IN THE WORLD OF RADIO

Radio Stronger in Cold Weather

Government Stations Experiment but Can't Explain Peculiar Phenomena.

Washington, Nov. 28.—Cold waves increase the power of radio signals to more than twice their normal strength, according to studies just completed by the United States bureau of standards.

Observations were made on daylight signals from the long wave trans-Atlantic stations at New Brunswick, N. J., and Tuckertown, N. Y. The signal strength was found to be uniform during most of the year, as was to be expected from the moderate distance of transmission, but with the coming of the cold waves of January, 1924, the signals rose to more than twice their normal strengths, experts said.

Radio Compass Upset.

"At the same time there were deviations of many degrees in the apparent directions of the sending stations, as indicated by the radio compass, even in the forenoon, when long wave compass bearings are generally free from error," the bureau of standards said.

The end of the series of cold waves in January did not at once restore transmission conditions to the uniformity of autumn and early winter, but left a condition of instability, which persisted through the comparatively mild cold of February and early March.

"During this time 'the signals frequently fluctuated, going to high values for a few hours and then returning to normal, without any obvious connection with weather conditions. After March 19 these irregularities entirely ceased, and transmission again became normal."

No Explanation Found.

Observations on other long-wave stations indicated that these large variations do not occur at a distance of 50 kilometers, that they are large at 250 to 300 kilometers and are again less at 400 to 700 kilometers.

According to bureau experts, there is at present no definite explanation of this phenomenon. The cause is said to be evidently atmospheric, and the connection with the cold waves suggests that either the part of the atmosphere concerned with the signal variations lies much below the heaviside layer—80 or 100 kilometers—or that weather phenomena are correlated with atmospheric action at much greater heights than has been hitherto supposed.

Former Gering Resident Killed in Auto Accident

Bridgeport, Nov. 28.—Harry E. Stilts, a former resident of Gering, was one of the victims of a fatal railroad crossing accident at Los Molinos, Cal., last week, three men being killed by a train that hit their automobile. Stilts was a pioneer settler of the Mitchell valley, and moved to California some time ago. He was still a member of the Masonic lodge at Gering and held membership in many organizations there. He ran the old Commercial hotel at Gering and was the last survivor of the Stilts family.

RADIO

Program for November 29.
(Courtesy of Radio Digest)
By Associated Press.

WMAQ, Chicago News, (447.5), 6, Dudley Crafts Watson; 6:15, program; 8, orchestra; 8:40, photologue; 9, Chicago theater revue.

WGN, Chicago Tribune, (370), 6, organ; 6:30, concert; 8, concert; 8:30, classical.

WQJ, Chicago, (447), 7-8, concert; 10-2, Skylarks, melodians, Scotch tenor.

WGR, Buffalo, (319), 8-9, concert.

WLS, Chicago, (345), 7, entertainers; 8-12, frolic, orchestra, organ, old time fiddlers.

WTAM, Cleveland, (390), 8, dance program.

WWJ, Detroit News, (517), 6, News orchestra.

WFAA, Dallas News, (476), 8:30, soprano, pianist, reader, violinist; 11-12, orchestra.

WOC, Davenport, (484), 7:30, religious discussion; 9, orchestra.

PWX, Havana, (400), 8:30-9, concert, quartet.

KNX, Hollywood, (337), music; 10, trio; 12, dance.

WDAF, Kansas City Star, (411), 6-7, School of the Air; 11:45, Nighthawks.

KHJ, Los Angeles Times, (395), 8:30, talk, bedtime; 10, program; 12, orchestra.

KFSG, Los Angeles, (278), 9:30, services.

WHAS, Louisville Times, (400), 7:30, concert, specialty numbers.

WMC, Memphis Commercial - Appeal, (500), 8:30, classical program.

CKAC, Montreal, (425), 6:30, orchestra; 7:30, entertainment; 9:30, dance.

WJJD, Mooseheart, (278), 7:15-8:15, program; 9-12, dance.

WOR, Newark, (405), 7, string quartet; 7:30, choral club; 7:50, string quartet; 9, choral club; 9:20, Sanchez and Milstead.

WHN, New York, (360), 7, stories; 7:30, pianist, soprano; 8, trio; 8:30, orchestra; 9-10:30, tenor, entertainers, orchestra.

WTAY, Oak Park, (283), 6:45, soloists; 9, feature; 10:15-11:15 orchestra.

KGO, Oakland, (312), 10, orchestra, tenor; 12, dance, soloists.

WOAW, Omaha, (526), 6, program; 6:30, music; 9, program; 11:15, Wowl frolic.

WCAE, Pittsburgh, (462), 6:30, Uncle Kaybee; 7:30, musical program.

KGW, Portland, (492), 12, orchestra.

KPO, San Francisco, (420), 10, orchestra, tango lesson.

KFQX, Seattle, (228), 8, reports; 9, bedtime; 10, orchestra; 12, orchestra.

WBBR, Staten Island, (273), 7, Hawaiian guitar; 7:10, vocal duets, hymns; 7:20, Bible questions and answers; 7:40, vocal duets; 7:55 guitar.

KFNF, Shenandoah, (266), 7:30, string trio; 10:30, request program.

WBZ, Springfield, (337), 6:30, concert trio; 6:45, "Gotterdammerung," English Grand Opera company; 9:30, orchestra.

KSD, St. Louis Post Dispatch, (546), 8, symphony orchestra; 11, dance.

WRC, Washington, (469), 6:15, concert; 7:15; Bible talk; 8, song; 8:15, piano; 9-10, specia Transatlantic tests.

KFNF, Shenandoah, Ia. (266); 12:25-1:15 p. m., regular noonday concert; 7:30-9 p. m., string trio; 10:30 p. m., request program.

WOAW Program

Saturday, November 29.

6:00 P. M.—Popular half hour.
6:30 P. M.—Dinner program.
9:00 P. M.—Program under auspices of Omaha Printing Co.
11:15 P. M.—Wowl frolic, by Frank Hodek, jr., and his Omaha Nightingales tranmitted from Wowl roost at Roseland gardens.

Method of Laying Out Radio Instrument Panels Is Shown; This Important Subject Is Given Too Little Attention by Amateurs

To a great many the subject of laying out instrument panels seems too simple and elementary to warrant much space being given to the matter. But it is a fact that the general instructions for building apparatus have not covered this phase completely enough for those who are comparatively unfamiliar with instrument work.

Very frequently eyperimenters take panels to radio stores to have them laid out and drilled, quite unaware that they could save 75 per cent of the cost of such work by marking the positions of the holes themselves. When told this, set builders often take their panels back and soon return with the location of holes indicated by soft pencil marks, one-eighth inch in diameter. Quite obviously, holes may be drilled in these places and still be a long way from the positions they should occupy.

Cases are also common where amateurs bring in instruments for repair which show the lack of proper instructions in the laying out of the panels. The distance between switch points vary, binding posts are not in line, and the location of the various adjusting knobs seems to bear no relation to each other. Visits to several amateur stations are quite interesting from this point of view, for it is found that the man with the most money seldom has the best appearing equipment.

Many stations are composed of simple and comparatively inexpensive apparatus, but constructed and arranged so neatly that they eclipse in appearance and working qualities the equipment of stations whose owners are not limited in a financial way. And the majority of the owners of the neat and efficient outfits agree that the chief reason for this superiority of their equipment is the careful laying out of the instrument panels.

Some Causes of Errors.

The poor appearanre of some instruments is often the result of insufficient time spent in laying out the panel. This, of course, is bad economy. The use of a pencil or blunt marking tool accounts for a large number of misplaced holes, and the dependence upon a mark rather than a center punch hole for starting the drill ranks next as a cause for these errors. With many, the fault lies in the fact that they are not careful, or accurate, in transferring dimensions from scale drawing to their work, while others can trace their trouble to the use of panels the adjacent edges of which are not exactly at right angle. The latter occurrence is quite common where panels are purchased from dealers who cut their material from large pieces into any size desired by the customer. Edges are seldom straight or at right angles, and the instrument builder finds it necessary to spend considerable time to square the edges so that he can make measurements from them to locate his holes.

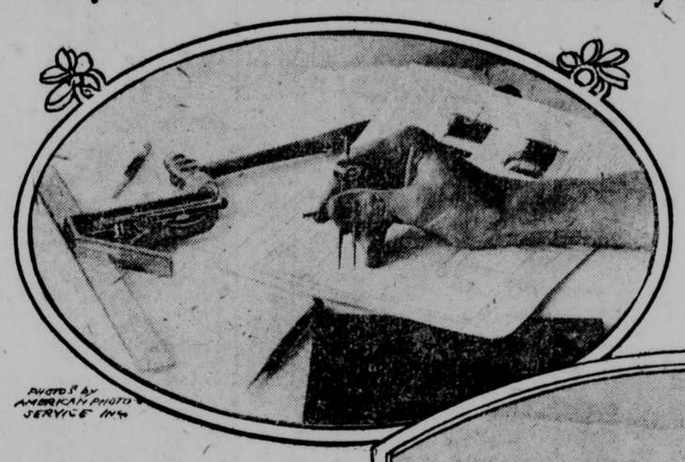
The experimenter, building apparatus from construction articles, finds less difficulty than the man who follows vague directions, for he usually employs accurately cut panels which have perfectly straight edges and right angle corners. With this stock to work upon, the job resolves itself into a matter of the use of tools.

Tools Required.

The builder should provide himself with a pair of dividers, scriber, square, center-punch, hammer and hand drill. The dividers should be capable of covering a radius of about two inches, the points should be sharp, and the joint firm. Errors are frequently made by an accidental change in setting of loose dividers. The only requirement of the scriber is that it should have a sharp, hard point.

A combination square of the type shown in Figs. 1, 2 and 3 is recommended, and the blade should be at least six inches long, with divisions to 1-32 inch or finer. A hard, conical point is necessary for center punch. Instruments are often resharpened to a point which is not truly conical and to use them, one runs the risk of centering the hole a little distance from the place where it should be located. When struck with the hammer, the center punch will move slightly in the direction of that part of the tapering point which is most nearly vertical. A four-ounce, ball-pin hammer is heavy enough for this class of work, although almost any kind will serve the purpose. The hand drill is of the familiar type shown in figure 3. The chuck should have a drill capacity up to one-quarter inch. An ordinary brace is used by most experimenters for larger drills.

Dividers are used for transferring measurements made upon the drawing to the scale, and for measurements wholly upon the surface of the panel. They should not be employed for locating a point from the edge of the panel, for the reason that it is inconvenient, if not impossible, to set the very point of the instrument on the upper edge of the panel, as would be necessary for accurate work. The combination square should always be used for making measurements from the edge of the panel. All straight lines and points are made with the scriber used in the manner illustrated in Fig. 2. Note that the point is kept close to the scale, while the square is held firmly by the left hand. The principal functions of the combination square are the making of measurements from the panel edges, measuring the distance between the divider points when taking dimensions from drawings, and for use as a straight edge, particularly for drawing lines parallel

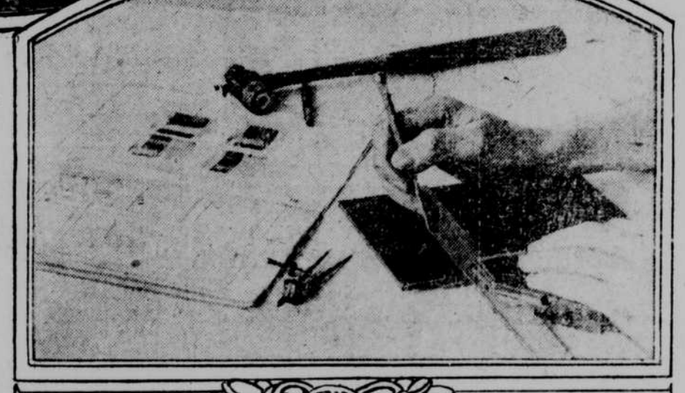


PHOTOS BY AMERICAN PHOTO SERVICE INC.

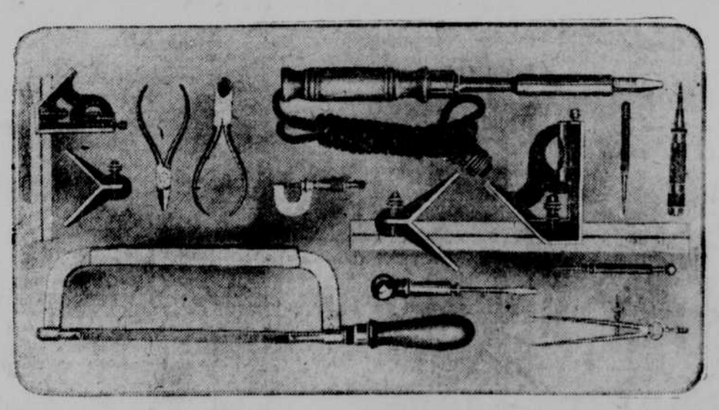
The proper way to transfer measurements from a blueprint to the material being worked is with a pair of dividers.

or at right angles to an edge of the panel.

While using the instrument as a square, care should be taken to see that the knurled nut which locks the scale is turned down tightly. The center punch is used only for marking holes to be drilled. This tool is held perpendicular to the surface of the panel at a point determined by two intersecting lines, and struck squarely with the hammer. This operation starts the hole, which is



To insure a true line in laying out a panel one must use a combination square, as shown at top. Directly above the author illustrates the correct method of center punching with a ball-pin hammer.



With the kit of tools shown above the veriest greenhorn should be able to lay out a set as it should be laid out and to construct it according to rules.

easily followed by the drill. The drill should be held very firmly in a vertical position by the left hand, while the right is used for turning. For this class of work comparatively light pressure with high speed should be given the drill, to minimize the chances of breaking the panel out on the front, as the drill is about to come through.

All panels should be laid out on the reverse side so that any defacing of the panel, required to locate holes, will not be seen on the front of the instrument. This, of course, necessitates laying the panel out in negative, that is, the holes shown on the left of the panel drawings will be drilled on the right of the reversed panel.

Uses of Tools.

Start at one end of the panel drawing and measure the distance the first holes are located from the edge, multiply this dimension by two, when the drawings are half-size, and the result will be the distance the holes are located from the edge of the panel. Place the combination square firmly against the panel, and with the scriber make a point on the panel at the scale division representing this distance. Now change the square to an adjacent edge, and with the point of the scriber held closely against the scale, draw a line through the point just made. The hole or holes to be located will lie somewhere in this line, and their exact position will be found by measuring from the edge of the panel along the line, and placing a point where the center of the hole is to come. A short line crossing the first at right angles at this point will definitely determine the location of the hole. Next place the point of the center punch at the intersection of the two lines and hold the tool perfectly vertical, while it is struck a blow with the hammer. In a similar maner locate all holes by intersecting lines, at least by a point on a line, and start them with a center punch to insure accurate drilling.

Results of Careful Work.

Every minute of time devoted to careful and accurate work in laying out panels will be amply repaid in the values of the completed instrument. Experimenters who give a sufficient amount of attention to the details of this phase of apparatus construction always have radio outfits of the highest class. They take a feeling of pride in the pleasing appearance of their instruments, which are always an object of envy of their fellow amateurs, who regard the laying out of panels as an unimportant detail. This tends to increase their interest in apparatus design and construction, and they find the work easier and more enjoyable with each instrument built.

Blue Pole Highway Extension Is Planned

Hay Springs, Nov. 28.—Two hundred men and women from Chadron, including many chamber of commerce members, were guests of the Improvement club here at a banquet and get-together meeting in the interest of good roads, with a movement in view to complete the Blue Pole highway through to Omaha.

Prominent speakers were Mr. W. P. Rooney and Mrs. Hudson of Chadron, W. H. Westover of Rushville, A. W. Mowering of Valentine, Dwight P. Griswold of Gordon and Carl S. Horn of Hay Springs.

A band accompanied the boosters from Chadron and the Ladies' Glee club from Chadron sang several old songs, with the booster spirit, which were well received.

Osceola Women Organize American Legion Auxiliary

Osceola, Nov. 28.—A group of mothers, sisters, wives and daughters of members of William Wolfe post No. 91, American Legion of Osceola, met last night at the G. A. R. hall and perfected an organization. Mrs. P. B. Campbell was chosen president, Mrs. W. O. Hansen, first vice president; Mrs. W. Roy VanHoosen, second vice president; Mrs. Kenneth Cornish, secretary, and Mrs. H. H. Cox, treasurer. Plans are being laid to put on a membership drive in both the auxiliary and the legion.

Legion post recently elected the following officers: P. B. Campbell, commander; P. E. Douglas, first vice commander; P. W. Horst, second vice commander; Kenneth Cornish, adjutant; Arthur B. Mickey, finance officer; D. W. McFadden, publicity officer; Leon Merrick, chaplain; W. Roy VanHoosen, sergeant-at-arms.

Nonogenarians Celebrate 68th Wedding Anniversary

Franklin, Nov. 28.—Mr. and Mrs. D. G. Fager of Franklin, recently celebrated their 68th wedding anniversary. For over 40 years they have lived in Franklin. Though nearly 90 years of age they keep their own home and in season cultivate a large garden.

Hunter Accidentally Shot.

Franklin, Nov. 28.—While hunting squirrels, James Soanes, employe of Clarence Fagan, was accidentally shot by Merle Fagan, 16, son of Clarence Fagan. The bullet penetrated the left lung, narrowly missing the heart. The injured man is making satisfactory progress toward recovery.

SIXTEEN DIVORCE CASES ON DOCKET

Beaver City, Nov. 28.—Sixteen petitions for divorce and one for separate maintenance are docketed for trial at the December term of district court, which will be convened here by Judge C. E. Eldred of McCook next Monday. With one exception the plaintiff is the woman. All told there are 78 cases on the docket.

The divorce cases are Blanche Lydia Caley against Alfred Louis Caley; Martha Alice Grant against Vernon Le Roy Grant; Hazel May Jacobs against Willie D. Jacobs; Ethel Page against Russell Page; Jessie Dorothy Gally against James Franklin Gally; Sylvia Smith against Harry Smith; Nina Samples against Afton Samples; August Mues against Sophia Mues; Ruth Kirtley against Schuyler L. Kirtley; Arthur Metguer against Anna Metguer; Etta Noll against Harvey H. Noll; Eva Noltie against Albert Noltie; Dessie C. Fetters against Sylvester D. Fetters; Amos E. Snyder against Minnie E. Snyder; Bessie Bergman against William Bergman, separate maintenance.

PAN-HELLENIC PINS AWARDED

Lincoln, Nov. 28.—Scholarship-honor pins given by the Pan-Hellenic association for the women attaining the highest scholarship in the freshmen, sophomore and junior classes in 1923-1924 have been awarded to Laura Rooney, '27, of Tecumseh, whose standing was 94.66; to Mary Doremus, '26, of Aurora, 96.27, and to Margaret Cannell, '25, Lincoln, 96.96.

Mrs. Dorothy Lindsay, '25, of Lincoln, won honorable mention with the remarkable average of 99.75. She was not given a pin because she had won this honor in her freshman year.

Honorable mention was given to Neola Skala, '27, Lincoln, whose average was 93.82, and Genevieve Clark, '26, Stanford, 95.94.

Northeast Nebraska Towns Suffering From Epidemics

Newcastle, Nov. 28.—Epidemics of smallpox, chickenpox and the flu have broken out in various towns in northeast Nebraska and in some localities doctors are said to be working day and night vaccinating hundreds of children. In this locality and several miles north of here cases of the chicken pox and the flu are quite numerous, some deaths already having resulted from the flu. At Harrington several doctors are kept busy almost continually vaccinating the children against the smallpox.

Final Dividend Awaits Defunct Bank's Depositors

Sidney, Nov. 28.—Receiver Wilson of the defunct First National bank, is unable to deliver dividend checks to many former depositors of that institution. He has recently announced the last dividend of 28 per cent, but letters to scores of depositors, telling them the money is ready for them, have received no response. He has thousands of dollars on hand that he is unable to deliver to the depositors.

Corn Harvesting in Gage County Near Completion

Beatrice, Nov. 28.—Most of the farmers in Gage county have finished gathering their corn, some of which has been marketed the last week. One farmer sold 15 loads at 95 cents a bushel, and others have disposed of their grain at the elevators at Filley and Rockford. A. E. Hoover, west of Blue Springs, reports a yield of 35 bushels to the acre. He says the grain is of fairly good quality.

Five Hurt in Auto Smash.

Broken Bow, Nov. 28.—About 25 Modern Woodmen from Broken Bow accompanied by the Woodmen band attended the district meeting at Loup City. While returning home a sedan driven by James Martin in turning a sharp curve slid into a ditch and turned over. James Pdzerka suffered a broken arm, Jule Simonson a badly lacerated nose and Mr. Martin, Glenn Sargent and Judge N. D. Ford were bruised but not seriously hurt.

Franklin—Mr. and Mrs. Otto F. Hayden held open house for friends and neighbors on occasion of their 50th wedding anniversary.

Telephone Rates Raise Proposed

Authority for Increase in Charges Sought by Cedar County Company.

Hartington, Nov. 28.—Finding it impossible to sell stock to refund itself for the outlay after erecting a new exchange building and doing reconstruction work at a total cost of $15,000, the Cedar County Farmers Telephone company of Hartington has filed a request with the state railway commission for authority to increase 25 cents a month the present telephone rates, which now are $2 for business, $1.40 for residence and farm and 75 cents for extension.

According to the filed statement, the officers claim that to conform to the rules of bookkeeping established by the commission, the telephone company should have $25,000 in its depreciation reserve account, but all of this money has been expended in expanding the service. The company has about $74,000 in invested property, but never has issued over $18,950 of stock.

It is declared that under the existing rates with the advanced cost of operation it is impossible to render first-class service and earn any returns even on the small capitalization of 25 per cent of the actual investment.

WAKEFIELD BANS SUNDAY MOVIES

Wakefield, Nov. 28.—An ordinance recently passed by the Wakefield city council, and signed by the mayor, R. G. Hanson, makes it "unlawful to give exhibitions of moving or stationary pictures on Sunday." The ordinance provides for punishment for its violation by a fine of not less than $50 or more than $100, or imprisonment in the city jail not to exceed 30 days for the first and subsequent offenses.

Two Rural School Houses Dedicated in Nance County

Peru, Nov. 28.—Two modern rural school houses were dedicated Friday in Nance county. The out-of-the-county speakers were State Superintendent J. M. Matzen and Miss Chloe C. Baldridge of the department of rural education, Peru State Teachers' college, and former county superintendent of Nance county. The buildings were erected by districts 21 and 30 at a cost of $3,500 each.

York Thief Will Work for His Family While in Jail

York, Nov. 28.—York county commissioners voted recently to change York county jail to a workhouse. The first case to come up since the change was heard Wednesday. "Dusty" Rhoades, who took coal from a car on the railroad tracks, was given a 30-day sentence in jail and the proceeds of his work for that time will go to the support of his family.

Old Offender Gets Heavy Sentence Under Liquor Law

Bridgeport, Nov. 28.—Judge Barron of the district court here sentenced George Ayers of Broadwater to pay a fine of $2,000 and costs and serve three months in jail for violating the liquor law. Keith Sully was sentenced to pay a fine of $100 and costs. Ayers is said to be an old offender.

Steinite Gives Distance
The Nationwide Radio Digest
On Crystal Sets!
Results truly amazing. Everyone astonished. H. Harryman, Opdyke, Ill., says: "I have heard 26 stations, most distant 800 miles, Schenectady." H. Lapsley, Council Bluffs, Ia., says: "Second night I got KDKA, E. Pittsburgh." You can't doubt your own ears. Listen in on STEINITE at my risk.
50c Each or 3 for $1.00
STEINITE opens up new possibilities for crystal sets. Don't delay the Radio treat in store for you. Send Dollar Bill today for 3 Crystals and free hookups. None genuine unless stamped "S" Two big Atchison Banks guarantee prompt refund if not delighted. Manufacturers of the Famous Stein Blo Tube Sets, Long Distance Crystal Sets $5, Stein Wave Trap $5, and Stein Two Stage Amplifier $12.50. FREE descriptive literature on request.
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YOU are going to give a "radio party," or you are going on a hunt for "DX". You get yourself set for a "large" evening. Then some little unavoidable thing happens and you blow all your tubes. Money, fun and everything is lost.
The quickest way to spend $20 is to accidentally drop a screw-driver in a five-tube set. Zip' and your money is gone as well as your fun—until the radio store opens.
Either style of KANT-BLO means protection against blowing out tubes.
A NECESSITY—NOT AN ACCESSORY
The KANT-BLO is not an extra accessory to your set. It is designed as a B battery Binding Post or as an A battery filament switch. Post Style and Switch Style—are at all the best radio stores. If your dealer is out of stock send us $2 for a KANT-BLO Binding Post Style, or $3 for the Switch Style, and we will ship any number of KANT-BLOS direct to you, charges prepaid.
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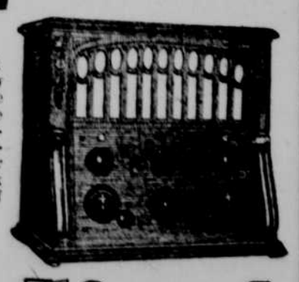
A gift for a life time! A radio set will bring many hours of joy and pleasure to the entire family. Here is the answer to your family gift—for it will satisfy every member of your home. Come in and look over our complete stock of radios.

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