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PHENOMENA OF RETARDATION IN THE INDUCTION COIL

William Stanley, Jr.

Vol. v—1888, pp. 97-108

Discussion of alternating current phenomena, comparison of efficiency and losses in alternating current and direct current generators; explaining the mode of operation of transformers, action of induction coil in series with arc lamps.

Discussion, pp. 108-134, by Messrs. Townsend Wolcott, William Stanley, Jr., Hubert Howson, S. S. Wheeler, P. H. Vander Weyde, George B. Prescott, Jr., C. O. Mailloux, E. W. Rice, Jr., T. C. Martin, Jos. Wetzler and J. W. Howell.

General remarks on the operation of alternating current apparatus. Reference to hysteresis. Description of auto-transformer. Difficulties experienced in parallel operation of alternating current generators. Mode of operation of synchronous motors.

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Harris J. Ryan

Vol. vii—1890, pp. 1-19

Account of experimental investigation of the performance of a transformer, describing the methods and apparatus employed. Wave form of e. m. f.'s load current and exciting current measured by point-by-point method. Efficiency and losses at different loads.

Discussion, pp. 19-29, by Messrs. Townsend Wolcott, H. J. Ryan, Nikola Tesla, A. E. Kennelly, William E. Geyer, Joseph Wetzler, C. O. Mailloux, E. G. Acheson and L. B. Stillwell.

Varying opinions as to cause of distortion in the exciting current wave.

SOME TESTS ON THE EFFICIENCY OF ALTERNATING CURRENT APPARATUS

Louis Duncan and W. F. C. Hasson

Vol. vii—1890, pp. 109-117

Brief description of the efficiency test made on 750-lamp Westinghouse a. c. generator and distribution transformers. Discussion of effect of all-day efficiency upon system using large number of small transformers.

Discussion, pp. 118-127, by W. A. Anthony, Nikola Tesla, H. Ward Leonard, S. S. Wheeler, Louis Duncan, O. T. Crosby, Frederick Darlington, John Millis, Townsend Wolcott, M. I. Pupin, and J. B. Entz.

General remarks on transformer design. Comparative efficiency of direct-current with alternating-current distribution system.

PRACTICAL ASPECTS OF THE ALTERNATING CURRENT THEORY

M. I. Pupin

Vol. vii—1890, pp. 204-217

Brief résumé of the development of fundamental laws of electricity, giving the discoveries of the laws and the date of discovery. Mathematical consideration of the ideal transformer.

Discussion, p. 287, by Messrs. O. T. Crosby, M. I. Pupin and Elihu Thomson.

EFFICIENCY OF THE TRANSFORMER**Calvin Humphrey and William H. Powell**

Vol. vii—1890, pp. 311-323

Experimental investigation of the exciting current wave form under various kinds of loads. Full load and all-day efficiency of 40-lamp transformer.

Discussion, incorporated with that of paper by Harris J. Ryan on "Some Experiments Upon Alternating Current Apparatus."

SOME EXPERIMENTS UPON ALTERNATING CURRENT APPARATUS**Harris J. Ryan**

Vol. vii—1890, pp. 324-336

Experimental investigation of the effect of external heating upon transformer core losses. Exciting current wave form and hysteresis loops under different conditions of magnetization.

Discussion (including that of paper by Messrs. Calvin Humphrey and William H. Powell on "Efficiency of the Transformer"), pp. 336-342, by Messrs. W. E. Geyer, H. J. Ryan, Louis Bell, William H. Powell, Townsend Wolcott, William Stanley, Jr., Joseph Wetzler, and Charles P. Steinmetz.

HEDGEHOG TRANSFORMER AND CONDENSERS**Frederick Bedell, K. B. Miller, and G. F. Wagner**

Vol. x—1893, pp. 497-518

Description of point-by-point method of measuring wave form by means of Bedell-Ryan revolving contact maker. Complete reference covering history of development of point-by-point method. Description of hedgehog transformer and account of performance tests made with current and e. m. f. wave meters. Study of the effect of condensers on line current.

Discussion, pp. 519-527, by Messrs. A. E. Kennelly, M. I. Pupin, Charles E. Emery, Frederick Bedell, and Charles P. Steinmetz.

General remarks on performance of ordinary hedgehog transformer. Observed dielectric hysteresis loop.

PRACTICAL PROPERTIES OF POLYPHASE APPARATUS**Louis Bell**

Vol. xi—1894, pp. 3-31

General résumé of the important characteristics of the various elements that make up a polyphase system—generators, synchronous and induction motors, transformers, synchronous converters, and the line. Choice of frequency and voltage for transmission.

Discussion, pp. 32-48, by Messrs. Louis Bell, William Stanley, Charles P. Steinmetz, O. T. Crosby, C. O. Mailloux, Frederick Darlington, and M. I. Pupin.

THEORY OF THE GENERAL ALTERNATING CURRENT TRANSFORMER**Charles P. Steinmetz**

Vol. xii—1895, pp. 245-256

Fundamental equations of the transformer and induction motor.

Discussion, pp. 256-259, by Messrs. M. I. Pupin and Charles P. Steinmetz.

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PHASING TRANSFORMERS

Charles S. Bradley Vol. xii—1895, pp. 505-517

Development of phase splitting device for operation.

Discussion, pp. 518-524, by Messrs. Charles E. Emery, Nelson W. Perry, Charles S. Bradley, Louis Duncan, Joseph Sachs, W. E. Geyer, A. E. Kennelly, Cary T. Hutchinson, F. N. Waterman and W. M. Stine.

Description of contact method of observing wave form.

AN ANALYSIS OF TRANSFORMER CURVES

Charles K. Huguet Vol. xiii—1896, pp. 207-216

Analytical and experimental study of the cause of distortion of exciting current.

Discussion, pp. 216-221, by Messrs. A. E. Kennelly, E. L. Nichols, C. P. Steinmetz, C. K. Huguet, C. T. Rittenhouse, C. A. Adams, Jr., E. E. Ries and C. F. Scott.

Relation of hysteresis to distortion of exciting current.

A NEW FORM OF INDUCTION COIL

Elihu Thomson Vol. xiv—1897, pp. 225-226

Description of apparatus.

Discussion, p. 230, by Messrs. A. E. Kennelly and Elihu Thomson.

THE STANDARDIZING OF GENERATORS, MOTORS AND TRANSFORMERS

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Topical discussion of the advantages of standardization and the proposed scope of rules to be formulated by the Institute.

ALTERNATING CURRENT TRANSFORMERS FROM THE STATION MANAGER'S VIEWPOINT

W. F. White Vol. xv—1898, pp. 505-514

Presentation of the advantages of a single large transformer over a number of smaller ones. Experience as to the actual savings in favor of the single transformer.

No discussion.

THE DESIGN OF TRANSFORMERS

Frederick W. Carter Vol. xv—1898, pp. 639-700

Analytical study of transformer design with development of equations for determining the dimensions so as to give maximum all-day efficiency.

Discussion, pp. 701-717, by Messrs. M. I. Pupin, W. S. Franklin, Townsend Wolcott, Walter S. Moody, A. E. Kennelly, Filippo Torchio, F. V. Henshaw, James Hamlet, F. W. Carter and D. C. Jackson.

General remarks on calculation of transformer design.

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SERIES ARC LIGHTING FROM CONSTANT CURRENT TRANSFORMERS

William Lispenard Robb

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Description of constant current transformer installation in Hartford, Conn. Results of performance tests.

Discussion, pp. 541-596, by Messrs. C. P. Steinmetz, J. H. Hallberg, Robert Fleming, C. O. Mailloux, W. L. Robb and H. H. Wait.

General remarks on alternating versus direct enclosed arc lamps. Comparative costs and cost of operation of various methods of arc lighting.