

12. TRANSMISSION

LONG DISTANCE TRANSMISSION FOR LIGHTING AND POWER

Charles F. Scott

Vol. ix—1892, pp. 425-442

Description of alternating current lighting plants installed by Westinghouse Company at Portland, Ore., and Telluride, Colo.

Discussion, pp. 442-444, by Messrs. H. Ward Leonard, Carl Hering, C. S. Bradley and E. A. Sperry.

IMPEDANCE

A. E. Kennelly

Vol. x—1893, pp. 175-216

Development of crank diagram and explanation of the use of vector impedance diagrams. Tables giving impedance factors for iron wires with different currents. Impedance factors of copper wires with different spacing and frequencies from 40 to 140 cycles per second. Appendices: Development of formula for inductance of parallel wires. Measurement of impedance factors for three parallel wires. Analysis of periodic wave into harmonic components.

Discussion, pp. 217-232, by Messrs. W. J. Hammer, Douglass Burnett, T. D. Lockwood, M. I. Pupin, A. E. Kennelly, William E. Geyer, C. S. Bradley, Frank J. Sprague and C. P. Steinmetz.

Explanation of the method of using complex quantities.

PRACTICAL ASPECTS OF LOW FREQUENCY ELECTRICAL RESONANCE

M. I. Pupin

Vol. x—1893, pp. 370-394

Mechanical analysis of resonance phenomena. Account of experimental study of electrical resonance determining the relation between e. m. f. rise and the various factors of the circuit, bringing out the practical bearing of low-frequency electrical resonance.

Discussion, pp. 395-399, by Messrs. N. Tesla and M. I. Pupin.

Description of thermo-magnetic generator.

RESONANCE IN ALTERNATING CURRENT LINES

E. J. Houston and A. E. Kennelly

Vol. xii—1895, pp. 133-157

Representation of current and e. m. f. in alternating-current circuits with hyperbolic functions; graphical time-saving method. Theoretical investigation of effects of capacity and inductance upon the transmission characteristics of a given line.

Discussion, pp. 158-169, by Messrs. Charles S. Bradley, M. I. Pupin, Arthur G. Webster, Charles Cuttriss, A. E. Kennelly and William Maver, Jr.

General remarks on the use of hyperbolic functions in alternating-current calculations.

LONG-DISTANCE TRANSMISSION AT 10,000 VOLTS

George Herbert Winslow

Vol. xii—1895, pp. 405-432

Description of the Pomona Plant of the San Antonio Light & Power Company, covering hydraulic equipment for very high head, power plant, transmission line and substation.

No discussion.

PRESENT STATUS OF THE TRANSMISSION AND DISTRIBUTION OF ELECTRICAL ENERGY

Louis Duncan

Vol. xiii—1896, pp. 295-312

Review of current practice in the design and operation of generating plants, transmission lines and distribution systems for direct current and alternating current, followed by suggestions as to the possible limits of voltage and distance in transmission.

Discussion, pp. 312-323, by Messrs. C. P. Steinmetz, Townsend Wolcott, Robert Lamb, E. E. Ries, N. W. Perry, J. G. White and Louis Duncan.

General remarks on transmission and distribution.

POWER TRANSMISSION AND DISTRIBUTION FOR RAILWAY WORK

Ernst J. Berg

Vol. xv—1898, pp. 379-401

Analytical study of the voltage regulation in a railway distribution system, bringing out the effect of circuit constants upon the e. m. f. characteristics of generators and synchronous converters.

No discussion.

HIGH-VOLTAGE POWER TRANSMISSION

Charles F. Scott

Vol. xv—1898, pp. 531-576

Account of experience and tests made upon the high-tension system at Telluride. Experience covering insulators, corona loss, transformers and lightning protection. Results of Mershon's tests upon corona losses, together with extensive extracts from his report.

No discussion.