

FIFTEEN MINUTES OF RADIO EACH DAY

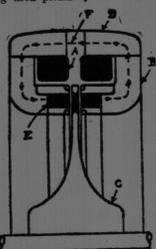
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Lesson No. 140.
THE GENERATION OF CONTINUOUS WAVES.

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Continuous or undamped waves may be produced by three different methods:

- (a) The Arc Generator.
- (b) The Vacuum Tube.
- (c) The High Frequency Alternator.

This article is concerned with the generation of continuous waves by the high frequency alternator of which there are several types, but the one of practical importance, used in the high powered radio transmitting stations of the United States, is the Alexanderson inductor type alternator. This type of alternator is adapted to wave lengths longer than 10,000 meters with corresponding frequencies of less than 30,000 cycles per second, these wave lengths being used primarily for trans-oceanic communication.



A section of the alternator developed by Dr. E. F. W. Alexanderson is shown in the accompanying diagram and a description, in part, of the mechanical construction has been given by Mr. Alexanderson as follows:

"The alternator is of the inductor type (that is, with stationary armature and field, but with a rotating element which causes a pulsating field to cut the armature conductors) and is provided with a novel arrangement to cut the magnetic circuit, allowing the construction of a rotor which can be operated at exceedingly high speeds. In the final form of the alternator, the rotor (C) consists of a steel disc with a thin rim and much thicker hub, shaped for maximum strength (that is, with a width that progressively diminishes from the shaft out so that the outward strain on the material because of centrifugal force is the same from the shaft to outer rim). The field excitation is provided by two coils (A) located concentric with the disc and creating a magnetic field the lines of force (E) of which pass through the cast iron frame (D) the laminated armature support (B) and (E) with its teeth and the disc (C). This flux also passes through the narrow air gaps on each side of the disc rotor, and is indicated in the diagram by the dashed line with arrows.

"(B) represents the two armatures which are secured in the frame by means of a thread, in order to allow an adjustment of the air gap, the laminations carrying the armature conductors being located at (E). Instead of poles, or teeth, the disc (C) is provided with slots which are milled through

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the thin rim so as to leave spokes of steel between the slots. The slots are filled with a non-magnetic material (phosphor bronze) which is riveted in place solidly, in order to stand the centrifugal force and to provide a smooth surface on the disc so as to reduce air friction. The centrifugal force on each slot filler is no less than 80 pounds at the high speed at which the machine is run."

An extremely valuable feature of this alternator is the comparative ease with which constant speed can be maintained. An alternator of this type used to provide energy for the transmission of trans-oceanic messages has a rated output of 200 kilowatts and is operated at a speed of 2170 revolutions per minute resulting in the generation of a frequency of 22,100 cycles per second and at full power delivers 600 amperes to the antenna.

The large amount of energy and the generation of alternating currents of 18,000 to 28,000 cycles per second make possible long wave lengths and a range of transmission of several thousand miles.

Alternators of this type are in operation at the present time at the powerful transmitting stations located at Rocky Point, Long Island, N. Y.; Tuckerton, N. J.; Marion, Mass., and New Brunswick, N. J., and transmit messages to various points on the European continent.

RECENT WEDDINGS

Johnson-Kelly.
A wedding of interest to many was solemnized at the Burden Baptist church, Prince William, (N. B.), on October 18, when Miss Edith Viola, youngest daughter of Mr. and Mrs. Luke Kelly, of Prince William, was united in marriage to Arthur Johnson, of Georgetown, by Rev. David Jones, of Prince William.

Among those present were the following: Mr. and Mrs. James Kelly, Mr. and Mrs. Alonso Kelly, Mrs. E. Kelly, Mr. and Mrs. R. G. Lee, Mr. and Mrs. Fenton Wood and daughters, Mr. and Mrs. Thomas Niles, of Fredericton; Mr. and Mrs. James McKinney, Mr. and Mrs. Philip McCartney, Mr. and Mrs. John Johnson and family, Mr. and Mrs. H. McKinney, Mr. and Mrs. E. R. Mullin, A. C. Page, R. N. Hainline, of St. John.

RECENT DEATHS

E. Ernest Cox.

News was received yesterday by relatives in this city of the death of E. Ernest Cox, after a short illness, at his home in Somerville (Mass.), on Oct. 28. The late Mr. Cox, who had been a resident of Somerville for the last fifteen years, was a son of Julius and the late Jane Cox, of Morell (P. E. I.). He is survived by his wife, who was a daughter of the late J. B. and Louise Belyea, of St. John; two sisters, Mrs. Heaney, wife of Rev. Jacob Heaney, of St. Stephen, and Mrs. R. N. Cox, of Charlottetown; also two brothers, William W. and Harry H. Cox, of Morell (P. E. I.). Interment will be made today at Hampton.

Rev. Charles F. Clark.

Rev. Charles F. Clark died on Wednesday evening in Weymouth, Mass., where he and his wife had been visiting. He held numerous charges in New Brunswick and the New England States as a minister of the Baptist church. He leaves his wife, two daughters and two sons. The sons are Edward, of Providence, and James, of Weymouth.

Mrs. John Baxter.

Mrs. Baxter, widow of Dr. John Baxter, whose death occurred in Toronto

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years residing in Ontario, she had always a warm affection for her native city and many old friends still live here. Interment took place in Thessalon, Ont., where her husband and children are buried. She is survived by a daughter, Miss Louise Baxter, and a son, Edward Irvine Baxter, both of Toronto, and two brothers, Alexander C. Jardine of St. John and Robert Jardine of Shediac, N. B.

Mrs. Annie J. Boyle.

The death of Mrs. Annie J. Boyle, widow of John Boyle, occurred last evening at her home, 47 Gilbert's lane. She was a daughter of the late John and Mary McCarron, of Kings county. She had been a resident of this city for some time.

She is survived by three daughters, Mary, Margaret and Clara, all at home, and one brother, John McCarron, of Norton.

A WOMAN BOOTLEGGER SENT TO JAIL

Baby in Arms Fails to Sway California Judge, Who Imposes 5 Month Term.

Los Angeles, Oct. 28—Mrs. Rose Pehro, who appeared in Federal Court with a baby in her arms, has been sentenced by Judge Benjamin F. Bledsoe to serve five months in the county jail for violation of the Volstead act.

The court remarked that women had been given the ballot and demanded all the rights of men, and that they should be given the same treatment as males. "If they have children and their relatives or friends will not take care of them, the city authorities will have to do so," said the court.

BULGAR MAID'S ROMANCE

Compelled to Marry and Beaten by Husband.

Toronto, Oct. 28—A chronological history of Yonka Vastloff, as given in the Women's Court, is as follows: Arrived from Bulgaria five weeks ago, married four weeks ago, and beaten by her husband a week after the ceremony. Yonka said she didn't like Paul Vastloff when she married him, but had been forced to do so. She had not seen him before her arrival in this country. Paul denied the assault. Yonka would not live with him under any consideration, and the case was adjourned a week to give her a chance to go to work.

30 YARDS RESCUE TUNNEL

Three Men Saved by Living Chain of Rescuers.

Newcastle, Oct. 28—A remarkable piece of mining engineering was responsible for the rescue after 48 hours imprisonment of three men from the F. Pit at Washington Colliery, near Newcastle.

The three men were cut off by a fall of stone and coal two days previously. Mr. Burt, the under-manager, decided that the only way to rescue them was by cutting a small tunnel through the fall, which was many yards in thickness. Helves of men worked until the entombed men were reached.

The tunnel was only 2 feet wide on the average, and had to be cut through the solid mass of stone and coal for 30 yards. The men lay in it chain fashion, passing out from hand to hand the debris as the first cut it away and similarly passing in the timbering necessary to prop up the sides and prevent further falls.

Two of the rescued men went to bed to recover from their ordeal, but the other went to his garden to dig vegetables for the Sunday dinner.

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- French Suede with Gauntlet, grey and fawn, \$3.50 to \$4.00 pair
- Washable Cape with Gauntlet, brown, beaver and grey, \$2.85 to \$4.75 pair
- Washable Doe with Gauntlet, in white, \$3.25 pair
- Wool Gloves, Short or Gauntlet
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- Misses' Gloves, Boys' Gloves
- Misses' Mittens, Boys' Mittens, Odd Lots, 50c. to \$1.50 pair.

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- Misses' Heather Hose,85c. to \$1.15
- Misses' Turn-top Hose,60c. to \$1.30
- Misses' Ribbed Cashmere Hose, 75c. to \$1.10
- Boys' Black Ribbed Hose, 65c. to \$2.00
- Boys' Golf Hose,60c. to 90c.
- Children's Bunny Hose,40c. to 75c.
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Hosiery Dept.—Annex

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- 5 DOZEN WOMEN'S COMBINATIONS, spring needle knitted wool, ankle or knee length. Price \$2.45 a Suit
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