

THE EVENING TIMES AND STAR, ST. JOHN, N. B., WEDNESDAY, FEBRUARY 7, 1923

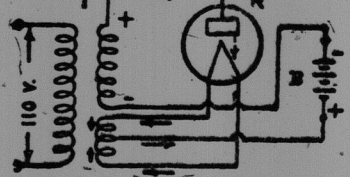
## FIFTEEN MINUTES OF RADIO EACH DAY

By Edward N. Davis  
Formerly Technical Electrical Expert For U. S. Government

Lesson No. 225.  
THE TUBE RECTIFIER.

The selection of a storage battery for the operation of the detector and amplifier tubes in a radio receiver, depends primarily upon the facilities for charging the battery and upon the number of tubes and the length of time, each day, the tubes are in operation. For a single tube receiver the current necessary to properly heat the filament is approximately one ampere, and if the set is to be operated for three hours each day total discharge of the battery per day will be three ampere-hours. On this basis a storage battery having a total capacity of sixty ampere-hours would supply the required amount of filament current for a period of twenty days. If, however, a receiving set employing three tubes is used, the total discharge of the battery per day, under the same conditions, will be nine ampere-hours and the battery will require charging in approximately seven days.

It is apparent, therefore, that if the amount of current drawn from a battery is comparatively large, frequent recharging will be necessary. In addition to the expense, considerable inconvenience results in the transportation of a battery to and from a service station, due to the weight and also to the fact that the receiving set is inoperative for the period that the battery is being charged. If a battery of large ampere-hour capacity is selected, charging periods are not as frequent but the weight is considerably increased; for example, an eighty ampere-hour, six volt-lead-acid battery weighs approximately 45 lbs., while an 120 ampere-hour battery weighs about 60 lbs.



For these reasons it is essential that continuity of service, efficient operation and convenience necessitate the employment of charging apparatus in combination with the receiving sets, so that removal of the battery with consequent interruption of operation is avoided. If the only available supply of electrical energy is the alternating current house lighting circuit, it is necessary to employ a rectifier and associated apparatus, first, to reduce the voltage of the circuit, and second, to convert the alternating current into a current which flows in one direction.

In the accompanying diagram is shown a form of gas-filled tube rectifier known as "half-wave" rectifier which converts the alternating current into a series of half-wave pulsations, mounting in effect to a flow of direct current. The transformer (T) reduces the potential of the 110 volt lighting circuit so that, after rectification, from ten to fifteen volts are impressed upon the six volt battery. The secondary winding of the transformer has two coils, one of which consists of a few turns of heavy wire for supplying current to the filament, the other coil having a large number of turns for furnishing the battery charging current.

Current flows through the bulb (B) from the plate to the filament during one-half cycle, but no current flows during the other half cycle, and consequently a series of unidirectional pulsations of charging current flow through the storage battery. The arrows in the diagram illustrate the flow of current during the half cycle when the battery is charging. It has been determined experimentally that "half-wave" rectifiers of comparatively large current capacity have an efficiency as high as 75 per cent, due to the fact that only sufficient energy to heat the filament and excite the transformer is drawn from the lighting circuit during the half cycle when no current is flowing through the rectifier tube.

If the storage battery is connected to the centre points of a double pole, double throw switch, while the receiving set is connected to one side of the switch and the rectifier to the other side a convenient and safe arrangement is obtained whereby the receiver is automatically disconnected when the switch is closed between the rectifier and the battery. When the switch is closed in the other direction, the battery operates directly on the receiver and the rectifier is disconnected.

It is evident, therefore, that the addition of charging equipment to a receiving set, employing vacuum tubes, permits the battery to be maintained in a fully charged condition by the application of a daily charge of short duration, thus securing uninterrupted and efficient service at a comparatively small expense.

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Lesson No. 226.  
MAGNETIC MODULATOR.

An iron-cored device employed to modulate or control the output of an oscillating vacuum tube or undamped generator. It operates as a variable resistance connected in series with the antenna circuit of the high frequency oscillating system, by using the properties of iron at radio frequencies. This

## AMDUR'S, LTD.

Are Hurrying Preparations for Their Great  
Re-opening During Carnival Week

And as fast as the carpenters and painters complete the sections of the store, new goods are being arranged for the big re-opening display. A feature of the exhibition during the re-opening will be the showing of woollens. Amdur's, Ltd., have already been characterized as the city's woollens centre and next week they will enhance that reputation in a wonderful and varied line of outing togs, including sweaters, mufflers, etc., for skating, skiing, tobogganing, snowshoeing, etc.

Amdur's, Ltd., No. 1 King Square

device supplies a method by which the output of a single tube for radio telephony may be controlled without distortion and in addition allows a number of oscillator tubes to be operated in parallel without the use of special modulator tubes. The "magnetic modulator" has a winding through the controlling current of speech frequency flows and unlike the modulator tubes is not subject to burn-outs of the filament and consequent short length of life.

### STABILIZER.

An arrangement employed in amplifier circuits for placing a position bleating potential on the grids of the amplifier tubes. It may consist of a resistance of 200 to 300 ohms connected across the filament battery terminals and an adjustable contact connected to the grid. By regulating the position of the contact the proper value of positive biasing potential is placed on the grid and the various tubes in the amplifier are prevented from oscillating. In amplifiers utilizing stages of both radio and audio frequency it is desirable to have a separate "stabilizer" for the radio frequency stages and one for the audio frequency stages.

### "PEANUT" TUBE

A type of small detector tube designed for operation on a single 1.5 volt standard dry cell. This tube is provided with the usual elements of filament, grid and plate and its dimensions are approximately four and one-half inches by one and one-quarter inches. The filament current consumed by this tube is about .35 ampere and when in use as a detector should be provided with a plate potential of 22.5 volts. One type of this tube has a specially coated filament and must not be burned brighter than a dull red.

### "BEVERAGE" ANTENNA

A type of antenna which has proved very successful in the reception of trans-oceanic messages. It consists primarily of one or more wires located horizontally at short distance above the ground and having a length which should be at least as great as a half wave length of the signal it is desired to receive. In the single wire type, one end is grounded through an inductance coil with the receiving apparatus located at this end. The other end is grounded through a non-inductive resistance of several hundred ohms. The antenna should extend in a direction parallel to the direction of the transmission of signals from a desired station.

### "BELLAST" TUBE

A vacuum tube designed for use as a controlling element in the filament circuit of detector and amplifier tubes. By the use of this control tube the filament current is accurately and automatically adjusted and filament rheostats are not required.

### GRID BIAS

For satisfactory operation of vacuum tubes, either as detectors or amplifiers, it is necessary for the potential of the grid to be maintained at a definite potential with relation to the negative terminal of the filament in order for the tube to operate on the proper point of the "grid voltage-plate current" curve. This biasing potential may be obtained (1) by utilization of a grid condenser and leak (2) by inserting a low voltage battery in the grid lead (3) by connecting the grid to the adjustable contact of a comparatively high resistance placed across the filament battery terminals (4) by connecting the grid to the adjustable contact of a low resistance placed in the filament battery circuit.

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Stores open 9 a.m. to 6 p.m.  
During winter months.

## Early Showing of Children's Washable Dresses

These have just arrived. You'll find them very attractive and becoming. Gingham, Rattines and Chambrays are all included and are showing in great variety.



Long waisted frocks are a decided feature, however straight and sailor styles also promise to be in great demand. There are plenty of stunning stripes, checks and plaids. Many frocks have knickers to match. Sizes range from 2 to 13 years. . . . \$1 to \$3.50

NEW ROMPERS in white and colors are showing in a selection of fresh spring styles. Sizes for tots 1 to 4 years. . . . \$1.25 to \$3

New "Admiral" Middy Blouses in white duck with navy serge or flannel detachable collars. Straight and Balkan styles. Sizes 6 to 12 years. . . . \$1.75 and \$1.85 each

(Children's Shop, 2nd floor.)

## Use a Door Mat to Keep the Grit From the Street Out of Your Home

Phone 2400 and ask for carpet department. We can send you on the next delivery a COCOA OR RUBBER MAT that will be just what you require.

Prices range from 95c to \$3 each  
(German street entrance.)

Manchester Robertson Allison Limited  
KING STREET GERMAN STREET MARKET SQUARE

## Special Selling of Colored Work Aprons

Housecleaning days and moving will bring with them a need for plenty of work aprons.

In this special selling you'll be able to find just the kind you like best.

Prices are very low as the list below will show you:

DARK APRONS WITHOUT BIBS 40c each  
CHECKED APRONS with borders and yoke bands. . . . 50c each  
UNBLEACHED COTTON APRONS with bibs; trimmed with colored ric-rack braid. . . . 50c  
GINGHAM APRONS with bordered edge. Bibs and shoulder straps, trimmed with ric-rack braid. . . . 65c each  
COVERALL APRONS in assorted light stripes. . . . 69c each  
COVERALL APRONS (dress style), made with belt pocket and handy side fastening. . . . 95c each



BUNGALOW APRONS made with elastic at waist. Dark blue only. Large sizes included. . . . \$1.45 each

BUNGALOW APRONS with front fastening. Slips on like a coat; belted and pocketed. Navy only. . . . \$1.50 each  
FUDGE APRONS with applique and chintz trimmings, are also featured in this special selling.

(Whitewash Dept., 2nd floor.)

Sale of Odd Pieces of China and Semi-Porcelain Now Going On  
In this sale you will find: Cups and Saucers, Plates, Coffee Pots, Hot Water Pots, Chocolate Pots, Pitchers, Tea Sets—and many other pieces. Prices are very low for this event.  
(German street entrance.)

# FEBRUARY SALE

## Of Men's, Boys' and Youths' FOOTWEAR

Having discontinued the wholesale branch of our business, we have placed our entire stock in our retail stores to be sold at WHOLESALE PRICES, thus giving the people of St. John and vicinity an opportunity to purchase shoes at what the average merchant pays for them.



Here's a fine shoe for heavy men who must be on their feet.  
Going for \$3.45

Women's Rubbers  
A lot of Black Rubbers, with Cuban heels and wide toes. . . . 58c.  
Tan Rubbers in all shapes and heels. . . . 75c.

## Starting THURSDAY, Feb. 8 We Are Putting on a Sale of Men's, Boys' and Youths' Boots at WHOLESALE Prices or Less

Included from our regular retail stocks are all broken lines from such well-known makers as "Bell," Slater and "Just Wright."

READ THIS PARTIAL LIST and then Look for the Boots in our Windows with the Blue Bordered Price Ticket on Them. You will, we are sure, want to buy a pair at once.

Come Early In Many Cases, Less Than Wholesale Prices

For Men		For Boys	
\$3.45 Tan Grain Work-shoes — Black Kip, Heavy Sole, Blucher Cut, Brown Dressy Boots; Goodyear Welts.	\$4.65 Gun Metal, Blucher, Round Toes, Black Calf Boots — English Lasts, Heavy Brown Double Sole; Rubber Heels.	\$3.95 Black Grain Work-shoes, extra good. Brown Calf Heavy Boots. Black Calf, Blucher Cut, Goodyear Welts. Brown Calf in the same.	\$5.35 Heavy Black Water-proof Boots. Brown Boots in all styles and shapes. Black Boots in all styles and shapes.
Sizes 11 to 13.		Sizes 1 to 5.	
Heavy Grain Boots at . . . \$1.88	Black Calf, Blucher Cuts at . . . \$2.28	Black Blucher, dressy, at . . . \$1.98	Box Kip Boots at . . . \$2.68
Heavy Brown Boots at . . . \$2.35	Black Grain Boots at . . . \$2.95	Brown Calf Boots at . . . \$2.78	Black or Brown Boots at \$3.45

SALE AT OUR THREE STORES

WATERBURY & RISING, LTD.

61 King Street—212 Union Street—677 Main Street

## RECENT DEATHS

Mrs. Barbara Corbett.  
Many friends will regret to learn of the death of Mrs. Barbara Corbett, widow of Thomas M. Corbett, which occurred yesterday at the General Public Hospital, following an operation. Mrs. Corbett, who was in her sixty-second year, had been ill for only two weeks and her sudden death was a great shock to her relatives and many friends. Sincere sympathy is extended to the bereaved. Mrs. Corbett had been a lifelong resident of St. John and was highly regarded by a wide circle of friends. Her husband died eleven years ago. She is survived by two sons, E. W. Corbett, of H. M. Customs, and Thomas M. of Mayport, Florida, and one daughter, Mrs. H. C. Marley, of St. John. The funeral service will be held on Wednesday evening at her late residence, 193 Paradise Row. Interment will take place at Welsford on Thursday morning.

Mrs. Martha E. Fowler.  
The death of Martha E. Fowler occurred yesterday at her home, French Village, King's county. Her husband, John A. Fowler, died some time ago. She is survived by one son, Albert Fowler, Fredericton, and one daughter, Mrs. A. Bosence, West St. John. One sister, Miss Darling, resides in Springfield, Mass. Major Darling, who died last fall, was a brother. At the time of his death he was the oldest Freemason in Canada. Mrs. Fowler was in her eighty-fourth year. The funeral will take place tomorrow afternoon at 2:30 o'clock to St. Andrew's church, French Village.

George Allison Dorman.  
Word has been received in the city of the death of George Allison Dorman, youngest son of the late George S. Dorman, which occurred at his parents' residence, 108 Weldon.

## SOME OF THE Footwear Bargains

In Our Clearance Sale

Women's Broadcloth Packard Top Gaiters, in Fawn and Grey colors. Sale price 95c  
Women's Melton Cloth Packard Top Gaiters, in Fawn and Grey colors. Sale price 75c  
Women's Rubbers, to fit broad toe and low heel shoes; sizes 5-12, 6, 6 1/2, 7. Sale price 57c  
Women's Rubbers, to fit 1 1/2" heel boots; sizes 2-12, and 3. Sale price 67c  
Men's Best Quality Rubbers, with heavy soles; all sizes. Sale price \$4.10  
Men's One-Buckle Overshoes, sizes 7 and 9. Sale price \$2.05  
Men's Two-Buckle Overshoes, sizes 6 and 10. Sale price \$2.55  
Women's Fine Kid and Patent Leather Pumps, with radium heels. Sale price \$2.69

McROBBIE  
Foot St. John 50 King  
Fitters Street

## A Big Seasonable Purchase of More Than 2,000 Pairs

Popular Hosiery in This

# Winter Hosiery Sale



Women's English Wool Sport Stockings; Plain Botany Wool Stockings; ribbed top, also Children's Ribbed Heather Stockings, as well as the Fine Silk Hosiery.

All popular colors included. Some of them have slight imperfections, but it will not interfere with wearing qualities. Come in early and make your selections while all lines are complete.

"Every pair a bargain at its price."

Ladies' English Ribbed Sport Heather Hose, fine wool, in sage, costing, brown. . . . Sale price 97c. a pair

Ladies' "Botany" Cashmere Hose, ribbed; colors brown, costing, camel and black. Some of these have slight imperfections. . . . Sale price 67c. a pair

Misses' All "Wool Heather" Hose in popular mixtures. Sizes 8 to 9 1/2, fine rib—Sale price 95c. a pair

Ladies' Botany Wool "Ribbed Top" Cashmere Hose; brown, fawn, navy or black—Sale price 87c. a pair

Ladies' "Thread Silk" Hose with wide garter top; colors, beige, gray, cordon, brown or black. . . . Sale price 97c. a pair

SEE WINDOWS

## London House

F. W. DANIEL & CO.

HEAD OF KING STREET

street, Moncton, yesterday, at the age of fifteen years. The body will be brought to St. John for interment in Fernhill cemetery on Thursday. Sincere sympathy is extended to the bereaved family.

Miss Eliza M. Blair.  
The death of Miss Eliza M. Blair, daughter of the late Robert and Mildred Blair, occurred at an early hour this morning at her residence, 118 Wentworth street, after a lingering illness borne with singular patience and fortitude. Miss Blair enjoyed the esteem of a large circle of friends who recognized and admired her many fine qualities. She will be greatly missed. She is survived by one sister, Miss Ada Mildred, and two brothers, Alfred C. and Andrew Blair, to whom deep sympathy will be extended.

Rev. W. White, C.S.S.R.  
Word was received yesterday of the death in Pennsylvania of Rev. William White, a prominent member of the Redemptorist Order. Father White was rector of St. Peter's Church for several years, succeeding the late Rev. Father Cordue, C.S.S.R. He left here about seventeen years ago and went to

## ENJOYABLE CONCERT.

No. 1 Band of the Salvation Army gave an enjoyable concert in Charlotte street Citadel last night, under the direction of Bandmaster Sparks. Staff Captain Ritchie was chairman. The programme consisted of the following: Vocal solo, Commandant Heard; vocal quartette, the Sparks family; four bandmen, Messrs. Patterson, Curtis, Follett and Sparks; piano duets, Miss Pearl Ritchie and Miss Clara Vey; cornet solos, Miss Annie Bates, Kenneth Graham; song by the Jane family; piano solo, Clara Vey; musical item, Staff Captain Ritchie; mouth organ duet, Bandmen Patterson and Staff Captain Ritchie; cornet duet, Ensign Gregory and R. E. Bales; instrumental duet, Lloyd Elsworth and Myrtle Graham; selections by the band.

## Cuticura Soap Is Ideal for The Complexion

See Advertisement on Page 3, and in the Evening Times and Star, Wednesday, February 7, 1923.