Fifteen Minutes of Radio Each Day

(By Edward N. David, formerly technical electrical expert for the U. S. Government.)

Lesson No. 52.

THE WAVE METER.

One of the most important instruments used by radio engineers, inspectors and experimenters is the wave meter. The name itself indicates that the wave meter is an instrument employed to measure the length of the ether wave emitted by a radio transmitter or the length of the ether wave to which a receiving set is tuned.

In a given oscillating circuit, that is, a circuit containing inductance and capacity in which oscillations occur as a result of the discharge of the condenser through the inductance coil, the size of the condenser and the size of the inductance coil determine the frequency with which the condenser discharges through the circuit. If we know the frequency of the current flowing in a circuit we may determine the wave length of the circuit from the simple relation, wave length equals the rate at which the waves travel divided by the frequency.

Therefore a circuit of known capacity and known inductance has a known frequency, hence a known wave length. A wave meter consists of a circuit containing a condenser and an inductance coil, the combination of these two elements resulting in a circuit of known frequency or known wave length. If either the condenser or inductance coil is made variable the wave length of the wave meter is changed, the greater the value of inductance or capacity the longer the wave length and the smaller the values of inductence or capacity the shorter the wavelength.

In most wave meters the inductance coil is of fixed value and the condenser is of the variable type.

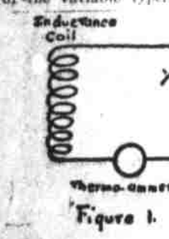

Figure 1.

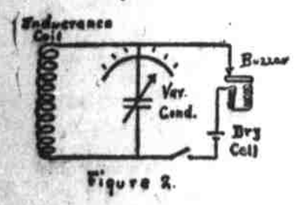

Figure 2.

The Wave Meter

The wavelengths for the different settings of the condenser may be marked directly on the condenser scale or the scale may be marked only in degrees and the wave length obtained from a chart. This chart shows the values of wave lengths corresponding to the condenser settings in the form of a graph.

Figure 1 shows a wave meter consisting of a fixed inductance coil, a variable condenser and and a thermoam-meter. This type of wave meter is useful in tuning transmitting stations, the thermo-ammeter being used to show when the wave meter is adjusted to the same wave-length as the circuit under measurement.

Figure 2 shows a wave meter consisting of a fixed inductance coil and a variable condenser with a buzzer and single dry cell for setting up oscillations in the wave meter. This type of wave meter is useful in determing the wavelength of a receiving system for a particular adjustment.

In determining the wavelength of a transmitting station the transmitter is placed in operation and the wave meter shown in Figure 1 brought within a few feet of the ground lead. The condenser is varied until maximum deflection is noted on the thermo-ammeter which means that the wave meter is adjusted to resonance, i. e., the same wave length as the transmitter. The desired wave-length is then read from the condenser scale or from the chart provided for that purpose. This method may be employed in tuning either spark transmitters or continuous wave transmitters and is preferable to the audibility method sometimes used.

In determining the wavelength to which a receiving system is adjusted the wave meter shown in Figure 2 is brought close to the ground lead at a point remote from the receiving set itself. With the receiver adjusted to the incoming signal the buzzer of the wave meter is set into operation and the condenser of the wave meter varied until the maximum sound from the buzzer is heard in the telephones, which indicates that resonance has been obtained. The desired wave-length is then read from the chart provided with the wave meter for that purpose.

Radio Signals Received On A Motor Truck.

The special radio concert broadcasted from Schenectady for the entertainment of the passengers on the Lackawanna train was also heard by the driver of a motor truck.

Installed on the truck was a radiophone receiving set which reproduced the music while the truck was being driven from a nearby town to the city.

Lesson No. 53.

THE PLATE BATTERY.

A vacuum tube receiving circuit is dependent upon the plate battery or "B" battery for the supply of energy which actuates the telephone receivers.

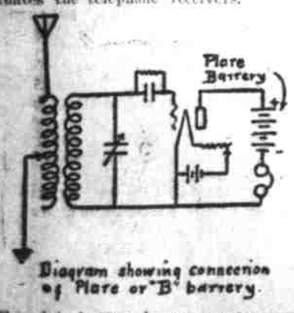

Diagram showing connection of Plate or "B" battery.

The plate battery is connected across the plate and filament, in series with the telephone receivers and the plate feed back or "tickler" coil in the case of regenerative receiving systems. The positive terminal of the plate battery is connected to the plate, no signals being heard in the telephones if the polarity is reversed. The current which flows from the plate to the filament through the vacuum tube is very small compared to the current consumed by the filament of a vacuum tube and therefore a plate battery of small ampere hour capacity is sufficient to furnish current for months.

It will be recalled that the vacuum tube detector functions in a manner different from the crystal detector. The signal which impinges on an antenna system does not actuate the telephone receivers but serves merely as a trigger to control the flow of plate current. n other words, a small change in the voltage impressed upon the grid results in a large change in the current flowing in the plate circuit.

The plate of "B" battery is usually made up of a number of small dry cells sealed in a block with an insulating compound. There are usually fifteen such dry cells in a unit, all connected in series giving a total voltage for the block of twenty two and one half volts. This voltage is sufficient for the satisfactory operation of most detector tubes, some requiring even less voltage, in which case advantage is taken of the taps taken from intermediate cells to secure a lower voltage. These taps are usually in the form of sockets connected to each cell of the block into which plugs can be inserted giving variations in voltage from one half to twenty two and one half volts in steps of one and one half volts. Another method is to have taps of wire or brass strip connected to certain cells in the group, different manufacturers having their own details of construction.

For voltages in excess of that furnished by a block of "B" battery two or more blocks may be connected in series for use with amplifying tubes which require voltages of forty or sixty volts or more. The same plate battery may be used for both the detector tube and the amplifier tubes by merely taking a tap off at the proper point for the detector tube.

Another type of plate battery is the storage cell variety, which may be either of the lead acid of the alkaline cell type. The storage battery for plate purposes consists of a container in which are a sufficient number of small storage cells to give the required plate voltage. This type of plate battery has the advantage of being capable of recharging a feature not present in the "B" battery of the dry cell block type. The dry cell plate battery however, will render good service for from six months to a year or more dependent upon the time actually in use.

Radio Music From Steel Stack.

Cleaners in a big steel smoke-stack near Greenville, Ala., hurried into the open air when they heard a band play "Dixie." They were unable to locate the band and it is believed that wireless waves were responsible for the phenomenon.

The big metal stack supported by guy wires apparently operated as a complete receiving set and reproduced the notes and musical airs of a nearby radio concert.

"A" in "Deportment."

"You should return good for evil Willie," admonished Mrs. Brown. "If that little Smith boy struck you, you should treat him even more nicely than before."

"I did, Ma," replied Willie. "He made me."

If its printing or office furniture your troubles are ended when you call Brumley-Walters Printing Co.

DALLAS DOTS

(By Mrs. Joe Gribble.)

(Correspondence of The Daily Gazette.)

DALLAS, May 11. — Morning and evening services will be conducted at the Dallas Presbyterian church Sunday, May 14, by Rev. J. F. McKinnon, of Rutherfordton. All are most cordially invited to attend.

Rev. J. O. Ervin will preach at the High Shoals Methodist church Sunday morning and evening.

Dallas third nine baseball team, composed of the younger set, extends an invitation for all to be present at the ice cream supper Saturday night at the club house given for the benefit of their team.

Gaston's Red Cross Drive Now On In Dallas.

Gaston's Red Cross drive is now on in Dallas and the following organization completed to canvass the town; chairman for the Morowebb Mill, Miss Lela Robinson; for the Monarch Mill, Miss Fannie Reinhardt; for the Dorothy Mill, Miss Katie Shelton and for the town, Rev. J. O. Ervin.

Miss Lew, the county Red Cross nurse was in Dallas Wednesday and is anxious to institute classes for the home care of the sick. Once a week classes will require about three months to complete and all who wish to take this course notify either, Miss Willie Webb, Mrs. S. C. Cornwell or Mrs. Joe Gribble. No charges are made.

A BAD NAME.

Innocent minded students of Asheville city schools who in a spirit of frolic and beguiled by its semi mystery have engaged in a so-called "order" known as The Shifters are evidently unaware of a bad odor which attaches to it elsewhere. In the cities its name ethrics suggestions which would be nauseating here.

Locally the initiations and practices are largely of the snoring kind, suggesting those of the ancient order of Buffaloes, although the principle of getting as much as possible for nothing hardly commends itself even in a semi-jest to those very girls and boys who scorn the "sponging" type which exemplifies it.

It is what the name and the phrases associated with it mean to others which must give local members cause for reflection. The same thing under a different name would be far less objectionable. Don't take any chances of shadows on youthful reputations—does any young fellow who "belongs" want his sister to take this chance? If some scandal should come would it not likely be the most innocent who would bear the brunt of it.—Asheville Times.

How to Banish Piles

Thousands Bless Dr. Leonhardt, the Physician Who Discovered This Common Sense Remedy.

If you think that the surgeon's knife is the only method of escape from the misery of piles, it's because you haven't heard of the new tractment known as Dr. Leonhardt's HEMROID.

The Doctor's treatment is internal. By experimenting for years he discovered the exact cause of piles and then went further and compounded a remedy that would remove the cause.

Dr. Leonhardt wants every sufferer to benefit by his discovery and so that there will be no doubting or delay J. H. Kennedy Drug Co. and all druggists are authorized to sell HEM-ROID with guarantee that it will do as stated or money back.

On that honorable basis every sufferer should secure a package of Dr. Leonhardt's HEM-ROID today.

Peoples Tells Of First Well Day In 6 Years

"It Seemed Like I Had Lost My Health For Good, But Tanlac Went Right After My Troubles," He States.

"Before taking Tanlac I had not seen a well day in six years," said W. R. Peoples, 228 22nd St., Huntington, W. Va.

"It seemed like I had lost my health for good. I could neither sleep or eat with satisfaction. I was badly run-down, nervous, had no appetite and had to force down every mouthful I ate. Even took my food soured, I would fill up with gas until I had intense pains in my stomach and chest. Headache almost drove me mad, rheumatism in my arms, shoulder and hips kept me in pain all the time, and I had to force myself to work.

"Tanlac went right after my troubles. On four bottles I gained ten pounds and the rheumatism and stomach trouble soon left me. My wife has given a statement about the good Tanlac did for her, and I am glad to add my endorsement of this wonderful medicine."

Tanlac is sold by all good druggists.

MATTERS OF RECORD

Real Estate Transfers.

The following deeds of transfer have been filed and recorded in the office of Register of Deeds H. R. Thompson:

J. B. Newton and wife to Stanley Lail, four lots in Cherryville, consideration $1,800.

C. B. Craig and wife to B. H. Craig, one lot on South Broad street, Gastonia, consideration $3,000.

Marriage License.

Marriage license has been issued by Register of Deeds H. R. Thompson to Mr. S. M. Wilson and Miss Leola White, both of Dallas.

Not Nowadays.

"Wee" Askem: And what are the beef dressers demanding now?

Hugh Tellum: Higher wages. They claim that, at the present scale, a man that kills to dress cannot support a wife that dresses to kill.—Wayside Tales.

Farmers, Notice!

I have recently purchased the Armstrong herd of registered ABERDEEN-ANGUS cattle. In this herd are five very fine bulls which I am going to sell at bargain prices. Would exchange them for other livestock, feed, or other farm products. See me if interested.

R. G. RANKIN,
Gastonia, N. C.

Michael & Bivens, Inc.

TRUSTEE'S SALE OF LAND.

Under and by virtue of the power of sale in me vested by a certain Deed of Trust executed by E. G. Nantz and wife Lillie Nantz on the 17th day of January, 1921, and of record Book 149, Page 5, Office Register of Deeds, Gaston County, N. C. to secure a note of even date therewith of Eighteen Hundred and thirty-six dollars, and default having been made in the payment of the same though long past and after repeated demands, the undersigned trustee by request of W. M. Sain, will sell to the highest bidder at public auction for cash at the Court House Door, Gastonia, North Carolina at Noon on

Saturday, June 10, 1922,

the following described tract of real estate, bounded and described as follows:

Known as the Mrs. Clabe tract of land and being in Dallas Township, Gaston County, N. C., adjoining the lands of Addie Stroup, James Stroup and others:

Beginning at a stone in old corner and runs N. 71 1-4 E. 160 poles to a stone; thence S. 19 E. 64 poles to a stone; thence S. 40 W. 38 poles to a stone; thence S. 50 E. 7 poles to a stone in the old line in the Tuckasegee Road, thence S. 73 W. 30 3-4 poles to a stone in the south side of said road, thence N. 81 W. 17 poles to a stone in said road; thence with said road N. 57 W. 50 poles to a stone; thence N. 18 W. 34 poles to the beginning, containing 48 acres, more or less. Being the tract on which are situated the dwelling and outbuildings and all improvements.

This, the 5th day of May, 1922.

KEMP B. NIXON,
Fr-M26c4. Trustee.

EXECUTOR'S NOTICE.

Having qualified as executor under the last will and testament of the estate of M. Harry Shuford, deceased, late of Gaston County, North Carolina, this is to notify all persons having claims against the estate of said deceased to exhibit them to the undersigned at Gastonia, North Carolina, on or before the

3rd day of May, 1923,

or this notice will be pleaded in bar of their recovery. All persons indebted to said estate will please make immediate payment. This the 3rd day of May, 1922.

A. G. MYERS, Executor.
Geo. W. Wilson, Attorney.
F3p6w.

NOTICE OF CHANGES IN ELECTION PRECINCTS.

The County Board of Elections of Gaston County does hereby order the following changes to be made in voting precincts as hereinafter set out.

Bessemer City Precinct:

That part of Cherryville Township which has recently been added to Crowders Mountain Township and has heretofore been a part of Kiser's Precinct, is hereby ordered to be made a part of Bessemer City Precinct, and the Northern boundary of Bessemer City Precinct hereafter will be the line between Cherryville and Crowders Mountain Townships and this line shall be the Southern boundary of Kiser's Precinct.

Cherryville Precincts:

Cherryville precinct shall hereafter be known as Cherryville Precinct No. 1 and the boundary lines shall remain as heretofore except that Northern boundary shall be the main line of the Seaboard Airline Railway. The voting place for Cherryville No. 1 shall be the city hall as heretofore. Cherryville Precinct No. 2 is hereby created and shall consist of all the territory formerly embraced in Cherryville Precinct lying North of the Main line of the Seaboard Airline Railroad and the said boundaries shall remain as heretofore except tht the Southern boundary shall be the main line of the Seaboard Airline Railroad. The voting place in No. 2 precinct shall be at Peter C. Beam's store on Mountain Street. A new registration for both precincts is hereby ordered.

Cansler's Precinct.

Cansler's Precinct is abolished and divided as follows: Beginning at Thompson's Ford on the Catawba River, thence with a line running in a westerly direction direct to Sandy Ford on Dutchman's Creek. All that part of Cansler's Precinct lying North of this line is hereby made a part of Lucia Precinct, and the voting place in Lucia Precinct will remain as heretofore, at J. R. Rogers' Store. That part of Cansler's Precinct lying south of this line is hereby made a part of Mt. Holly Precinct, and the voting place at Mt. Holly will remain the same as heretofore.

Ranlo Precinct:

Spencer Mountain Precinct is hereby abolished and a new precinct created to be known as Ranlo Precinct, and the polling place in this precinct will be E. L. Stroup's Store. Said precinct is bounded and described as follows: On the East by South Point Township; on the North by Big Long Creek, the line running in a westerly direction to the Dallas road; thence with Dallas Road in a Southerly direction to Due-heart Creek; thence East with Due-heart creek to the South Point Township line, the point of beginning. A new registration for this precinct is hereby ordered.

Gastonia Precinct No. 2:

The boundaries of Gastonia Precinct No. 2 shall remain as heretofore except that the Eastern boundary of Gastonia No. 2 shall be the old Dallas road.

This the 27th day of April, 1922.

By the County Board of Elections of Gaston County.

EMERY B. DENNY,
Chairman.
C. E. HUTCHISON, JR.
Fr-M12c3. Secretary.

The Gazette has two phones. Call 50 if you want to talk business; call 232 if you want to talk to the news or editorial departments.

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Form the savings habit today. Our Savings Department accepts deposits large or small and pays 4% Interest.

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Would you mix the proper amount of each ingredient to give your cows all they need to be good producers? Could you mix enough meal? Could you feed every cow just what she needs without making your feed bunny? Impossible! Too.

But it can be done, is done with Ce-re-a-lia Sweets. We're so sure that Ce-re-a-lia will increase milk production that we offer:

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We have everything that's new in Patents with Grey Trimmings, White Canvas with Patent Trimmings; also the White Canvas Ox that we offer at $5.00
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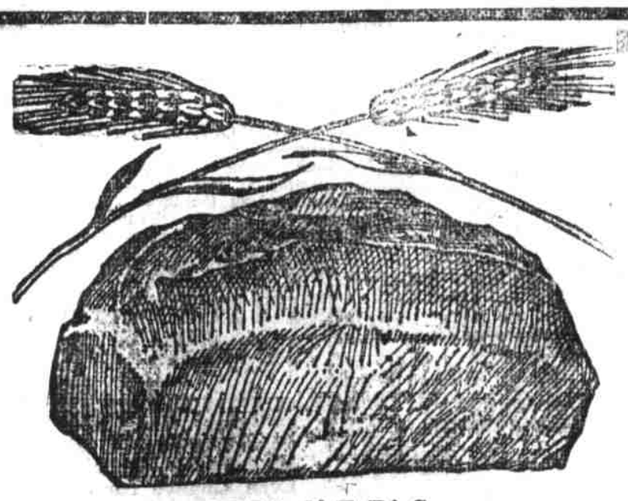

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