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AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS
33 WEST THIRTY-NINTH STREET
NEW YORK



TELEPHONE PENNSYLVANIA 9220
CABLE, CYANDRIC

ARTHUR EDWIN KENNELLY

Arthur Edwin Kennelly was born at Colaba, near Bombay, East India, December 17, 1861. He was educated at private schools in Great Britain (including the University College, London), and in France and Belgium.

At an early age Dr. Kennelly became interested in electricity and after beginning as a telegraph engineer his interests gradually broadened until they covered all of the various branches of electrical engineering. In 1875 he entered the office of the Society of Telegraph Engineers (now Institution of Electrical Engineers), London, as Assistant Secretary. In 1876 he entered the Eastern Telegraph Company, remaining until 1886 in the capacities of Operator, Assistant Electrician and finally Senior Ship-staff Electrical Engineer on submarine cables. From 1887 to 1894 he was associated with Thomas A. Edison as principal Electrical Assistant. In 1893 he was Consulting Electrician to the Edison General Electric Company and to the General Electric Company of New York. From 1894 to 1901 he was a member of the firm of Houston and Kennelly, Consulting Electrical Engineers. In 1902 he had charge of laying various submarine cables for the Mexican Government.

From 1902 until the present time he has been Professor of Electrical Engineering at Harvard University. In addition, from 1913 to 1923 he was Professor of Electrical Communication and Director of Electrical-Engineering Research at Massachusetts Institute of Technology and from 1916 to 1918 was Chairman of the Faculty at the same Institution. During 1918 he was Civilian Liaison Officer for the Signal Corps of the United States Army in France. He was chosen as the first exchange professor in engineering and applied science at several French universities by seven cooperating American universities in 1921-1922.

Dr. Kennelly has published some twenty-eight books of which he is sole author of ten, included in which are: "Theoretical Elements of Electro-Dynamic Machinery", "Wireless Telegraphy", "Electrical Vibration Instruments", "Electric Lines and Nets", and several on hyperbolic and other complex functions.

Perhaps Dr. Kennelly's most important works are contained in his papers, numbering over 300, many of which have been presented before leading scientific and technical organizations here and abroad, and have received wide distribution in technical publications.

One of his chief contributions to applied science is a paper on "Impedance" presented in 1893 before the American Insti-

tute of Electrical Engineers, containing the first use of complex numbers in engineering. He has also presented numerous other papers on the same general subject, many of which contain the first applications of complex and hyperbolic functions to the problems of power and communication engineering and to artificial networks.

Dr. Kennelly, in 190³, expounded a theory on the Influence of Solar Ionization in the Atmosphere on Long-Distance Radio Transmission which has since been verified experimentally and has resulted in the naming of the so-called ionized layer of reflection, the Kennelly-Heaviside layer.

He has also published important papers on "Reluctance of Magnetic Metals", "Electric Heating", "Electric Illumination", "Telephony", "Harmonic Analysis", "Athletics and Physiology", and other subjects.

Dr. Kennelly is a member of the following organizations: Fellow and Past President, American Institute of Electrical Engineers; Past President, Illuminating Engineering Society; Past President, Institute of Radio Engineers; Past President, American Metric Society; Honorary Member, Institution of Electrical Engineers, London, of National Electric Light Association, of the Société Française des Electriciens, Paris; and, American Electrotherapeutic Association; Fellow, Royal Astronomical Society, London; Member, National Academy of Sciences, American Philosophical Society, American Mathematical Society, American Physical Society, American Association for the Advancement of Science, Chairman of its Engineering Section; Member and a Vice President of the American Academy of Arts and Sciences; and many others.

Dr. Kennelly has served on many committees of scientific and technical organizations, of a national and international character. He has had conferred upon him honorary degrees as follows: Doctor of Science in 1895 by the University of Pittsburgh, Master of Arts in 1906 by Harvard University, Doctor of Science in 1922 by the University of Toulouse, France, and has received the following medals and awards; Institution Premium in 1887 and the Fahie Premium in 1889 from the Institution of Electrical Engineers, London; Longstreth silver medal in 1916 and Howard-Potts gold medal 1917 from the Franklin Institute, and the Cross of a Chevalier of the Legion of Honor of France.
