say nothing of the more advanced phases.

As the result of the tactics employed by the "racketeering" type of radio schools the commercial operating field has been flooded with a host of poorly trained and inefficient radiomen, many of them willing to take jobs at almost any wages in order to gain experience or to complete their training. Despite the constant influx of newcomers there has been until 1929, a surplus of jobs for commercial operators and technicians. Because of the rapid expansion which was taking place in the radio industry it was an easy matter for an operator who did not like a ship or station to change quickly to another. Jobs were plentiful and wages comparatively high; commercial operators, apparently imbued with the belief that these conditions would last forever, followed the line of least resistance and made no efforts to maintain the standards of their profession, which were gradually being beaten down by the ever-increasing influx of "cheap labor." The result of this lack of foresight was brought home to commercial radiomen in a convincing and forceful manner when the depression hit the country in the fall of 1929. Too late, they discovered that there were entirely too many licensed operators, a surplus of schools, and a deplorable lack of understanding and cooperation among commercial operators. Many of them were thrown out of employment, and, instead of attempting to find a solution to their problem, became radi-

cal, or attributed their plight to a bad "break", and dismissed the subject with a shrug.

Despite these conditions many radio schools continue their ballyhoo, and insert full-page advertisements in leading publications containing statements to the effect that there are still thousands of "Big Pay Radio Jobs," quoting wage schedules several years old, and "before and after" letters from graduates that were written at the peak of the radio boom in 1927 and 1928. Statistics compiled by the staff of *CQ* reveal that there were approximately 1700 unemployed licensed commercial radio operators July 1, 1931. [We are informed that the number has since then considerably increased.—Ed.]

At this very time radio schools were crowded and were dumping hundreds of new men into the field. In addition, practically every old-time operator who was thrown out of work by the depression, remembering the favorable conditions just after the war returned to the field with the expectation of finding a job immediately, only to find that the standards of radio operating had declined woefully. Many of the old-timers were amazed to find that marine radio operators were being paid salaries as low as \$40 *per month* for twelve hours work per day; operators' wages had been cut from ten to thirty per cent on more than fifty per cent of the ships flying the American flag; the twelve hour day for radio operators had been adopted by a large number of steamship companies; broadcasting stations had reduced salaries and added to the duties of their technicians and operators; radio schools had exploited commercial radiomen and prostituted the radio operating profession until operators

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Quartz Crystal Resonators

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Quartz is of very permanent structure resisting wear and erosion. Quartz cannot oxidize as it is already silicon dioxide (SiO_2). It is harder than most metals, scratching glass very easily. Some of the more precious crystals, however, such as the ruby or diamond, will scratch quartz. These qualities are mentioned as they contribute to the high constancy of frequency which it is possible to attain with quartz crystal resonators.

Crystals for the high frequency range are obtained from slabs cut parallel to one of the six natural faces of a quartz crystal. This cut is commonly called the *y*-cut; such crystals control more power and are easier to make oscillate than those of other cuts.

Crystals for operating at relatively lower frequencies are obtained from slabs cut at right-angles to one of the six natural faces, and are commonly called *x*-cut; these are harder to make oscillate and control less power than those of *y*-cut. For a given frequency, however, this (*x*-cut) type crystal is somewhat thicker than the *y*-cut, and is consequently more rugged.

The frequency of vibration of a crystal changes as its temperature varies. For this reason, when a high degree of accuracy is required, the crystal is operated in a chamber of constant temperature, usually called an *oven*.

The frequency of an *x*-cut crystal becomes lower when heated, whereas that of a *y*-cut crystal increases, the rate of change of the *y*-cut ordinarily being greater than that of the *x*-cut. Crystals in the neighborhood of 3500 kc. commonly used by amateurs may change as much as 300 cycles per degree Centigrade (167 cycles per degree Fahrenheit), which can amount to several kilocycles over extreme op-

erating conditions.

The amount of frequency change, and particularly the direction (increase or decrease) of change should be carefully considered when an amateur desires to operate very close to the edge of the allotted amateur frequency bands; so that the proper cut will be selected that the frequency will drift into the band instead of out of it as the crystal becomes warmer.

Delta Division Convention

The annual Delta Division A.R.R.L. Convention will be held in Pine Bluff, Ark., October 14 and 15. For information, address E. R. Arledge, Secy., Tri-State Radio Assn., Box 6, Pine Bluff, Ark.

"EL BORRACHO" SAYS:

It is rumored that if the depression continues, manufacturers will omit plates from vacuum tubes, will use saucers instead.

RADIO SCHOOL of Los Angeles

715 S. Hope Street
FOUNDED 1909

Commercial and Amateur
Radio Telegraphy
Radio Telephony

DAY and EVENING CLASSES

"Combination" to Old-time UC-1015 Condensers

For those of our readers who may still possess some of the old-time combination fixed condensers known as Model UC 1015, we submit herewith a table of the various lead combinations and their resultant capacities.

For convenience, we shall designate the common lead as No. 1, the .0005 mfd. lead as No. 2, the .0004 mfd. lead as No. 3, and the .0003 mfd. lead as No. 4.

Lead Numbers	Capacity
3 and 4	.0002
2 and 4	.00025
1 and 4	.0003
1 and 4*	.00035
1 and 3	.0004
1 and 2	.0005
(1 to 4) and 3	.0006
(2 to 3) and (1 to 4)	.0007
(1 to 4) and 2	.00075
(1 to 3) and 2	.0008
(1 to 3) and (2 to 4)	.001

*Also short out section between 2 and 3 by twisting leads 2 and 3 together.

These condensers make splendid grid and plate blocking capacities, as they are rated at a high break-down voltage.

"El Borracho" Explains:

[Continued from page 6]

er than those of the condenser microphone.

Not having the means to provide my friend with a "good" or moving coil microphone as described, we set out to provide the next best thing. The similarity of the moving coil loud speaker to the moving coil microphone was noticed, so we rigged up a moving coil dynamic type of speaker to work into the primary of an old style "Ford" spark coil, connected the secondary to the grid of an amplifier, connected it to his radio transmitter, and tried it out.

Of course, the impedance match was not anywhere nearly correct, but good enough considering the cost and the paper cone made a large and over-efficient diaphragm so that sound could be picked up at a great distance from the "microbe," but taken all in all it was a success.

After the tryout my friend asked me, "Borracho, do you think they will improve much more on the microphone?"

"Well, if they do," I said, "the Radio Commission will have to add more examinations for those appearing around radio stations. You will no doubt see licenses hanging up in broadcasting studios which will read: 'This is to certify that MISS A-HIGH SOPRANO has this day been examined by the Federal Radio Commission and found to be free from Hali-tosis, Pink Tooth Brush, and Body Odor!'"

And, after all, that would not be a bad idea, because then the people who work around broadcast stations would have to use some of the articles they advertise—which would just serve them right.

Crystal QSY

With the idea in mind of QSY'ing out from under QRM, W6BVZ tried putting two cigarette papers below the crystal and two above, as suggested in QST. The frequency change was small but the output from the crystal was increased considerably. W6BVZ suggests that others try this, and let him know the results.

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H. E. BLAISIER

2802 W. Avenue 32 Los Angeles, Calif.

56 mc. Field Observations

[Continued from page 7]

noted; but at speeds in the neighborhood of five miles per hour, signals increased from zero to maximum strength and decreased again to zero with a rapidity that was dependent entirely upon the speed of the car. That is to say, the greater the speed of the car, the more frequently did the peaks of maximum signal strength appear, until at high speeds the transition was so rapid as to give the effect of a signal of fixed audibility. As to position, it was estimated that the maxima were only a few feet apart. This led observers to the conclusion that there were nodes and anti-nodes of field intensity in the ground component of the emitted wave.

Reception of signals in the 7 mc. band was exceptionally good.

On the morning of the following day, which was one of typical desert weather, further tests were conducted, the procedure being the same as that of the night before. The most noticeable difference lay in the range which was only slightly more than a mile for reliable communication.

In order to investigate the possibility of skip-distance effects at short intervals, one of the radio-equipped cars traveled along the highway a distance of 20 miles, listening for signals that were known to be transmitted at the time from the base station, but no signals were detected beyond the limit previously observed.

The experiments were terminated at 10:00 A. M.

A trip was made to Dana Point, near Oceanside, California, on July 30th. Dana Point is a bare promontory of land overlooking the sea, and boasting only one residence. By permission of the power company, the power

line to this residence was tapped to provide power for the transmitters.

The night of the 30th was devoted to making foreign contacts in the 7 mc. band, as conditions were particularly favorable for DX, and only daylight experiments had been planned for 56 mc. observations.

Two fixed stations were established. One was located on the point, and the other about a quarter of a mile away and nearer the level of the ocean. Both stations transmitted simultaneously, while an observer rode about in an automobile with a portable receiver, making comparative records of the signals.

The reliable daylight range in this case approximated two miles, or twice the distance attained in the daylight experiments on the desert. Moreover, it was possible to observe *shadow effects* (effects of intervening objects, hills, etc.). In this case there was a noticeable decrease in signal strength when the portable receiver was placed on the far side of a hill from a given transmitter.

The third motor trip has not been made at this writing, but is scheduled for sometime in August. If there are any outstanding developments, they will be outlined in a future issue of R9.

Truth About Commercial Operating

[Continued from page 10]

were in the same class with unskilled laborers (as far as wages were concerned) and that they were forced to compete with aliens and minors for jobs on ships flying the American flag and in American shore stations.

The conditions which these old-timers found are the conditions as they exist *today!*

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Closing date for editorial copy: 20th of each month.

We handle unsolicited contributions with care, assume no responsibility therefor, will destroy those not usable unless accompanied by an addressed envelope with sufficient postage (or equivalent); suggestions printed in R9 for possible articles are not regarded as solicitation thereof.

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GENERAL MANAGER, R9, LTD.
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OSCILLATIONS

"Jack"

Houston, Texas.

Sirs:

... As in everything else in the Vale of Tears of ours, militancy is the only thing that is going to get us anywhere.

The kowtowing to the "powers that be" must stop. They are powers that be only because they have had the guts to grab everything that wasn't nailed down and guarded night and day.

On the basis of the rights of eminent domain—once the shibboleth of the telegraph companies, the phone companies, and the railroads—the greatest good for the greatest number,—the amateurs of this country are entitled to everything the get-rich-quicksters have grabbed.

The turn has set in and it behooves us to take immediate advantage of the opportunity to regain the lost ground and widen our sphere of influence.

I have held for many years that the man with the "jack" to get the case to the proper authority could "bust" the trust wide open, through the establishment of the fact that the greatest number will be served by turning the ham bands back to the hams and letting them handle the traffic in their own way.

... The ham has by far the larger facilities and makes more complete and satisfactory use of the "ether." His bands are by his right of use and he has but to fight for them to bring home that fact to the pre-emptors.

Here is your peso for the first period. Let's make it R9, plus. In radio since 1901.

L. A. HOSKINS, W5ON

Scrambler

Spokane, Wash.

Sirs:

If the purpose of and the results shown by your articles, particularly Col. Foster, are constructive and build some concrete ideas and enactments benefitting the ham, and really aiding the A.R.R.L. and QST, then R9 is justified. But, so far as I can see, a handful of people new at the game of attempting to mold public sentiment and governmental construction are accomplishing little now except the scrambling up of that which has been done, with that which has been done, are "leading the bull by the tail."

If R9 is to accomplish anything for or with the ham, it must publish more "fact" and less "Fosterism."

ROLAND I. SMITH, W7BEV

Much that has been done severely needs "scrambling." All hail to Scrambler Foster who accomplished much needed scrambling at the last Board meeting. Let Amateur Smith consider that Col. Foster was elected by the greatest majority ever accorded an A.R.R.L. Directorial candidate.

Parasites?

Poughkeepsie, N. Y.

Sirs:

Relative to ... R9 for "true radio amateurs," and containing such thinly veiled derogatory references to the one and only real 100 per cent amateur magazine, QST, and the American Radio Relay League, may I state that it is such insidious attempts on the part of mercenary-minded persons that will eventually, perhaps, bring about the downfall of Amateur Radio.

Perhaps, as you insinuate, there is some racketeering—some dirty politics—present in Amateur Radio. What do you know about it? The twisted suspicions of a few chronic trouble-makers are certainly no criteria of the real state of affairs and are no justification for an attempt to undermine the bulwarks of Amateur Radio—QST and the A.R.R.L., especially when your proposed undertaking is so obviously merely another grab for the Almighty Dollar, and is not prompted by such altruistic ideals as ... [you] ... would indicate.

Probably this letter will go into the wastebasket without even being read, but at least it's off my chest.

D. R. Lovv, W2BJX

Let some amateur turn Diogenes, look for the man with the "jack."

Praise

Philadelphia, Pa.

Sirs:

Just a line to add my most hearty congratulations on turning out such a fine first number. QRO!

Yes, QM's, there is, indeed, a crying need for such a *Vox Pop*, as you provide in your columns, and the start is fine, even tho' it only scratches the surface.

I hope, and should probably take for granted, that you will not fall for the voluminous Communications Department reports and data, and Calls Heard, such as bulge the sides of QST.

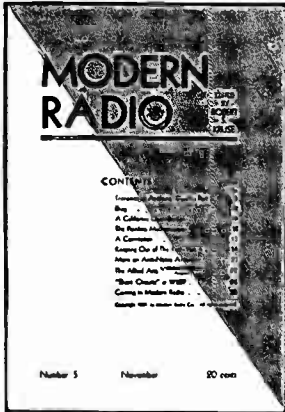
I should like to see, also, an attitude on the part of the League of not only representing the membership but amateurs as a group ... And in the present time how badly amateurs as a whole need unity to present their side in the wrangle to comel

JACK MORGAN, W3QP

Thank you. QST's traffic reports are consistent with the League's emphasis on relay, traffic activities; are considered by some its mainstay. Advocated by R9 is change of emphasis, of chief "excuse for existence" to one of militant defense of amateur rights, of militant offense to regain lost ground—otherwise, there won't be any League and there won't be any QST.—Ed.

We derogate QST, world's greatest amateur magazine, not at all. Mentioned was QST's lack of discussion of amateur policies, League politics; such lack is necessary, lest paid officers of League be thought to be feathering their own nests; but it is R9's opportunity for service to the amateur.

R9's grab for the almighty dollar is so far quite unsuccessful.



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Note on Conserving Portable Receiver Batteries

Portable transmitters and receivers are sometimes used in fixed stations when the regular equipment fails to function or is otherwise "off the air." In such cases it is highly desirable to use the station's local sources of "A" and "B" supply in order to conserve the batteries in the portable sets, which are of small size and comparatively short life.

In the portable receiver under consideration, two double-circuit jacks were mounted in the side of the wooden cabinet. The "B" battery leads from the receiver were connected to the outside springs (those that make contact with the plug when the latter is inserted) of one jack, and the inside springs of that jack were connected to the "B" battery of the receiver.

In the case of the other jack, the "A" battery leads from the receiver

were connected to the outside springs, and the inside springs were connected to the "A" battery of the receiver.

With local sources of "A" and "B" supply connected to two ordinary plugs, power therefrom can be substituted by inserting the plugs in their respective jacks. However, it is well to have one side of the local circuit disconnected from a plug while it is being inserted or withdrawn from its jack, otherwise a momentary short-circuit will result as the end of the plug passes through the sleeve of the jack.

If the jacks are mounted on a metal panel, care must be exercised to assure the connecting of the common "A" and "B" battery leads from the receiver to the jack springs that make contact with the stems of the plugs.

—W6BRO



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NATIONAL AC-SW-5 Receiver complete. Also 100 watt pushpull transmitter complete with tubes and power supply. Works Australia regularly. Price, \$145.00, FOB, takes whole works. Write W3QP.

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PELCO A. C. Receiver, s.g. RF and detector plus two A.F. 9-200 meters, \$35.00, including W.E. 540-AIV speaker and power pack. Wm. Breuer, 1720 S. Catalina St., Los Angeles. (RE 5692)

CRYSTALS—Guaranteed power oscillators X or Y cut 1" sections, 80 and 160 meter band, \$2.90; 40 meter, \$6.90. W6DCV, 2729 Independence Ave., Southgate, Calif.

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NATIONAL SW-3, used 3 months. Includes 20, 40, 80 band-spread coils; also 9-200 and 500-850 regular coils, "B" batteries, filament transformer, tubes, \$35.00. W6QX, care R9.

W6KA—Thomas E. Nikirk, 549 S. Berkeley St., Pasadena, Calif.

QSL Bureaus

QSL Bureaus should notify us at once of changes; we will drop from list those not confirming correct QTH's to us at least once a year. More entries are welcome: there is no charge.

ARGENTINA—Radio Revista, Santiago del Estero 464, Buenos Aires.

AUSTRALIA—VK2-QSL Bureau, Box 1734 J.J., G.P.O., Sydney, N. S. W.

—VK3-QSL Bureau, Kelvin Hall, 55 Collins Pl., Melbourne, Vic.

—VK4-QSL Bureau, Box 1245 V.G.P.O., Brisbane, Queensland.

—VK5-QSL Bureau, 1 Henry St., Glenelg, S. A.

—VK6-QSL Bureau, 111 Gerald St., East Victoria, W. A.

—VK7-QSL Bureau, Anglesea Barracks, Hobart, Tas.

BELGIUM—Reseau Belge, 11, rue du Congres, Bruxelles.

CHINA (Except Hong Kong)—I.A.R.A.C., Box 685, Shanghai.

CZECHOSLOVAKIA—C.A.V., QSL Bureau, Praha II, P.B. 531.

FRANCE—R.E.F., 17 rue Mayet, Paris VI.

HONG KONG—H.K.A.R.T.S., Box 651.

IRISH FREE STATE—I.R.T.S., R. V. N. Sadler, Lonsdale, Roebuck, Clonskeagh, Dublin, S.4.

MEXICO—Liga Mexicana de Radio Experimentadores, Sinaloa, 33, México, D. F.

NORWAY—N.R.R.L.—Q.S.L., Postboks 2253, Oslo.

ROUMANIA—(Under Cover) Lt. C. Bratescu, Str. Dr. Ciru Iliescu, 6, Bucarest, 6.

SOUTH AFRICA—S.A.R.R.L., Box 7028, Johannesburg.

QTH Section

W1AIY—A. M. Winchell, RFD 1, Waterbury, Conn.

VE3DG—G. M. Fox, 856 College St., Toronto, Ont.

W3QP—Jack Morgan, 8527 Germantown Avenue, Philadelphia, Pa.

W4ML—Myrick Hilsman, 514 3rd St., Macon, Ga.

EI4D—R. V. N. Sadler, Lonsdale, Roebuck, Clonskeagh, Dublin, S.4

W7AIY—Paul R. Hoppe, Box 8, Eugene, Oregon.

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SUBSCRIBE TO "R9" TODAY!—Maybe you can't get along with us, BUT you can't get along without us, either.

Amateurs' Aid Relief Work

"Feed the hungry".

In Los Angeles County (California) are relief organizations feeding some 100,000 people, residents of 28 cities and towns, with a very small expenditure of money. Radio amateurs are playing an important part in this work, work which may be duplicated in other parts of the country.

Unemployed workers, used to harvest crops, receive in exchange a portion of the produce, thus using the age-old principle of barter and exchange. Produce so obtained is centralized in local warehouses, issued to the workers, and to needy non-producers, widows, orphans, and cripples.

Frequently encountered are surpluses of certain products, shortages of others. Funds for regular long-distance telephony being unavailable, amateurs are providing a communication net-

work between these warehouses, whereby each warehouse is enabled to obtain the proper information to arrange exchange of its surpluses for material of which it is short, thus providing balanced supplies for all.

At Pasadena is in operation W6AFO (3.5 mc. band), installed in the headquarters warehouse by W6PP. W6ETJ and W6AKO handle traffic for their territory; others are about to start. Reliable stations are needed at San Francisco, Fresno, Santa Barbara, Long Beach, San Pedro, and others of the larger California cities. This is an opportunity for amateur service no less important, though perhaps less spectacular, than that rendered in major disasters. Write Mervyn R. Rathborne, 1725 Bedford Road, San Marino, Calif.

—Data from W6PP

"The Best is the Cheapest"

—Benjamin Franklin

THE nearest Ben ever came to anything even remotely connected with Radio was when he flew his kite and drew sparks of static electricity from his kite string.

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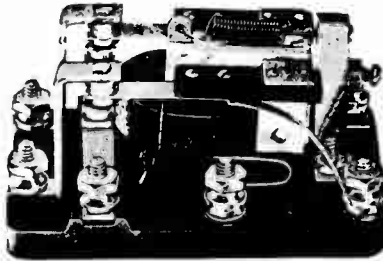
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