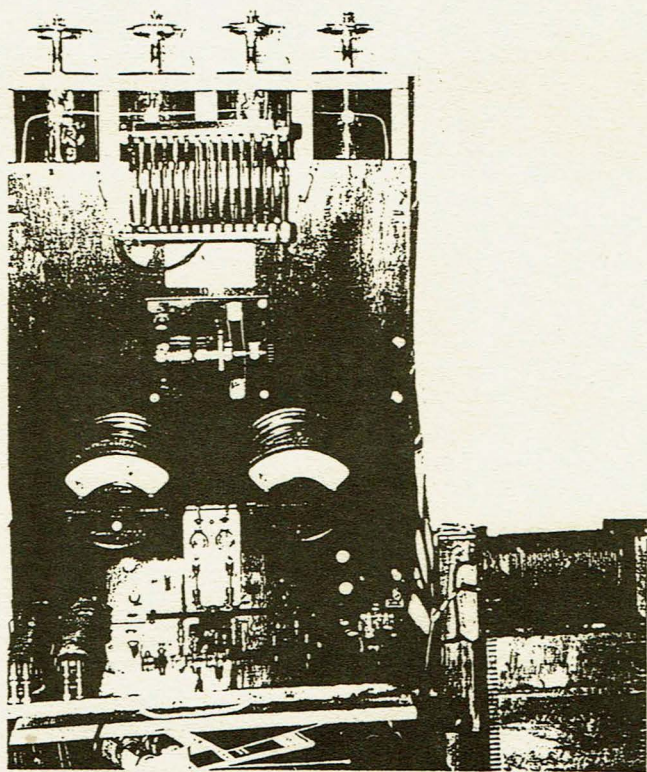


# CHRS

VOLUME XI

NOVEMBER 1987

NUMBER IV



CALIFORNIA HISTORICAL RADIO SOCIETY  
**JOURNAL**



President: Paul Joseph Bourbin  
Vice-President: Doug Martin  
Secretary: Russ Turner  
Membership Secretary: Adam Schoolskey  
Treasurer: Will Jensby  
Chairman: Norm Berge  
*Journal* Co-editors: Adam Schoolskey & Paul J. Bourbin  
Publicity and Public Relations: Paul J. Bourbin

The California Historical Radio Society is a non-profit corporation chartered in the state of California, and was formed to promote the restoration and preservation of early radio and broadcasting. Our goal is to provide the opportunity to exchange ideas and information on the history of radio, particularly in the West, with emphasis in the areas such as: collecting, literature, programs, and restoration of early equipment. The Journal of the CHRS is published quarterly and is furnished free to members.

This Journal was composed on an IBM PC-AT compatible computer using PFS Professional Write, And Xerox Ventura Publisher. Printing was done on a Hewlett Packard Laserjet II printer.  
Comments and suggestions as well as articles and material for the Journal are welcomed.

Front Cover: A circa 1919 spark-gap transmitter originally used by "8NO" in West Virginia. The components were placed into their current configuration by its current owner Paul Bourbin..



# PRESIDENT'S MESSAGE

By: Paul Joseph Bourbin

Well, it has been an interesting year as President of CHRS. I have learned a lot about the Society and the people who belong to it. I have learned how to put together a *Journal*, how to set up swap-meets and I have type more than I had in my entire previous life. I have learned what it takes to put on an exhibit and how to handle the hundreds of details that make up the Society and its life. It has been well worth it because CHRS is now alive and vital.

It might be interesting to review what has transpired during the last year. Last year, people were wondering if CHRS was still in existence and if it was, what was happening to it. Now our activities are well known throughout the radio collecting fraternity. We were the first to publish an audio tape as a regular feature, thanks to the efforts of Gary Halverson and Bill He-lander. The publishing of the *Journal* was erratic and is now coming out regularly. The membership and swap-meets are growing. We have had three exhibits and the first of our Regional meets. We have brought back contests and have started elections by mail. All in all CHRS has had a pretty big turn-around during the year.

You may have noticed that many of the activities done during the year have been done

to encourage participation of the membership. The regional meets, contests and elections by mail are examples. You have heard pleas for help from myself and my predecessors since the inception of the Society. Each of you has to make a decision in good conscience as to whether or not you can do anything for CHRS. We have tried to make participation easier and more people are participating. A lot of people have come forward to do their part. This enables us to be more democratic and to get more things done. The help of all members and friends is much appreciated. There are many things that I would like to do for CHRS to benefit the membership but the time that I have is bogged down in the detail work the others could do more efficiently.

As you know elections were held on 30, September for officers and honorees. I was elected President; Doug Martin, Vice-President; Russ Turner, Secretary; Will Jensby, Treasurer; Adam Schoolsky, Membership Secretary; Norm Berge, Board Chairman and John Eckland, John Wentzel, and Stan Lopes, Board Members. Please note that all officers also serve on the Board. Len Lansdowne will receive the Harrold Award, and Norm Berge has been nominated a life-time member. These

President's message cont'd.

awards will be presented at the next swap-meet. During the past year, I have had to run this Society almost single-handedly because it had to be gotten out of the doldrums, and back to functioning smoothly. Now that things are operating much more evenly, I want all Officers to take a more active role in the operation of the Society. In this way we can bring this Society to a higher level of activity and have more benefits for the membership.

The August meet was quite successful. There were thirty-three sellers and a larger number of buyers. We seem to have more and more people attending every meet. The auction brought in a considerable amount into the Society's coffers. The meet in Redding was also a success. Almost as many buyers and sellers attended as one of our regular meets. The quality of merchandise was very high with more sets and less parts and Hi-Fi material available. There were a large number of crystal and early battery sets for sale as well as many A.C. consoles and cathedrals. A very rare Western Electric microphone was spotted. Over twenty members attended the collection tour at Norm Braithwaite's house. He has quite a collection of classic sets. I would like to thank the meet's host, Bob Gardner and Norm Braithwaite, the meet co-

ordinator, for the fine job they did to make the meet a success.

The next regular meet will be on Saturday, 21, November at 8:00 A.M. The location is the same, Lot "T", Foothill College, Los Altos Hills, CA. In addition to the swap-meet and auction activities, there will be the contest sponsored by D.H. Moore. As stated before the entries will be sets constructed by the entrant using materials and circuits available in 1926. The categories are: Reflex, Regenerative, SuperRegenerative, Tuned Radio Frequency (TRF), and Early Superheterodyne. Remember, that Mr. Moore has generously donated \$100.00 in prize money. Now is the time to put those finishing touches on your latest construction project.

Due to the success of the first Regional swap-meet in Redding another is planned for 26, March 1988 at Grange Hall in San Luis Obispo, Ca. This will be a combined meet with SCARS so the turn out should be quite large. A meet in San Francisco, in January (indoors of course) is contemplated. details for both meets are forthcoming.

Membership renewals are now due. Please fill out the enclosed form and mail it before 1, January 1988. Due to the shaky condition of CHRS many members were reluctant to renew; they have been carried over as a sign of good faith. However, starting 1, January, only paid-up members in good standing will

President's message cont'd.

continue to receive publications of the Society. Please send in your dues promptly as this is our primary source of income. This has been a most successful year and more is to come. Donations of material and money are also needed. I would like to thank all of you who donated money and materials to the Society. Without them you would not be receiving this Journal and the Redding meet would not have been possible. The Redding meet cost over \$400.00 to produce. The cost of postage, printing publicity and portable potties are very high and had to be covered by society funds. We were also hampered by not being able to chare the usual seller's fee. The dues for next year will be the same as this year, \$12.50, but postage is due to go up. We need extra income to be able to provide you with the quality tapes, Journals, meets and other things that you have come to expect from CHRS. So please help with money, materials or labor in any way that you can.

Please note that the date and venue of the November membership meeting is changed to Friday 11. December at my house in San Francisco. It is hoped that, in addition to meet-

ing regulars, others might find it easier to attend and participate in the operation of the Society. If successful, we may hold occasional meeting in different areas. This meeting is sort of a pre-Christmas party for members. Refreshments will be served. Bring your latest restoration project and win a prize. Each member present will have a vote on the best project. Before pictures would be helpful but not necessary. all Officers and Board members are now expected to attend all meetings [strict, isn't he? -Ed.] Please contact me for directions to my house as it is difficult to find without them. See you there!

I guess that is all for now. I am sure the during the next year, CHRS will become even more the Society of significance in the radio hobby. I intend to stand down after my term is up as President of CHRS. My job of revitalizing CHRS and getting it on the right track again will be accomplished. It will be time for a successor to take the Society to even greater heights with new ideas and ideals. Let's make 1988 the best year for CHRS, yet. Please feel free to contact me at (415) 648-8489 or write to me at 25 Greenview Court, San Francisco, California 94131, anytime. - Paul.

# CROSLY REMINISCENCE

*By: Bob Dickerson*

**P**owell Crosley, Sr. was a successful attorney and investor; one of his many investments was some stock in Marconi's Original company after the letter "S" was first sent by code across the Atlantic. Although Crosley Sr. amassed a fortune, it was lost in the panic of 1893.

PPowell Crosley, Jr. said later, "I was born with a silver spoon in my mouth, but it jerked out before I could distinguish its taste from that of the dime-store variety." Crosley Jr., hopped from job to job many times before settling down. He always wanted to be an auto manufacturer, even as a boy he built himself an electric car. In 1907, he built a six-cylinder car. He raced cars at the Indianapolis Motor Speedway. In 1908 he owned and auto advertising agency. Later he devised some accessories for the Model T Ford. Later he was called the Model T of Radio.

He got the idea to go into radio when his young son asked for a toy radio. Mr. Crosley learned the high cost of a new radio and decided to make one. He borrowed \$1500 from a bank to go start "The Crosley Radio Corporation." He already had a woodworking plant (mainly building phonograph cabinets, etc. which was dying out). When Aviation Manufacturing Co.

(AVCO) offered him \$12,000 in cash - he took it. He built radios from simple to deluxe (one had thirty-seventubes for auditorium use).

In 1942 he developed a four cylinder engine called the "Cobra" that the Navy used to drive generators. This powered a small car that got fifty miles per gallon which the public was not ready for then, but wish they had one now. He built factories to produce: The first refrigerator (The "Icy-Ball"). A patented refrigerator with shelves in the door (Shelvador). A bed cooler. A baby stroller that was sold to a man who resold them under the name "Taylor Tot." A snow vehicle for the Army. Also, the "X-ER-VAC", a scalp massage and hair growing machine.

Crosley specialized in small five tube table model radios which the trade called "All American Five" and he called "Fivers", making one model each year. He also started station WLW on 700 Kc. It first had twenty watts, then at its highest power, five hundred-thousand watts, and still operates today with fifty-thousand watts. He also bought the "Cincinnati Reds" baseball club in 1934.

I was employed by a Crosley distributor in the thirties. They did not manufacture the power transformers for sets like the

Crosley -- cont'd.

Fiver model 517, but bought a production quantity from a transformer manufacturer. After producing a quantity, the realized a mistake was made. It was too small but the fault did not appear until many were produced and sold, then I had a warranty headache. They announced that all replacements could be a new part number and



McCall's -- April 1936

all sets above a certain serial number would have the better transformer. Hence model number 517 appears in two Rider's manuals.

I remember the price lists had a note such as "Slightly higher West of the Rocky Mountains, or East of the Mississippi River." Some fellows say they were seldom sold that far due to shipping and distribution costs. Others have different opinions.

I was moonlighting operating a TV service business when he sold everything he owned except the car and the Cincinnati Reds baseball team. He insisted that Crosley parts be supplied in Crosley cartons past the Statute of Limitations requirements. Therefore, I could buy Crosley parts even when Philco bought part of Avco and when Philco and Ford got together. I have some of those parts today.

*This article was submitted by Bob Dickerson, A retired Crosley employee and TV/Radio repairman, now living in Shively, Kentucky. While not a CHRS member, he is still quite active repairing and restoring old radios. Thanks, Bob for your contribution. -- Ed.*

## 1912-1913 Ham Radio Operator's Test

Member Hal Layer has provided a copy of the questions and answers for the 1912-1913 Ham test. Instead of publishing the questions and answers, we are going to make a contest out of it. *The person who gives the most correct answers will win \$25.00 and a copy of D.H. Moore's Sketchbook, volume eight.* Remember, the correct answers are not based upon Today's technology and knowledge but that of 1912. The deadline for submitting answers is January 1st, 1988. The entire test including answers, with the names of those who would have passed, along with the winner will be published in the next Journal. Good Luck!

1. What is a meter? What is a generator?
2. Name the different parts of a motor-generator?
3. What is the function of a commutator?
4. Describe the construction of the motor starting box and its use?
5. If your starting box should burn out, how would you construct a temporary one?
6. What is the effect of starting too fast? Too slow? And what is the correct speed of starting a motor?
7. If the handle flies back to the off position after the motor has been started, name the probable cause and state how you would remedy.
8. What is the law regarding superfluous signals?
9. What wave-length should be used to call a shore station?
10. When at sea, how can you find out the nearest shore station?
11. How can you communicate with a ship not using English?
12. Give as many International abbreviations as you can.
13. What is the meaning of the signal 'PRB'?
14. What system of count is used to determine the charges on a radiogram?
15. How many times may a radiogram be repeated?
16. What is the International wave-length of ship stations?



## ...Ham Test - Cont'd.

17. What are the regulations regarding secrecy of messages?
18. What class of messages have precedence over all others?
19. How much time must elapse between signals if not acknowledged?
20. If a station did not answer, how many times do you repeat the call?
21. What is the required distance for signals of distress?
22. Does the coast of a ship station determine in which order the radiogram may be sent?
23. Give the regulation for calling a station.
24. What is the International rule of signaling communication?
25. What would you do if you heard under various circumstances the signal 'S.O.S.'?
26. What is law regarding power to be used in the vicinity of Naval Stations?
27. What is the preliminary power to be used to transmit a certain distance?
28. Give the regulations for answering a call.
29. How would you O.K. a call?
30. If a set is adjusted for 400 meters, how would you adjust for 300 meters?
31. If your antenna was destroyed so that you could only put up one wire between the masts, what would you do to bring your wave-length up to the same as before? What would be the most notable change in the set?
32. Name three types of antennas and name the advantages and disadvantages of each.
33. If your motor refuses to start until the starting panel is almost over, name the probable cause.
34. Describe a circuit-breaker.

### **... Ham Test - Cont'd.**

35. If the circuit-breaker trips or the fuses blow on starting the motor, what is the cause?
36. How would you increase and decrease the speed of a motor?
37. How would you increase and decrease the voltage of a generator?
38. If your voltmeter registered very little when the motor-generator is running, what would be the cause?
39. How may power in sending be changed?
40. If line voltage is too low, how would you increase it?
41. What is the effect of an open in a motor field?
42. What is the effect of an open in a generator field?
43. How would you remedy a grooved commutator?
44. How would a short in an armature show itself?
45. What would cause a generator to heat up?
46. Describe a lead cell.
47. What is the maximum voltage when fully charged?
48. Describe an Edison Cell.
49. What is the normal discharge of an Edison Cell?
50. How do you care for the evaporation of a storage battery?
51. How do you tell if the percentage of a cell is too high or too low, and how do you remedy it in either way?
52. What is meant by the normal rate of charge of a storage battery?
53. Describe a hydrometer.
54. How can you tell when a cell is fully charged?
55. Why is an underload circuit-breaker placed in a circuit?

## .... Ham Test - cont'd.

56. How do you tell if batteries are O.K. by use of a voltmeter?

### **\*\* TRANSMITTERS \*\***

57. What does the closed circuit consist of?

58. What does the open circuit consist of?

59. What kinds of couplings are used in transmitters? State advantages and disadvantages.

60. If the coupling is increased, what is the effect on resonance adjustment?

61. How do you adjust a coupling to make a broad wave?

62. If condenser jars are broken, describe a temporary remedy.

63. What is the disadvantage of a plain aerial transmitter?

64. How would you test for punctured condensers?

65. If the spark suddenly jumps while sending, name the cause.

### **\*\*\* RECEIVING CABINETS \*\*\***

66. What kinds of couplings are used in receivers?

67. What type of coupling is best for receiving through interference?

68. Describe tuning a set for an incoming wave.

69. How would you vary the coupling of a receiving cabinet?

70. What effect is obtained by tightening couplings?

71. How would you adjust a cabinet to receive signals shorter than the aerial period?

72. How would you tell if a distant station is sending a pure wave?

73. Why are stepping condensers used?

## ... Ham Test - Cont'd.

- 74. Name two ways to calibrate a receiver.
- 75. What is a potentiometer, and what is it used for?
- 76. How would you test for a short in the fixed condenser in the receiver?
- 77. How would you test for an open in telephone cords?
- 78. If a receiver is injured how would you test each part?
- 79. Why use high resistance telephones with a detector?

### \* WAVEMETERS AND MEASURING DEVICES \*

- 80. Describe a wavemeter.
- 81. What instruments are required to adjust a set to a known wave-length?
- 82. Describe a hot-wire ammeter.
- 83. How would you ascertain the wave-length of a station transmitting?

### \*\*\* CONDENSERS \*\*\*

- 84. Describe two types of high potential condensers.
- 85. How are condensers connected?
- 86. What is the advantage in series-parallel?
- 87. What is required in changing from series-parallel to parallel?
- 88. What would be the common cause of a break-down?
- 89. Describe a way to protect condensers from break-down.
- 90. Name parts to form a simple hook-up to receive signals



## ...Ham Test - Cont'd.

91. Why is alternating current used in radio transmission?
92. If a ship's masts should break down, how would you arrange transmission?
93. Why use a high frequency spark.
94. What is train frequency?
95. What is generator frequency?
96. What is spark frequency?
97. What is a pure wave?
98. Describe the construction of an induction coil.
99. How would you test for an open in primary or secondary, and between the primary and core?

### **\*\*\* SPARK GAPS \*\*\***

100. What causes gap to arc? How would you remedy?
101. Name four different types of gaps.
102. What is an anchor gap?

### **\*\*\* ANTENNAS \*\*\***

103. Has the height of an antenna anything to do with the efficiency of a set?
104. What is the best way to make joints in an antenna?
105. What is the natural of an antenna?
106. How would you increase the natural period of an antenna?
107. How would you decrease the natural period of an antenna?
108. How would you test an aerial to see if it is grounded?
109. What would cause a leaky antenna?
110. How would you prevent this trouble?
111. If an antenna insulation is poor, what insures?

### ... Ham Test, Cont'd.

- 112. Why is more than one wire used in an areial?
- 113. Name three ways to show radiation.
- 114. Describe the Marconi areial transfer switch.
- 115. Describe in detail how to tune a set to a given wave-length of one hump.
- 116. When is it impossible to get one wave or hump?
- 117. Why place closed and open circuits in resonance?
- 118. How do you change from one wave to another?
- 119. How is wave-length affected by varying the number of jars or plates?
- 120. If condensers are injured, how do you bring the wave-length up to its former period?
- 121. Draw a wiring diagram of a transmitting set.
- 122. Draw a wiring diagram of a receiving set.

## **\*\* RESTORATION HINTS \*\***

*Helpful tips from CHRS Members*

If your mineral crystals seemed to have lost their sensitivity, it may be due to oxide formation on the outside surface. Try buffing them with 0000 steel wool.

Sometimes when an old component or insulation fails in an old set, the set starts to draw large amounts of current which can ruin other components or the entire set, blow fuses and start fires. One way to protect your set (and house) that is quite inexpensive is to make a circuit protector. Buy two porcelain light sockets ( the type for ceiling mounting) one 200 watt light bulb and one adaptor that allows you plug a standard A.C. cord into a light socket. Mount the light sockets on a board and wire them IN SERIES with each other and the A.C. line cord. Screw the light bulb into one socket and the adaptor into the other. Plug the unit into the wall and the set into the adaptor. This device will protect anything plugged into it. If the set is drawing the correct amount of current then the filament will just barely glow. If the set has a bad short the lamp will glow brightly or incandesce. It is especially useful when the power transformer primary is shorted. Also, a low amperage fuse can be screwed in place of the light bulb for protection while working on the set. Note that this does not

take the place of an isolation transformer and will not protect the repairman from electrical shock. It is just cheap insurance for your set.

Speaking of cheap insurance, how many of us have had radios which were playing fine, suddenly develop a problem and burn up before it could be shut off? Of course, one way to protect the set is to replace all of the filter and paper condensers as they are usually the causes of the problem. Another important thing to do is to put a fuse on the A.C. line of every A.C. powered radio. A one-ampere capsule fuse similar to the ones used in automobiles put into an inline fuse holder on the power cord will prevent a lot of damage. Alternately a fuse block with the same type of fuse could be mounted inside of the set's chassis to preserve the authenticity of an antique cord. If you have an A.C. ammeter, measure the amount of current the set uses during proper operation and install the next highest value fuse. In many sets, however, a one-amp fuse is sufficient. Saving the cost of a power transformer (if indeed one can be found) will make the time, trouble, and minimal expense well worth your while.

Do you know that Radio Shack still sells hundreds of different tubes, going back to

... Hints, cont'd.

and including '01A's? They are available through their mail order division and take about a month. Orders can be placed at any Radio Shack.

Meguiar's Mirror Glaze numbers 10 and 17 are excellent cleaners and polishes for all types and varieties of plastic or Bakelite; often making them look like new. Scott's' Liquid Gold is often good for cleaning and shining painted metal surfaces such as those found on manufacturer's plates and early horn or cone speakers. Be sure to try some on an inconspicuous area first.

Need to tuck a component under a chassis? Glue from a hot - melt glue gun will attach almost any parts to the underside of a chassis; even transformers. No holes have to be drilled or

punched and it is completely hard in ninety seconds.

Fabric shops specializing in Oriental Silk often have very nice material suitable for grille cloths.

Keep in mind that voltages given in early service documents (Rider's, etc.) were based on meters with sensitivity of one or two hundred thousand ohms per volt. Many of the meters now available have twenty thousand ohms per volt or greater. They do not load the circuit as much as the old meters, so readings may differ from that stated values. Try using an old meter sometime, one that is about the same age as the set you're working on. You may be surprised. In fact, try repairing a set using contemporary test equipment, soldering irons, etc. See what the old radio repairmen had to deal with. It may make your repair jobs more *fun!*



# Classified Advertisements

**FOR SALE:** Phonograph books, literature, advertising items, needle tin, Edison-Columbia reproducers, etc. **WANTED:** All types of phonograph advertising items, unusual typewriters, sewing machines. SASE for lists. Jerry Madsen, 4624 W. Woodland, Edina, MN 55424 (612) 926-7775

**WANTED:** HALLICRAFTERS in any condition Model SX-7. This has aluminum finished panel and aeroplane type dial. Also Model SX-9. This is similar but with German Silver Dial. David Medley, KI6QE, 1450 Bayview Heights Dr., Los Osos, CA 93402

**FOR SALE:** 1933 Scott Transformer Co. Model 'All Wave Super'. Could be Model 145 or 150 Power Pac w/coils. Weston Model 547 Serial #111 AC/DC Radio Set Tester Form 1129-2M-6-29. Books: Popular Science Library 'Radio' copyright 1922 by The Century Co. (really good cond.) Headsets: D. Brunet-Paris 2000 (leather strap over metal). Western Electric Signal Corps. type P11, Nathaniel Baldwin Type C, pat'd. Sept. 14, 1915. C. Brandes, Inc. New York, NY 'Superior Pat. Pend.' C. Brandes, Inc. Superior 'Matched Tone', Elwood 100-

Ohms, Bridgeport, Conn., Stromberg Carlson No. 3-A, wire type headset, Red Cased, Hand-set with switch, (chrome) 1001H Pat. in USA Aug. 18, 1903. Model; 533 Hickok Tube Tester. Hallicrafter SX-96 with Model R-42 Speaker, plays. Hallicrafter SX-62 with R-46B speaker, plays. Hallicrafter SX-62, no speaker, inoperable. Additional items available - sell entire collection as a single lot only. SASE: Radios, P.O. Box 1920, Roseburg, OR 97470

**WANTED:** Dud WD-11's, oscillation coil for Supreme Diagnomometer 400-A. Manual and tube chart for Eico Tube Tester Model 625. (Xerox of above OK) and adapters to adapt '99's to WD-11 sockets. Paul Bourbin, 25 Greenview Ct., San Francisco, CA 94131

**FOR SALE:** Mercury 24" round B/W TV, works and good CRT. Good Cabinet. \$35.00 Gary Lindsey (415) 661-7087

**WANTED:** Rider's Manuals. Fancy Grebe, Atwater, Spanton, or Kennedy console. **FOR SALE:** RCA Radiola 18, fair cond., complete w/hood. Eico Tube/Transistor tester, works, very good cond. Adam Schoolsky (415) 791-0330.

# The Newest Achievements of POWEL CROSLEY JR.

Industrialist, Pioneer Radio Builder, Master of Mass Production

## *Four entirely new radio sets employing 4 and 5 tubes*

- entirely new in principle, design, circuit and appearance.
- entirely unique in the results they give on distant and local stations.
- entirely original in their standards of beauty.
- entirely unprecedented in the value they introduce.
- two of them incorporating the Crescendon, a new and exclusive volume control.

Now being demonstrated by Crosley dealers everywhere.

THE CROSLEY RADIO CORPORATION, CINCINNATI, OHIO

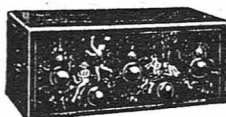
Owning and Operating WLW first remote control super-power broadcasting station in America



The Crosley 4-tube  
4-29  
in which the Crescendon  
is equivalent to one or  
more additional tubes  
of tuned radio fre-  
quency amplifi-  
cation ..... \$29



The Crosley 5-tube  
5-38  
All the volume, selec-  
tivity, sensitivity and  
purity of tone available  
in the best 5-tube set—  
plus the Cres-  
cendon ..... \$38



The Crosley 5-tube—RFL-60  
A set so marvelous in per-  
formance that its appearance  
on the market is bound to  
create a new stand-  
ard of comparison.. \$60



The Crosley 5-tube—RFL-75  
For simplicity and speed in  
tuning, fidelity of tone, and  
decorative beauty—it stands  
unchallenged at \$75  
twice the price.....

*West of the Rocky Mountains all prices as published are 10% higher*

# CROSLEY RADIO

BETTER COSTS LESS

SAY YOU SAW IT IN QST—IT IDENTIFIES YOU AND HELPS QST

**Are you an active member,  
The kind that would be missed?**

**Or you most contented  
That your name is on the list?**

**Do you attend meetings  
And and mingle with the flock,**

**Or do you stay at your house**

**And criticise and knock?**

**Do you ever work on committees**

**To see there is no trick**

**Or leave the work to just a few**

**And talk about the clique?**

**So come to meetings often**

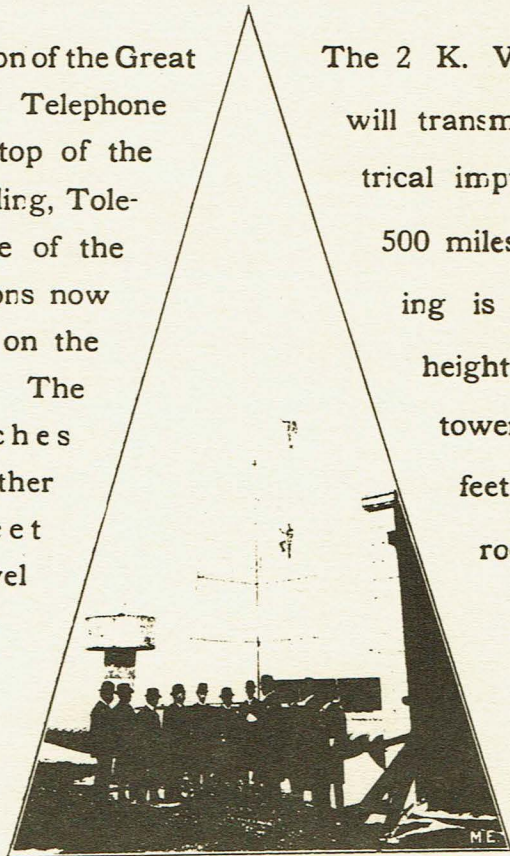
**And help with hand and heart**

**Don't just be a member**

**But take an active part!**

Wireless Station of the Great Lakes Radio Telephone Company on top of the Nicholas Building, Toledo, Ohio. One of the chain of stations now being erected on the Great Lakes. The antenna reaches up into the ether about 500 feet above the level of Lake Erie.

The 2 K. W. apparatus will transmit the electrical impulses at least 500 miles. The building is 18 stories in height, and the Steel tower stands 120 feet above the roof.



## The Wireless Telephone

in its present stage of development offers a greater field for profitable investment than did the Bell Telephone thirty years ago. One hundred dollars invested in Bell Telephone stock, when that company was starting to introduce its system, would have returned the fortunate owners over two hundred thousand dollars.

### Great Lakes Radio Telephone Company

using the DeForest Wireless System, (the first commercial Wireless Telephone Company) is erecting stations upon the Great Lakes, and plans to have over one hundred stations and many hundred boats equipped during the coming season. If you can invest \$10.00 or more a month write for full particulars.

## THE ELLSWORTH COMPANY

49 Exchange Place, New York

**CUT THIS OFF AND MAIL AT ONCE.**

THE ELLSWORTH COMPANY

49 Exchange Place, New York

Please send me full particulars relative to the Radio Wireless Telephone.

Name.....

ME

Street.....Town.....State.....